

Proceedings of a Conference  
held in Sydney on 29 November 2007

***PAYMENTS SYSTEM  
REVIEW CONFERENCE***



Reserve Bank of Australia



MELBOURNE  
BUSINESS  
SCHOOL

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# PAYMENTS SYSTEM REVIEW CONFERENCE

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# INTRODUCTION

*Ian Harper and Philip Lowe<sup>†</sup>*

This conference was held as part of the Reserve Bank's 2007/08 Review of the Payments System Reforms. It was held in Sydney on 29 November 2007, and was jointly organised by the Reserve Bank of Australia and the Centre for Business and Public Policy at the Melbourne Business School.

The conference was designed to bring together a wide range of parties to discuss the reforms of recent years and how best to move forward. It was attended by around 90 invited participants, drawn from financial institutions, payment schemes, industry bodies, merchants, consultants, academia and public policy institutions. All members of the Payments System Board also attended.

The conference was in two parts. The first part comprised commissioned papers which together examined three key issues for the Review:

- (i) lessons from recent academic literature on payment networks, in particular, about the appropriate configuration of interchange fees across payment systems;
- (ii) the extent to which changes in scheme rules and other aspects of card payment systems might add to competitive forces acting on interchange fees, and how such changes might affect the case for regulation; and
- (iii) the costs of the main payment methods (including cash) in Australia and the way in which these various payment methods are used by individuals.

The second part of the conference took the form of a pair of open forums, moderated by Professor Ian Harper of the Melbourne Business School, discussing interchange regulation and access and innovation in the Australian payments system. Prior to the conference, Professor Harper sought the views of all participants on how these forums should best be conducted and, following this consultation, a number of participants were asked to provide introductory remarks for the sessions.

## **The Academic Literature**

When the Reserve Bank first introduced regulations on credit card interchange fees in 2002 there was little relevant academic research, particularly in the context of competing payment systems. At that time, the literature focused on the appropriate level of interchange fees in a payment system where the only alternative was cash. More recently, the literature has begun to consider multiple competing payment systems, each with its own interchange fee. This is

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more relevant to the policy issues facing the Reserve Bank, particularly given the substantially different interchange fees in the credit card and EFTPOS systems in Australia.

Professor Jean-Charles Rochet of Toulouse University was invited to summarise the main findings of this recent literature. His paper notes that the academic work dealing with multiple competing payment systems is still in its infancy and faces a number of challenges. The conditions characterising efficient use of various payment methods are complex and multiple distortions exist in the payments system. Nevertheless, Professor Rochet's paper suggests a number of tentative policy-relevant conclusions. These include: (i) that there are solid theoretical grounds why a pricing structure in which merchants bear more of the costs of payments than do consumers might be socially optimal; (ii) that card schemes and banks may have an interest in inflating credit card interchange fees, given that issuers' profits appear to increase as interchange fees rise; (iii) that interchange fees may be needed not only in developing payment systems but also in mature systems; and (iv) that there may be a case for capping the difference between credit and debit card interchange fees to discourage overuse of credit cards by individuals not seeking credit.

## **Alternatives to Interchange Regulation – Removing Restrictions on Merchants**

One issue facing the Reserve Bank is whether there are alternatives to interchange regulation as a means of achieving its objectives. A number of industry participants have argued that the regulation of interchange fees is unnecessary, provided other aspects of the payments system are addressed, including the removal of various restrictions on merchants and improved transparency. As part of its reforms, the Reserve Bank has sought to promote soundly based competition by requiring credit card schemes to remove their no-surcharge rules and to modify their 'honour all cards' rules, and requiring the publication of interchange fees. At issue is the extent to which these changes have heightened competition, and whether further changes in the same direction might serve as an alternative to regulating interchange fees.

Dr Alan Frankel of Lexecon was invited to examine the case for interchange regulation and, in particular, whether other changes in the payments system might promote competition and reduce the need for regulation. He concludes that mandatory interchange fees should be eliminated and replaced by a system in which such fees are set through mutually voluntary contracts. The paper also discusses a variety of restrictions that payment systems can place on merchants (and other participants in the payment system) that effectively limit competition. In addition to the restrictions previously identified by the Reserve Bank, the paper discusses the possibility of a significant change in the structure of the industry that would allow merchants, rather than cardholders, to choose the network over which a payment is processed. Such a structure has the potential to significantly change the nature of the competitive forces acting on payment schemes.

## **Costs and Payment Patterns**

A major consideration in the Reserve Bank's original decision to regulate credit card interchange fees was that for many cardholders the effective marginal price of a credit card transaction was

much less than the effective price of an EFTPOS transaction, despite the EFTPOS system having lower underlying resource costs. As part of the Review, both the Reserve Bank and a number of industry participants considered it important that the differences in costs between the two systems be re-examined. In addition, given the wide ranging nature of the Review, it was also thought appropriate to examine the costs associated with a range of other payment methods, most importantly cash.

Another consideration in the Reserve Bank's original decision was the assessment that, in many situations, credit and debit cards are close substitutes for one another and that, as a result, price signals to consumers could have a significant influence on payment patterns. It has also been noted that for many payments, cash is a ready substitute for card-based payments. Given the limited existing information on how various payment methods are used, the Reserve Bank, as a further input into the Review, undertook an extensive study of how individuals make their payments.

The results of both these studies were presented and discussed at the conference.

The key findings are:

- the aggregate costs incurred by merchants and financial institutions for payments made by individuals amount to at least 0.8 per cent of GDP;
- cash appears to be the lowest cost payment instrument for the small transaction sizes for which it is typically used;
- the resource costs involved in credit card transactions are significantly higher than for EFTPOS transactions, even after excluding those costs associated with the credit function. This is due primarily to costs incurred by issuers of credit cards (associated with fraud and fraud prevention, and with operating an international scheme);
- cash is the most widely used payment instrument in Australia, accounting for around 70 per cent of transactions made by individuals; and
- cards are the main payment method for transactions between around \$50 and \$500, with credit card use increasing relative to debit card use as the size of payments increases.

## **The Reforms – Possible Ways Forward**

The first of the open forums was devoted to interchange fees. The discussion was introduced by Leigh Clapham of MasterCard, Paul Rickard of the Commonwealth Bank, and Douglas Swansson of Coles Group. The discussion was wide ranging, with a variety of perspectives presented.

Some saw a strong case for continued regulation of interchange fees, arguing that the reforms have delivered gains in competition and efficiency and that these would be lost if regulation was abandoned. Some went further arguing that interchange fees in all payment systems should be abolished, and that cardholders should not be 'subsidised' by merchants (through interchange fees) when using various payment methods. An alternative perspective was that interchange regulation could be removed given that the competitive environment has changed in recent years, owing to increased transparency and the removal of various restrictions on merchants. It was also argued that the case for allowing the international card schemes to once again set

interchange fees would be strengthened by the development of an EFTPOS scheme (to replace the existing bilateral arrangements) and the establishment of a transparent methodology by industry for the setting of interchange fees. Other participants, however, questioned the practicality of the industry agreeing upon a methodology and no concrete proposals were offered.

Finally, another perspective was that the regulation of interchange fees has not met its objectives and should be unwound. Participants expounding this view argued that the reforms have simply resulted in a transfer from cardholders to merchants and that merchants are using their increased power to exploit customers through high surcharges. Furthermore, it was argued that there has been no change in payment patterns resulting from the reforms.

The second open forum was devoted to access and innovation in Australia's payments system. The discussion was opened by Geoff Bebbington of National Australia Bank and Manuel Garcia of Indue. Once again the discussion was broad ranging, with widely divergent views expressed as to the best way forward and the role of the Reserve Bank.

Some argued that the Bank's regulatory intervention in card markets has created uncertainty about the returns from investment, thereby inhibiting innovation. In particular, the Bank's credit card interchange fee reductions were claimed to have delayed or prevented desirable innovations by reducing the revenue stream to issuing institutions. Others, however, suggested that lower interchange fees may promote innovation if the bulk of required investment is on the acquiring side, and disputed that the Bank's regulatory actions had been responsible for any reduction in investment in Australia's credit card or EFTPOS systems.

It was also argued that new (and especially small) institutions are often the primary source of innovation in networks and that, by improving access to Australia's card payment systems, the Reserve Bank has enhanced the prospects for development of new products in these systems. Some countered this view by suggesting that the Bank's access reforms have had little practical effect. Others, however, stated that these reforms have been important to their own institutions, and that any stepping back from the full suite of regulations by the Bank would undermine their capacity to compete.

## Summary

The conference generated a lively and useful discussion of many of the key issues for the Reserve Bank's Review of the Payments System Reforms. Although widely divergent views continued to be expressed about the appropriate regulatory role for the Reserve Bank, the debate informed ongoing deliberations of the Payments System Board about the way forward. Both the Reserve Bank and the Melbourne Business School would like to thank all those who assisted with the planning and running of the conference and those who participated, especially those who prepared the papers reproduced in this volume.

# COMPETING PAYMENT SYSTEMS: KEY INSIGHTS FROM THE ACADEMIC LITERATURE

*Jean-Charles Rochet*<sup>†</sup>

## Abstract

Most of the academic literature on retail payment systems focuses, for tractability reasons, on the case of a single payment system. However, a more realistic situation is one where several systems compete and where consumers have the choice between several means of payment (debit card, credit card, charge card, cheque, transfer, ...). This article summarises the small literature that has modelled such a situation of competition between different systems. We derive some predictions about the competitive determination of user prices, consumer surplus and social welfare. We suggest some policy implications and also some possible directions for academic research.

## 1. Introduction

The fantastic development of payment card networks all over the world, together with the numerous interventions of courts of justice, regulators and competition authorities in their functioning, have recently prompted the development of a sizeable academic literature on the topic. After the antitrust literature initiated by Baxter (1983),<sup>1</sup> several formal models of the payment card industry have been developed,<sup>2</sup> allowing a rigorous analysis of the impact of interchange fees on user fees and volumes in payment networks. For tractability reasons, this literature has focused on the case where a single payment system is available as an alternative to cash payments.

However, in practice, consumers have the choice between several non-cash payment instruments (debit cards, credit cards, charge cards, cheques, direct debit, ...) and several networks compete for providing each of these instruments. It is therefore important to extend the basic model developed in the academic literature described above to a more realistic situation of competition between several payment systems. This is a delicate task that has only been undertaken in very few articles. The objective of this note is to summarise the key insights that can be obtained from these few articles, and to suggest some policy recommendations that can be derived from these key insights. I also indicate some directions of future research that would be useful to explore for providing better guidance to public decision makers.

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<sup>1</sup> *See in particular Carlton and Frankel (1995), Evans and Schmalensee (2005), Frankel (1998), Chang and Evans (2000), and Farrell (2006).*

<sup>2</sup> *See in particular Schmalensee (2002), Rochet and Tirole (2002, 2006 and 2007), Wright (2003, 2004), Gans and King (2003) and McAndrews and Wang (2006).*

The rest of this note is organised as follows. Section 2 recalls the analysis of a single payment system. Section 3 discusses the case of competing networks providing the same type of payment instrument. Section 4 considers the case where multiple payment methods are available. Finally, Section 5 examines several policy questions such as: is there a basis for price regulation in retail payment networks? Or does the optimal interchange fee tend to zero when a payment system matures?

## 2. A Single Payment System

This section presents the economic analysis of the impact of interchange fees when a single payment system is available, as an alternative to cash payments. Baxter's seminal analysis is presented in Subsection 2.1: if banks and retailers were perfectly competitive, efficiency of cards usage could be obtained when the interchange fee is set at a certain level  $a_0$  (which we call Baxter's level). In a perfectly competitive world, this outcome could also, in principle, be reached (independently of the level of the interchange fee) by allowing retailers to surcharge card payments since they would exactly pass to consumers the net costs they incur from card payments (perfect surcharging). However, in practice, banks and retailers are not perfectly competitive: banks charge more than their marginal costs, and retailers do not surcharge perfectly. The consequences of imperfect competition between banks and between retailers are analysed in Subsection 2.2. Subsection 2.3 considers some extensions of the basic model and implications for price regulation.

### 2.1 Baxter's benchmark: perfectly competitive banks and retailers

Payment systems have the peculiarity that they provide a joint service to two users (the payer and the payee, whom I will call for simplicity the buyer and the seller). The socially efficient payment instrument is the one that minimises the sum of the net costs<sup>3</sup> of all participants involved in the transaction. In the simple case where there is a unique card payment system<sup>4</sup> (providing the only alternative to cash payments), social efficiency is easily characterised by comparing the incremental costs (card vs cash) of the different participants. In a four-party system these participants are the buyer ( $B$ ), the seller ( $S$ ), the issuer of the card ( $I$ ) and the acquirer of the payment ( $A$ ). Following the notation used by Rochet and Tirole (2002) let us denote by  $b_B$  and  $b_S$  the 'benefits' of a card payment for the buyer and the seller (equal by definition to the differences between the cost of a cash payment and that of a card payment) and by  $c_I$  and  $c_A$  the marginal 'costs' of a card payment (equal by definition to the differences between the cost of a card payment and that of a cash payment) for the issuer and the acquirer.

A card payment is socially efficient for a particular transaction if and only if the sum of users' benefits exceeds the sum of providers' costs:

$$b_B + b_S \geq c_I + c_A. \quad (1)$$

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<sup>3</sup> By net cost I refer to the difference between the cost and any benefit that might be associated with the user of a payment instrument. In all this article, 'cost' means 'net cost' and 'benefit' means 'negative cost'.

<sup>4</sup> Following the seminal contribution of Baxter (1983), the economic analysis of this case (monopoly card scheme) is due to Rochet and Tirole (2002) and Wright (2003, 2004).

Baxter (1983) was the first to emphasise that, even when there is perfect competition between banks (implying that user prices equal marginal costs on each side of the market) card usage can be socially inefficient. Indeed, provided that the seller accepts card payments, the buyer will choose to pay by card when his benefit exceeds the transaction fee  $p_B$  he faces. When issuers are perfectly competitive, this transaction fee is equal to the issuer's marginal cost  $c_I$ :

$$b_B \geq p_B = c_I. \quad (2)$$

Comparing with Condition (1), Baxter concludes that social efficiency of card usage requires an interbank transfer (the interchange fee) from the acquirer to the issuer, equal to:

$$a_0 = b_S - c_A. \quad (3)$$

In such a way, the issuer's marginal cost becomes  $c_I - a_0$  and the buyer chooses to pay by card whenever

$$b_B \geq c_I - a_0 = c_I + c_A - b_S,$$

which is equivalent to the Social Efficiency Condition (1). The interchange fee  $a_0$  (which can be positive or negative, according to the values of  $b_S$  and  $c_A$ ) restores efficiency of card usage.

Rochet and Tirole (2006c) and Farrell (2006) show that the same reasoning can be recast in terms of the usage externality that characterises payment systems, due to the fact that, although the choice of the payment means affects both users, only one of them (typically the buyer) makes this choice. By choosing to pay by cash (instead of card) the buyer increases the cost of the seller (or increases his benefit) by  $b_S$ , and reduces the cost of the acquirer by  $c_A$ . The usage externality is therefore perfectly internalised by the buyer whenever the buyer's fee is reduced by  $b_S - c_A$ .

Carlton and Frankel (1995) point out that, in Baxter's perfectly competitive world, perfect surcharging by sellers is an equivalent way to internalise the usage externality. Indeed if sellers charge different retail prices,  $p_{CASH}$  for cash payments and  $p_{CARD}$  for card payments, the buyer will choose a card payment whenever the gross benefit  $b_B$  of a card payment for the buyer exceeds the sum of the buyer fee  $p_B$  and the card surcharge  $p_{CARD} - p_{CASH}$ :

$$b_B \geq p_B + p_{CARD} - p_{CASH}.$$

When  $p_B = c_I$  (competitive issuers) and  $p_S = c_A$  (competitive acquirers), this condition is equivalent to the Social Efficiency Condition,  $b_B \geq c_I + c_A - b_S$ , whenever

$$p_{CARD} - p_{CASH} = p_S - b_S.$$

which means that the card surcharge should equal the net cost inflicted on the merchant by the decision to pay by card. This condition, which is called 'perfect surcharging', is obtained when there is perfect competition among retailers. It does not seem to be satisfied in practice (see below).

## 2.2 Introducing imperfect competition between banks and between retailers

Baxter's competitive benchmark is at odds with reality in several respects. In particular, banks and retailers are not perfectly competitive: they typically charge mark-ups over marginal costs, if only for covering their fixed costs. Moreover user prices do not typically react one-for-one to variations in interchange fees. The Reserve Bank of Australia (RBA) reforms in Australia are a good illustration of this fact. Although the reduction in interchange fees for credit cards was passed approximately one-for-one into merchant service charges by acquirers, the impact on cardholder fees was only a fraction of the reduction in issuers' revenue, while retail prices were not significantly affected (Chang, Evans and Garcia Swartz 2005).<sup>5</sup> Moreover surcharging by Australian merchants (which has been possible since 2002) is far from perfect: very few retailers surcharge,<sup>6</sup> and those who do sometimes surcharge more than their incremental cost of card payments.<sup>7</sup>

In order to capture these features, Rochet and Tirole (2002) have developed the first fully-fledged model of an imperfectly competitive payment card industry, allowing a comparison between privately optimal and socially optimal interchange fees. They assume that issuers have market power while acquirers are perfectly competitive. Retailers are also imperfectly competitive: their decision to accept cards or not takes into account the impact of this decision on the attractiveness of their store to the customer. Rochet and Tirole (2002) show that socially optimal interchange fees are very difficult to determine, since their influence on user fees and retail prices is quite complex in an imperfectly competitive world. For example, imperfect competition between issuers implies that cardholder fees  $p_B$  are higher than issuers' net marginal cost:

$$p_B = c_I - a + m, \quad (4)$$

where  $a$  is the level of the interchange fee while  $m$  denotes the profit margin of the issuer.<sup>8</sup> Social efficiency of card usage is obtained where buyers receive the correct price signal:

$$p_B = c_I + c_A - b_S. \quad (5)$$

Comparing with Equation (4), we see that the interchange fee  $a^*$  that internalises perfectly the usage externality is higher than Baxter's interchange fee  $a_0$ :

$$a^* = b_S - c_A + m > b_S - c_A = a_0.$$

This is because social efficiency requires that the buyer does not internalise the issuers' margin  $m$ . However, this condition implies that sellers pay more than their direct benefit  $b_S$  from

<sup>5</sup> The RBA has a different view on this issue: it considers that Australian retailers did in fact pass on to consumers the reductions in merchant service charges but that these price changes were too small to be detected (see Lowe (2006)).

<sup>6</sup> In a survey of Australian merchants commissioned by the RBA, it appears that '17 per cent of very large merchants... surcharge' but that 'surcharging by smaller firms is less common'. However the RBA observes that the number of surcharging merchants has increased over time: see Reserve Bank of Australia (2007).

<sup>7</sup> See for example Reserve Bank of Australia (2007), where Graph 12 shows that the merchant service fees charged on open system cards were significantly below 1 per cent, which is the average surcharge found in the survey of merchants cited in Footnote 6 above.

<sup>8</sup> This margin  $m$  may be itself a function of the issuer net cost ( $c_I - a$ ).

card payments. This is because the merchant service charge  $p_S$  cannot be lower than acquirers' total cost  $c_A + a^*$ :

$$p_S \geq c_A + a^* > c_A + a_0 = b_S . \quad (6)$$

Rochet and Tirole (2002) show that, in spite of Condition (6), retailers may still be willing to accept card payments. This is because the option to pay by cards is attractive to their customers and may therefore increase the merchant's volume of sales for a given retail price. Rochet and Tirole (2002) consider a particular model of the retail sector (Hotelling model with full market coverage) where total retail demand is fixed. In this case, card acceptance only increases a retailer's volume of sales at the expense of his competitors. This is a pure business stealing effect: retailers' equilibrium profit is the same whether they accept cards or not. However Wright (2003, 2004) shows that the result holds true in more general models of the retail sector (monopoly, Cournot competition, ...). In all these models the maximum fee that retailers are ready to accept for card payments is  $b_S + v_B$ , where  $v_B$  represents cardholder surplus, equal to the increase in quality of service for customers, associated with the possibility to pay by cards. Since banks' profits typically increase with the level of the interchange fee (IF), a monopoly network will select the maximum IF,  $a_m$ , that is compatible with merchant acceptance:

$$c_A + a \leq b_S + v_B \Leftrightarrow a \leq a_m = b_S - c_A + v_B .$$

$a_m$  is clearly higher than Baxter's IF ( $a_0 = b_S - c_A$ ) but may be higher or lower than  $a^* = a_0 + m$ . Thus there are two cases:

- if  $m > v_B$  (high margins/low cardholder surplus),  $a^*$  is too high to be accepted by merchants, and the (second best) socially optimal IF is equal to the monopoly IF  $a_m$  ;
- if  $m < v_B$  (low margins/high cardholder surplus),  $a^*$  is attainable and the monopoly IF  $a_m$  is strictly higher than the socially optimal IF  $a^*$ .

Thus the basic conclusions to be drawn from the fully-fledged economic model of a single payment system are the following:

- the socially optimal IF is higher than Baxter's IF level due to imperfect competition between issuers; and
- the privately optimal IF either coincides with the socially optimal IF (when issuer margins are higher and/or cardholder surplus is low) or it is too high (when issuer margins are low and/or cardholder surplus is high).

### 2.3 Extensions of the basic model and implications for price regulation

The results of Rochet and Tirole (2002) seem to suggest that a monopoly payment card system will never set IFs at a lower level than the social optimum. However, this feature is not robust: in general privately optimal IFs can be either too high or too low. For example, Wright (2003) considers the case where IFs cannot be differentiated perfectly for different types of retailers. In this case merchant acceptance of cards is elastic with respect to the merchant service charge,  $p_S$ , which increases merchant resistance.<sup>9</sup> The monopoly IF may be higher or lower than the socially

<sup>9</sup> In this case the socially optimal IF is characterised by equality between cardholder surplus  $v_B$  and retailer surplus  $v_S$ : see Rochet (2003) for details.

optimal IF, which illustrates well that although a monopoly association will not in general select the socially optimal IF, there is no systematic bias: the monopoly IF can be lower or higher than the socially optimal IF, according to the value of some parameters (such as user surplus and elasticities of card payment volumes) that are very difficult to estimate empirically.

Gans and King (2003) show that when retailers surcharge perfectly, the level of IFs becomes neutral (in the sense that it does not impact card usage). In this case, a regulation of IFs has thus no impact on the volume of card transactions. Gans (2007) argues that this result is more general: he claims that in spite of the fact that relatively few Australian retailers do actually surcharge, the regulation of IFs by the RBA had essentially no impact.

Farrell (2006) argues that the target for a Competition Authority (as opposed to a regulator like the RBA) should be consumer surplus and not social welfare. In a first approximation (assuming that banks' margins do not vary too much with their costs), the level of the IF that maximises consumer surplus is such that retailers are indifferent as to the choice of the payment instrument (card or cash) by the consumer.<sup>10</sup> This level is always below the monopoly IF  $a_m$ .

Finally, it is interesting to analyse the levels of user prices obtained when the monopoly platform is for-profit, and to compare these levels with the ones associated with a not-for-profit association, which we have just characterised. As can be expected the overall level of prices (in our notation  $p_B + p_S$ ) is higher when the platform is for-profit: the profit margin of the system has to be added to those of the banks. Moreover, the price structure is also unfavourable to merchants: when IFs can be differentiated across retailer types, the monopoly platform selects the maximum merchant service charge that is acceptable to merchants, like in the case for a not-for-profit platform. Therefore, a monopoly system extracts the maximum surplus from retailers, whether it is for-profit or not.

### 3. Competing Networks

The case of competing networks, providing substitutable payment card services to the two types of users, is more complex and has been only examined by very few papers: essentially Chakravorti and Roson (2006), Guthrie and Wright (2007) and Rochet and Tirole (2007). Chakravorti and Roson (2006) use the model designed by Rochet and Tirole (2003) for analysing platform competition in two-sided markets. They find that competition between for-profit card schemes unambiguously reduces the overall price of card payments ( $p_B + p_S$  in our notation) but does not necessarily lead to a socially optimal price structure. This first insight is useful, but the model is not well adapted to study the determination of IFs in open payment schemes (it was designed for other industries). In particular it focuses on proprietary systems (that do not have explicit IFs) and also it does not capture the internalisation by merchants of the quality of service provided by card payments to their customers. Chakravorti and Roson (2006) do not model explicitly the determination of retail prices. Thus they cannot address the question of the influence of card fees (both for cardholder and merchant) on the price and volume of retail transactions, and cannot deliver a complete welfare analysis.

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<sup>10</sup> Farrell (2006) calls this the Merchant Indifference Criterion.

The first fully-fledged model of a competitive payment industry is due to Guthrie and Wright (2007). It can be seen as the adaptation of Bertrand's model of perfectly competitive providers to the payment card industry. We summarise it below.

### 3.1 Guthrie and Wright's perfectly competitive benchmark

In this version of Guthrie and Wright's model, both issuers and acquirers are perfectly competitive, and two card schemes (that can be for-profit or not) provide perfectly substitutable payment card services. A first important consequence of the assumption that inter-system competition is perfect (cards are perfect substitutes both for consumers and retailers) is that the two card networks make a zero profit at equilibrium: the outcome of perfect inter-system competition is the same whether the card schemes are for-profit or not. A second important consequence of perfect inter-system competition is that, whenever the two card schemes are active at equilibrium, they both set the same interchange fee.<sup>11</sup>

The most important result obtained by Guthrie and Wright is that the forces of perfect competition are not enough in general to generate the socially optimal level of interchange fees. This comes from an impossibility to coordinate the two sides of the market, generating a multiplicity of competitive equilibria. Suppose for example that consumers decide to hold only one card (they 'single-home'). In this case, retailers are better off accepting both cards (they 'multi-home') since they would otherwise lose customers. For this reason, the equilibrium IF is biased in favour of cardholders: it corresponds to the maximum fee that merchants are ready to accept. It is in fact equal to the monopoly interchange fee  $a_m$ : inter-system competition is completely ineffective when consumers hold a single card. By contrast, if consumers decide to hold both cards (they 'multi-home') retailers can threaten to reject the card that is the most expensive for them, which forces card schemes to pick the IF that is most favourable to retailers, namely Baxter's IF  $a_0$ .

More generally, Guthrie and Wright (2007) show that any IF in the interval  $(a_0, a_m)$  can be obtained in a competitive equilibrium between perfectly substitutable card schemes. Which particular level obtains depends on the 'loyalty' of cardholders to their most preferred card, measured by the multi-homing index.<sup>12</sup>

### 3.2 Competing card schemes with imperfectly competitive banks and retailers

As in the analysis of the monopoly case, the introduction of imperfect competition between banks and retailers complicates the picture substantially. The only attempts in this direction have been made so far by Guthrie and Wright (2003),<sup>13</sup> and by Rochet and Tirole (2007), who assume for simplicity that issuers' margin  $m$  is constant:

$$p_B = c_I - a + m.$$

<sup>11</sup> This is a good approximation of the pricing policy of MasterCard and Visa, that set very similar IFs in almost every country and sector where they are both active.

<sup>12</sup> The multi-homing index, defined by Rochet and Tirole (2003), measures the fraction of cardholders who switch to their second best card when their most preferred card is rejected by the retailer.

<sup>13</sup> Guthrie and Wright (2003) is an extended version of Guthrie and Wright (2007). It also contains an analysis of the case where issuers have market power.

As before, it is assumed that retailers compete for geographically dispersed consumers with a fixed total demand (Hotelling-Salop model). These assumptions allow one to concentrate on the choice of the payment instrument. Consumers pick the retailer that offers them the lowest net price (sum of the retail price, transport costs and transaction costs associated with the choice of the payment instrument, card or cash). With these simplifying assumptions, social welfare is maximised for a value  $a_W$  of the interchange fee that is above Baxter's level  $a_0$  :

$$a_W = a_0 + m .$$

Thus in this world, competition between card schemes can lead to IFs that are too low with respect to the social optimum. For example when all consumers hold the two cards, we have seen that the equilibrium level of IF was Baxter's  $a_0$ , which is lower than  $a_W$ . However, if consumers' multi-homing index<sup>14</sup> is low (because most consumers insist on using their 'preferred' payment card) the balance of bargaining power shifts toward consumers and the equilibrium IF can be higher than the socially optimal level  $a_W$ . Rochet and Tirole (2007) also analyse the case of heterogeneous merchants (as in Wright (2004)). The fundamental result obtained by Guthrie and Wright (2007) remains valid: competitive IFs do not coincide in general with the social optimum but there is no systematic bias. The competitive level can be below or above the social optimum, depending on parameters (such as the elasticities of card payment volumes to cardholder and merchant fees) that are difficult to estimate econometrically.

## 4. Multiple Payment Methods

### 4.1 Credit versus debit

The main concern behind the RBA's reforms was not so much that there were too many card transactions overall but rather that the mix of debit and credit transactions was tilted toward credit transactions, that are supposed to be socially more costly. The only article so far that simultaneously models credit and debit card payments is Rochet and Tirole (2006b). However this article focuses for simplicity on the case where credit and debit cards are not substitutable. There are two types of consumption goods: 'debit' goods that can be purchased by debit cards or in cash, and 'credit' goods that can be purchased by credit cards or cheques. Rochet and Tirole (2006b) assume that the credit card is offered by a monopoly scheme, while two competing schemes offer substitutable debit cards: an 'on-line' (or EFTPOS) card, run by an association of banks, and an 'off-line' (or scheme debit) card run by the same association that runs the credit card scheme. The objective of their article is to study the impact of a tie-in between the credit card and the 'off-line' debit card. In the absence of such a tie-in (no 'honour all cards' (HAC) rule), interchange fees are determined as in Rochet and Tirole (2002) for the monopoly credit card industry and in Guthrie and Wright (2007) for the duopoly debit card industry. In particular, the interchange fee for credit is the highest IF  $a_m^C$  that is compatible with merchant acceptance. By contrast there are multiple equilibria in the debit card industry. To fix ideas, Rochet and Tirole (2006b) assume that cardholders multi-home, which pins down the equilibrium IF to Baxter's level  $a_0^D$ . Consider now what happens if the credit card scheme imposes an HAC rule on

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<sup>14</sup> This multi-homing index is difficult to measure empirically. Rysman (2007) and Snyder and Zinman (2007) provide empirical estimates of membership multi-homing (how many consumers hold two or several cards) and usage multi-homing (how many effectively use two or several cards).

retailers (i.e. they must accept the off-line debit card if they accept the credit card). By doing so, the credit card scheme is able to ‘rebalance IFs’ i.e. to choose a combination of IFs for debit and credit that increases the total profit of banks on debit and credit transactions while remaining acceptable to retailers: credit IFs decrease while debit IFs increase. Because retailers internalise the surplus derived by their customers from the option to pay by card (debit and credit), they reject all combinations of IFs that decrease total user surplus. This means that the card scheme that ties-in credit and debit cards cannot attract merchants unless it offers a combination of IFs that offers a higher total user surplus than the competing debit card. Thus in this simple model, the tie-in of debit and credit is weakly beneficial to all parties: both total user (buyer + seller) surplus and issuers’ benefit increase. It is true that the tie-in results in an increase in merchant fees for debit (and a decrease for credit) but these changes are passed on to consumers in the form of higher retail prices. Moreover merchant fees for credit decrease and the total volume of card transactions increases. The increase in retail prices for the debit good is more than compensated by a decrease in transaction costs for consumers: the ‘hedonic’ price of the debit good (that incorporates transaction costs) actually decreases.

This surprising result (that a tie-in might benefit all parties, namely consumers, retailers and banks) is specific to two-sided markets, and is only valid under some simplifying assumptions: homogenous retailers, no substitutability between debit and credit cards, and fixed retail demand. Without these assumptions, some retailers may be hurt by the HAC rule. However the ‘rebalancing’ effect identified above remains robust. It illustrates a characteristic feature of two-sided markets: by bundling different goods and services on one side of the market, platforms can attract more users on the other side of the market, which typically generates a positive feedback for the ‘bundled side’. A similar example is the bundling of advertisement and TV programs that allows TV channels to offer free TV to their viewers.

## 4.2 Further directions of research

There is a crucial need for developing models of retail payment systems where the substitutability between different payment means is explicitly captured. This is not an easy task, because the conditions characterising efficient use of payment means are more complex to obtain, and because multiple distortions exist, due to the interaction between several actors with different objectives. Consider for example the substitutability between credit and debit cards. For some transactions (such as ‘impulse purchases’), credit cards are the only possible means of payment for consumers that do not have easy access to other forms of credit. This means that the benefit derived by retailers from credit card acceptance is very high for these transactions, since they can lose the sale altogether if they do not accept credit cards. This explains why some retailers might be ready to accept very high fees for these transactions. By contrast, debit cards are perfect substitutes for credit cards for smaller transactions or for liquid consumers who have enough funds in their bank account. The main reason why some ‘convenience users’ or ‘transactors’ might still prefer to pay by credit card is that they get ‘negative fees’ in the form of cash back bonuses, air miles or other forms of rewards. From a social welfare point of view, it seems likely that credit card transactions of the first type (when the credit facility is really needed) are beneficial, while the second type of credit card payments (by convenience users) are inefficient. Since these two types of transaction are difficult to distinguish *ex ante*, social efficiency may

only be attainable if an ‘incentive compatibility constraint’ is imposed, requiring that the price of debit card payments cannot be higher<sup>15</sup> than that of credit card payments:

$$p_B^D \leq p_B^C.$$

In the perfectly competitive benchmark, cardholder fees are equal to the net costs of issuers, namely

$$p_B^D = c_I^D - a^D, p_B^C = c_I^C - a^C,$$

where, as before,  $c_I^k$  and  $a^k$  denote respectively the issuer cost and the interchange fee for cards of type  $k$  ( $k = D$  for debit and  $k = C$  for credit). The above ‘incentive compatibility constraint’ then amounts to introducing a cap on credit interchange fees:

$$p_B^D \leq p_B^C \Leftrightarrow a^C \leq a^D + c_I^C - c_I^D.$$

When the debit interchange fee  $a^D$  and the marginal cost  $c_I^D$  of debit payments for issuers are small, this cap is essentially linked to the issuer’s cost  $c_I^C$  for credit transactions. Note that such a cap is similar to the cost-based regulations imposed on credit card interchange fees in some jurisdictions. However, the rationale for such regulation is very different from the (wrong) one that is usually given, namely that IFs correspond to a fee for service paid by the acquirer to the issuer. Here the motivation for this cap is to provide the appropriate incentive for cardholders to use the socially efficient payment instrument according to the type of transaction they are involved in.

Of course this informal reasoning needs to be rigorously captured in a formal model where banks and retailers have some market power and behave strategically. Rochet and Wright (2008) contains some preliminary results along these lines.

## 5. Empirical Findings, Policy Implications, and Future Research Directions

Even though the economic analysis of competition in retail payment systems needs to be pursued further, we can already indicate some policy lessons that can be drawn from empirical findings. We also indicate directions for academic research that would need to be explored more systematically.

### 5.1 Retail payment systems are two-sided markets

Public interventions into payment card systems have often been prompted by the lobbying of retailers associations who wish to reduce their fees. Doing so, they fail to recognise that IFs contribute to the reduction of cardholder fees that encourage consumers to use card payments over less efficient payment means such as cash and cheques. However, recent empirical research (e.g. Zinman (2007), Ching and Hayashi (2006)) clearly establishes that consumers react negatively to cardholder fees and tend to choose the payment instrument that minimises their total transaction cost. Price structure really matters in retail payments, as has been long

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<sup>15</sup> Since these prices are often negative, this constraint means that rewards on debit cards should be at least equal to those on credit cards.

recognised by the card systems operators themselves. The balancing act that results from a careful reallocation of costs between the two sides of the market is a fundamental condition for the success of a retail payment system. Competition authorities and regulators should abandon one-sided approaches to the retail payment industry.<sup>16</sup>

## **5.2 There is an asymmetry between the two sides of the market**

The fact that retailers internalise some fraction of consumers' benefit (because the better quality of service offered to consumers by the option to pay by card makes their stores more attractive) implies that they are less resistant to high fees than cardholders. This is why the cost of payment instruments is often borne largely by merchants rather than consumers. But this is not necessarily bad for social welfare. A skewed price structure where one side of the market (here retailers) pays more than the other may be socially efficient, especially when banks have to recoup sizable fixed costs needed to maintain safe and efficient infrastructures (see Bolt and Tieman (2005)).

## **5.3 Card system operators and bank associations may have an interest in inflating credit IFs**

Empirical evidence seems to suggest that higher credit IFs often result in higher profits for banks. This comes from the fact that price reactions to changes in IFs seem to be asymmetric. In the Australian case for example, reductions in credit IFs have been passed through almost one-for-one into merchant fees, but the corresponding increases in cardholder fees (and reductions in their rewards) have been significantly less than one-for-one. Even if the robustness of this observation needs to be checked carefully by empirical analysis of other systems and countries, it may explain why credit IFs are often much higher than debit IFs. As Rochet and Tirole (2002, 2006) have shown, this is not necessarily bad for social welfare, if the operating profits of banks allow them to cover the sizable fixed costs needed to increase the capacity and safety of their networks. On the other hand, IFs may be excessive if the issuers' profits are dissipated into wasteful marketing campaigns aimed at stealing business from their competitors.

## **5.4 Interchange fees are needed, even in mature payment card systems**

The need to subsidise membership to internalise network externalities disappears when networks mature and cover a large fraction of potential users. However, payment networks are dominated by usage rather than classical network (membership) externalities. Even if all consumers hold debit cards, they need to be given incentives to use them. As we have seen, price elasticity of card usage by consumers seems to be much higher than that of card acceptance by merchants. It would be a mistake to mandate a cost-based cap on debit IFs, since it would completely overlook the two-sided nature of payment systems.

## **5.5 The substitutability between credit and debit cards needs to be understood better**

Preliminary analysis of the substitutability between credit and debit cards (Rochet and Wright (2008)) seems to indicate a need for capping the difference between credit and debit IFs, in order to discourage the socially inefficient behaviour of 'convenience users'. However, it seems difficult to recommend a cost-based regulation of credit IFs without a more complete understanding

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16 Wright (2004) contains an insightful description of the danger of using a one-sided logic in a two-sided market.

of this substitutability between credit and debit cards. In particular it would be important to understand whether there are indeed incentives for payment card networks to inflate the difference between credit and debit IFs. Generally speaking, the regulation of IFs is a very hazardous exercise, since socially optimal IFs depend in a complex fashion on parameters that are extremely difficult to estimate empirically. Even more importantly, the long-term reactions of the payments industry to such regulation are very difficult to predict.

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# Discussion

## 1. Stephen P. King<sup>1</sup>

Professor Rochet's paper provides an excellent overview of the economic state-of-the-art on card systems and interchange fees. I draw five lessons from his paper:

*1. The optimal interchange fee internalises the 'choice of payment instrument' externality.*

A key issue when considering the socially optimal interchange fee is the externality that the customer creates by their choice of payment instrument. When a customer chooses to purchase a product from a seller who accepts multiple payment instruments, the actual choice of payment instrument is made by the customer. However, the choice of payment instrument made by the customer has implications for the seller. If payment instrument *A* is cheaper from the seller's perspective than payment instrument *B*, then the seller would prefer the customer to choose *A* rather than *B*. In the absence of either a price differential on the final product that depends on the payment instrument (i.e. a surcharge) or an interchange fee, the customer will simply choose a payment instrument according to their own costs and benefits.

The externality that the customer creates by the choice of payment instrument can be internalised either by a surcharge or through the interchange fee. In the absence of surcharging, the interchange fee allows the 'net external benefit' from the choice of a payment instrument to be transferred to the customer. The customer will then face the socially optimal incentive when choosing a payment instrument.

*2. The actual interchange fee that will arise in the marketplace in the absence of any direct regulation may be greater than or less than the socially optimal interchange fee even if there are only two payment instruments, cash and a single card.*

Issues such as merchant acceptance of a payment instrument and imperfect competition mean that the actual interchange fee that arises in the marketplace is unlikely to be set at the socially optimal level. Because of the two-sided nature of payment systems markets, however, the actual interchange fee may be either above or below the socially optimal fee. In other words, there is no simple prediction that the actual interchange fee will be either too high or too low. Rather, it will depend on the exact nature of the marketplace and the interaction between issuers, acquirers, customers and sellers.

*3. Even if there are competing, perfectly competitive card schemes, the actual interchange fee may not be socially optimal. Further, there may be multiple equilibria that can arise in the marketplace.*

Simple competition between alternative payment instruments does not solve the interchange fee problem. Again, this reflects the underlying externality that the consumer imposes on the

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<sup>1</sup> Commissioner, Australian Competition and Consumer Commission (ACCC). The views expressed here are those of the author alone and should not be attributed to the ACCC.

producer through the choice of payment instrument. If card systems compete but each consumer only has one card, then there is no simple way for the payment externality to be internalised. A seller may prefer the customer to use a different card but if the customer is not carrying that card then the seller's preference is of little relevance. If, however, consumers choose to carry multiple credit cards (called multi-homing) it may be possible to mitigate the payment externality at the point of sale. As such, multi-homing is a key issue when considering competing card schemes.

*4. If there are multiple schemes and multiple payment instruments, such as debit, credit and cash, then predictions about interchange fees become extremely difficult.*

Multiple payment instruments and multiple schemes with different degrees of competition raise a number of complicating factors. Economic results for these situations are still in their early stages.

*5. In general, if there is 'perfect surcharging' then the interchange fee charged for a payment instrument is irrelevant.*

If sellers surcharge on the basis of the specific payment instrument used by a customer then the actual interchange fee is irrelevant. The seller simply passes the costs of the payment instrument on to the customer through the surcharge, so that a rise in merchant fees (possibly due to a rise in the interchange fee) is simply reflected in a higher surcharge. The reason for this is simple. If sellers can surcharge then there is essentially a redundant price involved with the use of a payment instrument. Any change in the interchange fee can simply be 'undone' by changes in the mix of the surcharge, the merchant fees, and the customer card fees. Note that this result simply implies that surcharging makes the interchange fee irrelevant. It does not mean that surcharging will result in optimal pricing of payment instruments. There may be a 'problem' of pricing for payment instruments even with perfect surcharging. However, this problem cannot be addressed through regulation of the interchange fee.

These five lessons highlight the underlying message of Professor Rochet's paper: there is considerable economic uncertainty about the exact nature of payment systems, and the level of the interchange fee can vary above or below the socially optimal level depending on a variety of factors.

Despite this theoretical uncertainty, however, in Australia we have direct intervention that restricts the interchange fee that can be charged by four-party credit card systems. In light of Professor Rochet's survey, it is necessary to ask what, if any, policy relating to interchange fees can be justified by the state of economic understanding of payment systems.

### **Should there be any interchange fee regulation?**

A legitimate lesson to take from the economic theory of payment systems is that there should not be any policy intervention relating to interchange fees. Under this view, we simply do not (and cannot) know enough about the underlying nature of competing payment systems to know if there is an economic problem that requires a solution, far less design such a solution.

Professor Rochet has presented this view in another forum:

I have the strange feeling of participating – and we are all participating – in sort of a detective story, but a very unusual kind. The culprits have been found: the banks and the payment card networks. Also, the weapon that was used for the crime is known: the high interchange fees.

Surprisingly, there is a lot of controversy about the nature of the crime itself. Is it that we have too many cards? Is it that we have too many card payments? Or more likely, as I would argue, the real crime may be that banks make too much profit.<sup>2</sup>

It is far from clear that there was a problem with the interchange fees that had been set for credit card systems in Australia prior to regulatory intervention. These fees had been stable over a long period. The interchange fees did not appear to be systematically manipulated by the card systems or the banks in order to exploit market power. Rather, it appeared that the banks had used a 'set and forget' strategy for the interchange fee, with the fee remaining at 0.95 per cent despite significant changes to both payment systems and the economy in general.

Indeed, the stability of the interchange fee in Australia prior to regulatory intervention raises interesting economic questions. Did the stability reflect that there are multiple equilibria so that the established interchange fee remained an equilibrium fee despite the wide-ranging changes to the broader economy? Is the interchange fee either neutral or close to neutral despite the lack of explicit surcharging? Or was it simply the case that any profitable manipulation of the interchange fee was too uncertain, too transitory or of too small a benefit for the banks to worry about?

It is important to note, however, that even if it is argued that the original regulation of interchange fees was misguided, this does not imply that the existing regulations can simply be removed. History matters and the simple removal of interchange fee regulation will not necessarily return the market to its pre-regulation state.

### **Should regulation be limited to allowing surcharging so that if there is a problem with interchange fees, the problem will be neutralised?**

If there is a problem with credit card interchange fees then this problem will be removed if there is perfect surcharging. Of course, perfect surcharging may not arise in the real world. For a variety of reasons, merchants may limit the extent to which they surcharge according to payment instruments. However, to the degree that there is surcharging, any problem with interchange fees is likely to be reduced, if not eliminated. This suggests that a conservative 'starting point' for any regulation of interchange fees is the simple removal of any limitations on surcharging, such as a no-surcharge rule enforced by the payments system.

The Reserve Bank of Australia did consider such a minimalist approach:

In thinking about appropriate regulatory responses to these distorted price signals, the RBA considered simply requiring that the no-surcharge rule be removed, thus allowing merchants to charge customers using a credit card a higher price. ... We saw considerable merit in this approach, and have in fact required that the no-surcharge rule be removed from merchant contracts. However, our view has been that removing this rule was not enough, by itself, to establish more appropriate price signals to cardholders.<sup>3</sup>

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2 Rochet, J-C (2005), 'The interchange fee mysteries. Commentary on Evans and Schmalensee', paper presented at the conference 'Interchange fees in credit and debit card industries: What role for public authorities?', Federal Reserve Bank of Kansas City, Santa Fe, New Mexico, 4-6 May, p. 139.

3 Lowe, P (2005), 'Payments system reform: the Australian experience', paper presented at the conference on 'Interchange fees in credit and debit card industries: What role for public authorities?', Federal Reserve Bank of Kansas City, Santa Fe, New Mexico, 4-6 May, p. 271.

## Is cost-based regulation of interchange fees valid?

If, despite the ambiguity in the economics literature, it was believed that direct regulation of the interchange fee was required, should this regulation be cost based? The general answer from the economics literature appears to be negative. The key to regulating an interchange fee is to internalise the ‘choice of payment instrument’ externality. This involves consideration of costs in the sense that the externality involves considering the costs of payment instruments to merchants and acquirers. But this is different from the usual cost-based regulation which tries to set a price to reflect the underlying cost of the party supplying the product associated with the price. In a two-sided payment system it is not clear what cost-based regulation, in the usual sense, actually means.

Finally, given that there is interchange fee regulation in Australia, it is useful to inquire about the effects of this regulation and how these effects fit into the economic literature.

Professor Rochet notes that merchant service fees have decreased in line with the regulated decrease in interchange fees. However, there appears to be incomplete pass-through of the decreased interchange fees in terms of reduced benefits to card holders. Importantly, while there may have been changes at the level of the individual cardholder or merchant, Professor Rochet notes that there has not been any observable decrease in prices due to interchange fee regulation. Richard Hayes tested whether the introduction of interchange fee regulation affected either the number of credit cards or the value of credit card transactions and found that there was no effect in either case.<sup>4</sup> In brief, there appears to be little if any aggregate-level impact from the regulation of interchange fees.

This ‘lack of effect’ is consistent with the view that either allowing surcharging means that the interchange fee is largely irrelevant or, given the history of interchange fee stability in Australia, the interchange fee was a poor choice of regulatory variable. Regulation reduced the interchange fee by almost 50 per cent and yet there appears to have been little if any real effect. The challenge for the RBA is to now decide what to do next.

## 2. Julian Wright<sup>5</sup>

I wish to thank the Reserve Bank of Australia and the Melbourne Business School for the opportunity to attend and speak at this conference.

Clearly Professor Rochet’s presentation goes far beyond just explaining the key insights from the existing academic literature on competing payment schemes. Rather, what Professor Rochet has provided us, in addition to a very nice review of the existing literature, is a very significant step forward towards building a more complete theory of interchange fees and payment system competition. For my discussion, I will mostly focus on some implications of his presentation this morning.

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<sup>4</sup> Hayes, R (2007), ‘An econometric analysis of the impact of the RBA’s credit card reforms: preliminary results’, Melbourne Business School, available as an appendix to Gans, J (2007) ‘Evaluating the impact of the payment system reforms: Submission to the Reserve Bank of Australia’s Payments System Board’s 2007-08 Review of Payment System Reforms’, January.

<sup>5</sup> Associate Professor of Economics, National University of Singapore.

Let me start, however, by first defending the important contribution formal economic modelling can provide to the policy debate over interchange fees and payment system competition. An important aspect of any formal modelling approach, such as the approach Professor Rochet himself uses, is that it is explicit about its assumptions and draws its implications logically from these assumptions. A major benefit of doing so is to avoid inconsistent arguments.<sup>6</sup> I want to highlight one such inconsistent argument (or fallacy) here since understanding it is important to understanding the implications of Professor Rochet's presentation. It is also an important principle to keep in mind in any policy debate about interchange fees.

Consider an imaginary card – let me call it the 'Wright card' for want of a better name. The Wright card does not provide any payment service. In fact, it does not provide any function whatsoever, other than one. When it is swiped at point of sale it charges one dollar to the merchant and rebates 50 cents into the cardholder's account. The question then is would any merchant accept the Wright card? If you listen to some of the discussion surrounding interchange fees, you might be led into believing that merchants would accept such cards. They would somehow be 'forced' into doing so. My point is such views are contradicted by standard economic theory. Merchants (even competitive merchants) will not accept such cards, which make themselves and their customers worse off to the tune of 50 cents per transaction, without any compensating real transactional benefits.<sup>7</sup> To get merchants to accept such cards, cardholders and/or merchants must receive sufficient real transactional benefits to make doing so profitable. This is simple economics, but statements committing the fallacy of the Wright card show it is a fallacy worth highlighting here. I will return to this fallacy in a moment.

Let me now summarise the existing literature regarding interchange fees. Professor Rochet has already done this in detail so I will try to be brief. Here I want to focus on the reasons why privately set interchange fees may be too high from a welfare perspective.<sup>8</sup> Without any competition between payment systems, interchange fees can be too high for two main reasons.

The first reason is due to asymmetry in pass-throughs. As explained by Professor Rochet, if pass-through is less on the issuing side than on the acquiring side, then banks may increase interchange fees to shift revenues to the issuing side, where they are competed away less. As a result interchange fees may be set too high, in order to raise the total price (card fee plus merchant fee) and so bank revenue, although this, by itself, will imply less card transactions as a result (in fact, too few from a welfare perspective).

The second reason is that cardholders' surplus may be overemphasised. The latter effect is not well understood, even in the literature, but essentially it arises because card networks put too much weight on their cardholders' surplus from using cards. They consider cardholder surplus once when attracting cardholders, and again, when attracting merchants, since competing merchants will themselves internalise their customers' benefits from using cards when deciding

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6 *Other benefits include being able to evaluate privately and socially optimal interchange fees, uncover potential market failures, and potentially measure welfare effects of changing card rules or interchange fees.*

7 *Note it is possible to concoct a more complicated scenario in which the Wright card is accepted, such as one in which it is used as a way to price discriminate across agents as might be the case with a pure rewards type card that is accepted by selected merchants, but such a scenario is not relevant to understanding the widespread acceptance of general purpose cards.*

8 *Of course, there may be other reasons, in particular the need for issuers to recover large fixed costs through card margins, which may lead to biases in the other direction, as Professor Rochet has noted.*

whether to accept cards. In a sense, cardholder benefits are counted twice by card networks. This effect leads a card network (say one maximising its profit or number of transactions) to set higher interchange fees than would be socially optimal.

How then does intersystem competition change these biases? Competition between two identical payment schemes would eliminate the first bias, since any scheme that tried to raise its total price (card fee plus merchant fee) by raising interchange fees will lose business to another scheme that does not. However, competition between two identical payment schemes may or may not eliminate the second bias, depending on the specific way intersystem competition works. If at one extreme, all consumers hold multiple cards<sup>9</sup> then the bias will be completely removed. On the other hand, if at the other extreme, consumers only hold one card, then intersystem competition will not help at all (and in fact, could lead to even higher interchange fees).

However, as Professor Rochet has pointed out, this existing theory really only applies to transactions in which cards are used purely for payment rather than for their credit functionality. It fits the situation in which a consumer has a debit card and cash in their wallet, and may pay using either instrument. In either case they will still buy the good. In other words, the consumer makes a choice between similar payment instruments and of which store to buy in. But in such cases, the real transactional benefits associated with the use of one instrument over another, say a debit card over cash, are likely to be fairly minimal. This suggests the existing theory applies to a case where the real transactional benefits to cardholders are likely to be rather small. If so, then applying the fallacy of the Wright card, we get that merchants will not accept such cards unless the real transactional benefit they receive from doing so exceeds the total fee they and their cardholders face per transaction. This also implies the bias identified above, in which cardholder benefits are double counted, will be trivial. Merchants will only accept efficient payments, and the interchange fee will be set at the approximately efficient level. Thus, one may conclude the existing theory is probably quite a good theory for such transactions (e.g. low value transactions in the case everyone carries enough cash and a debit card with sufficient funds to complete such transactions). It also suggests for such situations there should be little, if any, concern about market failure.

Now consider a second type of transaction, one in which the purchase of the good (for whatever reason) depends on the availability of a credit card (or more generally, credit). In this case, cardholder (and merchant) benefits are no longer trivial. Thus, the bias identified in the literature, of double counting the cardholders' benefit may become significant. And this, in turn, raises the possibility that credit card interchange fees could be too high. Although the details of this have not been worked out in detail yet, based on these observations it seems to me this also raises the possibility that the socially optimal interchange fee (while lower than the privately optimal one) could also still be 'high'. This reflects the high merchant benefits of accepting cards in these circumstances, which cardholders may not otherwise internalise. Put differently, if the interchange fee is set too low (say at zero) so that consumers were sometimes not willing to use cards for such transactions, then competing merchants will find other ways to make credit attractive to their customers so as to attract them to purchase. Quite plausibly, the additional

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<sup>9</sup> *Whether cardholders mainly use or prefer to use one particular card does not matter here. It is whether they hold both cards that matters. This will determine whether a merchant can (and will indeed want to) steer consumers to their preferred card. This point follows from the Wright fallacy mentioned earlier.*

costs to society of merchants relying on other (presumably more expensive) forms of credit will ultimately be greater for society than relying on the current general purpose credit card system.

Professor Rochet notes such a socially optimal interchange fee could still involve some over-usage of credit cards. People will sometimes use credit cards for payment transactions where a credit card is not needed (reflecting the rewards offered to cardholders due to ‘high’ interchange fees). To the extent credit cards involve higher resource costs to society than other instruments, this will be inefficient. However, some excessive use of credit cards may be unavoidable given merchants cannot easily observe if credit is needed or not by their customers.<sup>10</sup> This seems no different from the fact merchants that offer interest-free instalment plans to their customers, will sometimes (perhaps often) end up offering these plans to consumers who actually do not need them.

I wish to conclude by noting this new theory has the potential to explain many observed features of the real world that previously have defied a theoretical explanation. If credit is more likely to be needed by customers for large purchases, then the socially optimal interchange fee should be *ad valorem* (thereby better targeting the transfer to cardholders for the types of transactions where credit is needed) and merchants may want to reject credit cards for small transactions (where people are more likely to be able to purchase anyway using other means). The theory also explains why interchange fees are typically lower for debit cards than for credit cards. Finally, large retailers that are able to gain a competitive advantage over smaller rivals from being able to offer their own store-credit to customers, may have an interest in opposing the widespread use of general purpose credit cards. No doubt, many other interesting implications remain to be teased out of such a setting.

### 3. General Discussion

Discussion of Professor Rochet’s paper centred on the theoretical justification for interchange fees and their optimal level.

One issue was the simultaneity problem in payment markets – where a card scheme may face difficulty persuading consumers to hold and use its cards if merchants do not already accept them and *vice versa* – and whether this justifies the use of interchange fees. It was suggested that interchange fees may break an *initial* impasse, ensuring that the system can price to both sides of the market so as to encourage participation. However, there was disagreement over the need for interchange fees – either at their initial level or even at all – once a system has matured.

A second theme concerned Professor Rochet’s approach to the optimal level of interchange fees. There was debate over the benefit that merchants receive from the credit functionality of credit cards. It was suggested that, since merchants are better placed to measure this benefit, they should determine any interchange fee that might apply. A further suggestion was that inefficiencies associated with interchange fees, if they exist, could be overcome by requiring

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<sup>10</sup> Professor Rochet notes a lower bound on the socially optimal interchange fee is that it is set at the cost of issuing. Under the assumption this will lead to a zero price for credit cards (as with cash and debit cards), this will remove the excessive use of credit cards for non-credit transactions. Any higher interchange fee will lead to a trade-off between promoting efficient use of credit cards for credit-type transactions and some excessive use of credit cards for non-credit transactions. It is thus possible that a higher interchange fee is socially optimal.

merchants to surcharge. Such an approach would enhance information available to consumers about the interchange fees payable on each payment instrument. Professor Rochet agreed that such a proposal could work, at least in theory, but that to be optimal the surcharge must reflect the merchant service fee *less* the merchant's benefit from use of a particular payment instrument.

A third area of discussion related to the potential for interchange fees to promote the socially optimal use of credit by providing credit-constrained consumers with price signals to encourage the use of credit. Those supporting this position argued that merchants miss out on the benefits of higher sales when credit is undersupplied. Others felt that the wider availability of credit need not increase aggregate sales and that interchange fees promote the overuse of credit cards. In Professor Rochet's analysis, the interchange fee that encourages optimal use of credit by credit-constrained cardholders may simultaneously encourage overuse of credit cards by cardholders not requiring credit. If it is optimal for consumers to use credit only when they need it, it was proposed that credit cards be replaced by debit cards with a line of credit attached. In this way the inefficiency induced by non-credit-constrained consumers overusing their credit cards might be avoided.

Further discussion focused on whether Professor Rochet's analysis of interchange fees might change if there were significant investment costs in payment systems. Professor Rochet noted that investment in a payment system might be sub-optimal if fixed costs were ignored when setting interchange fees. However, participants noted that the impact of interchange fees on investment could depend on the side of the market – acquiring or issuing – on which fixed costs were incurred. For example, if significant investment was required on the issuing side, interchange fees set too low could result in sub-optimal investment by issuers. On the other hand, interchange fees set too high could result in sub-optimal investment by acquirers.

# TOWARDS A COMPETITIVE CARD PAYMENTS MARKETPLACE

*Alan S. Frankel<sup>†</sup>*

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<sup>†</sup> Senior Vice President, Lexecon. This paper is based on a report which I submitted on behalf of the Australian Merchant Payments Forum (AMPF) to the Reserve Bank of Australia, which is available at [http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/frankel\\_31082007.pdf](http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/frankel_31082007.pdf). The opinions expressed in this paper are not necessarily shared by the AMPF or by any other merchant group, regulator or other party for which I have consulted regarding interchange fees or payment systems.

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## 1. Introduction

There has been an explosion of interest and concern about the competitive economics of credit and debit card networks, and, in particular, competitive restrictions which significantly increase the cost merchants incur when accepting card-based payments. Merchants around the world, joined often by central banks or competition authorities, have complained about pricing and vertical restrictions imposed by card networks which, the merchants contend, have led to anticompetitively high costs of acceptance for retail debit and credit card transactions.

Interchange fees collected in connection with card transactions have been at the centre of many of these complaints.<sup>1</sup> Interchange fees established by multi-bank card schemes 'are generally the largest component of the costs that acquirers [merchants' banks] charge merchants in connection with the acceptance of payment cards'.<sup>2</sup> In the United States alone, merchants complain that they now remit over \$30 billion (USD) in interchange fee payments annually.<sup>3</sup> Aggregate interchange fee payments have grown rapidly due to economic growth, increased use of card payments, and the use of *ad valorem* (percentage of sale value) rates as the principal component of interchange fees. In some regions, including the United States, the card schemes have also significantly increased their interchange fee rates.<sup>4</sup>

It is accepted both by critics of interchange fees and defenders of those fees that merchant fees are high because merchants tend to find it unprofitable to avoid accepting branded cards of each of the leading card networks; that is, the elasticity of demand for each brand of merchant card acceptance services is low. Visa explains:

In deciding whether to accept a particular card, each merchant has to keep in mind that, if the card is not accepted, they will:

- save a small percentage (the merchant service fee) on each sale to customers who would still purchase with another form of payment that was cheaper for the merchant to accept; and
- lose a much bigger percentage (their profit margin less the merchant service fee) on those customers that choose to purchase from their rival which does accept their card, as well as those customers who do not have any other acceptable form of payment, and those customers who have to reduce the size of their purchase due to constraints on their availability of funds at the time of purchase.

Weighing up these factors, merchants will often accept cards even where transactions using these cards are more expensive than some other form of payment that consumers have access to.<sup>5</sup>

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1 MasterCard identifies legal or regulatory actions in Australia, Brazil, Colombia, the European Union, Germany, Hungary, Mexico, New Zealand, Poland, Portugal, Singapore, South Africa, Spain, Switzerland, the United Kingdom, and the United States. MasterCard 2006 SEC Form 10-K, pp. 24-25, 117. Visa similarly identifies 'Global Interchange Proceedings' in these jurisdictions, plus Norway, Romania and Sweden. Visa Inc., Amendment Number 5 to SEC Form S-4 Registration Statement, 13 September 2007, pp. 10, 161.

2 MasterCard 2006 SEC form 10-K, p. 24.

3 <http://www.unfaircreditcardfees.com/>. As I explain below, the total financial impact is greater than the explicit remittance of interchange fees, because high interchange fees permit vertically integrated card networks such as American Express to maintain significantly higher merchant fees as well.

4 The main recent exception was a one-time reduction in MasterCard and Visa's signature authorised debit interchange rates as a result of the settlement of antitrust litigation concerning the tying of credit card acceptance to debit card acceptance. 'What Debit Settlements Really Mean to Issuers', *American Banker*, May 2, 2003.

5 Visa International Service Association and Network Economics Consulting Group Pty Ltd., 'Delivering a Level Playing Field for Credit Card Payment Schemes: A study of the effects of designating open but not closed payment schemes in Australia', August 2001, p. 29.

A merchant losing even a few sales as a result of refusing a costly brand of payment card may find it more profitable to pay the higher card acceptance fees on transactions made using that card brand. Merchants risk losing sales, in turn, because not all consumers carry cards which can access all branded networks, and consumer preferences to use particular payment cards are intensified through loyalty and other programs funded with a portion of the fees paid by merchants.

Banks have organised networks in which they use interchange fees both to collectively increase merchant fees and to reinforce the inelastic nature of merchant demand for card services – which permits further collective fee increases. The rebates and rewards funded by interchange fees and offered to card users act like a systematic form of commercial bribery (albeit, undertaken in plain view). Rebates to cardholders exploit a principal-agent problem in which the card customer chooses the form of payment – and the bank chooses or influences which brand – based in part on the value of rewards, while the bank collects the resulting fees from the merchant. Moreover, the merchant’s ability to get the consumer to internalise the merchant’s differential costs across payment types is substantially restricted by network rules.

Critics see the use of interchange fees to exploit inelastic merchant demand as an exercise of collective market power by members of a bank cartel operating openly through networks appointed by the banks to administer the arrangement. After all, if banks accepting credit card transactions from merchants simply agreed to charge merchants a specified minimum fee, such an agreement would very likely be condemned as *per se* price fixing, irrespective of the effectiveness of the cartel agreement and the extent to which the cartel pricing induced rebates to merchants in the form of price cuts or non-price rebates. Similarly, if card issuing banks simply agreed to charge their own customers a fixed transaction fee of, say, 1.75 per cent on every transaction, such an agreement would likely be condemned whether or not the individual issuing banks undermined the profitability of the cartel price through rebates and rewards to cardholders.

Interchange fees, in this context, can be seen as a clever agreement to raise merchant fees, but distribute the revenue in a way that is more stable and less susceptible to competitive erosion than would an agreement among banks simply to raise fees collected directly from their own customers.

Supporters of interchange fees, on the other hand, contend that using interchange fees to increase merchant fees above the decentralised competitive level which independent banks would charge merely enacts for the decentralised network what an integrated card network would impose unilaterally. In this view, there is nothing concerning about members of the banking industry acting jointly to increase prices to merchant customers to take advantage of the merchants’ inelastic demand. Indeed, they embrace this effect as achieving efficiencies by shifting costs from customers with relatively elastic demand (cardholders) to customers with relatively inelastic demand (merchants) in a manner analogous to Ramsey pricing for optimal collection of tax revenue or recovery of fixed costs in regulated natural monopoly markets.<sup>6</sup> Alternatively, they appeal generally to the benefits generated from the exploitation of

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6 At least in some regions, including the United States, the networks have gone beyond using the interchange fee system to exploit inelastic merchant demand generally, and have implemented a complex and highly detailed price discrimination system in which the degree to which merchant fees are increased through interchange fees varies according to the size and type (and, presumably, perceived elasticity of demand) of the merchant, and the characteristics of the card customers. Thus, for example, card acceptance fees are increased by a relatively lower amount to supermarkets – which have slim profit margins and were slow to accept credit card payments – than to other merchants, by charging a lower interchange fee for supermarket transactions, all else equal.

positive network externalities or the alleged solution of merchant cost externalities to justify the continued use of interchange fees.

Of course, a monopolist able to do so also will seek to price discriminate, charging higher prices to customers with inelastic demand and lower prices to customers with elastic demand, all else equal. In the case of optimal taxation or recovery of fixed costs to fund a natural monopoly, there is an exogenous requirement to raise revenue not generated through marginal cost pricing, and the idea is to minimise the social welfare losses associated with raising this fixed amount of revenue. In credit card and debit card markets, by contrast, the interchange fee revenue goes neither to the state nor to a natural monopoly network, but rather to individual card-issuing banks, which the networks contend are numerous (in many countries) and highly competitive.

The low merchant elasticity of demand for card acceptance services which, it is argued, explain and justify interchange fees and high merchant fees, is not exogenous and inevitable, but instead results from the nature and structure of the competitive institutions in the marketplace. These institutions include comprehensive bodies of rules and restrictions, enforced by networks, which limit merchant choices. With few exceptions, merchants cannot smoothly vary their relative consumption of card services across networks as the relative fees charged by those networks vary. Network restrictions instead present them primarily with the all-or-nothing choice whether to accept a particular form and brand of payment.

Although many observers are troubled by the way banks collect interchange fees, they sometimes struggle to understand the nature of the competitive problem and what it would mean to end this problem and create a more competitive card payments marketplace. In this paper, I provide an explanation of the competitive problem and its economic sources: a fundamental principal-agent problem created, maintained and intensified by interchange fees and restrictive network rules. I describe the most plausible and specific theoretical defence for interchange fees and why that defence is inconsistent with the way interchange fees are set, but conceptually lends itself to a logical, decentralised solution. I describe how relaxation of vertical restrictions might facilitate interbrand competition, and some possible limits to the effectiveness of incremental competitive solutions. Finally, I review the effects of the Reserve Bank of Australia's intervention in the credit card market and describe how partial relaxation of vertical restrictions in Australia has contributed to the effectiveness of the RBA's reforms.

## **2. Structural Impediments to Effective Competition**

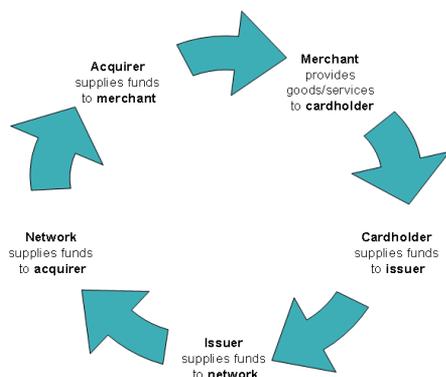
### **2.1 The flow of funds and payment of fees in card transactions**

In a cash transaction, there is a simple exchange of value: the merchant provides goods or services to its customer, and the customer provides cash to the merchant.<sup>7</sup> In a card transaction, intermediaries are involved in the exchange (Figure 1). The merchant provides goods or services to the cardholder, but the cardholder does not directly remit funds to the merchant. Instead, the cardholder supplies funds to its card-issuing bank. The issuer remits funds to the network, which acts as a settlement clearinghouse and remits funds to the merchant's bank ('acquirer'), which credits the merchant's account.

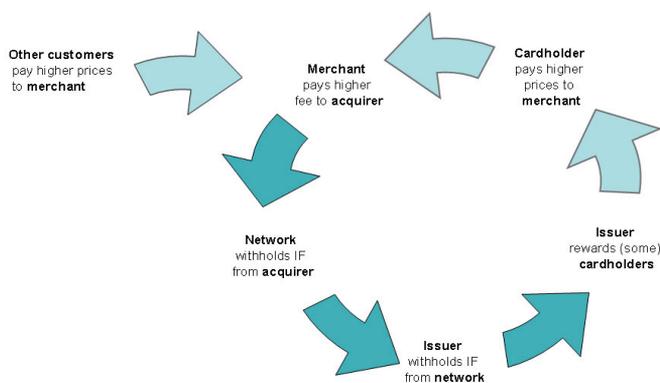
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<sup>7</sup> *In an all cash economy, consumers receive cash as wages and the retail payment is a simple exchange of cash for goods or services; with modern banking and networks, the consumer may need to convert a bank deposit or cheque to cash before spending the cash.*

**Figure 1**  
**Exchange of Value in Card Transaction**



**Figure 2**  
**Impact of Interchange Fees in Card Transaction**



The chronology of these movements of funds can differ from the direction in which the funds move. In particular, for credit card transactions, the issuer advances funds on behalf of its card customer through the network's settlement clearinghouse and to the merchant well before the cardholder is required to supply funds to the issuer. A debit card transaction enables the issuer to obtain funds from the cardholder directly by debiting the cardholder's transaction account, although such accounts may have an attached line of credit.

In networks or clearinghouses without interchange fees (IFs), merchants and their customers each typically pay their respective banks fees for payment services, or receive payment services from their banks as part of a package of banking services. The banks, in turn, pay processing fees (and perhaps membership fees) to the clearinghouse.

Interchange fees are an adjustment imposed by the network in which the amount owed from the cardholder's issuing bank is decreased and the amount due to the merchant's acquiring bank to settle a transaction is decreased by a like amount, so that the position of the clearinghouse is unchanged (Figure 2).

Although the interchange fee revenue passes through the network's clearinghouse system as part of the settlement process, the networks deny that they 'receive' the interchange fee;<sup>8</sup> they instead describe the interchange fee as a payment from the acquiring bank to the issuing bank.<sup>9</sup>

8 For example, see <http://www.mastercard.com/us/company/en/docs/InterchangeFactsandMyths.doc>, in which MasterCard writes 'MasterCard does not receive any revenue from interchange'.

9 For example, see 'How MasterCard Works: MasterCard Interchange Rates' [http://www.mastercard.com/us/merchant/how\\_works/interchange\\_rates.html](http://www.mastercard.com/us/merchant/how_works/interchange_rates.html) ('MasterCard interchange rates are established by MasterCard, and are generally paid by acquirers to card issuers on purchase transactions conducted on MasterCard® cards'); Visa Worldwide Association Report 2004, p. 9 ([http://www.visa-asia.com/ap/center/mediacenter/includes/uploads/Visa\\_Worldwide\\_Report.pdf](http://www.visa-asia.com/ap/center/mediacenter/includes/uploads/Visa_Worldwide_Report.pdf)) ('Interchange is the fee paid, typically by merchant-acquiring institutions to card-issuing institutions, each time a Visa payment product is used').

Similarly, it is widely accepted and understood that the acquirer recovers the interchange fee from the merchant, which pays correspondingly higher total merchant service fees or ‘merchant discounts’.<sup>10</sup>

Interchange fee revenue delivered to issuers, by contrast, does not flow through directly to be posted as credits to cardholder accounts. Although some cardholders have ‘cash back’ card plans, many accounts offer only in-kind rewards or no rewards at all. Even when card usage generates rewards, moreover, the value of the rewards is generally significantly less than the amount of interchange fees collected by the issuing bank. The difference is accounted for by several factors, including increased account solicitation and marketing costs, the cost of administering reward programs, increased fraud and credit losses, and enhanced bank profits, all induced as a result of the increased marginal profitability of card transactions to issuing banks. Meanwhile, customers *not* using the card nevertheless fund some of the fee proceeds, to the extent that merchants increase their retail prices in the presence of interchange fees to generate the funds remitted as interchange fees.<sup>11</sup> Such customers are harmed by additional card use by other consumers even though they do not use the cards themselves for a transaction. Even a cardholder is a net beneficiary of interchange only if the reduced cardholder fees and rewards received from the issuer for card purchases exceed the higher prices the cardholder pays for all purchases using all payment methods at merchants which accept cards.

## 2.2 Single-homing, multi-homing and dysfunctional competition

It is often noted in the banking industry that networks consider themselves to be more ‘price competitive’ when they use interchange fees to *increase* merchant fees or maintain them *above* the level of fees prevailing in rival networks. Consider just this (arbitrary) sample of news coverage of interchange fee increases from *American Banker*:

- Visa USA said its announcement Monday that it will raise interchange fees for credit card transactions – a move bound to further anger merchants – was a competitive necessity after MasterCard raised its rates in January. [Visa’s] William M. Sheedy... said... that for years his company has kept interchange fees lower than MasterCard partly to secure merchant acceptance. But the new rates, which will still be slightly lower than MasterCard’s, mark a recognition that Visa has reached near-ubiquitous merchant acceptance and must now focus on the happiness of its members, who profit from interchange fees and had been defecting to MasterCard. “If we were gaining share with merchants, I think that could have offset” the lower payoffs for issuers, Mr. Sheedy said. But “we were losing share to merchants and issuers. In certain instances, we have had difficulty in securing issuer brand decisions because of our lower fee”. ... Mr. Sheedy said: “Over the past decade or so, MasterCard has generally had higher interchange fees. They’ve been successful in promoting that in the marketplace, and it challenged us”. ... [I]n raising the fees Visa’s board has indicated that “we will not be disadvantaged on interchange fees in securing issuer brand decisions”.<sup>12</sup>

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10 *Visa Europe, ‘Response To The Consultation On The European Commission’s Interim Report I: Payment Cards’, 21 June 2006, p. 16* (‘Since acquirers pass through the interchange to their merchants, interchange does not affect the cost structure of acquirers... This is the case whether the interchange is relatively high or relatively low.’); [http://www.mastercard.com/us/merchant/how\\_works/interchange\\_rates.html](http://www.mastercard.com/us/merchant/how_works/interchange_rates.html) (‘Although MasterCard has no involvement in acquirer and merchant pricing policies or agreements, it is generally understood that interchange fees are one component of the Merchant Discount Rate (MDR) established by acquirers, which is paid by merchants to acquirers in consideration for card acceptance services’).

11 I describe the debate over retail price effects in Section 5 below.

12 ‘Visa Says MasterCard’s Fee Hike Forced Its Hand’, *American Banker*, June 18, 2002.

- MasterCard International said it will soon raise the interchange rates that card issuers can charge to merchants... It is too early to tell whether the move will trigger a round of hikes from Visa USA and the electronic funds transfer networks such as Star Systems, the NYCE network, and Pulse EFT Association. Last year Visa USA announced increases after MasterCard did. MasterCard and Visa interchange rate hikes can put pressure on the EFT networks to increase their rates to remain competitive and keep banks happy.<sup>13</sup>
- Less than two weeks after MasterCard International announced it was raising the interchange fees merchants must pay, Visa USA told merchants and issuers that its rates will go up as much as 28 basis points in some merchant categories. Both companies' increases are to take effect in April. Visa said in a January 24 letter to merchants and issuers that its changes are meant to help its rates "remain competitive".<sup>14</sup>
- NYCE will raise the maximum interchange fee from 34 cents to 40 cents for the PIN debit transactions it processes. The fee structure varies by type of retailer and annual gross sales... Over the last two years, the PIN debit networks have waged fierce interchange fee competition, spurred by steep increases in Interlink, Visa's PIN debit network.<sup>15</sup>
- "Our decision to increase consumer credit and corporate interchange is a measured response that allows MasterCard issuers to remain competitive, while staying mindful of the needs of the acquiring and merchant community", said Ruth Ann Marshall, the president of MasterCard North America. "Our US board has authorized us to address what would have been a competitive disadvantage".<sup>16</sup>
- Interchange is a critical component of the network value proposition. In concert with broadening its offerings, Discover should improve its economics for issuers. It should push harder to close its interchange gap with MasterCard and Visa, enhancing its profitability for bank and retailer issuers, fueling rewards, and thereby increasing issuance and cardholder spending. Being more attractive for issuers and cardholders than merchants is the best route to maximizing network value.<sup>17</sup>

In Australia, Visa complained that it was at a competitive disadvantage to MasterCard due to its then lower (regulated) interchange fees.<sup>18</sup> MasterCard and Visa complain that American Express has an advantage (and at times have even argued that Amex will take over the market) due to its higher, unregulated merchant fees from which it can fund cardholder rewards.

Although card networks frequently claim that they are balancing the interests of all parties – including merchants – when they set interchange fees, there is a critical difference between the competitive pressures the networks face from merchants, on the one hand, and issuing banks on the other. As the above excerpts illustrate, card-issuing banks generally can choose which network's cards they will offer and issue to cardholders. A bank embarking on a new card program targeted to generate cardholder accounts can solicit those cardholders to accept a Visa card, a MasterCard card, or (since, in the United States, resolution of government litigation

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13 'MasterCard Sets April Interchange Hikes', *American Banker*, January 15, 2003.

14 'Our Turn: Visa Raising Its Interchange Rates', *American Banker*, January 28, 2003.

15 'NYCE Explains July 1 Interchange Fee Hike', *American Banker*, May 6, 2003.

16 'MasterCard to Up Credit Interchange', *American Banker*, June 6, 2003.

17 Eric Grover, 'Viewpoint: Options Abound for Post-Spinoff Discover', *American Banker*, January 12, 2007.

18 Letter of 7 April 2005 from Bruce Mansfield, Visa International, to John Veale, Reserve Bank of Australia, p. 2 ('It is not fair or reasonable if the more efficient competitor, with a lower cost-based interchange, is penalized by regulatory intervention and is handicapped in its ability to compete for issuing business. This is the position Visa International currently finds itself in as against MasterCard International, with which it competes vigorously [footnote omitted] for issuance business in Australia. Visa International is at a two basis points disadvantage against MasterCard International, which is an almost four per cent pricing disadvantage – a significant margin in any large commercial enterprise.').

against Visa and MasterCard), an American Express or Discover affiliated card. If otherwise similar networks differ in the interchange fee they offer to issuers, the issuer has an incentive to choose the network with the higher fee.

Now consider the cardholders. Some cardholders will carry only one brand of general purpose credit card – they are said by economists to ‘single-home’. This may be because they only applied for one brand, their issuing bank for a second brand unilaterally switched the customer to the first brand, they are not creditworthy enough to get a second account, or other reasons. Although other cardholders carry more than one brand (‘multi-home’), according to a summary of US Visa survey data published by Marc Rysman, only 3.7 per cent of sample consumers who had at least one general purpose credit/charge card carried *all* four leading brands, while 17.8 per cent carried three of the brands. By contrast, 41.7 per cent carried only one brand. Moreover, Rysman finds that even cardholders who possess multiple cards have a strong *preference* to use a particular card.<sup>19</sup> One reason for these strong preferences is the use of loyalty and reward programs funded by interchange fees.<sup>20</sup>

Even if many cardholders carry only one card brand or have strong preferences to use one card, it is possible that a merchant could still accept many or all card transactions, irrespective of brand, using one network – if cards were interoperable across networks and issuers accepted transactions presented to them which originated over any network. But that is not how the market is organised.

US debit cards have typically been issued with multiple network access: one or more online PIN-authorized debit networks and the MasterCard *or* Visa offline, signature-authorized debit network. One of the key organisational facts underlying the tying claims in the ‘Wal-Mart’ litigation was the widespread use of multi-homed debit cards linked to the same account; a merchant – if the rules permitted – could decline, say, Visa debit card transactions and, at least conceptually, could nevertheless accept the same card from the same customer and access the same deposit account by requesting the customer to enter a PIN in order to process the transaction over one of the PIN debit networks. Although few merchants apparently have chosen to decline signature debit transactions since the settlement of the Wal-Mart litigation, the practice of ‘PIN-prompting’ has grown significantly. By adding PIN-prompting technology, a merchant can steer more transactions to the less costly (and safer) PIN-authorized networks. For these multi-homed cards, merchants able to engage in PIN prompting have reportedly succeeded in shifting a large percentage of transactions from signature debit to PIN debit.<sup>21</sup>

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19 Rysman (2007), Table V and p. 9 (‘I find that consumers maintain cards in multiple networks but tend to use only one network. That suggests that they have a preference for single-homing but recognize that some purchases are valuable enough to warrant using a less-preferred network.’).

20 It is widely acknowledged that interchange fees are largely responsible for the creation and expansion of reward programs which offer cash or in-kind rebates to consumers who make card payments (typically credit card programs, but also in the US for some MasterCard and Visa ‘offline’ signature-authorized debit card transactions). One industry analyst in the United States estimates that 44 per cent of credit card interchange fee revenue paid by US merchants funds reward programs. Amy Dawson and Carl Hugener, Diamond Management and Technology Consultants, ‘A New Business Model for Card Payments’ (2006). For the purpose of this paper, the main point is that rewards programs tend to encourage or ‘steer’ consumers to obtain cards which incur higher interchange fees (and therefore higher merchant acceptance fees) and use more costly (to the merchant) cards for a greater share of purchases than otherwise would occur. This issuer steering occurs in response to the issuing bank’s incentives to obtain profitable interchange revenue. In some cases – for example, issuer steering to induce consumers to route a signature-authorized debit transaction over the Visa or MasterCard network rather than a PIN-authorized online debit network accessible from the same card – the inefficiencies resulting from interchange fees as they are presently used are easy to observe.

Banks, meanwhile attempt to steer consumers to use these cards to make signature-authorised Visa or MasterCard transactions rather than PIN transactions, despite the speed and safety of the PIN networks, because MasterCard and Visa offer the banks much higher interchange fees.

The networks restrict the ability of banks to issue credit cards which are branded with or can access multiple networks (and thereby pay the other networks' fees). Unlike the situation with cheques, there is no legal or regulatory requirement which would obligate issuing banks to accept transactions presented by competing credit or debit networks.<sup>22</sup> Debit cards in the United States evolved in an environment with many local and regional PIN debit/ATM networks, and it has been more difficult for the networks to establish a single branded debit environment.

Tim Muris, like Visa, explains that cardholder single-homing means 'Most merchants... cannot accept just one major card because they are likely to lose profitable incremental sales if they do not take the major payment cards. Because most consumers do not carry *all* of the major payment cards, refusing to accept a major card may cost the merchant substantial sales'.<sup>23</sup> Graeme Guthrie and Julian Wright explain that in such circumstances 'competition' between networks can lead to the same price as would prevail with a monopoly network:

Despite competition between identical schemes, they will each set their interchange fees as though they are a single scheme maximizing card transactions (and profits). When consumers hold only one card, the effect of competition between card schemes is to make it more attractive for each card scheme to lower card fees to attract exclusive cardholders to their network. Cardholders provide each card scheme with a bottleneck over a merchant's access to these cardholders. Since with no merchant heterogeneity a single scheme already sets the interchange fee to the point where merchants only just accept cards, there is no scope to further lower fees to cardholders by raising merchants' fees. Thus, despite competition between the schemes, their fee structure is unchanged from the case of a single scheme.<sup>24</sup>

In the real world, of course, merchants are heterogeneous. The basic principle still applies, only each network will price discriminate in parallel, and prevent merchant arbitrage (resale of access services by low-fee merchants to high-fee merchants). The networks seek each merchant's (or type of merchant's) reservation price, and set its merchant fee (or set an interchange fee to

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21 "Steering' at POS May Hit Debit Issuer Revenue', *American Banker*, June 27, 2006. In addition, PIN debit transactions in the United States can sometimes be routed over more than one PIN network linking the merchant to the card-issuing bank, and the merchant might have some ability to choose a lower cost network. Network consolidation and bank single-homing could threaten that ability. For example, see 'Visa, MC Tout Their ATM Networks to Banks', *American Banker*, October 19, 2005 ("By consolidating its network relationships under Visa, SunTrust was able to limit the way transactions are routed for authorization, Mr. Brasbears said. "Merchants are being more creative in the ways they process transactions, based somewhat on the cost to them", he said. "If we limit the number of networks we participate in, that does somewhat limit the options and provide us with greater control".) PINs are not used to authorise US credit card transactions and PIN pads are still not universal among merchants. It is still not customary, for example, for customers of midrange or fine dining restaurants to be presented with a remote PIN pad in the United States. As PINs are a more secure authorisation technology than signatures, it would be logical if one reason MasterCard and Visa avoid migrating to PIN authorisation for credit and offline debit transactions is that this would make PIN pads ubiquitous and facilitate additional merchant steering to PIN debit networks.

22 Effective competition could have led to multi-homed credit cards, as a bank offering multiple-network capable cards could have assured cardholders of more universal merchant acceptance than a bank issuing a card which can initiate transactions only over a single network.

23 Muris (2005), p. 522 (*emphasis in original*).

24 Guthrie and Wright (2003), p. 16. See also, Rochet and Tirole (2006), p. 8 ('Intuitively, under single-homing, each system holds a monopoly of access to its own cardholders (in the same way each telecom operator enjoys a monopoly over the termination of calls made to its subscribers). Thanks to this competitive bottleneck, it can "charge" a monopoly merchant discount.').

result in a merchant fee) just below the merchant's reservation price.<sup>25</sup> This is both the monopoly price and the price attained with 'competing' networks with single-homing cardholders, multi-homing merchants, and lack of merchant steering.

In this situation, whether or not consumers view the networks as interchangeable, there is little or no *merchant* substitution between networks; the networks have effectively allocated customers (transactions) between them and each network therefore can exploit fully a low elasticity of demand for its brand – *assuming the network's members can act collectively to raise prices above the competitive level*. If the network has a single acquirer or is vertically integrated into acquiring, it can do this directly. The problem for a network with many competing acquirer banks is that it stands to leave all of this potential monopoly revenue on the table if the acquirers cannot collude to exploit the inelastic demand resulting from single-homing and customer allocation. The networks resolve this dilemma with interchange fees that enforce a collective price increase to merchants and increase merchant fees by a factor of four or more in the US credit card networks.

Whether or not banks are primarily acquirers, primarily issuers, or have a more balanced credit card operation, they prefer high interchange fees. The reason is that in their function as issuers, they will each receive those fees and pass only a portion of them along to cardholders as rewards; as acquirers, they pass the full amount of the cost increase to their merchant customers. It is less clear what the net effect of higher interchange fees will be on total card transactions; some potential merchant clients will refuse to accept the cards, reducing transactions, but cardholders are encouraged to make more card transactions, which operates in the opposite direction.

This analysis assumes that merchants cannot use steering to defeat the banks' strategy for exploiting collective market power. Steering, if fully effective (in the presence of enough competing networks) can induce networks themselves to compete at their collective levels on the amount of the interchange fee. If the interchange fee is viewed simply as a cartel overcharge on merchant fees, introducing competition fully over the amount of the interchange fee will drive that fee or overcharge to zero, and restore the merchant fee to the competitive level.<sup>26</sup>

### 2.3 Restrictions on merchant steering

Muris, Guthrie and Wright, Rysman and others characterise the process of bank networks using interchange fees to price to the merchants' inelastic demand as the natural outcome in 'competitive' payment card markets.<sup>27</sup> But this description is misleading. It presumes in advance the answers to the critical questions: should otherwise decentralised, multi-bank networks be able to appoint networks to set prices collectively as if they were a single, integrated firm to take advantage of inelastic market demand, rather than let interbank competition drive merchant

<sup>25</sup> As Rochet (2003) notes about the incentives of the bank networks, 'the privately optimal [interchange fee] equals the maximum value of the interchange fee... that is compatible with sellers' accepting cards'.

<sup>26</sup> Note that in this context a 'zero interchange fee' is the result of competition among networks permitted to require that such fees be remitted, and differs from a policy of not permitting a mandatory interchange fee. Because it is reasonable to interpret interchange fees as they are used by networks today in the manner described here, a policy of simply eliminating mandatory interchange fees makes sense, as I explain in Section 4 below.

<sup>27</sup> For example, see Rysman (2007) p. 10 ('More interestingly, the presence of single-homing may partly explain why it is that merchants subsidise consumers rather than vice versa. The literature on two-sided markets establishes that, **in a competitive market for payment networks**, the side that multi-homes subsidises the side that single-homes.') (emphasis added).

fees towards marginal cost?<sup>28</sup> And should the bank networks be permitted to restrict merchants' ability to introduce competition between networks, thereby creating and intensifying the inelastic demand they exploit with interchange fees?

Interchange fees would be 'neutral' and have no real economic effects if each sector were perfectly competitive, with no transaction costs or contractual (or legal) restrictions.<sup>29</sup> Visa's interchange fee, for example, could rise by one per cent of the purchase price while MasterCard's interchange fee remained unchanged, yet have no real effect in the (counterfactual) scenario in which merchants increased their prices to Visa card customers by one per cent and Visa issuers rebated one per cent (or an additional one per cent) of the purchase price to their cardholders, assuming administration of all of these prices, fees and rebates also had no costs.

Networks would face more competition over the amount of any interchange fees if merchants conveyed to consumers the merchants' relative cost of accepting various types of payment. In the above example, the merchant hypothetically charged a one per cent premium for Visa card transactions relative to MasterCard transactions. If consumers obtained a one per cent rebate from the issuer, they might be indifferent – suggesting that the entire exercise is pointless.<sup>30</sup> If the merchant fully surcharged the Visa transaction but the Visa issuer did not fully rebate the funds to the cardholder, then the relative cardholder price to use a Visa card would exceed that for use of a MasterCard card. Consumers would tend to switch to MasterCard, and Visa would experience pressure *from cardholders who make payment choices at the point of sale* to reduce its interchange fees which result from those choices. In other words, the principal-agent problem is resolved.

But suppose the merchant operates under a contract for acceptance of Visa and MasterCard transactions that forbids the merchant from discriminating at the point of sale depending on the card brand used. If the merchant began with half of its transactions occurring with each brand, then it can either continue accepting all cards and increase its prices to all card customers by 0.5 per cent to recover the additional fee costs, or it can drop Visa card acceptance and keep its prices at the former level. If the merchant continues to accept both brands, however, cardholders have no disincentive at the point of sale to switch to MasterCard, while the additional fee proceeds received by Visa card issuers allows them to offer greater rebates to Visa cardholders than MasterCard cardholders, thereby stimulating Visa usage. Unless *merchants* can act collectively to refuse Visa cards under these conditions, Visa may *gain* sales relative to MasterCard by increasing its fee with this 'no discrimination' rule in place, whereas it was likely to lose sales by increasing its interchange fee if merchants perfectly reflected the differential costs in their pricing practices.<sup>31</sup>

The networks restrict or prohibit many of the ways that merchants might encourage or discourage the use of specific card payments. Such restrictions may include:

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28 *There are many products with inelastic consumer demand; cartels to exploit inelastic demand would normally be condemned as a matter of routine. For example, if food retailers formed a cartel which charged a very high price for the most inelastically demanded food products, and lower prices for more elastic products, no one would likely defend such a cartel successfully by arguing vaguely that charging higher prices on inelastic products is a more efficient way to cover fixed costs of retailing.*

29 For example, see Carlton and Frankel (1995), p. 656 ('Assuming that there is free competition among credit card network members and that prices are free to adjust to cost changes, interchange fees will have absolutely no effect on ultimate prices or the ability to compensate the issuing bank for any costs'); and Gans and King (2003).

30 For example, see Joshua S. Gans, 'Evaluating the Impact of the Payment System Reforms, (Updated) Submission to the Reserve Bank of Australia's Payment System Board's 2007-08 Review of Payment System Reforms', 27 August, 2007, [http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/joshua\\_sg\\_27082007.pdf](http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/joshua_sg_27082007.pdf).

31 *One would assume that an actual interchange fee or increase in the fee is privately optimal for a network and its banks by increasing their profits, but it does not necessarily follow that the higher fee results in more aggregate transactions, depending on how many merchants refuse cards that would accept them with much lower merchant fees.*

- prohibitions on ‘surcharging’ customers who use the network’s cards, and rules which might also discourage ‘discounting’ alternative payment methods;
- prohibitions on ‘discriminating’ – treating the customer less advantageously in any way – for using the network’s brand instead of another brand or payment type;
- prohibitions on requiring a minimum purchase amount, or maximum purchase amount, for use of the network’s cards;
- ‘honour all cards’ rules which require acceptance of cards irrespective of the identity of the issuing bank and irrespective of the card type or interchange fee resulting from use of that card;
- prohibitions on accepting the network’s cards only for some transactions or at some locations, but not all;
- prohibitions on ‘suppression’ of use of the network’s card; and
- prohibitions on bypassing the networks for clearing and settling transactions initiated with cards carrying the network’s brand.

For the MasterCard and Visa networks, restrictions on merchants are imposed by requiring that any bank which enlists a merchant client include in its contract with the merchant an agreement to abide by the network’s rules. The networks also restrict their own bank members from offering credit cards carrying multiple network brands, and, until successful litigation by the US Department of Justice, the networks prohibited US members who issued MasterCard and Visa cards to also issue cards carrying brands owned by American Express or Discover Card.

If reductions in interchange fees benefit the public (as has been accepted by several competition authorities and regulators), then vertical restrictions which restrain competitive forces which would themselves reduce interchange fees also harm the public and are anticompetitive, unless they can persuasively be shown to achieve other, offsetting benefits.

### 3. Do Interchange Fees Generate Benefits?

In order to evaluate whether interchange fees (or vertical restrictions which protect and permit increased interchange fees) are beneficial, or evaluate market mechanisms which might generate a more competitive and efficient outcome, it is helpful to consider what economic problem or market failure interchange fees might plausibly be solving.

#### 3.1 Do interchange fees solve a market failure resulting from network externalities?

Interchange fees often are defended with appeal to the fact that these are imposed by networks which exhibit ‘positive network externalities’. The networks claim that they face an ‘extremely delicate’ business problem that can only be solved through centralised control of relative consumer and merchant prices through use of the interchange fee.<sup>32</sup> In light of the obvious

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<sup>32</sup> See, say, [http://www.mastercard.com/us/merchant/how\\_works/interchange\\_rates.html](http://www.mastercard.com/us/merchant/how_works/interchange_rates.html) (‘Setting interchange rates is a challenging proposition that involves an extremely delicate balance.’). Identical language appears in, ‘Credit Card Interchange Rates: Antitrust Concerns?’ Testimony Of Joshua Peirez, Group Executive, Global Public Policy & Associate General Counsel MasterCard Worldwide Before the United States Senate Committee on the Judiciary, July 19, 2006, [http://judiciary.senate.gov/testimony.cfm?id=1999&wit\\_id=5589](http://judiciary.senate.gov/testimony.cfm?id=1999&wit_id=5589).

and substantial price-increasing effect on merchant card acceptance services, it makes sense to require a demonstration that the interchange fee as actually applied by the network achieves net efficiencies. MasterCard and Visa face ‘global interchange proceedings’ in large part because they have been unable to persuade merchants (or, in some jurisdictions, regulators) that interchange fees actually achieve benefits as claimed by the networks.

The networks have responded by criticising merchants for complaining about interchange fees. With respect to ongoing litigation over interchange fees in the United States, for example, ‘MasterCard believes that these lawsuits are without merit, and a clear demonstration of certain merchants wanting the significant benefits of accepting payment cards without having to pay for the value of the services they receive’.<sup>33</sup> This claim is illogical. To support their continued imposition of interchange fees, the networks must contend not that *payment cards* generate significant public benefits, but that *interchange fees* deliver such benefits. Without interchange fees set at the level deemed appropriate by the network, MasterCard warned in Australia, there could be a ‘death spiral’ in which the card system collapses entirely:

To compensate for an interchange fee that is set too low, issuers may then need to resort to raising annual fees and other charges to cardholders. This will deter the growth of the cardholder network as consumers, in deciding which payment system to join, tend to be very price sensitive in their decision making. Thus, a relatively small increase in fees to the cardholders could cause a significant drop in cardholder membership. A smaller cardholder membership in turn would make acquiring merchants more difficult as the benefits that the system can deliver to the merchants in terms of potential shoppers holding cards have now diminished.

A self-reinforcing cycle could be set in motion that could eventually lead to the whole open system unravelling: interchange fees set too low, leading to issuers charging higher fees to cardholders, leading to diminishing cardholders network, leading to fewer merchants acquired, leading to the need to further lowering of the interchange fee, and so on. This could be characterised as a ‘**death spiral**’ process.<sup>34</sup>

Visa similarly contends:

... interchange fees would still be necessary [in a mature network] to ensure that cardholders did not exit a network and, in so doing, cause merchants to exit the network, as a result of the reduced number of potential customers (in turn, a smaller merchant base could cause more cardholders to leave the network and so on in a vicious circle).<sup>35</sup>

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33 For example, see MasterCard Worldwide, ‘US Merchant Interchange Lawsuit’, [http://www.mastercard.com/us/company/en/newsroom/interchange\\_lawsuit.html](http://www.mastercard.com/us/company/en/newsroom/interchange_lawsuit.html).

34 MasterCard Incorporated Submission to Reserve Bank of Australia, June 8, 2001 (as Revised July 20, 2001), pp. 10-11 (emphasis in original, footnote omitted). MasterCard acknowledged in 2001 that ‘There is as yet no empirical data to illustrate the “death spiral” in action, since in no market anywhere has any four-party open system been forced to arbitrarily lower its interchange fee by regulatory decree. The conceptual principles, however, are not in doubt.’ Id., p. 12. As I discuss in Section 5 below, there was no death spiral when the RBA significantly reduced the level of MasterCard’s and Visa’s interchange fees. Claims that consumers today are so unwilling to pay for the benefits they receive from debit or credit cards that they would instead abandon the cards altogether are difficult to reconcile with the many examples of payment networks operating successfully with par settlement – that is, no interchange fee adjustment between the merchant’s bank and the consumer’s bank – and with the example of Australian consumers carrying EFTPOS cards despite their banks’ payment of ‘negative’ interchange fees to acquirers. Examples of these at-par payment systems can be found historically or currently with paper currency, cheques, debit cards and other electronic interbank transactions (including ACH transactions in the United States). For further discussions of par settlement payment systems, see Section 4 below.

35 Visa International Service Association (Prepared by: Network Economics Consulting Group Pty Limited), ‘Response to the Reserve Bank of Australia’s Consultation Document and Report of Professor Michael Katz’, (March 2002), pp. 10-11. In a ‘fact sheet’ posted on its Australian web site, Visa similarly states, ‘Interchange is an essential mechanism for balancing the costs and revenues of the issuing and acquiring sides of the payment network’. ‘Guide to Visa Australia, Fact Sheet 10’, [http://www.visa-asia.com/ap/au/mediacenter/factsheets/includes/uploads/Guide\\_to\\_Visa\\_Australia.pdf](http://www.visa-asia.com/ap/au/mediacenter/factsheets/includes/uploads/Guide_to_Visa_Australia.pdf).

If interchange fees were essential to the survival of the card networks, and card networks benefit merchants, then merchants logically could not obtain the benefits of the cards without paying interchange fees. MasterCard's claim is equivalent to a claim that merchants around the world fail to understand their own economic interests.

The 'death spiral' warning is essentially a claim of the existence of extreme network externalities, in the presence of which the value of the network to its customers will collapse if interchange fees are even slightly reduced.<sup>36</sup> But network externalities, if any, are unlikely still to be competitively significant in a mature card market.<sup>37</sup> The private benefits to consumers from carrying cards are likely enough to entice them to do so, and the external benefits are speculative at best, especially in mature markets.<sup>38</sup> Moreover, there is no reason to believe that merchants currently accepting credit cards *despite* paying merchant fees greatly elevated by interchange fees would refuse to accept card payments if the price for acceptance services fell dramatically.

### 3.2 Do interchange fees solve or exploit a usage externality?

Externalities relating to interchange fees persist, but they are not 'network externalities'. Instead, they arise from the principal-agent problem described in Section 1: as Rochet and Tirole explain, 'even in a mature network (where most buyers hold cards and most sellers accept them), the usage externality... remains important: the choice of the payment instrument is ultimately a decision of the buyer, that impacts the net costs of the seller'.<sup>39</sup>

How might the usage externality *justify* interchange fees? Suppose hypothetically that (absent any interchange fee) card use reduces merchants' transaction costs. In a perfectly competitive merchant market, this cost difference will be reflected in lower retail prices for card transactions (Figure 3).<sup>40</sup> The form of the differential pricing can matter in the real world; a 'discount' for using cards may have a different impact on actual consumer behaviour, for example, than a 'surcharge' for use of cash, and the competitive implications of 'no surcharge' rules for cards

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36 Card network externalities are often described as cardholders benefiting when more merchants accept cards, and merchants benefiting when more cardholders carry cards. At current prices, however, merchants do not benefit from additional credit card use. They would prefer that customers use a different, less expensive payment method.

37 Evans and Schmalensee (1999), p. 153 ('Just as economies of scale or scope can be exhausted at some level of firm size or output diversity, the magnitude of network externalities can decrease as a network grows and can reach zero at some point... [W]here national coverage of a joint venture is valuable, as in payment systems, attainment of such coverage may exhaust network economies. The natural limits on network externalities together with product differentiation explain why multiple networks can survive in the same industry. Payment cards illustrate this...'); Id., p. 68 ('[A]s the market became more saturated, the net benefits of adding new members decreased.');

Rochet (2003), p. 98 ('Payment card networks are also characterized by a more classical network externality... This network externality becomes less and less important as the network matures, when virtually all potential users have joined.');

Sienkiewicz (2001), describing Federal Reserve workshop comments by Dr. David Humphrey ('But as more and more merchants have been added, the benefit of adding even more merchants becomes smaller. Most consumers find that their favourite merchants are already members of the network. In this respect, credit cards may be seen as a mature payment instrument in many countries (e.g. the US)').

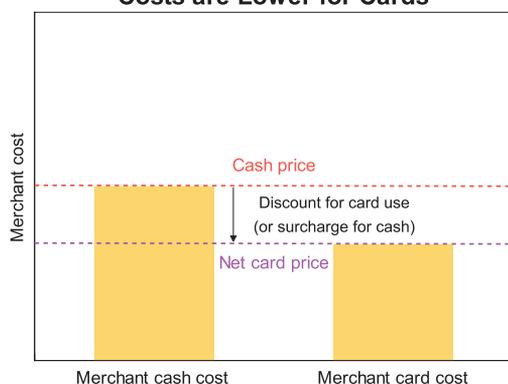
Evans and Schmalensee (1993), pp. 33-34, refer to the US 'payment card market' as 'saturated' in 1985.

38 Visa consultants in Australia deem Australia a 'relatively mature' credit card market in which 'the importance of these [network] externalities may be difficult to quantify...' Network Economics Consulting Group, 'Early evidence of the impact of Reserve Bank of Australia regulation of open credit card schemes: Is the market responding as the RBA predicted?' Prepared for Visa International, May 2005, p. 22. The President & CEO of Visa International, Asia Pacific acknowledges that 'Australia is a relatively mature market', Rupert Keeley presentation, 'Opportunities and Challenges in the Global and Australian Payment Systems', Payments System Conference, 14 March 2006, p. 2.

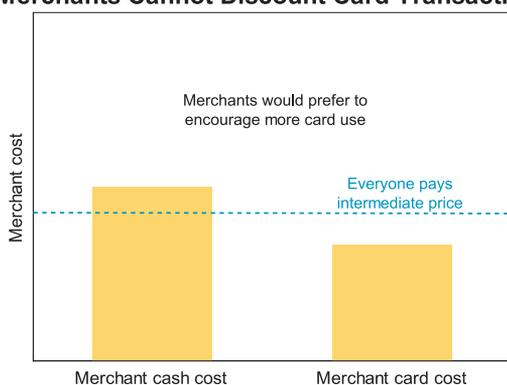
39 Rochet and Tirole (2005), p. 4.

40 In a symmetric way, merchants will charge higher prices to customers presenting cards if credit cards are more costly than cash. This situation is commonplace in many other markets.

**Figure 3**  
**Efficient Pricing When Merchant Costs are Lower for Cards**



**Figure 4**  
**Price Coherence: Cards Save Costs, but Merchants Cannot Discount Card Transactions**



price incentive at the point of sale for cardholders to choose card payments, and there is an inefficiency at the margin.<sup>41</sup>

In this scenario, there are some transactions for which the merchant's potential savings if the customer switched from cash to cards exceeds the customer's private cost to make that

include the prevention of interbrand differences in the effective price for card transactions. For now, I will simplify the discussion and assume, *arguendo*, that there are only two forms of payment, cash and cards, and cards cost the merchants less than cash.

Consumers will take into account not only the costs of supplying them with payment services, but also the extent to which merchants' costs vary by payment method; the merchant externality is 'internalised' by the consumer and a competitive outcome results.

Suppose now that legal or contractual restrictions, transaction costs or some other exogenous factor prevents merchants from administering different retail prices according to method of payment – a common historical occurrence which I have called 'price coherence'. Still assuming that cash transactions are more costly to the merchants than card transactions, if merchants do not discontinue accepting cash transactions the competitive equilibrium will look like that shown in Figure 4: prices reflect the merchants' weighted average payment cost, there is no

<sup>41</sup> It may be socially efficient not to refine the prices if the competitively determined cost of administering the more complex pricing system exceeds the efficiency gains from implementing such a system. See, Carlton and Frankel (2005); Jean-Charles Rochet, 'Comments on the Interim Report on Payment Cards and Payment Systems Produced by the European Commission on April 12, 2006', p. 3 ('[W]hen the optimal IF... is close to zero, the implementation costs that the network would have to incur for negotiating a non-zero IF and implementing the associated interbank payments could exceed the benefits generated by the internalization of usage externalities.').

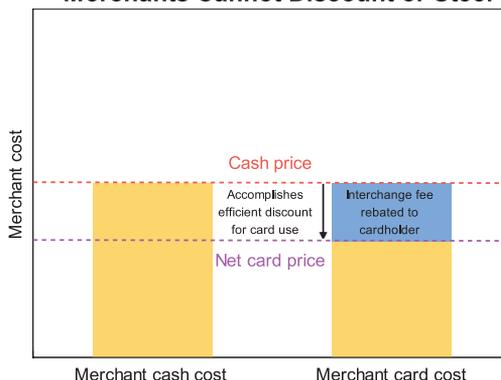
switch; there are unexploited gains from trade in which the merchant could potentially pay the consumer to use a card, but for the impediment to retail pricing flexibility (or other effective merchant steering).

If, for some reason, it is forbidden or prohibitively costly for a merchant to offer a discounted price to card customers, but less costly for banks to process a discount on behalf of the merchant, then the merchant might be able and willing to enlist the bank to offer the discount on the merchant's behalf. An interchange fee, as a theoretical matter, can accomplish this outcome, as shown in Figure 5.

This theoretically optimal interchange fee replicates exactly the two-price outcome the merchant would unilaterally administer if transaction costs were low and there were no other merchant restrictions.<sup>42</sup> The interchange fee proceeds are (in this theoretical framework) rebated entirely to the cardholder customer by a perfectly competitive banking sector which finds rebating itself to be costless. In either the two-price competitive equilibrium or with an optimal interchange fee, merchants are indifferent at the margin to payment choice: either the prices differ by an amount equal to the cost difference, or the prices are equal and the direct cost to the merchant is equal. With price coherence and an optimal interchange fee, the effective relative retail price faced by the consumer is 1:1, and the merchant's effective relative cost after paying the interchange fee is also 1:1.<sup>43</sup>

Because interchange fees are used by card networks, rather than differential merchant pricing, William Baxter – who first analysed interchange fees on behalf of Visa in the context of a competition law dispute in the US *NaBanco* litigation of the early 1980s – inferred that using interchange fees must be more efficient than leaving individual merchants to solve their usage externalities on their own.<sup>44</sup> If merchants were unconstrained and free to set different effective prices to consumers based on payment choice, then interchange fees would not be needed to

**Figure 5**  
**Theoretically Efficient Interchange Fee if Merchant Costs are Lower for Cards but Merchants Cannot Discount or Steer**



42 The efficient interchange fee under this theory is independent of card issuers' costs, the costs cited by the networks as justification for their interchange fees. It is instead driven by merchant preferences and cost differences.

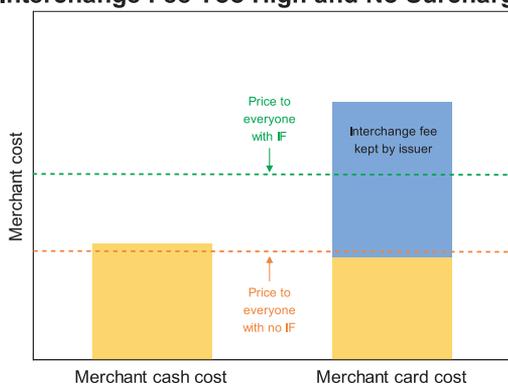
43 See Farrell (2006).

44 Baxter (1983), p. 553, n.9 ('In four-party payment mechanisms, too, a side payment between [cardholder] and [merchant], coupled with payment by each [cardholder] and [merchant] to [issuer] and [acquirer], respectively, in amounts equal to respective bank costs but not to respective marginal utilities of [cardholder] and [merchant], is theoretically sufficient to attain equilibrium. That in practice side payments between banks occur instead is strong evidence that higher transaction costs characterize side payments that take the form of price adjustments between the principals.')

attain efficiency. Others since Baxter have similarly noted that interchange fees are unnecessary for efficiency if merchants have complete pricing flexibility.<sup>45</sup>

So far, I have assumed that cards reduce merchants' marginal transaction costs. If the converse is true, and cards cost merchants *more* than cash, then, under this theory, a 'negative' interchange fee would be required for efficiency.<sup>46</sup> Credit card issuers would charge fees to their card customers and remit these fees to merchants, who, as in the previous case, would then be indifferent to payment choice while consumers would have the optimal incentives to internalise the higher merchant costs associated with credit cards when making their payment choices.

**Figure 6**  
**Interchange Fee Too High and No Surcharging**



This analysis explains how an ideal interchange fee could, *in theory*, achieve an efficient outcome. But what if the interchange fee is set far above the theoretically indicated level shown in Figure 5? In this case, the merchant once again finds itself with different costs for cash and credit transactions, only in the opposite direction (even assuming that cards cost less in the first place without an interchange fee) (Figure 6).

With price coherence, an interchange fee set above the theoretically optimal level causes merchant prices to rise to all

customers. With perfect merchant surcharging, the merchant would recover all of its costs associated with each payment type directly from the customers who used those payments. If interchange fee revenue is rebated by issuers directly to cardholders, then neutrality prevails, and the market is competitive irrespective of the existence or level of the interchange fee, as already explained.

If *none* of the interchange fee revenue is rebated to cardholders, then an interchange fee causes both card customers and cash customers to pay higher retail prices, while generating no offsetting savings to card customers; the fee acts like a privately imposed sales tax funded by all consumers.

45 See Wright (2003), p. 607, ('In a world of perfect retail competition, the interchange fee will not be allowed to play the role of aligning joint benefits and joint costs, but nor will it be needed for this purpose.');

Gans and King (2001) ('[S]uppose that it was possible for the customer and merchant to vary the retail price contingent on the payment mechanism used. In this situation... the network effect on the merchant side would virtually be eliminated... [W]e show that an efficient outcome always results');

and note 29, *supra*.

46 In the early years of the card schemes, transactions were slow and cumbersome. The optimal interchange fee under this theory should probably have been negative, compensating merchants for the higher costs. But credit card interchange fees have always flowed to the card issuer, not to the merchant. Analogously, if US banks were motivated to solve the Baxter usage externality when, in decades past, they imposed interchange fees on cheques, they would have established negative fees which compensated merchants for the cost of handling cheques. Instead, cheque issuing banks collected interchange fees just as credit card issuers do today – until competition (and, finally, statutory changes) ended the practice where it still persisted.

If *some* of the interchange revenue is rebated to cardholders, then some cardholders will be steered by this rebate towards increased credit card use. Even if a consumer is, on net, harmed by higher retail prices only partly offset by a rebate which is smaller in magnitude, the consumer will still have an incentive to use cards to get rebates, because the consumer's individual choice of payment method has only a *de minimis* impact on retail prices in general, and no impact for the current transaction, due to price coherence. There is thus a free-rider problem among consumers, and also distributional impacts; poor consumers lacking cards (or, at least, reward cards), for example, help fund rewards offered to higher income card users.

Baxter simply assumed from the fact that interchange fees are used by networks that they must be a less costly way to solve merchant usage externalities than leaving merchants to solve them on their own. But that is assuming the answer to the key question: is the interchange fee system being used to achieve efficiencies or to tax retail sales in an exercise of market power?

Merchants' dissatisfaction with interchange fees and the networks' policies towards the setting of interchange fees and towards merchant surcharging for card transactions suggest an answer. If interchange fees are meant to solve or alleviate an externality resulting from a principal-agent problem, then it would not make sense for the network to prevent the principal from adjusting its own pricing and use other steering techniques to more completely solve this problem for itself, if it is able to do so. But the networks commonly prohibit surcharging of card transactions, 'discrimination' between customers presenting alternative card brands and the other forms of steering (although no-surcharge rules have been eliminated by the RBA and in some other regions). Merchants invariably find that interchange fees cause credit cards to cost far more to accept than supposedly inefficient paper currency and cheques.

Merchants have the appropriate incentives as to whether or not to pay interchange fees, and, if so, in what amount. Moreover, the networks do not require that the interchange fee proceeds be delivered to cardholders. Instead, issuers retain the funds, and only partially pass fee revenue to cardholders. In this sense, permitting issuers to retain interchange fees functions like collective resale price maintenance; the revenue flowing to the service provider induces additional sales efforts, promotional activity, and rebates. But it is far from apparent that these activities and the partial rebating of fee proceeds to cardholders benefit the public more than would lower merchant payment costs and prices to all consumers.

### 3.3 Imperfect issuer competition and high interchange fees

Some defenders of interchange fees rely on assumptions that card issuing banks possess market power unilaterally.<sup>47</sup> The existence of market power, they suggest, negates the conclusion that

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<sup>47</sup> For example, see Wright (2003), p. 607 ('Note as with the earlier models, there will be too little card usage from the central planner's perspective. Cardholders do not internalize the markups they generate for issuing banks when making their usage decisions.'). Rochet and Tirole (2002), p. 552 ('[W]e assume that acquirers are competitive while issuers have market power. The acquiring side... is widely viewed as highly competitive... In contrast, the issuing side is generally regarded as exhibiting market power... Note that were the issuing side perfectly competitive, issuers would have no preference over (make no profit regardless of) the interchange fee, and so the latter would be indeterminate...'). In Australia, Chang et al suggest that card issuing banks possess market power. See Chang, Evans and Garcia Swartz (2005), p. 334 ('As in other markets, the extent to which the loss in revenue from merchants will get passed on to cardholders depends on the degree of competition among card issuers. Given that card issuing in Australia is relatively concentrated we would not expect full pass through, at least in the short run.').

merchants have the appropriate incentives whether or not to have an interchange fee, and, if so, at what level.<sup>48</sup>

If issuers have market power, they reason, exercise of that market power reduces output, so encouraging card issuing and use with interchange fees can be efficient even if the fees exceeds the level merchants would choose (if any). There are several problems with this argument. First, interchange fees will not necessarily increase aggregate card use. Although incentives to use cards are increased at the margin, at merchants accepting the cards (assuming they also accept cash and do not charge different prices for card transactions), fewer merchants are likely to accept cards in the first instance as interchange fees are imposed, or set at higher levels, thus reducing card usage. Second, there is no reason to expect that if individual issuing banks, each with unilateral market power, are permitted to act collectively to increase their mutual fees collected from merchants, that they will use this power to offset the inefficiencies resulting from the exercise of their own market power, rather than use their collective action to enhance their overall exercise of market power. Third, additional significant wealth transfers to the parties with market power occur when they are permitted to impose and collect interchange fees, only a portion of which they pass to cardholders.

If card issuers have significant market power, it would seem to be perverse public policy to approve subsidies to such institutions – let alone subsidies chosen by networks created by those institutions – rather than attempt to reduce the prevalence of marketplace features, such as membership restrictions, which may create or maintain market power.

It should be noted that the networks sometimes contend that the interchange fee cannot cause any harm because any excess interchange fee revenue will simply be rebated to cardholders by intensely competitive issuers. According to Visa consultant Tim Muris, for example, ‘Because of the extraordinary level of competition in the [US] consumer market ... there is an overwhelming incentive for issuers to pass increases in their interchange fees on to consumers’.<sup>49</sup> Visa’s Paul Allen echoes this idea:

... if by chance Visa did set the fee ‘improperly high’, [footnote omitted] members could not retain any supra-competitive profits because unrestrained competition within the Visa system among both issuers and acquirers means that, in the long run, no member can earn more than a competitive rate of return. Because Visa, the organization, operates as a not for profit... and allows its members to compete freely, interchange is nothing more than an internal equilibrating device that does not and cannot harm consumer welfare.<sup>50</sup>

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48 Consider this exchange during the 2005 Santa Fe Conference, *Interchange Fees in Credit and Debit Card Industries: What Role For Public Authorities?*, Federal Reserve Bank of Kansas City (2005), pp. 148-49:

Mr. Frankel: ‘... [I]f you assume acquirers are perfectly competitive, then [the externality] is all on the merchant side. So then the question is: **Wouldn’t you recommend letting the merchant pick any interchange fee it wants and having that amount directly rebated back to the cardholder through the credit card system?**’

Mr. Rochet: ‘**You are absolutely right, in a perfectly competitive system. As soon as you introduce market power, then it is not true anymore. You have to be very clear about where the market power is. Is it on the merchant side? Is it on the acquirer side? Is it on the issuer side? The answer depends a lot on the subtleties of market power. It is a very delicate matter.**’ (emphasis added).

49 Muris (2005), p. 533.

50 Visa USA Inc., *Comment on Issues Relating to Joint Venture Project; Joint Ventures: Putting a Principle to Practice* (July 31, 1997), <http://www.ftc.gov/opp/jointvent/allen.shtm>. I address the impending conversion of Visa into an independent, for-profit company below.

Generalising, Evans and Schmalensee argue that ‘The key point of this discussion is that the interchange fee is not an ordinary price; its most direct effect is on price structure, not price level’.<sup>51</sup> They suggest ‘the overall level of fees... might be measured as total fees [cardholder fees plus merchant fees] per dollar of transactions’ and ‘their structure... might be measured by the shares of total fees paid by merchants and cardholders’.<sup>52</sup>

In reality, however, the interchange fee does affect the ‘price level’ even if this term is defined as the sum of the merchant and cardholder price. Interchange fees are borne fully by merchants;<sup>53</sup> they are not, however, rebated fully to cardholders.<sup>54</sup> Visa explains that this situation can give the network and its members an incentive to impose a high interchange fee, stating ‘If additional revenue is less likely to be competed away when received on the issuing side than on the acquiring side, then it would be privately-optimal [for the network] to increase the [interchange fee]’.<sup>55</sup>

In other words, imperfect issuer competition to rebate interchange fees to cardholders explains why the networks have an incentive to impose interchange fees, but this is unrelated to any efficiency effects. It is instead simply a way to raise total aggregate fees charged for use of card payment systems.

## 4. Designing Competitive Payment Markets

The foregoing discussion is intended to provide context within which to evaluate how public policy might be applied to create more competitive payment markets. Existing rivalry among banks or between networks is insufficient to foster a well-functioning, efficient and competitive market; the likelihood that such rivalry can generate competitive outcomes depends crucially on the institutional features and design of the market.<sup>56</sup>

### 4.1 Merchants can decide whether to pay interchange fees

The usage externality is real. The cost to merchants of completing transactions varies according to payment method, but consumers select the payment method without internalising the merchant’s cost differences, because prices are equal across payment methods.

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<sup>51</sup> Evans and Schmalensee (2005), p. 76.

<sup>52</sup> *Id.*, p. 73. It is not, in fact, obvious that the relevant price should be measured as a percentage of transaction value, simply because the card schemes maintain percentage interchange fees on credit card transactions. An alternative – the amount of fees per transaction – may be more appropriate and has been used in many debit and ATM networks. On a per-transaction basis, a constant percentage fee rate generates price increases as average transaction amounts increase.

<sup>53</sup> For example, see note 10, *supra*, and discussion at Frankel and Shampine (2006), pp. 631-32.

<sup>54</sup> For example, see Visa Europe, ‘Response To The Consultation On The European Commission’s Interim Report I: Payment Cards’ (21 June 2006), p. 21 (‘[I]n practice there may not be full pass-through, for example, on the issuing side. Issuers may find that they can increase their issuing business by using, as it were, part of an increase in the level of a MIF to recruit more cardholders, and not pass through the whole of the increase directly to its cardholders.’); *id.*, p. 25 (‘[T]here are sound business reasons why issuers may not pass through to their cardholders the whole of an increase in the [interchange fee] in the form of reductions in cardholder fees or increases in rewards that cardholders value.’).

<sup>55</sup> *Id.*, p. 21. Privately optimal means more profitable for issuing banks and their networks.

<sup>56</sup> Daniel McFadden makes a similar point in the context of health care markets. Daniel L. McFadden, ‘A Dog’s Breakfast’, *Wall Street Journal*, February 16, 2007, p. A15 (‘[C]onsumer-directed health care works only if consumers can understand the consequences of their choices. In much of medicine, providers are the agents that guide consumers through these choices. If consumer-directed health care is to be effective, these providers must give sound advice on both the health and financial consequences of alternative choices. This is possible if the incentives to providers and consumers are right, but the design of such markets should not be left to chance.’).

Some point out that this type of situation is common throughout the economy.<sup>57</sup> No one compels a clothing retailer, for example, to charge a separate fee for alterations or automobile parking. If it does not charge separate prices depending on the level of service provided, then one might say there is an externality, but not one important enough for the merchant to bother solving.<sup>58</sup> Moreover, a merchant can solve this problem itself if it proves to be significant, and regulation of alteration or parking fees would be unlikely to make economic sense.

The problem with the argument that usage externalities are pervasive and unimportant is that it is the *card networks* that intervene to regulate such externalities in payment systems. They neither leave merchants to decide for themselves whether and by how much to refine their retail prices through interchange fees, nor permit merchants freedom to adjust the point of sale incentives to consumers as the merchants see fit after the networks have imposed their interchange fees. The result is likely a far more significant usage externality than any which would have existed absent the networks' intervention in the first instance. The argument that usage externalities should be left unregulated unless a clear market failure is established implies not that competition law or regulatory intervention is unjustified, but rather that *network* interchange fees should be rejected. Merchants can be trusted to price differentially or steer customers as they see fit without intervention by the networks, barring compelling evidence to the contrary (or voluntary agreement by a merchant to pay interchange fees to an issuer).

Baxter suggested that it is less costly for banks to administer interchange fees than it is for merchants to administer differential retail pricing. Retail point-of-sale transaction processing technology has advanced significantly since the 1970s, however, while transaction costs have declined with advances in point-of-sale technology. It is clear that bank networks do not establish fees which adjust the usage externality in the same way that merchants would choose for themselves if they were free to do so.

## 4.2 Mandatory interchange fees can be eliminated

Card payment systems can operate competitively, requiring neither industry regulation of fees (as MasterCard and Visa continue to do in most regions) nor government regulation of fees (as now occurs in Australia). The networks and economists who defend interchange fees contend the only alternative to centrally fixed interchange fees is a complex and costly system of bilateral interchange fee agreements between each pair of banks, covering all of the transactions between their respective cardholders and merchants. They argue further that bilateral fee agreements will result in even higher interchange fees, because the networks' honour all cards rules create a hold-up problem in which each issuer has monopoly power over each merchant.<sup>59</sup>

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57 For example, see David Evans, 'Viewpoint: Bank Interchange Fees Balance Dual Demand', *American Banker*, January 26, 2001.

58 Similarly with respect to interchange fees, Jean-Charles Rochet explains, 'when the optimal IF... is close to zero, the implementation costs that the network would have to incur for negotiating a non-zero IF and implementing the associated interbank payments could exceed the benefits generated by the internalization of usage externalities'. Jean-Charles Rochet, 'Comments on the Interim Report on Payment Cards and Payment Systems Produced by the European Commission on April 12, 2006', p. 3.

59 For example, see Baxter (1983), pp. 576-77; Testimony of William Baxter before the United States Federal Trade Commission, Hearings On Global And Innovation-Based Competition, Docket No.:P951201 (November 30, 1995), p. 3703 ('[T]he critical factor to understanding interchange fees is to understand that each bank has an incentive to overcharge. Once it gets its hands on the merchant paper, there's no other source; it has an enormous incentive to overcharge. And the interchange fee is a ceiling. It is a horizontal price-fixing agreement in a sense; but it's a horizontal price fixing agreement about maximum prices, not about minimum prices.'). testimony of Timothy J. Muris before The United States House Of Representatives, Committee On Energy And Commerce, Subcommittee On Commerce, Trade, And Consumer Protection, 'The Law And Economics Of Interchange Fees', February 15, 2006, p. 12 ('A system-wide fee avoids the cost of a hold-up that could occur in that situation [of no fixed interchange fee]. Without the set fee, individual issuers could demand higher interchange fees if there were bilateral negotiations every time a card transaction was presented. And because of the need to honour all the cards, acquirers could not respond by refusing to accept cards from certain issuers.').

This argument is misleading. It rests on an unstated assumption that the network continues to have a default rule requiring each acquirer to remit interchange fees to every issuer as a condition of allowing a merchant to accept credit card transactions. There is, in effect, a ‘pay interchange to all’ rule in addition to the honour all cards rule, which together create the very hold-up problem which the networks then claim requires centrally fixed default interchange fees to solve.

Interchange fee supporters deny that it is possible for the networks to function without *someone* regulating interchange fees. They argue that a payment system with no default interchange fee actually does have an interchange fee, but it is ‘fixed at zero’ – and not different in substance than any other interchange fee Visa or MasterCard might choose to impose. This is incorrect.

Saying that the competitive merchant fee (that is, the fee which a merchant can obtain through independent competition among acquirers in the absence of an interchange fee) is actually a *fixed fee*, with the fixed component equal to zero, is a semantic argument with no economic substance. The competitive merchant fee is the fee resulting from competition among independent acquiring banks based on their own, competitively determined costs. The interchange fee increases this competitive merchant fee on a one-for-one basis, and, in effect, represents in its entirety a collective (and anticompetitive) overcharge. Elimination of the overcharge thus restores the market to decentralised competitive pricing. It is nonsensical to defend an anticompetitive overcharge based on the argument that it is impossible to eliminate because a zero overcharge is still an overcharge.

In a competitive, par (default) settlement arrangement, there is no rule requiring that an interchange fee be paid as a condition of a merchant’s transactions being authorised, cleared and settled by the network. Only if individual members and merchants find it mutually advantageous will they enter into voluntary contracts which involve the payment of an interchange fee or side payment. The network would not refuse to deal with a merchant or issuer merely because that merchant or issuer has failed to enter into a comprehensive web of contracts requiring the payment of interchange fees to every other network participant. The scheme would not be fixing fees, but *declining* to fix merchant fees.

Successful interbank payment systems have operated or continue to operate at par. Interchange fees in currency and cheque markets in the US were historically associated always with the exercise of monopoly power by banks in towns isolated from any competitors, or by city banks using their local clearinghouse joint ventures as cartels to exercise monopoly power over the redemption of payments presented by banks located in distant cities.<sup>60</sup> When network competition worked effectively, banks abandoned interchange fees and remitted currency and cheque payments at par. They nonetheless continued to offer these payment services because their customers valued making and receiving payments, and were therefore willing to pay fees

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<sup>60</sup> Frankel (1998).

or maintain deposit balances (or other account relationships) which generated revenue for the banks to cover the cost of providing the payment services.<sup>61</sup>

There are numerous examples of debit networks operating at par, without the payment of interchange fees to (or from) issuing banks.<sup>62</sup> Early PIN-authorized debit networks in the US tended to operate at par.<sup>63</sup> In Canada, 'there is no interchange fee in the *Interac* Direct Payment service',<sup>64</sup> yet the *Interac* Direct Payment PIN debit network has been the country's leading payment system. Some national debit systems in Europe (in the Netherlands, Finland, Denmark, and Luxembourg) reportedly operate or have operated with par settlement.<sup>65</sup> In New Zealand, many EFTPOS debit transactions apparently settle at par, yet 'Transactions passing through these systems are estimated to account for around 60 per cent of retail turnover'. Visa debit transactions in New Zealand use the EFTPOS infrastructure, and also settle at par.<sup>66</sup>

There is nothing fundamentally different about credit card networks that prevents them from settling transactions between banks at par like cheque and debit card systems. In fact, many consumers use credit cards for purely transactional purposes, rather than as a means to finance spending.<sup>67</sup> That credit cards offer users a credit function does not somehow mandate that a fixed transaction fee unnecessary in debit card transactions becomes essential. In fact, economists who defend interchange fees typically argue that eliminating interchange fees would be inefficient (by reducing incentives for consumers to use the cards), not that the networks

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61 *Chang and Evans (2000) argue that this result occurred because of what they consider an arbitrary common law legal rule requiring payment at par when paper payments were presented directly to the issuing bank (rather than through the mail). It is likely, however, that the common law practice itself resulted from competition in early banking markets. But the reason for the underlying par rule is less relevant for present purposes than the results: par settlement in paper based payment systems continued to work effectively, and all banks continued to offer payment services even after their interchange fees were eliminated by competition or by law. Chang and Evans apparently would endorse a bank association even today imposing universal default interchange fees on the settlement of cheques, even if such interchange fees raised cheque acceptance costs and notwithstanding the lack of any evidence that such a scheme would benefit the public.*

62 *Debit card transactions function much like electronic cheques; indeed, in the US, Visa calls its debit card the 'Visa Check Card'. There are two principal debit technologies (aside from pre-paid stored value cards). The MasterCard and Visa schemes built their debit card networks to settle debit transactions using their credit card infrastructure, and so in Australia and the United States rely on signature verification. EFTPOS transactions, like ATM transactions, are authorised by the customer's entry of a personal identification number (PIN), and tend therefore to be less risky than offline debit.*

63 *Constantine (2005), pp. 159-60 ('By the early 1990s, some 15 years after on-line PIN debit and off-line Visa/MasterCard signature debit were created... PIN debit transactions cleared at par, except in the few regional networks that were paying merchants a per-transaction fee to accept debit transactions (as is still the case in Australia). Virtually everyone in the industry, including Visa and MasterCard themselves, predicted that at-par PIN debit would not merely continue to dominate, but would eliminate the slower, fraud-prone, and much costlier signature debit system. MasterCard's CEO, Pete Hart, frequently and publicly stated this.').*

64 *'Interac Association, A Backgrounder', September 2000, p. 8.*

65 *European Commission, Competition DG, Financial Services (Banking And Insurance), 'Interim Report I: Payment Cards', Sector Inquiry On Retail Banking, Under Article 17 Regulation 1/2003, 12 April 2006, p. 26 ('[B]anks [in these four countries] cooperate in payment card systems without charging one another interchange fees for POS transactions.').*

66 *Reserve Bank of New Zealand, 'Payment And Settlement Systems In New Zealand', Updated September 2003, p. 13; <http://www.visa-asia.com/lap/nz/merchants/gettingstarted/interchange.shtml>.*

67 *Bruce Mansfield, General Manager, Australia & New Zealand, Visa International, 'Regulatory Change and Market Leadership', Address To Cards Australia Conference, Sydney, 17 August 2005, p. 6 ('[R]ewards cards were targeted at transactors - people who pay off their card every month...').*

cannot operate without the fees.<sup>68</sup> But they lack support even for this milder claim: as I have explained, eliminating the fees would likely improve efficiency.

### 4.3 Competitive restrictions can be eliminated

Banks participating in four-party payment systems operating competitively, and without any interchange fee, establish fees based on their own costs of providing services to their respective customers, whether they serve consumers, merchants, or both. As already discussed, it is sensible to migrate directly to a no-interchange fee (par settlement) card payment environment.

In addition, however, restrictions on merchants' ability to influence payment and network choices are anticompetitive individually and taken together. They minimise the elasticity of demand facing each network, enabling those networks to raise their merchant fees either directly or, for four-party systems, through use of centrally fixed interchange fees. These restrictions also increase the likelihood that the network itself will be able to increase its own network fees anticompetitively.

#### 4.3.1 Networks can compete for merchant transactions

Effective competition among networks and their members would tend to eliminate interchange fees, even if networks were permitted to continue imposing such fees. If any merchant could transport its claims for payment back to the issuing bank via any of a number of competing networks, then, all else equal, merchants would tend to choose the network which imposed the lowest interchange fee.<sup>69</sup> Competition among networks thus would drive interchange fees lower.<sup>70</sup> In bank note and cheque settlement markets, this process resulted in the elimination of interchange fees altogether. Unlike those paper-based demand claims on banks, however, banks generally can choose whether and how many networks in which to participate. Very frequently, they participate in multiple networks. Yet it is possible that with competing networks they might choose unilaterally to withdraw from a network that reduces its interchange fee.

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<sup>68</sup> Evans and Schmalensee (1999), p. 280 ('Visa would probably have survived with a zero interchange fee...' (although they argue the results would not be efficient or desirable.)); Testimony of William Baxter before the United States Federal Trade Commission, *supra* note 19 ('There would be credit cards without interchange fees.' However, he claimed, 'there would be fewer of them, and their costs would be higher.');

Jean-Charles Rochet, 'Comments on the Interim Report on Payment Cards and Payment Systems Produced by the European Commission on April 12, 2006,' p. 3 ('Payment systems can also function with a zero IF, like the [debit card systems identified by the Commission in the Sector Inquiry].');

Wright (2004), p. 58 ('It is true that provided there is not a dramatic loss of business to proprietary schemes, the existing payment schemes would still be viable with interchange fees set at zero (individual issuers and acquirers would adjust their prices accordingly to retain profitability).').

Visa itself echoes Wright's point that pricing can adjust to permit issuers to cover their costs: 'If there were no interchange fees or equivalent payments, each issuing bank would have to recover all its costs from the revenue it received from cardholders. It would have to adjust its issuing activities accordingly, so as to bring its costs and revenue into balance' (Visa Europe, 'Response To The Consultation On The European Commission's Interim Report I: Payment Cards', 21 June 2006, p. 22).

<sup>69</sup> For example, see *Competitive Impact Statement, in US v. First Data Corporation and Concord EFS, Inc., Case No. 1:03CV02169 (D.C.)*, p. 11 ('Least-cost routing opportunities constrain PIN debit networks from increasing prices to merchants, or reducing levels of service, because they permit merchants, in some circumstances, to route around more expensive networks, or networks that offer poorer levels of service. In recent years, major supermarkets and mass merchandisers have obtained superior prices and levels of service by routing, or threatening to route, transactions away from one PIN debit network to another network.')

<sup>70</sup> The European Commission recently raised the idea of permitting multi-branded cards. Visa criticised the idea as inherently anticompetitive and harmful, while offering no persuasive explanation why this might be so. European Commission, Competition DG, Financial Services (Banking And Insurance), 'Interim Report I: Payment Cards', Sector Inquiry On Retail Banking, Under Article 17 Regulation 1/2003, 12 April 2006, pp. 121-22; Visa Europe, 'Response To The Consultation On The European Commission's Interim Report I: Payment Cards', 21 June 2006, pp. 33-34. It is not obvious how a bank's ability to issue a single card which could route a transaction seamlessly over two or more networks would harm competition; instead, this ability could transform the marketplace into one in which the networks focused on delivering the best service at the lowest prices.

There are at least two possible solutions to this bottleneck problem. Network rules, laws or regulations can perhaps require the redemption of these electronic claims (when presented, say, over a certified network) in the same way as occurs with cheques. Absent anticompetitive restrictions, the competitive process itself would likely have resulted in multi-network enabled cards and issuing banks. This, in fact, is how debit card networks developed in the US. Of course, history can matter to the development and effectiveness of competitive strategies. Had banks always been able to issue multi-network enabled credit cards, any bank not issuing such cards might have been at a competitive disadvantage as its cards would not be as useful as those issued by its rivals. Because merchants could not choose the network to process transactions initiated with a particular card, however, most major merchants chose to accept all of the leading credit card brands. This might now make multi-network cards less of a competitive threat to monopolistic interchange fees, but there is no reason to permit the networks to forbid the issuance of multi-network capable cards; the history of debit cards demonstrates that multi-network cards do not prevent the efficient development or operation of networks.

#### *4.3.2 Surcharges and steering can be permitted*

Because merchants pay transaction fees elevated by the interchange fee, competitive pressure on networks to constrain the amount of the interchange fee is more effective if a merchant can choose the network, reflect its relative costs in point-of-sale surcharges and discounts, or otherwise effectively influence consumers to choose the merchant's preferred network. This is likely why the networks often deter or prohibit merchants from influencing payment choices.

When prices do not vary by payment method, cards which impose higher interchange fee costs on merchants will tend to be favoured by consumers whether or not that choice increases merchant costs. The clearest and most direct form of merchant steering (short of merchant refusal to accept a payment or merchant ability to choose the payment network) is therefore a multiple price system which fully internalises for cardholders the merchant's differential costs of accepting different forms of payment.

MasterCard and Visa defend against complaints that (still in some regions) they forbid *card surcharges* by pretending that the complaint is that they forbid *cash discounts*<sup>71</sup> – which they do not (at least, in the US, since legislation in the early 1980s authorised merchants to implement cash discounts). But permitting discounts for 'cash' is not equivalent to permitting 'surcharges' for credit cards, both because the framing of a differential price can matter to the outcome, and because discounts do not permit inter-network price competition at the point of sale. Moreover, merchants sometimes find that there are significant network constraints even on their claimed ability to offer discounted prices for cash purchases.<sup>72</sup>

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71 For example, see MasterCard Worldwide, *Interchange Myths and Facts*, <http://www.mastercard.com/us/company/en/docs/InterchangeFactsandMyths.doc>, p. 4:

*Myth: Card company rules prohibit merchants from offering discounts for cash and cheque.*

*Fact: MasterCard has always allowed merchants to offer discounts for cash and cheque. Gas stations, for example, used to regularly offer cash discounts, but the majority independently ceased this practice. These types of businesses came to recognise that payment cards, such as MasterCard, offered them significant benefits over cash or cheque transactions.*

72 For example, see *Gas Stations Discounting Cash Sales*, Delaware Online, 27 August 2007, <http://www.delawareonline.com/apps/pbcs.dll/article?AID=/20070827/BUSINESS/708270304>.

Even merchants' mere *ability* to impose surcharges on credit card transactions can have procompetitive effects.<sup>73</sup> As MasterCard explains:

MasterCard considers that the ability of merchants to discourage card use, by such means as cash discounts and surcharging, should be more than sufficient to avoid excessive interchange fees. Credit card schemes have an interest in avoiding discouragement by merchants, because it lessens card use. It should not, therefore, be surprising that schemes will set interchange fees to dissuade widespread discouragement practices by merchants. A low level of discouragement might therefore simply reflect that merchants are not unhappy with their current merchant fees relative to the benefits they obtain from accepting cards. That is simply the nature of bargaining – one does not need to exercise an option for it to have value to the merchant.

The threat of discouragement has value to the merchant (in restraining merchant fees) as long as it is credible, [footnote omitted] even if it is not exercised.<sup>74</sup>

*Prohibiting* surcharges therefore has anticompetitive effects. Although merchants' ability to surcharge will not prevent networks entirely from using interchange fees to artificially increase merchant fees, it will constrain the amount of overcharges imposed through interchange fees. Again, MasterCard explains that 'An increase in merchant service fees will clearly raise the gains from surcharging relative to the costs, and hence make it more likely that surcharging will occur'.<sup>75</sup> But if networks seek to prevent surcharging, then they will increase interchange fees to the point where incremental losses from 'discouragement' offset incremental interchange fee revenue. This point will be at a higher level of fees if merchants' freedom to discourage card use is restricted by network rules.

Removing restrictions on surcharging is not a complete solution, because merchants find it difficult to surcharge when their competitors are not (and those competitors may receive lower interchange fees), and it is costly to explain surcharges and the existence of lower cash prices to consumers, particularly if rules or regulations further limit the ability of merchants to communicate lower cash prices. MasterCard misses the point in its discussion of surcharging. According to the network:

MasterCard also recognises the possible benefits in the Australian context of increasing merchants' pricing flexibility, and that surcharging provides four-party schemes with yet another basis to ensure that the level of interchange fees does not exceed merchant willingness to pay.<sup>76</sup>

This statement is telling: MasterCard, in addition to acknowledging that interchange fees are paid by merchants, apparently contends that the purpose of its discriminatory interchange fee system is to approach but not exceed a merchant's *willingness to pay* (reservation price) to

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73 C. Christian von Weizsäcker, 'Economics of Credit Cards', Expert report on behalf of MasterCard International Incorporated and Europay International SA, 23rd January 2002, [http://www.rba.gov.au/PaymentsSystem/Reforms/CCSchemes/ResponsesConsultDoc/mastercard\\_0302\\_3.pdf](http://www.rba.gov.au/PaymentsSystem/Reforms/CCSchemes/ResponsesConsultDoc/mastercard_0302_3.pdf), ¶55 ('Price competition of payment systems for merchants is enhanced by the fact that surcharges (and cash discounts, etc.) are possible. From the point of view of the payments system, surcharging of the system by many merchants is to be avoided. The attractiveness of cards among cardholders is negatively affected by widespread surcharging... Therefore the risk of increased surcharging after an increase of fees is one of the most powerful forces to keep merchant fees low. We would expect that actual surcharging is rather infrequent because payment systems have a great interest to avoid merchant surcharging of their system. But nevertheless, merchants' right to surcharge imposes substantial downward pressure on merchant fees.')

74 Response by MasterCard Worldwide to the Issues for the 2007/08 Review, August 31, 2007, [http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/mc\\_31082007.pdf](http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/mc_31082007.pdf), pp. 16-17.

75 *Id.*, p. 17.

76 *Id.*, p. 16.

accept card transactions. But competitive markets generally do not permit sellers to identify and charge a buyer's reservation price; this is the sign of monopoly pricing enabled by practices which create and exploit single-homing behaviour among cardholders and multi-homing acceptance by merchants. The ability to surcharge can increase the number of merchants accepting cards, pressure networks to reduce merchant fees, and induce consumers to make more efficient payment choices.

### *4.3.3 Honour all cards rules can be abolished*

Other forms of merchant steering have been or are restricted by network rules. Merchants may not refuse card transactions for low-value transactions, for example, and American Express fights merchant 'suppression' of that network's cards, including by terminating merchants which discourage customer use of American Express cards.<sup>77</sup> In general, these policies compel merchants to make an all or nothing decision whether to accept the cards from a network, and give the merchant little or no ability thereafter to shift transactions from one network to another in response to fee differences across the networks. They therefore make merchant demand for each network's card acceptance services less elastic, and permit higher profit-maximizing interchange fees.

As a general matter, there is no sound rationale for maintaining restrictions on the ability of merchants and their customers to conduct trade in an unregulated way on whatever price and other terms they see fit (consistent with other laws and regulations). For example, merchants in the US routinely determine unilaterally whether to accept cheques. If they decide to do so, they determine whether to accept all cheques or just cheques from customers who reside in certain locations, or for certain purchases, and they determine what fees, if any, to charge to customers to exchange those cheques for cash or whose cheques are returned unpaid by their banks.

Card networks frequently argue that it is a fundamental characteristic of such networks that any customer carrying a card with the network's trademark will know with certainty that the card will be accepted by a merchant displaying that trademark. Although that may be a benefit, such benefits must be weighed against the costs to competition which also result from an honour all cards rule. After all, consumer search costs can also be reduced by a price fixing cartel which offers price certainty.

Given the problems with maintaining competitive payment markets, any restriction on merchants' ability to steer their customers towards preferred or lower cost payment methods should be viewed with suspicion and critically examined. The honour all cards rule is one such competitive restriction. Barring compelling evidence – rather than mere assertion – that its elimination would cause more harm than good, it should be eliminated. A merchant should have complete freedom to establish or negotiate its terms of trade with its customers and should be free to accept or deny payment methods, including card payments, based on the level of interchange fee, the size of the transaction, or any other factor of its choosing.

Card networks in recent years have driven increases in interchange fees in part by introducing higher interchange tier cards, and requiring merchants to accept these higher cost cards. Banks then switch their customers into these high interchange fee card programs. Merchants cannot

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<sup>77</sup> 'American Express Cuts Off Retailer', *New York Times*, December 23, 1991.

selectively refuse cards even if the cost of accepting a particular card transaction exceeds the merchants' overall reservation price; the merchant must make an all or nothing choice whether to accept all of the branded card transactions.

#### 4.4 *Mandatory* bilateral interchange fees and other alternatives

The scenario described in Section 4.2 in which there was no 'mandatory' interchange fee was equivalent to an environment of voluntary bilateral interchange fees; only mutually acceptable fee agreements would be processed by the networks, which otherwise would play no role in requiring or establishing the level of interchange fees; all valid transactions would clear and settle whether or not an interchange fee agreement was in place. I then discussed elimination of the honour all cards rules, but primarily in the context of permitting a merchant to reject certain types of cards which carry higher interchange fees.

The honour all cards rule also has an 'all issuers' aspect, which the networks cite as the reason why centrally fixed interchange fees are necessary rather than bilateral fees; otherwise, they explain, any one issuer can hold-up a merchant and extract the monopoly fee. One competitive tool might therefore be to eliminate this all-issuers aspect of the honour all cards rule.<sup>78</sup>

Consider an alternative. Suppose the network eliminated any no-discrimination or no-surcharge rule, required each merchant to negotiate bilateral interchange fee agreements (either directly or through correspondent banking relationships), and required each merchant to itemise the interchange fee as a separate line item charge to the customer presenting the card, much like sales taxes are itemised. In this case, usage externalities would be eliminated.

In fact, one might not need the costly process of negotiating interchange fees at all if the network required that they be passed along to the issuer's own customers; a bank could simply post its interchange fee unilaterally, and its own card customer would bear the resulting cost if it chose to obtain its card from that bank. Of course, in that case, there would be no reason for an issuer to bother with the interchange fee in the first place, as it would be easier to just charge fees directly to its own customers. The 'competitive interchange fee', assuming cardholders are fully informed, would likely be zero even if networks required that interchange fee agreements are in place.

If a merchant is unable to surcharge an individual issuer's cards to reflect its higher interchange fee, however, it may also be unlikely to refuse the card altogether. Eliminating the all-issuers aspect of the honour all cards rules, therefore, might not be enough in a bilateral fee environment to achieve a competitive market. That does not imply that it is sensible to leave the restriction in place, just that its elimination along with elimination of no-surcharge and no-discrimination rules may be insufficient to create a fully competitive market.

The entire point of interchange fees from the perspective of issuers can be seen as the collection of revenue supplied by *non-customers* of an issuer. If merchants could not or would not set surcharges which varied according to the interchange fees charged by the individual issuers, then

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<sup>78</sup> Under the counterfactual scenario described by interchange fee supporters, a merchant unable to reach a bilateral fee agreement with every issuer would be refused participation in the network; the merchant would not be permitted to submit transactions to all banks for which interchange agreements are in place. But it is no more the merchant refusing to accept an issuer's cards than the issuer which is refusing to authorise transactions put to it as it holds out for a higher interchange fee. In other words, there is an asymmetry in that there is no network 'honour all merchants' rule.

externality problems will persist. In short, one might imagine a variety of marketplace devices which to different degrees enhanced competition effectively over interchange fees. The closer the networks get to designing a set of rules which promote effective competition (that is, eliminate externalities and market failures), rather than create and exploit market failures, the more likely it is that the resulting competitive equilibrium will see the elimination of interchange fees.

#### 4.5 Three-party card networks

MasterCard and Visa often respond to criticism of interchange fees by claiming that ‘three-party’ networks like American Express and Diners Club can set merchant fees directly, so attacks on interchange fees are merely an attack on ‘corporate form’. They argue that reductions in their interchange fees will create an ‘uneven playing field’ and permit three-party networks to use their unregulated, high merchant fees to offer more valuable rewards to cardholders than remain available on MasterCard or Visa cards and thus displace the four-party networks.<sup>79</sup> Because, they claim, three-party systems are less efficient and more costly than MasterCard and Visa, reducing interchange fees will therefore harm the public and even harm merchants by replacing lower fee MasterCard and Visa transactions with higher fee American Express or Diners Club transactions.

Notwithstanding warnings that merchants’ situation will worsen with lower interchange fees, merchants continue to seek lower fees. By itself, this is evidence that merchant costs are unlikely to rise as the result of lower interchange fees, unless merchants systematically fail to pursue their own economic interests. Similarly, if it were true that reducing interchange fees will simply permit American Express to maintain its high fees and take over the market, then one might expect American Express to support the reduction or elimination of interchange fees. But American Express has not supported regulated reductions in MasterCard and Visa interchange fees.<sup>80</sup>

In fact, although perhaps imperfect, American Express is constrained to some extent in the setting of its merchant fees by the amount that merchants pay to accept MasterCard and Visa card transactions. As the cost to the merchant of accepting one of the four-party networks’ cards declines sharply with reduced interchange fees, the merchant’s cost/benefit calculus in deciding whether to accept American Express cards shifts: although some transactions will still be lost to retailers accepting American Express cards, for each transaction successfully shifted to a MasterCard or Visa card account, the merchant’s savings increase with lower interchange fees. If American Express maintained a privately optimal premium over the cost to merchants of accepting MasterCard or Visa transactions, it will likely find it privately optimal to reduce its merchant fees following a reduction in interchange fees.<sup>81</sup> (As I describe in the next section, reduced interchange fees and the ability to surcharge have in fact led to reductions in American Express merchant fees in Australia.)

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79 For example, see MasterCard International Incorporated, ‘Response to the December 2001 Consultation Document of the Reserve Bank of Australia’, March 2002, p. 37 (‘As Australian financial institutions now issue American Express credit cards and receive a commission based on total cardholder volume, the Bank’s selective intervention, focusing exclusively on the four-party scheme, will have a direct impact in tilting the playing field in favour of the three-party schemes.’).

80 For example, see American Express, ‘Competition In Payment Systems: Submission To Reserve Bank Of Australia’, June 2001, p. 8 (‘American Express submits that the RBA should promote increased competition arising from the removal of unjustifiable access restrictions rather than price-focussed regulation to drive any reduction or rationalisation in interchange fees.’).

81 Ed Gilligan, Group President, Global Corporate Services and International Payments, American Express, Remarks Before the Financial Community Meeting, p.10 (Aug. 4, 2004), [http://library.corporate-ir.net/library/64/644/64467/items/172842/fcm0408\\_eg\\_s.pdf](http://library.corporate-ir.net/library/64/644/64467/items/172842/fcm0408_eg_s.pdf) (‘[L]imits on the level of interchange fee ... could exert a downward pull on our own discount rates.’).

If three-party card networks did begin to take over the market and cause harm to the public, as MasterCard and Visa warn (or if MasterCard or Visa themselves attempt to transform their structures by integrating directly into acquiring like American Express), then one possible remedy is to simply prohibit the monopolisation of their respective acquiring markets through such vertical control. The American Express structural problem – to the extent it becomes significant – arises because American Express maintains a vertical monopoly bottleneck in the acquiring of American Express transactions: it does not permit competing acquirers for American Express transactions (and, outside Australia, it prevents steering through vertical restrictions). If it relaxed these restrictions, then it could be treated in an entirely symmetric way with MasterCard and Visa. American Express payments to independent bank issuers could also be subjected to a similar process or policies as are applied to MasterCard and Visa interchange fees paid to issuing banks.

#### **4.6 More comprehensive structural changes**

The new centralised structures of MasterCard and Visa pose a potentially significant competitive problem. Formed as joint ventures of otherwise competing banks, they long defended themselves on the basis that they did not operate as profit centres, but rather served as ‘platforms’ which enabled their independent bank members to compete freely on price and other terms of card account plans and merchant services. Over time, however, the networks have centralised more activities (in addition to the setting of interchange fees and other rules), and their reorganisation as standalone, independent for-profit corporations represents a consolidation of formerly independent ownership interests into a single corporate entity. If, as the networks apparently believe, these new corporate structures insulate permanently conduct which would have been condemned under their old structures, then they argue that their conduct should not be condemned in the first instance. An alternative interpretation is that their corporate reorganisations themselves were anticompetitive and inappropriate.

Almost all discussions of competition and payments policy towards card schemes take as a starting point the existing organisation of the industry. But it is interesting to contemplate how one might design card payment markets today, were it possible to start with a ‘blank sheet of paper’. Rather than accept as given the role of MasterCard and Visa as both network service providers and network rule makers, one could contemplate a different market organisation in which the MasterCard and Visa processing networks operated in the same fashion as other large processing companies, while the standard setting and rule making functions formerly undertaken by those entities were divested and entrusted to new standard setting joint ventures or associations which did not own any networks or set any prices. Rather than MasterCard and Visa operating as central switches, they could be two among several or many directly connecting nodes, with other banks choosing between connecting directly to other nodes and contracting with any directly connected bank or network for correspondent network services. Central banks are perhaps best situated to undertake independent, broad reviews of the potential ways that payments markets might be restructured. If nothing else, understanding what such alternative

structures might look like may help policymakers understand more fully how the structure we have deviates from potentially more competitive alternatives.<sup>82</sup>

#### 4.7 Importance of both structural change and reduced interchange fees

Although history suggests that a fully competitive *process* in a well designed and competitive payments market would generate a par settlement system with no mandatory interchange fees, reform of existing markets must consider the fact that the marketplace would be evolving from a starting point which has been shaped for years by the dysfunctional competitive forces resulting from anticompetitive restrictions and collectively set interchange fees. Incremental reform of contractual restrictions, such as elimination of the no-surcharge and no-discrimination rules, is helpful and beneficial to the public, but may be insufficient to erode interchange fees to restore fully competitive pricing in the marketplace, given the four-party credit card duopoly and vertically integrated three-party card networks.

Similarly, reduction of interchange fees without reform of competitive restrictions heightens the risk that interchange fees charged to merchants will be supplanted by other fees charged to merchants. In particular, even if interchange fees are eliminated, and acquiring fees are no longer inflated from that source, it is possible that the networks themselves will take advantage of the lower fees by imposing their own increased network fees, charged to acquirers but collected from merchants just as interchange fees are now. In this way, the networks can exploit inelastic merchant demand either to provide a relabelled interchange fee payment to card issuers, or for their own profit. This risk is heightened by the lack of inter-network competition, the vertical restrictions which reduce merchants' ability to steer transactions to preferred networks, and the networks' recent corporate reorganisations. MasterCard and Visa no longer are joint ventures of otherwise independent banks, but rather have become (or, in the case of Visa, are in the process of becoming) independent, for-profit, publicly traded stock corporations. In this environment, it is important to maintain every potential competitive tool available to merchants to induce networks to compete with respect to their fees.

### 5. Effects of the Australian Retail Payment Reforms

The RBA reduced domestic credit card interchange fees in Australia in 2003 from an average of 0.95 per cent to an average of 0.55 per cent. In November 2006 the credit card interchange fee was reduced a further 0.05 percentage points to a weighted average of 0.50 per cent. The RBA eliminated the no-surcharge rule in the MasterCard and Visa networks, and obtained consent from American Express and Diners Club to eliminate their own prohibitions on merchant surcharging or discriminating against their branded card transactions. Chang, Evans and Garcia Swartz call the RBA interchange fee reform 'a natural experiment, almost' of the effects of sharp reductions in interchange fees.<sup>83</sup>

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82 *Even if a more efficient payments structure can be designed which would entail the major reorganisation of the way MasterCard, Visa or other networks operate and interconnect (or fail to interconnect), it might be difficult for either competition authorities or other regulators to use their existing statutory authority to achieve fully such reorganisation, and either cooperation of the networks or statutory changes could be required to achieve such major reorganisation.*

83 Chang, Evans and Garcia Swartz (2005), p. 329.

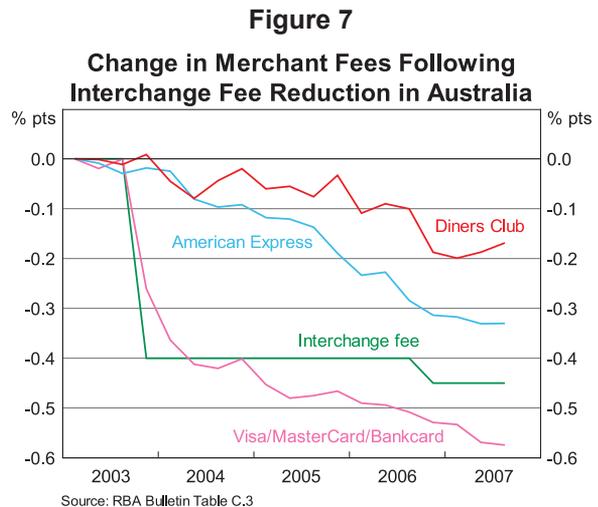
## 5.1 Average merchant fee rates fell dramatically

American Express predicted in 2001 that ‘it is doubtful whether lower interchange fees to card issuers will be passed on to retailers (in the form of reduced discounts/premiums)...’.<sup>84</sup> MasterCard’s General Counsel has claimed that the RBA reforms ‘will inevitably lead to higher merchant fees’ and that ‘[The RBA] have managed to find a way to hurt both cardholders and merchants at the same time’.<sup>85</sup> MasterCard predicted:

The Bank erroneously believes that if four-party schemes were forced to drastically cut their merchant service charge, the three-party schemes would have to follow suit... This is a naive view of the market. When faced with a situation of regulated pricing of four-party schemes leading to higher cost faced by cardholders, three-party schemes will take advantage and exploit the opportunity to offer attractive rates in competition with four-party schemes. They will benefit more from their newly found competitiveness and will not feel obliged or forced to adjust their merchant service charges as the Bank believes.<sup>86</sup>

Visa stated that ‘it is difficult to argue that competitive pressures would force the closed schemes into a reduction of their merchant service fees in a half-regulated environment’.<sup>87</sup>

The evidence decisively refutes these predictions. As shown in Figure 7, average merchant fees for MasterCard and Visa (and the former Bankcard network) fell as much as the reduction in interchange fees, then even further (57 basis point reduction for MasterCard and Visa transactions through June 2007 versus a 45 basis point reduction in the interchange fee).<sup>88</sup> Despite being unregulated, American Express fees fell by 33 basis points through June 2007 (about three quarters of the reduction in interchange fees), while Diners Club fees fell by 19 basis points. Fees to accept American Express and Diners Club transactions (both averaging 2.17 per cent in June 2007) still remain well above those for MasterCard and Visa (0.88 per cent), but American Express maintained a



<sup>84</sup> American Express, ‘Competition In Payment Systems: Submission To Reserve Bank Of Australia’, June 2001, p. 8.

<sup>85</sup> Hanft (2005), pp. 211-212.

<sup>86</sup> MasterCard International Incorporated, ‘Response to the December 2001 Consultation Document of the Reserve Bank of Australia’, March 2002, p. 37.

<sup>87</sup> Visa International, ‘Submission to The Reserve Bank of Australia: Inclusion of Closed Card Schemes in the Designation Process’, 17 April 2001, p. 6. Another submission sponsored by Visa similarly stated, ‘Our analysis... predicts that the structure of fees in closed card schemes will not change materially as a result of lower merchant service fees and higher cardholder fees in open schemes.’ Visa International Service Association, ‘Delivering a Level Playing Field for Credit Card Payment Schemes: A study of the effects of designating open but not closed payment schemes in Australia’, August 2001 (Prepared by Network Economics Consulting Group Pty Ltd), p. 56.

<sup>88</sup> Reasons for the more than equal decline in merchant fees may include the possibility that some merchants were paying above market rates before the reform and continued competitive efficiencies in the transaction acquiring business.

premium over MasterCard and Visa fees even before the interchange fee reductions (and didn't then take over the market).

As American Express explains, 'Reductions in bankcard interchange mandated by the Reserve Bank of Australia in 2003 have resulted in lower merchant discount rates for Visa and MasterCard. As a result of changes in the marketplace, we have reduced our own merchant discount rates in Australia...'.<sup>89</sup>

## 5.2 Three-party networks did not displace MasterCard and Visa

MasterCard and Visa warned that reducing their interchange fees would convey a competitive advantage to three-party card networks which would grow at the four-party networks' expense.<sup>90</sup> MasterCard warned that reduction of interchange fees would permit integrated three-party card systems to displace MasterCard and Visa altogether in the marketplace:

Given the nature of payment systems, one would expect three-party systems to take every opportunity to set higher merchant service fees than their four-party system competitors and to use their higher merchant revenue to offer consumers better and less expensive card products (e.g. better rewards programs, lower annual fees). In the long run, if not sooner, one can only assume that this advantage would lead to three-party systems taking share away from four-party systems and, depending upon the extent of the advantage, eventually compete them out of business.<sup>91</sup>

Following the RBA's reduction of interchange fees, MasterCard and Visa claim that these warnings have come to pass. For example, MasterCard contends that its prediction that 'the three-party schemes, which have higher overall fees and lower network benefits, will reap a competitive windfall against the four-party schemes' 'has come to fruition'.<sup>92</sup> According to MasterCard, 'the Bank's selective regulation of the four-party schemes has handed the three-party schemes a competitive windfall and been directly responsible for the ability of the three-party scheme to increase their share of purchases relative to the four-party schemes since the date of effect of the interchange standard'.<sup>93</sup>

Although there was some growth in the usage of American Express and Diners Club cards relative to four-party cards, the growth occurred in early 2004 and did not initiate a persistent trend. As Figure 8 shows, since the beginning of 2005, the three-party share of transactions has averaged 2.0 percentage points higher than during the period January 2002 through September 2003, and the percentage of transaction value only 1.5 percentage points higher than in the earlier period. For the past three and a half years, there has been no increase in the three-party share of card transactions.

## 5.3 The elimination of no-surcharge rules intensified competition

One reason why American Express and Diners Club could not take over the market as predicted by MasterCard is that the RBA eliminated no-surcharge rules and permitted merchants even to differentially surcharge different card brands.

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<sup>89</sup> American Express Co., SEC Form 10-K, at p.13 (December 31, 2004).

<sup>90</sup> For example, see Visa International, 'Submission to The Reserve Bank of Australia: Inclusion of Closed Card Schemes in the Designation Process', 17 April 2001, pp. 21-22.

<sup>91</sup> MasterCard International Incorporated, 'Response to the December 2001 Consultation Document of the Reserve Bank of Australia', March 2002, p. 117.

<sup>92</sup> Response by MasterCard Worldwide to the Issues for the 2007/08 Review, August 31, 2007, p. 22.

<sup>93</sup> *Id.*, p. 35.

Card networks have long objected to proposals to permit merchant surcharges on their card transactions (or, at one time, even discounts for cash), and they objected to the RBA's intention to eliminate no-surcharge rules. Not surprisingly, given its high fees, American Express not only objected to surcharges for card use, but also specifically argued that if surcharging is to be allowed, 'the acquirer should be able to terminate the card acceptance facilities of any merchant who... surcharges in a manner which discriminates against the holders of a particular card'.<sup>94</sup>

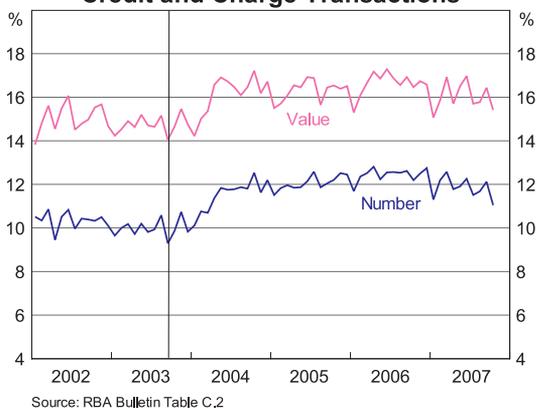
But this is one of the key differences between permitting discounts for cash and permitting surcharges for cards. The ability of a merchant to impose differential surcharges according to the specific costs of accepting a particular card has the potential to reduce usage externalities and introduce more effective competition at the point of sale. Surcharges by themselves are unlikely to eliminate interchange fees altogether, because – probably due to transaction costs – with low enough fees, most merchants will not surcharge. But the ability to surcharge and actual use by some merchants of surcharges can significantly constrain merchant fees or reduce consumer usage of the most expensive cards.

Following the RBA's reduction of interchange fees and elimination of no-surcharge and no-discrimination rules, some Australian merchants did begin to surcharge – and sometimes surcharged only three-party card transactions, or surcharged them at higher rates. According both to MasterCard and Diners Club, these surcharges on American Express and Diners Club transactions contributed to the lack of growth in the three-party networks' share of transactions. MasterCard explains:

MasterCard believes that, were it not for the abolition of the no-surcharge rule, the share of purchases for the three-party schemes would have been greater. The ability of merchants to impose a surcharge in respect of purchases using credit cards has acted as a constraint on the growth of the three-party scheme.<sup>95</sup>

...the ability of merchants to impose a surcharge in respect of purchases using credit cards has acted as a constraint on the growth of the three-party scheme. If merchants were not allowed to impose surcharges and steer American Express and Diners Club cardholders to alternative payment methods, the share of the three-party schemes would have been far greater.<sup>96</sup>

**Figure 8**  
**American Express and Diners Club Share of Credit and Charge Transactions**



<sup>94</sup> American Express, 'Competition In Payment Systems: Submission To Reserve Bank Of Australia', June 2001, p. 9. American Express also argued that 'card issuers and/or merchant acquirers should be permitted to offer incentives or differential pricing to merchants who do not surcharge'.

<sup>95</sup> Response by MasterCard Worldwide to the Issues for the 2007/08 Review, August 31, 2007, p. 24.

<sup>96</sup> *Id.*, p. 26.

A report submitted by Diners Club confirms MasterCard's explanation that surcharging constrained the usage of three-party systems relative to the four-party systems:

... merchants, especially large merchants, can bargain more much aggressively with Diners Club and are more likely to impose surcharges on Diners Club transactions than they with those of Visa and MasterCard... While Diners Club's MSFs are generally higher than those of Visa and MasterCard, merchants are far more likely to surcharge Diners Club transactions... while accepting Visa and MasterCard MSFs as simply a cost of doing business. This is illustrated by the fact that the most common form of surcharging is where Diners Club and American Express are surcharged and Visa and MasterCard are not. Furthermore the rate at which they are surcharged is not the differential between the Visa and MasterCard's MSF and the Diners Club and American Express MSF, but the full three-party-scheme MSF rate.<sup>97</sup>

Diners Club reportedly found that differential surcharging has dramatic effects:

... when [redacted] started surcharging Diners Club and American Express cards in [redacted] [b]oth the value and volume of transactions fell by over [redacted] per cent, as consumers switched their payments to other means (probably Visa and MasterCard, as these were not surcharged)...

... when [redacted] introduced surcharging... [w]hile [it] surcharged all credit card payments, it charged Diners Club and American Express by [redacted] more (an amount which exceeded the difference in MSFs). The effect was dramatic...

... it should be noted that it is differential surcharging that primarily has caused the decline in Diners Club transactions, not surcharging per se...

... when all cards were surcharged, there would have been no incentive for consumers to switch from one card to another, and there was no obvious negative effect on Diners Club transactions.<sup>98</sup>

Diners Club (and, presumably, American Express) may dislike the effects of differential surcharging, but these effects illustrate exactly why no-surcharge rules and no-discrimination rules are anticompetitive. American Express' desire to forbid or penalise differential surcharging is understandable as a profit maximising strategy, but that does not make it consistent with sound payments and competition policy. It is, in fact, impossible to reconcile claims that no-surcharge rules are beneficial to the public with the plain logic and evidence that such rules importantly stifle interbrand competition, permit networks to maintain higher fees, and exacerbate market failure.

## 5.4 Overall merchant fees declined significantly

MasterCard and Visa have argued that merchants are likely to pay even higher fees following the reduction in interchange fees than they would have paid with higher interchange fees. They reasoned that a relative increase in the usage of American Express and Diners Club cards, combined with their prediction that those three-party card fees would not decline much if at all, leaves merchants worse off than before.

The results in Australia contradict this prediction (and confirm the rationality of merchants seeking lower interchange fees). Although the three-party networks' merchant service charges exceed those for MasterCard and Visa transactions, they have fallen significantly since 2003 and MasterCard and Visa fees have fallen even more dramatically, as shown in Figure 7. The

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<sup>97</sup> *The Allen Consulting Group, 'Review of Reform of Australia's Payments System: Regulation of Credit Card Payments and the role of Diners Club', Report to Diners Club submitted to Reserve Bank of Australia (commercial-in-confidence version), September 6 2007, p. 5.*

<sup>98</sup> *Id.*, pp. 12-13.

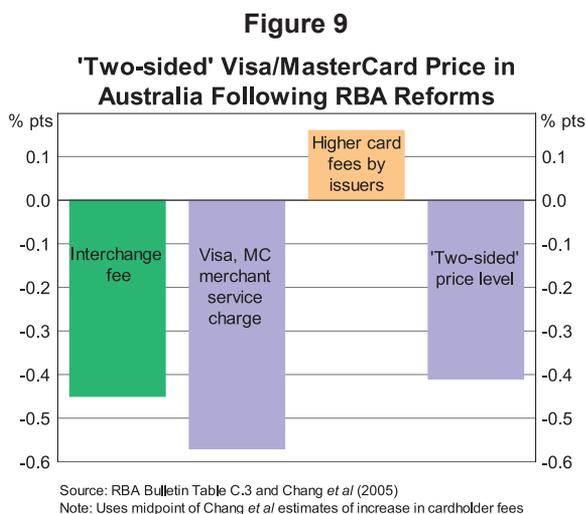
small increase in the share of transactions occurring on the three-party networks has had little offsetting impact on the reduction in merchant fees.

In fact, comparing merchant fee rates and the relative usage of three and four-party cards in September 2003 with the fee rates and relative usage since then shows that merchants saved roughly \$2.36 billion between October 2003 and June 2007, and the recurring savings are growing. This computation, moreover, ignores the additional and potentially substantial cost reduction resulting from shifts, at the margin, of some credit or charge card transactions to lower cost EFTPOS or cash payments as card issuers reduced incentives (such as rewards programs) to use the former.

### 5.5 The ‘two-sided price level’ declined significantly

The networks frequently suggest that changes in interchange fees are a zero-sum game: reductions in interchange fees cannot affect the relevant ‘price level’ in this ‘two-sided market’, they claim, but instead can only shift costs from merchants to cardholders.<sup>99</sup> This has not been the case in Australia.

Figure 9 shows the net effect that the reductions in interchange fees have had on four-party scheme transactions through June 2007. The reduction of the interchange fee by 45 basis points has so far generated a 57 basis point reduction in the average Visa/MasterCard merchant service charge. According to Chang *et al*, card issuers in Australia have recovered 30 to 40 per cent of the lost interchange fee revenue by charging higher fees to cardholders.<sup>100</sup> If correct, that still leaves a net decline in the total ‘price level’ equal to roughly 41 basis points – nearly as much as the reduction in interchange fees. Moreover, this does not take into account at all the reduction in American Express and Diners Club merchant fees, any shift towards low cost EFTPOS debit transactions, and reductions in finance charges to ‘revolver’ cardholders.



<sup>99</sup> For example, see the previous discussion of price structure and price level. See also MasterCard, ‘Interchange Myths and Facts’, [http://www.mastercard.com/us/company/en/newsroom/inter\\_myths\\_facts.html](http://www.mastercard.com/us/company/en/newsroom/inter_myths_facts.html) ([M]erchants and their class action lawyers are attempting to use the legal system to shift costs from the merchant community to consumers.); David S. Evans, ‘Viewpoint: Bank Interchange Fees Balance Dual Demand’, *American Banker*, January 26, 2001 (‘A zero interchange fee would shift \$14 billion of costs a year from merchants to cardholders in the United States alone.’).

<sup>100</sup> Chang, Evans and Garcia Swartz (2005), pp. 338-39. Recent RBA data appear to be consistent with Chang *et al*’s result that total fees have fallen. See RBA Bulletin tables C.1 for credit card transactions and volume, F.6 for cardholder credit card fees paid to banks, and C.2 and C.3 for network shares of transactions and merchant fees paid to banks.

## 5.6 Competition for ‘revolvers’ intensified

Because interchange fees reward card-issuing banks based on their success at recruiting high-spending cardholders, banks invested considerable effort at recruiting these high-spending ‘transactor’ cardholders. The reduction of interchange fees altered bank incentives and spurred them to refocus their marketing efforts on revolver cardholders. As one Visa executive explains:

... the most recent payments innovation in Australia has been low rate cards. Whilst rewards cards were targeted at transactors – people who pay off their card every month – low rate cards are targeted at revolvers – that is, people who do not pay their balance in full at month’s end. Again, the move to cater for this market highlights a number of industry leaders with the vision and the willingness to change and who have subsequently forced a change in overall business models.<sup>101</sup>

This intensification of competition among issuers generates additional benefits for the Australian public and directly contradicts warnings that reductions in interchange fees would cause catastrophic disruption to the networks and harm to the public.

## 5.7 No death spiral

After four years, there is no sign of the ‘death spiral’ of which the networks warned. Card-issuing banks did replace some of their lost revenue through increased cardholder fees, and the issuers did reduce the amount of reward points in certain card programs, but – contrary to the networks’ extreme predictions – cardholders did not react by abandoning their credit cards.

In his original defence of interchange fees, Baxter argued that consumers were too sensitive to fees on credit cards to bear directly the costs incurred by card issuers to serve them. Even though use of credit cards would benefit merchants, he claimed, cardholders would avoid them if there were significant cardholder fees. Tim Muris similarly predicts:

... dramatic increases [in cardholder fees such as annual fees] would likely decrease card ownership, and especially multiple card ownership, which would thereby reduce competition in the payment card market. Given the presence of alternative payment methods, many consumers would avoid cards rather than pay more.<sup>102</sup>

But benefits *to consumers* from carrying cards today are significant, and they are unlikely to abandon cards in response to modest annual fees, even if reduced rewards may make them less likely to use those cards for some purchases.

Contrary to predictions that consumers would stop carrying cards, RBA data show that the number of active credit card accounts in Australia continued to grow following the 2003 interchange fee reduction. RBA data also indicate that the reduction in interchange fees did not correspond to a reversal in the trend towards issuers providing an interest-free period on credit

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101 Bruce Mansfield, *General Manager, Australia & New Zealand, Visa International*, ‘Regulatory change and market leadership’, *Address To Cards Australia Conference, Sydney, 17 August 2005*. See also, for example, ‘Banks vie for credit card share’, *Herald Sun*, 14 February 2006 (‘Australians have never had easier access to a credit card with banks undercutting each other in the battle for the consumer dollar... The central bank... said banks were keen to get more credit-card customers. As a result the mainstream banks, it reported, are offering lucrative deals with a much lower interest rate... The RBA said the new cards usually offered 9 to 13 per cent interest rates, compared with the usual standard of up to 17 per cent... “It is absolutely easier for people get credit now, there’s great competition” Ms Woltbuizen [from the Consumer Law Centre of Victoria] said. “The mainstream banks are looking to win back market share that they have lost to the fringe institutions. They have introduced new products for people that are non-traditional borrowers”. Some banks, particularly Westpac, are also offering low rates for customers who take cards and transfer their balances from competitors.’).

102 Muris (2005), p. 543.

cards, notwithstanding claims that interchange fee revenue funds the provision of an interest-free period.<sup>103</sup>

## 5.8 Claims that merchants ‘pocket the savings’ are unsubstantiated

The only way merchants can recover billions of dollars of (marginal) costs is through the prices they charge to consumers for goods and services.<sup>104</sup> Empirically detecting the effect of small or modest changes in interchange fee rates on retail prices throughout an economy, however, is quite difficult. This has led Visa to suggest that there may in fact be no price reductions to consumers in Australia as a result of the RBA’s intervention to reduce interchange fees.<sup>105</sup> MasterCard flatly declares that ‘In Australia, where interchange is now regulated, lower interchange fees have not led to lower prices for consumers...’ and ‘retailers have pocketed the savings attributable to lower interchange fees’.<sup>106</sup>

Merchants are appropriately considered to be relevant ‘consumers’ of card acceptance services provided by banks. Indeed, supporters of the continued use of interchange fees often cite the concept of ‘two-sided markets’, and contend that the relevant transaction fee is the sum of the merchant fee and cardholder fee. Ignoring reductions in merchant fees is clearly inconsistent with this conceptual approach.

Another inconsistency in the networks arguing that merchants will ‘pocket’ the savings from reduced card acceptance fees is that the networks also frequently argue that competition *among banks* ensures that any excess interchange fee revenue will be rebated to (cardholder) consumers.

Even a monopolist will generally be expected to pass along at least some portion of a reduction in marginal costs, and as Rochet and Tirole explain, ‘Merchants are likely to pass the extra costs, if any, of card transactions through to consumers in general, that is to cardholders and cash payers altogether... Merchants are likely to pass through cost increases into the retail price...’.<sup>107</sup>

As the RBA notes, the price declines would be expected to be spread throughout the entire retail economy, and such small (but, in the aggregate, significant) changes in cost and price would be expected to be overshadowed in macroeconomic data by ordinary month-to-month

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103 RBA Bulletin table C.1 and ‘Additional Credit Card Statistics’ at [http://www.rba.gov.au/PaymentsSystem/PaymentsStatistics/payments\\_data.html](http://www.rba.gov.au/PaymentsSystem/PaymentsStatistics/payments_data.html).

104 *In the United States, MasterCard and Visa credit card interchange fees reportedly reached an estimated 1.75 per cent by 2004, and were still increasing, resulting in aggregate interchange fee payments on credit cards reported to be \$22.8 billion in 2006. Ken Posner and Camron Ghaffari, ‘The Empire Strikes Back’ Morgan Stanley Equity Research, March 8, 2005, p.4; Cards & Payments, May 2007, p. 27. Interchange fees on Visa branded credit and debit transactions combined accounted for 82.2 per cent of the total (average, blended) fees of 2.08 per cent merchants paid to process those transactions in 2004 – again, that percentage has been increasing, and is likely higher for credit than debit transactions. Presentation by Visa’s William Sheedy, in ‘Interchange Fees in Credit and Debit Card Industries: What Role for Public Authorities?’ Federal Reserve Bank of Kansas City (2005), p. 180.*

105 Testimony of Joshua R. Floum, Executive Vice President, General Counsel and Secretary, Visa, USA, Before the United States Senate Committee on the Judiciary, ‘Credit Card Interchange Rates: Antitrust Concerns?’ July 19, 2006 (‘Merchants [in Australia]... have seen their cost of payment card acceptance drop some. But there is no evidence that they have passed this decrease in cost on to consumers in the form of lower retail prices. In fact, the Reserve Bank, which had promised that retail prices would decline as a result of its intervention, has given up trying to prove the existence of the promised decline.’).

106 ‘Interchange Myths and Facts’, *supra* note 99.

107 Rochet and Tirole (2006), pp. 4, 6.

fluctuations in retail prices, making statistical detection of the expected price effects difficult.<sup>108</sup> There is at least some anecdotal support for lower prices resulting from reduced card acceptance fees; some discount retailers, for example, do not accept cards at all (or are willing to lose some sales by limiting the types of cards they accept to those with low fees) as a way to reduce their costs and offer lower prices than their competitors.<sup>109</sup> Most major merchants, however, find it necessary to accept the leading card brands. If all competing merchants experienced cost reductions from lower card acceptance fees, it is reasonable to predict that retail prices will decline generally.

The fact that it is difficult to demonstrate these price effects throughout the economy econometrically does not mean that they do not exist. MasterCard is wrong to contend that the difficulty of measuring relatively small price declines is proof of their absence. Indeed, MasterCard itself recognises the effect of merchant fees on prices when it discusses the effects of merchant surcharging. According to MasterCard, surcharges need not cause merchants to lose sales, because ‘a decision to surcharge card sales (as an example of merchant discouragement behaviour) would be accompanied by the scope for reducing prices for non-credit card sales’.<sup>110</sup> This is precisely the effect of merchant card fees on retail prices that MasterCard contends more generally does not occur.

## 6. Conclusion

Defences of price fixing behaviour should not be accepted based on vague allusions to complex theoretical models which explain why the networks can maximize profits using interchange fees, but do not explain adequately that the public benefits from ‘self-regulation’ of bank fees.<sup>111</sup> Claims that interchange fees solve an externality problem cannot be evaluated in a conceptual vacuum. It is important to understand clearly the nature of the alleged externality in order to evaluate: (1) whether the externality is likely to be significant; (2) whether an interchange fee might overcome that externality; (3) what the theoretically optimal level of interchange fees should be; (4) whether the potential benefits from interchange fees are likely to outweigh the costs and risk that the fees instead will have harmful effects; and (5) whether there might be a mechanism consistent with solving the alleged externality in which the parties setting the level

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108 Reserve Bank of Australia (2005), p. 11. *Reductions in marginal cost, such as occurs with the reduction of interchange fees, typically result in lower prices. For example, see US Department of Justice & Federal Trade Commission Commentary on the Horizontal Merger Guidelines p. 57 (March 2006), ('Economic analysis teaches that price reductions are expected when efficiencies reduce the merged firm's marginal costs, i.e., costs associated with producing one additional unit of each of its products.')*

109 For example, in the US, discount warehouse club Sam's Club (owned by Wal-Mart) formerly declined to accept Visa or MasterCard transactions. Sam's Club recently began accepting MasterCard, but not Visa, transactions under undisclosed fee terms. ARCO gasoline retailers ceased acceptance of credit cards (private label as well as general purpose credit cards) in 1982, imposed surcharges on debit card transactions, and became known as a low-price supplier. 'Bye, Bye, Charge It', TIME, March 15, 1982 ('The company, though, thinks that drivers will keep pulling into its stations because ARCO will be passing on its administrative savings to customers. The company says that it will be able to slash gasoline prices by as much as 3¢ per gal. in the coming weeks as a result of abandoning credit cards.'). On its website, ARCO (now owned by BP) still maintains 'We do not accept credit cards because in doing so, we would incur additional fees of as much as three cents per gallon on a typical credit-card purchase. As most of our customers pay with cash, we do not accept credit cards as part of our strategy to sell high-quality gasoline at the lowest possible price.'

110 Response by MasterCard Worldwide to the Issues for the 2007/08 Review, August 31, 2007, p. 17.

111 Bruce Mansfield, General Manager, Australia & New Zealand, Visa International, 'Regulatory change and market leadership', Address To Cards Australia Conference, Sydney, 17 August 2005 ('Let me say up front that I am a firm believer in self-regulation. So is Visa...').

of the fees (if any), have the economically appropriate incentives to choose fees that maximise consumer welfare. MasterCard and Visa have not met these criteria.

What are commonly referred to as ‘network externalities’ are actually a usage externality in which consumers do not face efficient price signals that induce them to internalise the differential cost to merchants of various forms of payment. These externalities are created and exploited – not solved – by network rules and pricing.

Payment systems can instead work well without interchange fees; absent other competitive restrictions, the resulting merchant fees would reflect competitive pricing. The most sensible policy is therefore a move to eliminate mandatory interchange fees, leaving any such fees to mutually voluntary contracts, and continuing to authorise, clear and settle transactions even when there is no governing interchange fee agreement. At the same time, given the evolution of the networks which has already occurred, it is important to free merchants as much as possible to react to high fees imposed either at the acquirer or network level.

MasterCard and Visa have repeatedly made predictions and assertions about changes to interchange fees which have proven to be incorrect. The RBA acted sensibly in acting notwithstanding these predictions and assertions, and its intervention has been successful and beneficial to the Australian public. The RBA should continue moving forward with its reforms.

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# Discussion

## 1. Tom Pockett<sup>1</sup>

### Alternatives to Direct Regulation

Good morning everyone. For those of you who don't know me, my name is Tom Pockett and my role at Woolworths Limited is Finance Director. Since the commencement of the Reserve Bank's reforms to the payments system I have been a keenly interested observer.

Dr Frankel, in his paper and speech, has presented a very compelling argument as to why interchange fees are unnecessary in Australia's cards market, and recommended that the Reserve Bank 'continue moving forward' with its reforms. I commend Dr Frankel's comments, and I would like to add to these by providing a comparison of the merits of alternative cards market governance models.

This session has been titled 'Alternatives to Direct Regulation'. In practice, this means alternatives to the Reserve Bank, or a similar government body, regulating the Australian cards market.

The complex network structure of our cards market requires well-considered rules to ensure that it functions as a reliable system of payment. And the setting of rules to govern a market amounts to regulation – regardless of whether the rules are set by a card scheme, a collection of large financial institutions, or a government body.

Prior to the Reserve Bank's market intervention, the role of regulating the credit card market was undertaken by the card schemes, acting on behalf of their members. The cards market at this time could be best classified as self-regulated.

Since the Reserve Bank first intervened in this market, it has shared the role of market regulator with the card schemes. The card schemes still maintain their scheme rules; however, the Reserve Bank has assumed control of rules related to interchange, card acceptance and network access. All decisions made by the Reserve Bank are taken in close consultation with all market participants and users. Thus, the current state of our cards market is best described as co-regulated by the Reserve Bank and the card schemes.

I will restrict my comments today to the regulation of interchange fees, network access and card acceptance within the cards market. Regulation of these matters will always attract feverish levels of interest because of the commercial implications of these decisions. Consequently, it is vital that the market regulator is independent, and is not influenced by its own commercial interests.

I will now discuss the three main regulatory models proposed for Australia's cards market: self-regulation, industry co-regulation and government co-regulation.

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<sup>1</sup> Finance Director, Woolworths Limited.

## Self-regulation

Let's begin with self-regulation.

Self-regulation involves market participants acting collectively to set the rules governing the market.

Self-regulation is an apt description of Australia's cards market prior to the Reserve Bank's intervention. Those parties that are presently pushing for a self-regulatory solution are effectively promoting a return to a pre-Reserve Bank market landscape.

The key failing of self-regulated cards markets is that the interests of the parties that collectively set interchange rates are very closely aligned. The interests of card scheme members, as issuers, are closely aligned because they are the beneficiaries of income generated by interchange fees. This interest is not affected by a member's position as an acquirer, because acquirers pass on the full cost of interchange to their merchant customers.

Close alignment of the interests of cards market participants is not unique to Australia. In fact, interchange fees around the world have been set at levels far in excess of cost in many other self-regulated markets. While high rates of credit card interchange may serve to benefit card issuers, they are detrimental to the interests of merchants and consumers.

I won't repeat the logic here, but Dr Frankel's paper details how banks have exercised their collective market power in setting interchange fees to exploit inelastic merchant demand for card acceptance.

Proponents of self-regulation have argued that competition will deliver an efficient and equitable level of interchange. But how can interchange fees be subject to competition if their price is centrally fixed? Furthermore, how were interchange fees subject to competition prior to the Reserve Bank's intervention, given that they remained constant for long periods of time?

Also, let's not forget that the card schemes introduced the anti-competitive 'honour all cards' rule and no-surcharge rule under a self-regulated market. More recently, card schemes have stipulated that they require acceptance of their prepaid and gift cards because the Reserve Bank's Standard does not explicitly recognise prepaid and gift cards. We should expect further restrictions placed on competition if we return to a self-regulated market.

One final point before I move on. Merchants have always paid a higher rate of interchange for scheme debit card transactions compared to EFTPOS transactions, even though both categories of debit cards offer identical functionality at the point of sale. It is high time that both categories of debit cards were treated equally. New Zealand's solution for scheme debit transactions is worth mimicking; all debit card transactions made at the point of sale, regardless of whether the card is a scheme debit or proprietary debit card, are processed via the EFTPOS network and incur identical interchange fee treatment.

## Industry co-regulation

Moving on to industry co-regulation now.

Industry co-regulation involves a variation from self-regulation. Industry co-regulation entails a governing body working with the market participants to set the market rules.

Both the Australian Payments Clearing Association (APCA) and the Australian Bankers' Association (ABA) have proposed a model where APCA would engage with the market participants to set the market rules. However, is APCA the right organisation to fill this co-regulatory role?

APCA was conceived as an organisation to manage the clearing arrangements for various payment instruments within Australia. APCA's membership overwhelmingly comprises financial institutions, and its Board of Directors comprises even less diversity than its membership base. APCA's Board currently consists of 7 bank representatives, 1 retired bank executive, 1 credit union and 1 building society representative, and APCA's CEO. This lack of diversity is enforced by a requirement that board members must have membership of at least 3 of APCA's clearing streams.

The parties that would be involved in APCA's co-regulatory model are largely identical to the self-regulatory participants. Thus, in its current guise, APCA is not suitable to administer and oversee the setting of card market rules and card interchange rates in Australia.

## Government co-regulation

Finally, I'll discuss government co-regulation.

As Reserve Bank data demonstrate, the Bank's reforms so far have not resulted in a decline in the market for credit cards. Credit card accounts and transactions continue to grow, and each year a new record is set for these measures. Consumers still view credit cards as a desirable proposition in a market co-regulated by the Reserve Bank. In fact, the Reserve Bank has successfully met its policy objectives, whilst maintaining a healthy market for credit cards.

Significantly, the famously predicted credit card market 'death spiral' never eventuated. Dr Frankel's paper eloquently explains that cardholders have not abandoned their cards, as predicted by the 'death spiral' argument, because they still receive significant benefits today from using their card. So any other such dire predictions should be handled with a touch of scepticism.

More and more government and competition bodies around the world are taking a closer inspection of their own domestic cards market. As a result, the instances of government intervention in cards markets overseas are increasing. While the Reserve Bank's reforms at first might have been considered an 'experiment' by some, they are now increasingly being perceived as pioneering.

While it is true that the Reserve Bank is the co-regulator of the Australian cards market, it is not necessarily true that the Bank has increased the *amount* of regulation governing this market. In fact, many of the Reserve Bank's reforms so far have *deregulated* an aspect of the market that previously had been regulated by the card schemes. For instance, the Bank's reforms to remove rules restricting *surcharging*, *product steering*, *access and card acceptance* are all examples of *deregulation*. Hence, any reduction in the Reserve Bank's regulatory role does not necessarily equate to deregulation of the cards market.

The Reserve Bank's reforms to date have not consistently benefited the same parties. Take for instance, the reforms to credit card and EFTPOS interchange. The Credit Card Interchange

Standard benefited merchants and their customers at the expense of card issuers and cardholders, while the EFTPOS Interchange Standard benefited card issuers and cardholders at the expense of merchants and their customers. However, Australia's payments system is now more competitive and equitable, with improved price signals and lower system costs than prior to the Reserve Bank's reforms. On this basis, the Reserve Bank's regulation of Australia's cards market can be considered very successful. It also reflects the need for an independent body to perform the role of co-regulator.

The key advantage of the Reserve Bank co-regulating the cards market, as opposed to a self-regulated market or an industry co-regulated market, is that it does not have a business interest in the cards market. Just as importantly, it does not have a membership base with business interests tied to the cards market.

Consequently the Reserve Bank is unbiased in its decision making, and considers *all* stakeholders involved in the payments market, including merchants and consumers.

Therefore, any organisation proposing to replace the Reserve Bank in its role as co-regulator of the Australian cards market must first demonstrate that they are better suited to this role than the Bank. At present there are no such candidates.

## Conclusion

To conclude; yes, there are alternatives to the Reserve Bank's co-regulation of the Australian cards market.

However, none of these alternatives promise to yield a fairer or more efficient outcome to both the cards market, and the overall payments market, than that currently delivered by the Reserve Bank in conjunction with the market.

Thank you.

## 2. Stuart E. Weiner<sup>2</sup>

Good morning. It is a pleasure to be here. I want to thank the organisers for giving me the opportunity to participate in this very important conference. I enjoyed reading Alan's paper very much. It is thoughtful, thorough, and not without a few choice controversial statements! In my comments this morning, I am going to do my best to steer away from potentially controversial statements and take what I hope is perceived to be an objective, neutral, central banker approach.

Specifically, I want to focus on the range of policy options available to policymakers in evaluating credit and debit card markets, where one of those options may be to do nothing and another may be to keep a watchful eye on industry efforts to self-regulate. Alan does an excellent job of addressing what I see as the more interventionist options. I would like to try to complement his discussion by addressing less interventionist options, without taking a position on what ultimately is to be preferred. In the final analysis that, of course, will depend on a given country's particular situation.

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2 Vice President and Director of Payments System Research, Federal Reserve Bank of Kansas City.

At the outset, let me stress that the views I express today do not necessarily reflect the views of the Federal Reserve Bank of Kansas City or the Federal Reserve System. They do, however, reflect in part the views of my colleagues – Terri Bradford, Fumiko Hayashi, Rick Sullivan and Zhu Wang – with whom I have had discussions on Alan’s paper and related issues.

The table below, compiled by Fumiko Hayashi, shows public authority involvement in credit and debit card markets in various countries. It lists 26 countries or areas in which public authorities have taken some kind of action or initiated some kind of investigation, either on pricing issues – interchange and/or merchant service fees – or on surcharge rules. The table draws in part on the excellent summary in Reserve Bank of Australia (2007), as well as other sources listed at the back of the table.

I do not want to dwell on the table – time does not permit – but rather I offer the table as a reference and also to make an obvious but important point: while authorities in some countries have taken action, authorities in other countries have not. Why is this?

There are several possibilities. First, despite our best efforts, I am sure the table is incomplete and omits some countries where policymakers have been active. Second, in many countries, credit and/or debit card markets may simply not be sufficiently developed yet to register on policymakers’ radar screens. And third, in those countries where credit and debit card markets have developed, perhaps public authorities believe these markets are indeed operating effectively, or at least not ineffectively enough to warrant policy action. It is this third group of countries that largely motivates the remainder of my comments.

Policy action or inaction can be thought of as falling along a continuum. At the one end, authorities may elect to take no action. At the other end, authorities may elect to take significant action. And in between, there will be a range of escalating intervention.

In the case of credit and debit card markets, one can think of four distinct categories along this continuum. One is to do nothing – let the market work. The second is to do a little – let the market self-regulate, but keep a watchful eye, and be prepared to intervene if necessary. The third is to do more – remove obvious structural impediments (what Alan calls vertical restrictions) to ensure competitive conditions. And the fourth is to do a lot – establish specific prices or guidelines for prices. I would like to consider each of these in turn.

First, under what conditions might authorities elect to do nothing? This is a situation in which the market is judged to be performing well, and competitive forces are seen to be at work. Either: (i) existing firms are competing effectively; (ii) existing firms are facing potential competition from new entrants (that is, markets are contestable); or (iii) innovations from existing or potential competitors are helping to ensure a competitive environment.

With regard to innovation, in the United States, for example, we have been seeing a number of alternative payment arrangements and mechanisms designed to challenge traditional credit and debit card practices. How effective they have been in fostering competition remains an open question, in my view. A few years ago, First Data Corporation, in cases where it operated on both sides of the market, attempted to increase the number of Visa transactions that it conducted ‘on-us’. More recently, Tempo, HSBC, and Capital One have been attempting to build the so-called ‘decoupled debit’ market, whereby card transactions are routed over card networks but

settled via the Automated Clearing House. The prospects for innovation raise an interesting economic question. Does a market, or indeed a country, have to be a certain size – given the huge economies of scale in electronic payments – to give potential competitors and innovators a chance in achieving critical mass?

What about the second category along the intervention continuum, industry self-regulation? Here I am referring to situations in which industry participants take actions internally which they fear might otherwise be taken by outside regulators. Or, stated somewhat differently, industry participants take pre-emptive action in light of a perceived ‘regulatory threat’. Some possibilities include: (i) making industry rules more transparent; (ii) relaxing industry rules by permitting more choices in acquiring, routing, and issuing arrangements; (iii) actively encouraging new entry by banks and non-banks alike; and (iv) holding prices (for example, interchange and merchant service fees) below profit-maximising levels to deflect charges of undue market power. Such industry self-regulation reportedly can be effective. Guillermo Ortiz, Governor of the Bank of Mexico, for example, in discussing reforms of the Mexican payments system, has stated that ‘[in] our case, this induced voluntary approach is producing a better reaction on the part of the industry’.<sup>3</sup>

The third category of intervention, policy-mandated removal of barriers to competition, contains a host of possible actions, many discussed by Alan. One set involves removing barriers to entry, for example: (i) eliminating restrictive rules, such as net issuer rules; (ii) encouraging non-bank participation; and (iii) encouraging innovation among existing and potential competitors by clarifying legal uncertainties. A second set involves eliminating industry practices that restrict consumer, merchant, and other choices, for example: (i) eliminating no-surcharge and honour all cards rules; and (ii) allowing merchants to steer consumers to preferred payment methods.

The fourth category of intervention, arguably the most interventionist of all, is for policy authorities to establish specific prices or guidelines for prices. Of course, this option has been much debated in recent years, is being debated during our program today, and undoubtedly will continue to be debated tomorrow!

I would like to close with an appeal for more research on ‘Alternatives to Direct Regulation’, both theoretical and applied. Evaluating such alternatives is fundamental to good policy, and devoting a section of today’s program to these topics explicitly recognises this.

Interchange issues, of course, have received considerable attention in recent years, and appropriately so. But in my view, it is important that we see more research conducted on these ‘alternative’ policy issues as well. For example, we need to learn more about merchant incentives and strategies in surcharging. We need to learn more about the impact of various industry rules on restricting competition. And we need to learn more about barriers to entry – both economic and artificial – in electronic payments.

At the end of the day – to come back to a point I made at the outset – the best policy or non-policy will, of course, depend on a country’s particular situation. But to get there, and to make that determination, policymakers will need solid research as well as effective industry dialogue. This conference is an outstanding example of how to go about this.

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<sup>3</sup> See Ortiz (2005), p. 292.

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## PUBLIC AUTHORITY INVOLVEMENT IN CREDIT AND DEBIT CARD MARKETS: VARIOUS COUNTRIES

**Table 1: Interchange and Merchant Service Fees**

*a. Actions taken by public authorities*

Country	Credit	Debit
Argentina	1999: Law 25.065 for Credit Cards was enacted. The law established norms that regulate various aspects related to the credit, debit, and retail card systems, such as the relationship between the cardholder and the card issuer, and the relationship between the card issuer and the merchant. Among these norms was the setting of limits on the ability to implement price discrimination in merchant fees.	
Australia	2003: The Reserve Bank of Australia mandated Bankcard, MasterCard and Visa to set their interchange fees based on cost-based benchmarks.	2006: The Reserve Bank of Australia introduced interchange Standards for the EFTPOS and Visa Debit systems.
Austria	2006: Following the European Commission's interim reports on the retail banking industry, Austrian banks agreed to review arrangements for setting interchange fees and announced that a reduction can be expected.	
Canada	Mid 1990's: Through a consent order from the Competition Bureau of Canada, Interac set its interchange fee to zero.	
Chile	2005: The Chilean Antitrust Court admitted a complaint filed by the National Economic Prosecutor alleging abuse of a dominant position by Transbank, the acquirer of all credit and debit cards issued in the country; the Court imposed a fine of approximately USD56 000. The National Economic Prosecutor requested, among other things, the modification of the Transbank price structure in such a way that it would be public, objective, and based on costs. The issue was finally solved with a partial understanding between the parties. According to this understanding, Transbank had to reduce merchant fee ceilings and present a self-regulating plan for setting prices.	
Colombia	2004(?): The Superintendent of Industry and Commerce (the Colombian competition authority) passed the new Inter-bank Exchange Tariff that allows merchants to negotiate fee rates with merchant acquirers.	
	2006: Credibanco (a Visa issuer) was required to exclude some costs included in its fee computation that were judged not to correspond exclusively to payment card services offered to merchants.	
Denmark	1990: The Act on Certain Payment Instruments set a cap on merchant service charges (MSC) on internationally-branded credit/debit cards issued by Danish banks for domestic transactions at 0.75% of transaction value, or 1.25% of transaction value with a minimum of DKK 1.95 on the internet.	1990: The Act on Certain Payment Instruments set Dankort MSC to be zero. 2003: Amendment to the Act introduced a positive MSC to Dankort transactions and reduced the fees on Maestro and Visa Electron from 0.75% to 0.4%, with a maximum of DKK 4. 2005: Dankort MSC was replaced by an annual fee per retailer.

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## PUBLIC AUTHORITY INVOLVEMENT IN CREDIT AND DEBIT CARD MARKETS: VARIOUS COUNTRIES

Table 1: Interchange and Merchant Service Fees

## a. Actions taken by public authorities

Country	Credit	Debit
European Union	2002: The European Commission reached agreement with Visa to reduce its cross-border interchange fees by December 2007. The benchmark for its interchange fees was to be set at the level of the cost of supplying Visa payment services, and would not exceed the cost of the services which issuing banks provide, wholly or partly, to the benefit of merchants. An investigation into MasterCard's interchange fees is ongoing as of October 2007.	
France	1990: The Paris High Court ruled that the methods for determining interchange fees could be accepted in accordance with the Competition Council's statement of objections.	
Israel	2006: Agreement between the banks and the competition authority to reduce interchange fees from 1.25% to 0.875% by 2012.	
Mexico	2006: Interchange fee reductions agreed to between the Mexican Bankers Association and the Bank of Mexico.	
Norway	Zero interchange fee (Bank-Axept).	The general position of authorities regarding the introduction of new payment systems in Norway has been that payers should cover costs. This position can be seen as early as in the 1974 report from the Payment Systems Committee.
Panama	June 2003 - July 2004: Under the 1998 banking law, the Superintendent of Banks issued regulations for banks that issue and manage credit cards. It established procedures for approving a credit card and authorised the charges for commissions and other related items.	
Poland	2007: The Polish Office of Competition and Consumer Protection ordered banks to discontinue their multilateral interchange fee agreements.	
Portugal	2006: Following the European Commission's interim reports on the retail banking industry, Portuguese issuers and acquirers have met some of the Commission's concerns by reducing domestic interchange fees somewhat, and removing preferential bilateral domestic interchange fees.	

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**PUBLIC AUTHORITY INVOLVEMENT IN CREDIT AND DEBIT CARD MARKETS: VARIOUS COUNTRIES**

**Table 1: Interchange and Merchant Service Fees**

*a. Actions taken by public authorities*

Country	Credit	Debit
South Korea	The Korean Fair Trade Commission ruled that BC Card's (South Korea's four-party scheme credit card) joint pricing of merchant service charges was a cartel and imposed a fine of KRW 10.092 billion and corrective measures.	
Spain	2005: The Spanish Competition Tribunal denied authorisation of the interchange fee arrangements of the Spanish card schemes. In December, agreement reached between the Spanish card networks and merchants, coordinated by the Spanish Ministry of Industry, Tourism and Trade, for interchange fees to be reduced from a maximum of 2.32% to 1.1% by 2008.	
Switzerland	2005: Agreement between the Swiss Competition Commission and credit card issuers to reduce interchange fees from 1.65-1.70% to 1.30-1.35%.	
Turkey	2005: The Turkish Competition Authority made a decision on Interbank Card Centre's (BKM's) clearing commission rate by member banks. It is stated in the decision that, in order to grant exemption to the clearing commission formula proposed by the consultancy firm on behalf of BKM, certain cost items in the formula should be adjusted.	

*b. Investigations initiated*

Country	Credit	Debit
Brazil	May 2006: Banco Central do Brasil (the central bank of Brazil) issued Directive 1/2006. The directive's focus is on the payment cards industry (pricing – interchange fee, discounts, customer fee; concentration; profitability; governance; etc). It does not establish either obligations or prohibitions and does not mandate any sanctions. June 2006: Banco Central do Brasil's Economic Law Office and the Secretariat for Economic Monitoring agreed to cooperate with each other to collect payment card industry data and to coordinate public policy actions. September 2006: Payment card industry data collection.	

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## PUBLIC AUTHORITY INVOLVEMENT IN CREDIT AND DEBIT CARD MARKETS: VARIOUS COUNTRIES

Table 1: Interchange and Merchant Service Fees

## b. Investigations initiated

Country	Credit	Debit
Hungary	2006: Gazdasági Versenyhivatal, the competition authority of Hungary, considered intervening in the payment card market. Interchange fees were regarded as too high compared to costs, especially in the case of debit cards. Price discrimination between 'on-us' (acquirer=issuer) and 'foreign' (acquirer=issuer) transactions was considered to have adverse effects on issuer competition.	
New Zealand	2007: Proceedings initiated by the New Zealand Commerce Commission against Visa, MasterCard and member institutions of the two schemes, alleging price-fixing in the setting of interchange fees.	
Norway	2004: On the initiative of the Ministry of Finance, Kredittilsynet (the financial supervisory authority) established a project group to report on competitive conditions in the Norwegian market for international payment and charge cards. 2005: 'The regulation of interchange fees is also being considered in Norway' – stated in the 2005 Norges Bank (the central bank of Norway) Annual Report.	
South Africa	2004: The Task Group for the National Treasury and the South African Reserve Bank recommended that the Competition Commission should investigate the possibility of a complex monopoly in the governance and operation of the national payments system. 2006: Following the findings of the research report <i>The National Payment System and Competition in the Banking Sector</i> , the Commission began a public inquiry into bank charges and access to payment systems. 2007: The inquiry is at the final, report writing, stage.	

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**PUBLIC AUTHORITY INVOLVEMENT IN CREDIT AND DEBIT CARD MARKETS: VARIOUS COUNTRIES**

**Table 1: Interchange and Merchant Service Fees**

*b. Investigations initiated*

Country	Credit	Debit
United Kingdom	2005: The Office of Fair Trading (OFT) found that MasterCard's interchange fee arrangements were illegal (September). The OFT issued a statement of objections on Visa's agreement (October). 2006: The MasterCard finding was appealed and, since MasterCard had changed its method of setting interchange fees, the OFT consented to its decision being set aside by the Competition Appeal Tribunal (June). The OFT launched a new MasterCard investigation in February.	

*Annex. Zero interchange fee schemes*

Country	Credit	Debit
Belgium		Zero interchange fee (Bancontact/Mister Cash)
Finland		Zero interchange fee (Pankkikortti)
Luxembourg		Zero interchange fee (Bancomat)
Netherlands		Zero interchange fee (PIN)

Note: Table prepared by Fumiko Hayashi, Federal Reserve Bank of Kansas City, November 2007.

**PUBLIC AUTHORITY INVOLVEMENT IN CREDIT AND DEBIT CARD MARKETS: VARIOUS COUNTRIES**

**Table 2: Surcharges**

<i>Actions taken by public authorities</i>	
Country	Debit
Australia	Credit 2003: Prohibition on surcharging lifted.
Canada	Debit 2006: Prohibition on surcharging for Visa and MasterCard signature debit card transactions lifted. 1996: Prohibition on surcharging for Interac transactions was removed through a consent order by the Competition Bureau of Canada.
Mexico	1993: The Mexican Competition Commission reached an agreement with a number of banks, under which the banks could not, in their acquiring contracts, forbid that merchants offer discounts for cash payments.
Netherlands	1997: Prohibition on surcharging lifted.
Sweden	1995: Prohibition on surcharging lifted.
Switzerland	2005: Prohibition on surcharging lifted.
United Kingdom	1989: Prohibition on surcharging lifted.

Note: Table prepared by Fumiko Hayashi, Federal Reserve Bank of Kansas City, November 2007.

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## **3. General Discussion**

Discussion of Dr Frankel's paper was wide ranging with the main themes being: the legality of interchange fees; the case for regulating interchange fees; and surcharging.

Some questioned whether the legality of interchange fees in a card scheme depended upon the structuring of the scheme, as a commercial entity with management setting the fees or as a mutual association with member banks setting the fees. Dr Frankel indicated that, in his view, how interchange fees are set makes no difference to the analysis of their legality.

A second theme concerned whether interchange fees should be regulated. Some argued that, since the optimal interchange fee is unknown, it should be set by the market. In this context, industry self-regulation, and especially its practicality, received considerable attention. It was claimed that, while there is currently no industry body that could fulfil the self-regulatory role, the Australian Payments Clearing Association might develop into such a body. It was suggested

that self-regulation could work if the banks and the schemes could agree on how fees were set. With additional transparency, it was argued, the threat of direct regulation might be sufficient to ensure an outcome that meets public policy objectives. Doubt was expressed, however, about whether such agreement might be forthcoming.

There was some support for the Reserve Bank continuing to regulate card payment systems. One argument was that the Reserve Bank has in fact *de-regulated* the cards market by removing restrictions on merchants. It was also argued that, historically, interchange fees were regulated by the schemes – the Reserve Bank’s reforms have, therefore, only changed *who* regulates the fees. In a similar vein, it was suggested that it is in the public interest for the Reserve Bank to continue to regulate card payment systems, given their importance in day-to-day transactions.

The scope for international regulation of card payment systems was also raised. It was suggested that, in an ideal world, international card payment systems would be regulated on a consistent basis. The ensuing discussion noted that authorities are currently bound to work within their domestic jurisdictions, although it was recognised that improved knowledge about payment systems around the world has placed national authorities in a better position to make internationally consistent regulations.

A third main topic of discussion was surcharging by merchants. The main issue was whether interchange regulation is necessary when merchants have the freedom to surcharge. A number of financial institutions argued that surcharging has become increasingly common and that competitive pressure is now bearing on interchange fees, producing price signals that are more reflective of costs. It was also suggested that interchange regulation has reduced the need for merchants to surcharge since merchant fees have fallen accordingly. Furthermore, if interchange fees were to rise, surcharging would become more prevalent. On the other hand, a number of merchants noted the difficulty of surcharging when their competitors do not. It was argued that the decision to surcharge is a major step, particularly in retail environments. Some merchants felt it would be more appropriate for banks to charge their customers directly for using credit cards.

There was also discussion of the level of surcharges and whether they promote efficient outcomes. Concern was expressed, for example, about the lack of differential surcharging between scheme debit and credit cards. It was also suggested that, in some cases, surcharges are much higher than merchant service fees and that regulation may be needed to ensure that surcharges remain in line with merchants’ costs of card acceptance.

# PAYMENT COSTS IN AUSTRALIA

*Carl Schwartz, Justin Fabo, Owen Bailey and Louise Carter*<sup>†</sup>

## 1. Introduction

This paper reports the results of the study of the costs of various payment methods undertaken by the Reserve Bank of Australia as part of its 2007/08 review of the payments system reforms.

The central aim of the study is to provide comprehensive estimates of the underlying resource costs associated with different methods of payment. The study does not attempt to measure the benefits associated with various payment methods, nor the profitability of institutions providing payment services.

The resource costs of providing various payment services have been an important consideration through the reform process. At an early stage in its deliberations, the Payments System Board was concerned that, due to a variety of practices and restrictions, the relative resource costs associated with the credit card and EFTPOS systems were not being reflected in the relative prices that consumers faced when deciding between these payment instruments. The result, in the Board's view, was a less efficient payments system than might otherwise have been the case. The Board has also been interested in the costs of cash payments, particularly given the extensive use of cash in the economy and the potential substitutability of cash and electronic methods of payment.

The study builds on earlier work by the Reserve Bank and the Australian Competition and Consumer Commission published in 2000 examining the costs incurred by financial institutions in providing EFTPOS and credit card transactions, and cash withdrawal services through ATMs.<sup>1</sup> The study extends this earlier work in a number of directions. In particular it:

- examines a broader range of payment methods, including costs of payments made by cash, scheme debit, cheque, direct entry and BPAY;
- examines the costs not just of financial institutions, but also other participants in the payments system, including merchants;
- provides greater detail on the costs that financial institutions incur in the EFTPOS and credit card systems; and
- provides estimates of how the costs of payment vary with the size of the payment.

The study has been undertaken in close co-operation with financial institutions and merchants, which provided data to the Reserve Bank using reporting templates developed in consultation with industry. Industry liaison included initial meetings to gauge available information, a formal consultation round on drafts of the study approach and survey materials, and extensive contact with respondents during and after the data submission period to promote consistency in the data collected.

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<sup>†</sup> *This paper was prepared by a team from Payments Policy Department of the Reserve Bank.*

<sup>1</sup> *Reserve Bank of Australia and Australian Competition and Consumer Commission (2000).*

The key findings of the study are as follows.

- The annual costs incurred by financial institutions and merchants for payments made by individuals amount to at least \$8½ billion, or around 0.8 per cent of GDP. The costs associated with cash payments account for almost half of this total, with cash being used for nearly three quarters of all payments by individuals. The costs of providing accounts to facilitate payment are also considerable; these amount to around a quarter of total payment costs.
- Cash appears to be the lowest cost payment method for the small transaction sizes for which it is commonly used. An important cost advantage is that cash payments are quicker to process than other payment methods. The cost of a cash payment rises with the value of the transaction so that cash becomes more costly than EFTPOS for payments of moderate value.
- Credit card payments are more costly than EFTPOS payments for both financial institutions and merchants. As well as confirming earlier findings in Australia on the relative costs to financial institutions of credit card and EFTPOS payments, the study provides a more detailed breakdown on the higher relative costs of credit cards across account overheads and payment functionality, and the additional costs for credit functionality and reward programs.
- For payment methods not used at the point of sale, the direct entry system has the lowest cost, followed by BPAY and credit cards. Cheques are a relatively expensive payment method, either when used at the point of sale or not at the point of sale.
- The inclusion of estimates of consumer costs does not change the relative cost ranking of the payment methods observed from the combined costs of financial institutions and merchants. In particular, information from a survey of households suggests that consumer costs of cash payments are not as high as estimated in some other studies.

The rest of the paper is structured as follows. Section 2 outlines the cost concepts of interest and the approach taken to measure them. Section 3 presents detailed estimates of the payment costs of financial institutions for the various payment methods, with Section 4 covering detailed estimates of costs for merchants. Section 5 steps away from the formal survey data to present some illustrative estimates of consumer costs. Section 6 then aggregates resource costs across financial institutions, merchants and consumers to present estimates of the average resource costs, across the economy, for each payment method. With some assumptions, Section 7 presents estimates of how costs of the different payment methods vary with transaction size. Section 8 concludes.

## **2. Measuring Costs**

### **2.1 Cost concepts**

Measuring the costs associated with making payments is far from straightforward. There are many different cost concepts, and participants in the payments system face significant challenges in accurately identifying all the costs associated with a payment, and allocating costs across the various payment methods.

In principle, this study is attempting to measure the *long-run incremental resource cost* of each payment method. This is the additional resource cost incurred in the long run if a substantial number of extra payments were made using a particular payment method. These costs include those incurred in putting in place the additional infrastructure that would be needed to make a substantial number of extra payments, as well as the costs associated with making payments once the infrastructure is in place.<sup>2</sup> Typically, these costs would be significantly higher than the marginal cost of making an extra payment through the existing infrastructure.

In practice, measuring the long-run incremental resource cost of payment methods is difficult. Not only does one need to measure the incremental costs associated with additional payments in the short run, but also those infrastructure costs which might be fixed in the short run but variable in the long run. Given the practical difficulties involved with this forward-looking concept, the approach taken here is to measure the *average cost* of different payment methods. In many situations, average cost is likely to be a reasonable indication of the long-run incremental resource cost, although some caveats are discussed later in the paper.

In measuring costs, the study separately identifies those costs incurred in establishing and operating an account from which payments can be made, and those costs incurred in making transactions on that account. It also attempts to measure the average cost associated with transactions of various sizes.<sup>3</sup> It does not, however, seek to quantify cost variations arising within each form of payment method as a result of factors such as merchant size and location.

An important issue in studies of this kind is the distinction between the resource costs involved in the payments process and transfers between various parties in the payments system.

*Resource costs* are incurred when scarce economic resources are used – examples include the costs of communications technology, producing cash and issuing cards. For this paper, data on resource costs have primarily been gathered directly from the participants in the payments process that incur these costs, although in some areas, fees paid by participants in the study have been used as a proxy for the underlying resource costs of parties not directly covered by the study. Careful attention has been paid to avoid double counting. For example, when presenting aggregate measures of resource costs, the costs incurred by financial institutions in providing card acquiring services for merchants have been included, but not the fees that merchants pay for these services. These fees have, however, been included in merchants' estimates of their own costs of accepting various payment methods.

In contrast, *transfers* are defined as payments (either explicit or implicit) between various parties in the system that net out when aggregate costs are calculated. In some cases, these transfers can have a significant effect on various parties' estimates of their own costs of providing payment services and on their incentives to use particular payment methods, although they do not represent a cost to the system as a whole. Interchange fees are one example. In the credit card system, these fees are a cost to the acquiring financial institution, but revenue to the issuing institution, with the net effect being zero. Similarly the cost of interest foregone on cash holdings

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2 *Long-run incremental cost and other cost concepts are discussed in more detail in Australian Competition and Consumer Commission (1997), Commonwealth Competitive Neutrality Complaints Office (1998) and Jamison (2006).*

3 *Estimates of how costs vary with the size of payments are also presented in recent studies by ten Raa and Shestalova (2004), Brits and Winder (2005), National Bank of Belgium (2006) and Bergman, Guibourg and Segendorf (2007). Typically, earlier studies only present estimates of average cost.*

represents a transfer from the private to the public sector, although not a cost to society as whole. In presenting the results below the various resource costs and transfers in the payments system are separately identified.

The scope and approach of this study differ in a number of ways to some previous studies of payment costs internationally and in Australia. Firstly, few studies have been able to collect their own original source data on payment costs because of its proprietary nature – many studies have therefore had to rely on a mixture of original and published data, including fee information, as a proxy for costs.<sup>4</sup> This study has collected data directly from financial institutions, merchants and, for costs of currency production, the Reserve Bank. Secondly, this study presents estimates of a wide range of costs of payments for financial institutions and merchants to facilitate a broad analysis of policy and other questions. For particular reasons, many previous studies of payment costs have tended to concentrate solely on the costs to financial institutions or merchants, or focus on narrower concepts such as marginal costs, sometimes in conjunction with consideration of the different benefits of payment methods.<sup>5</sup> Thirdly, this study covers a wider range of payment methods – including those not at the point of sale – than in most earlier studies, which typically focus solely on point-of-sale payments.<sup>6</sup> Finally, because assumptions made to estimate consumer costs can substantially affect conclusions about the relative costs of different payment instruments, the current study draws on survey data to inform assumptions about the consumer costs of cash.<sup>7</sup>

## 2.2 The collection of cost data

The approach taken by this study has been to collect data directly from the main participants in the payments system. This includes financial institutions, merchants and, for costs of currency production, the Reserve Bank. In most cases, data were collected by way of standardised reporting forms, developed in conjunction with industry participants. Where payment-related services were provided to reporting entities by firms that were not included in the survey, it has been assumed that the price paid for these services by reporting entities is a reasonable estimate of the costs of providing the service. For example, the resource costs of transporting cash to and from merchants by armoured car companies was not directly measured; instead the payment by merchants for this service was measured. This approach is consistent with a competitive marketplace, and is a practical way of collecting a wide range of costs in a timely manner.

The resource costs that consumers incur in making payments are also considered in this study, although not directly measured. The main resource cost for consumers is the time it takes to make payments. Measuring the value of this time poses a number of significant challenges and, consistent with other studies, the measures presented rely heavily upon assumptions. In

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4 Broader studies of payment costs that collect original source costs data include, for example, Brits and Winder (2005), National Bank of Belgium (2006), and Bergman, Guibourg and Segendorf (2007).

5 Studies with a narrower sectoral focus include Gresvik and Øwre (2003), which compares costs and income for financial institutions in Norway, and Food Marketing Institute (2000), which analyses merchant costs in the United States. Studies that focus on marginal payment costs net of benefits include Garcia Swartz, Hahn and Layne-Farrar (2006) for the United States, and Simes, Lancy and Harper (2006) for Australia.

6 For example, ten Raa and Shestalova (2004) concentrate on point-of-sale payments, while De Grauwe, Buyst and Rinaldi (2000) focus solely on the costs of cash and card payments.

7 For example, estimates of consumer costs are influential in the results of Garcia Swartz, Hahn and Layne-Farrar (2006) and Simes, Lancy and Harper (2006).

addition to the value of their time, consumers face explicit charges by financial institutions (and in some cases merchants) for payment services. These charges are not measured in this study, as the costs of providing the underlying services are captured in the data provided by financial institutions and merchants.

The structure of the reporting forms used in this study was developed by the Reserve Bank with the assistance of a consulting firm with considerable payments system experience. Before the forms were finalised, the Reserve Bank held meetings with key participants and engaged in a formal round of consultation on the proposed study approach and drafts of the survey materials. Feedback was sought on areas including: the consistency of treatment of costs across payment instruments; suitability of cost categories; clarity of definitions; the suitability of methods proposed for the allocation of common costs; and the ability of respondents to provide reliable data in the timeframe outlined. The reporting forms sought, for each relevant payment method, data on the total costs incurred at key stages of the payment process. Financial institutions were also asked to report separately the overhead costs related to establishing and maintaining transaction and credit card accounts for individuals, and the direct costs of making payments from these accounts. Most studies of payment costs do not account for the costs of establishing and running these accounts and, if captured, these costs are typically included in the cost of the payment process, resulting in some blurring of overhead and payment-specific costs.<sup>8</sup> The costs of establishing and maintaining business transaction and credit card accounts are not captured in this study.

The final reporting forms were distributed to a number of financial institutions and merchants in March 2007. Details of the reporting forms are provided in Appendix A. To minimise reporting burden, respondents were given flexibility in selecting the period for which they reported costs, with financial institutions typically providing data for their 2005/06 financial year and merchants providing data for slightly more recent periods.

The estimates reported below are based on responses received from nine financial institutions (including ATM operators) and twelve merchants. In addition, data on costs of cash production were obtained from the Reserve Bank and for the Royal Australian Mint. Among both financial institutions and merchants a larger group was invited to participate, but a number of organisations declined, citing competing demands on their time or insufficiently detailed internal reporting systems.

The banks participating in the study reported nearly 20 million outstanding personal transaction accounts and 9 million personal credit card accounts, respectively covering around three quarters of these accounts in Australia. The merchants in the sample include seven retailers which predominantly accept payments at the point of sale, and five 'billers' which predominantly receive payments not at the point of sale.<sup>9</sup> The retailers are mainly large organisations operating supermarkets, department stores and other general retailers. Over the one year sample period

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8 For example, payment cost estimates presented in Gresvik and Øivre (2003) include financial institutions' account maintenance costs, and Brits and Winder (2005) include overhead costs for product development, statement production and head office management.

9 Data were also collected from two additional 'billers', although these were excluded from the final results, given that the data provided were either incomplete or were heavily influenced by business payments. The data provided were, however, useful in guiding analysis in various areas.

the respondent retailers reported sales totalling \$83 billion, around two fifths of the value of retail sales in Australia over 2006. The five 'billers' predominantly operate in the areas of telecommunications, utilities and financial services, where the data mainly reflect household payments. Together with data on non-point-of-sale payments provided by two retailers, the sample covered bill payments totalling almost \$20 billion.<sup>10</sup> The sample is therefore representative of a large share of payment activity in Australia. More information on the payment activity captured in the sample is provided in Appendix B.

The individual responses received were subjected to rigorous checking, comprising examination of internal consistency, benchmarking against responses from other participants and, where possible, comparison with other sources.<sup>11</sup> Outlier observations were queried, directly resulting, in most cases, in the institution submitting revised data or providing information for the Reserve Bank to adjust the data. In a rare number of cases – where the data supplied remained very different from that provided by other participants and where no clear explanation was available – data have been omitted from the final calculations.<sup>12</sup>

In a number of the tables reporting results, the weighted-average and median outcomes are both shown, as there is significant variation across reporting entities in some cost categories. Weighted-average *total* costs for each payment method are calculated by adding together the weighted-average costs for each sub-category. For each payment method, the weights are the number of transactions for each respondent. The columns reporting medians do not necessarily add up as they show the median response for each cost category.

The data collected reflect payments that occurred over the reporting period. Therefore, the average cost estimates in Sections 3 to 6 relate to payments of different average size for each payment method, with cash payments having the smallest average size and cheque payments the largest average size. A comparison of costs across common payment sizes for the main point-of-sale payment methods is presented in Section 7.

It is important that the cost estimates presented below be viewed as providing a guide to the average and relative costs of various types of payment instruments, rather than as definitive estimates of these costs. Both the reporting institutions and the Reserve Bank have had to make a number of assumptions in developing these estimates, and in some cases institutions have had difficulty allocating costs across the various payment instruments and in allocating costs among the various categories for a given payment instrument. The estimates presented for financial institution and merchant payment costs are based on a large share of payment activity in Australia, but inevitably there is variation in costs across individual financial institutions and merchants. Notwithstanding these qualifications, the results reported below provide a broad indication of the costs involved in the Australian payments system.

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<sup>10</sup> *Non-point-of-sale data from retailers covered finance payments made by cheque and BPAY. While we are unaware of any solid publicly available estimates of the number and size of overall household bill payments, information from the 2003/04 Household Expenditure Survey suggests that household expenditure on telecommunications, utilities and insurance during that period was around \$40 billion (see ABS 2006b).*

<sup>11</sup> *These included the Reserve Bank's Retail Payments Statistics and cost information from 2005/06 provided to the Bank for calculating the benchmarks for interchange fees in the EFTPOS and credit card systems.*

<sup>12</sup> *These exclusions had minimal effect on the key findings.*

### 3. Financial Institution Costs

This section presents estimates of the costs incurred by financial institutions in providing the various payment methods. The cost estimates are reported in two parts. The first is the overhead costs related to establishing and maintaining transaction and credit card accounts for individuals. The second is the costs that are specific to transactions using particular payment instruments – namely credit cards, EFTPOS, scheme debit, cash, cheques, direct entry and BPAY.

#### 3.1 Account overhead costs – all payment methods

Most payments involve access, at some point, to an account – either a credit card account or a transaction account. There are overhead costs of establishing and maintaining these accounts, which are not particularly sensitive to the number of transactions made using the account. These costs include those for systems and information technology (IT) (including internet and phone banking), product development and marketing, application processing and general customer service and account management. Financial institutions were asked to report these costs separately from the costs incurred when payments are made. Most institutions were able to do so, although some found it difficult to separate some overhead costs from those directly attributable to specific payment products. For example, a number of institutions found it difficult to separate customer service costs for general account maintenance (such as address changes) from customer service costs for credit card fraud and disputes management. In some cases, various assumptions were required to be made, although these assumptions do not affect the broad results.

According to the data reported by financial institutions, the overhead costs of operating a credit card account are higher than those for a transaction account (Table 1). For a credit card account, the reported weighted-average cost is \$109 per year, compared with \$77 per year for a transaction account. A large share of the difference is accounted for by the higher product development and marketing costs associated with credit card accounts; IT overhead costs are also higher.

The data also indicate that more transactions are made on an average transaction account than on an average credit card account; the total number of debits and credits on a transaction account averages 160 per year, compared with around 130 on a credit card account. Dividing overhead costs by the number of transactions gives estimates of the average overhead cost per transaction, which are significantly lower for transaction accounts (\$0.48) than for credit card accounts (\$0.82).

In addition to the overhead costs of running accounts, financial institutions incur costs when payments are made using those accounts. In the following sections these costs are examined for each of the payment methods.

**Table 1: Financial Institution Issuer Costs of Account Overheads**  
\$ per annum per account

	Credit card accounts		Transaction accounts	
	Weighted average	Median	Weighted average	Median
<b>TOTAL COSTS</b>	<b>109</b>	<b>113</b>	<b>77</b>	<b>86</b>
<i>of which:</i>				
Product development and marketing	21	20	5	8
Systems and IT <sup>(a)</sup>	27	23	14	15
Application processing and set-up	16	19	13	8
General customer service	9	19	17	15
General account management	10	7	7	1
Other	26	16	21	16
<i>Memo items:</i>				
Annual transactions per account				
Total debits	118	106	125	128
Total credits	15	15	35	35

(a) Includes systems and IT overheads and the costs of internet and phone banking not directly allocated to BPAY and direct credit payments.

Note: The columns reporting medians do not add up as they show the median response for each cost category.

### 3.2 Direct payment costs – credit card, EFTPOS and scheme debit

For card payments, financial institutions incur costs on both the issuing and acquiring side. Some of these costs are for services provided by third parties while others are for services provided by the institution itself. Both types of costs are included in the results reported below.

#### 3.2.1 Credit card and EFTPOS

The specific costs incurred by financial institutions in providing credit card, EFTPOS and scheme debit payments are presented in Table 2. For the credit card issuer, the table groups costs into three sub-categories covering the payment function, the credit function and reward programs. The classification of costs in this way, however, is not straightforward, requiring assumptions regarding which costs are relevant to the pure payment function, and which are related to the other functions. For example, the approach taken here is to assume that the cost of credit collection and write-offs is related to the credit function, rather than the payment function.<sup>13</sup>

The results confirm other findings that transactions through the credit card system are more costly for financial institutions than transactions through the EFTPOS system. Taking account of both issuer and acquirer costs, the weighted-average cost of a credit card transaction of average size is \$2.38 compared to \$0.22 for an EFTPOS transaction of average size (these figures exclude interchange fees). For credit cards, the average transaction size is \$132, while for EFTPOS it is \$59.

<sup>13</sup> The reverse assumption could be justified on the grounds that the very nature of the product means that credit is extended when the payment is made.

**Table 2: Financial Institution Direct Costs for Credit Card, EFTPOS and Scheme Debit Payments**

\$ per average transaction for each payment method

	Credit card		EFTPOS		Scheme debit <sup>(a)</sup>
	Weighted average	Median <sup>(b)</sup>	Weighted average	Median <sup>(b)</sup>	Weighted average
<b>TOTAL COSTS</b> (excluding interchange fees)	<b>2.38</b>	<b>–</b>	<b>0.22</b>	<b>–</b>	<b>0.46</b>
<i>of which:</i>					
<b>ISSUER</b>	<b>2.19</b>	<b>2.12</b>	<b>0.11</b>	<b>0.07</b>	<b>0.29</b>
<i>of which:</i>					
<b>Payment function</b>	<b>0.40</b>	<b>0.37</b>	<b>0.11</b>	<b>0.07</b>	<b>0.29</b>
<i>of which:</i>					
Authorisation and transaction processing <sup>(c)</sup>	0.08	0.04	0.05	0.04	0.06
Scheme fees	0.11	0.13	–	–	0.08
Fraud and fraud prevention <sup>(c)</sup>	0.11	0.10	0.01	0.00	0.05
Cost of capital (excl. credit risks)	0.05	0.07	0.01	0.01	0.01
Other	0.04	0.04	0.04	0.02	0.08
<b>Credit function</b>	<b>1.13</b>	<b>1.20</b>	<b>–</b>	<b>–</b>	<b>–</b>
<i>of which:</i>					
Credit collections and write-offs	0.64	0.64	–	–	–
Cost of capital (credit risks)	0.19	0.21	–	–	–
<i>Interest-free period (transfer to cardholders)<sup>(d)</sup></i>	<i>0.30</i>	<i>0.28</i>	<i>–</i>	<i>–</i>	<i>–</i>
<b>Cardholder rewards</b>	<b>0.65</b>	<b>0.59</b>	<b>–</b>	<b>–</b>	<b>–</b>
<i>of which:</i>					
Cardholder reward programs (operating costs)	0.04	0.04	–	–	–
<i>Cardholder rewards (transfer to cardholders)<sup>(d)</sup></i>	<i>0.62</i>	<i>0.56</i>	<i>–</i>	<i>–</i>	<i>–</i>
<b>ACQUIRER</b>	<b>0.19</b>	<b>0.18</b>	<b>0.11</b>	<b>0.10</b>	<b>0.18</b>
<i>of which:</i>					
<b>Payment function</b>	<b>0.19</b>	<b>0.18</b>	<b>0.11</b>	<b>0.10</b>	<b>0.18</b>
<b>TOTAL RESOURCE COSTS</b>	<b>1.46</b>	<b>–</b>	<b>0.22</b>	<b>–</b>	<b>0.46</b>
<b>TOTAL PAYMENT FUNCTION RESOURCE COSTS</b>	<b>0.59</b>	<b>–</b>	<b>0.22</b>	<b>–</b>	<b>0.46</b>

*Continued next page*

Continued

**Table 2: Financial Institution Direct Costs for Credit Card, EFTPOS and Scheme Debit Payments**

\$ per average transaction for each payment method

	Credit card		EFTPOS		Scheme debit <sup>(a)</sup>
	Weighted average	Median <sup>(b)</sup>	Weighted average	Median <sup>(b)</sup>	Weighted average
<i>Interchange fees</i>					
Paid by the issuer to the acquirer <sup>(c)</sup>	–	–	0.18	0.20	–
Paid by the acquirer to the issuer	0.69	0.63	–	–	0.39
<i>Acquirers' cost of delayed settlement of funds</i>	0.02	0.03	0.00	0.01	0.01
<b>Issuer total costs including transfers to acquirers</b>	<b>2.19</b>	<b>2.12</b>	<b>0.29</b>	<b>0.26</b>	<b>0.29</b>
<b>Acquirer total costs including transfers to issuers<sup>(f)</sup></b>	<b>0.89</b>	<b>0.91</b>	<b>0.12</b>	<b>0.11</b>	<b>0.57</b>
<i>Memo items:</i>					
Average transaction size (\$) <sup>(g)</sup>	132		59		81
Payment resource cost (% of average transaction size)	0.45		0.37		0.58

(a) Median not reported owing to small sample.

(b) Median totals are not calculated as the samples for issuer and acquirer costs are different.

(c) Excluding scheme fees.

(d) Transfers to cardholders excluded from resource cost calculations.

(e) Fees reflect that the reporting period was typically prior to the implementation of the EFTPOS Interchange Standard which lowered EFTPOS interchange fees to \$0.04 - \$0.05.

(f) Excludes transfers to merchants (i.e. EFTPOS rebates).

(g) Average reported transaction size for card issuers. Reported acquiring data has an average credit card, EFTPOS and scheme debit transaction size of \$124, \$58 and \$81 respectively.

Note: The columns reporting medians do not add up as they show the median response for each cost category.

This higher cost for credit card transactions is accounted for by three broad factors: the cost of providing the credit function on credit cards; the costs associated with reward schemes on credit cards; and differences in the costs directly related to the payment functionality.

According to the data provided, the average cost of the credit function for credit cards is \$1.13 (on a \$132 transaction). This cost includes the cost of credit collections and write-offs (\$0.64), the cost of capital (\$0.19) and the cost of funding the interest-free period (\$0.30).<sup>14</sup> The last of these costs is a transfer to cardholders, rather than a resource cost for the payments system as a whole.<sup>15</sup>

In terms of reward schemes, the average cost on a \$132 transaction is around \$0.65. This includes the administrative cost of running the scheme (\$0.04) and the cost of the rewards themselves (\$0.62). Again, the second of these costs is a transfer to cardholders, rather than a resource cost for the system as a whole.

<sup>14</sup> The costs associated with revolving credit are not included in this study.

<sup>15</sup> Arguably, credit write-offs could also be considered a transfer to delinquent borrowers, although the credit collection process unambiguously incurs resource costs.

Excluding transfers, the total resource cost of the average transaction processed through the credit card system is \$1.46, considerably higher than the cost for a transaction processed through the EFTPOS system (\$0.22). In turn, excluding resource costs of the credit function and reward programs to focus on payment functionality, the results suggest that credit card payments remain more costly, albeit to a lesser extent; the weighted-average payment function cost for credit cards is \$0.59 compared to \$0.22 for EFTPOS. The higher average payment function cost of credit card transactions is largely associated with higher costs on the issuing side. These higher costs include:

- scheme fees, which, in part, reflect the additional costs of maintaining an international payments infrastructure and branding;<sup>16</sup>
- fraud losses, prevention and investigation, reflecting the practice of authorising credit card transactions by signature and the use of credit cards in situations in which the card is not present;<sup>17</sup> and
- the higher cost of capital employed to cover higher operational risks.

In most cases, the results reported by the various participating institutions are broadly consistent with one another. One exception is the cost of capital, where estimates of the relevant cost differ significantly across institutions. This partly reflects differences in the methodology used to calculate this cost. During the consultation period, most banks indicated a strong desire to see this cost included in the study, however many do not directly estimate the cost of capital for individual payment methods. Notwithstanding the difficulties, all banks that did report the cost of capital for both credit cards and EFTPOS reported higher figures for credit cards.

The overall results are broadly consistent with those reported in the Joint Study.<sup>18</sup> In particular, they confirm that a payment through the credit card system is, on average, more costly for financial institutions than a payment through the EFTPOS system. The more detailed approach of the current study, however, allows a better understanding of the differences in these costs, as the costs allocated to the ‘other’ category are much lower than in the Joint Study, and costs of establishing and running accounts, the credit function and reward programs are separately identified. This allows the differences in the resource costs associated with the payment function to be better identified.

Previous studies of payment costs also strongly support the finding that credit card payments are more costly to financial institutions than are EFTPOS payments. This finding is common to all payment cost studies of which we are aware, although there is considerable variation in the estimated cost differential, reflecting different approaches and assumptions across studies on which costs to include, particularly for credit cards.<sup>19</sup>

As discussed in Section 2, the cost estimates reported above are for the transactions that actually occurred over the reporting period, with the average size of a credit card transaction more

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<sup>16</sup> For EFTPOS payments, the Australian Payments Clearing Association incurs costs in operating the clearing stream, but these costs – as proxied by fees – are negligible on a per transaction basis.

<sup>17</sup> Analogous to credit write-offs, the amount lost through fraud could arguably be considered a transfer to fraudsters, though fraud prevention and detection unambiguously incur resource costs.

<sup>18</sup> Reserve Bank of Australia and Australian Competition and Consumer Commission (2000).

<sup>19</sup> See, for example, Bergman, Guibourg and Segendorf (2007), Brits and Winder (2005), Garcia Swartz, Hahn and Layne-Farrar (2006), National Bank of Belgium (2006) and Simes, Lancy and Harper (2006).

than double the average size of an EFTPOS transaction. For transactions through the EFTPOS system, the resource costs are largely invariant with respect to the value of the transaction, while for credit cards some costs are likely to be related to the value of the transaction. In particular, the costs of fraud and capital might all be expected to increase as the value of transactions rises, as might the costs related to credit collections. This issue is discussed in more detail in Section 7.

### 3.2.2 *Scheme debit*

Only a subset of respondent financial institutions was able to provide data on the cost of scheme debit transactions. From those that did report, the weighted-average *total* cost of a scheme debit transaction (excluding interchange fees) (\$0.46) is lower than for a credit card transaction, largely because scheme debit issuers do not typically make transfers to consumers associated with loyalty programs, and do not incur credit function costs. The lower cost is also influenced by the lower average transaction size for scheme debit transactions because, as mentioned, some costs of credit card payments are likely to rise with the value of the transaction. The cost of a scheme debit transaction is, however, above that of an EFTPOS transaction because of many of the additional card issuer costs common to credit card payments, including costs associated with scheme processing and fraud and fraud prevention.

## 3.3 Direct payment costs – cash

Obtaining estimates of the total costs of financial institutions in providing and receiving cash is difficult as costs are incurred at numerous stages of the process, and allocating branch costs to specific functions is far from straightforward. Given the difficulties involved, financial institutions were consulted extensively about how best to collect relevant data. Reflecting this consultation, the Reserve Bank sought data on the costs associated with cash withdrawals through ATMs and EFTPOS cash-outs, and branch costs associated with both cash withdrawals and deposits by individuals and businesses.<sup>20</sup>

### 3.3.1 *Methods of cash withdrawal and deposit*

Financial institutions provided data on cash withdrawals and deposits by individuals and by businesses.

For individuals, the data indicate that withdrawals through ATMs account for nearly 80 per cent of the number of withdrawals and more than half of the value of cash withdrawn, with the average size of an ATM withdrawal around \$175 (Table 3).

EFTPOS cash-outs comprise around one in six withdrawals by number, but their relatively small average size means that they account for only 3 per cent of the value of withdrawals. In contrast, over-the-counter withdrawals by individuals are relatively infrequent, but tend to be for high values, averaging over \$2 000 per withdrawal. The data reported to the Bank also suggest that the average size of cash deposits by individuals is quite large at over \$1 300. In part, this is explained by some large bills (e.g. loan repayments) being paid in cash over the counter at

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<sup>20</sup> *Cash deposits and withdrawals can also be made at banks' agencies, most notably Australia Post, but the costs of these transactions are outside the scope of the study. Data collected for this study suggest that agency withdrawals comprise substantially less than 1 per cent of the total number of cash withdrawals.*

**Table 3: Methods of Cash Withdrawal**

Annual, survey respondent data

	Number		Value		Average value
	Millions	% of total	\$ billions	% of total	\$
ATM withdrawals <sup>(a)</sup>	706	79	123	55	174
EFTPOS cash-out <sup>(b)</sup>	138	16	8	3	56
Branch withdrawals <sup>(c)</sup>	46	5	92	41	2 013
<b>Total withdrawals by individuals</b>	<b>890</b>	<b>100</b>	<b>222</b>	<b>100</b>	
Business branch withdrawals	31	–	96	–	3 139
<i>Memo items:</i>					
Deposits <sup>(d)</sup>	158	–	457	–	2 900
<i>of which:</i>					
Personal	68	43	90	20	1 318
Business	89	57	367	80	4 103

(a) Data for ATM owners/acquirers.

(b) Data for card issuers.

(c) Includes all personal cash withdrawals and is not limited to withdrawals from transaction accounts.

(d) Includes cash deposits to transaction accounts and other over-the-counter cash payments to financial institutions.

a branch, and the fact that some institutions indicated difficulties in separately identifying cash and cheque deposits.<sup>21</sup>

Not surprisingly, the average size of a cash withdrawal by business customers, at over \$3 000, is much higher than that for individuals, and the number of withdrawals is much lower. On the deposit side, business cash deposits were greater in number and, in particular, in value than personal cash deposits. These relativities reflect the general cash payment process, of individuals withdrawing cash to spend at businesses, which then deposit these aggregated amounts back into financial institutions.

### 3.3.2 Costs of cash withdrawals through ATMs and EFTPOS

The costs incurred by institutions in providing ATM withdrawals are largely borne by the ATM owner, although costs are also incurred by the transaction acquirer and the issuer of the card used to withdraw cash. In some cases, these are the same institution, but in other cases, they are separate parties. In the data presented below the costs of ATM owners and acquirers are reported jointly.

The results suggest that the weighted-average cost of an ATM cash withdrawal (excluding interchange fees) is \$0.86, with the ATM owner/acquirer incurring the bulk of these costs (Table 4).<sup>22</sup> Of the total cost, around \$0.75 can be considered resource costs, with the remainder effectively being a transfer between the ATM owner and the public sector, by way of foregone

<sup>21</sup> Given this difficulty, the actual number and value of branch cash transactions is likely to be somewhat overstated.

<sup>22</sup> For ATM owner/acquirer cost categories that are also relevant for non-cash transactions (e.g. balance enquiries, account transfers), 'per transaction' costs have been estimated by dividing through by the total number of ATM transactions. Card issuer costs primarily reflect costs of ATM withdrawals made using a debit card. An allowance has been made for issuer costs of credit card cash advances, which reflects the cost of the payment function for these transactions. If the costs of credit functions are included, the weighted-average card issuer cost is \$0.04 higher.

interest on the cash held in the ATM (float costs). Of the resource costs, the major costs are those associated with cash handling and storage and with deploying and maintaining ATMs. For some ATM owners, off-site rental costs are also significant.

**Table 4: Financial Institution Costs of ATM Cash Withdrawals**  
\$ per withdrawal

	Weighted average	Median <sup>(a)</sup>
<b>TOTAL COSTS (excluding interchange fees)</b>	<b>0.86</b>	<b>–</b>
<i>of which:</i>		
<b>ATM OWNER/ACQUIRER<sup>(b)</sup></b>	<b>0.74</b>	<b>0.85</b>
<i>of which:</i>		
ATM owner equipment	0.18	0.19
Cash handling and storage	0.14	0.14
ATM owner centre management	0.09	0.05
Authorisation and transaction processing	0.05	0.07
Site rental: on-site <sup>(c)</sup>	0.03	0.00
Site rental: off-site <sup>(c)</sup>	0.09	0.08
Cost of capital	0.02	0.02
Fraud, theft and insurance	0.01	0.01
Other	0.02	0.02
<i>Float (transfer to Government)<sup>(d)</sup></i>	<i>0.11</i>	<i>0.14</i>
<b>CARD ISSUER</b>	<b>0.12</b>	<b>0.09</b>
<b>TOTAL RESOURCE COSTS</b>	<b>0.75</b>	<b>–</b>
<i>Interchange fees</i>		
<i>Paid by the issuer to the ATM owner/acquirer<sup>(e)</sup></i>		<i>~ 1.00</i>

(a) Median totals are not calculated as the samples for ATM owner/acquirer and card issuer costs are different.

(b) ATM owner/acquirer costs of cash handling and storage, float, and fraud, theft and insurance are divided by the number of cash withdrawals. All other ATM owner/acquirer cost categories are divided by the total number of ATM transactions.

(c) Site rental costs are divided by the total number of transactions (i.e. transactions across both on-site and off-site ATMs). Dividing on-site and off-site ATM rental costs separately by proxies for on-site and off-site transactions respectively suggests a per transaction rental cost differential between on-site and off-site ATMs that is broadly comparable to that presented in the Table.

(d) Transfer to Government excluded from resource cost calculations.

(e) Indicative interchange fee for cash withdrawals only.

The estimate of ATM owner/acquirer costs (\$0.74 per withdrawal) is higher than that from the Joint Study (\$0.49). In part, this is because the current measure is more comprehensive, capturing costs of on-site rental and the cost of capital. However, costs in a range of areas do appear to have increased over recent years. These include the costs of cash handling (\$0.04 higher on the average transaction), off-site rental costs (\$0.06 higher) and float (\$0.06 higher) – reflecting, in part, higher average transaction values.

For cash withdrawn through the EFTPOS system, the costs incurred by financial institutions depend upon whether the withdrawal is a stand-alone transaction, or is undertaken as part of an EFTPOS purchase transaction that would typically have occurred regardless of whether cash was withdrawn.

In the former case, a reasonable estimate of the cost to financial institutions is \$0.22, the figure reported in Section 3.2 for the sum of the resource costs incurred by issuers and acquirers for an EFTPOS purchase transaction. It is important to note, however, that this figure is not directly comparable to the cost of ATM withdrawals reported above, as it excludes the cash handling costs, which in the case of EFTPOS cash-outs are incurred by merchants (see Section 4.1 below). In the more common case in which cash is withdrawn as part of a transaction that would have taken place regardless, the incremental costs of an EFTPOS cash withdrawal for financial institutions can be thought of as close to zero.<sup>23</sup>

### 3.3.3 *Costs of cash withdrawals and deposits through branches*

Obtaining estimates of the cost of cash withdrawals and deposits through a branch requires the allocation of branch costs – including, for example, rent and staff – across different functions. While this poses considerable challenges, most banks were able to make reasonable estimates of these costs, although in some cases they reported difficulties fully separating branch costs relating to cash transactions from those relating to non-cash transactions.

According to the data provided, the average cost of a branch cash transaction (including both deposits and withdrawals) was \$3.70 (Table 5), with the average size of a transaction approximately \$2 750. Of this total cost, around \$0.30 represents a transfer to the public sector, due to the interest foregone on holding cash; the remainder of the costs can be treated as resource costs.<sup>24</sup> Staff costs for processing cash transactions (mainly over the counter) account for about half of the total resource costs, with branch rental costs and the branch technology costs also being significant.<sup>25</sup> There are also substantial costs incurred at the wholesale level, including the costs of moving cash to and from branches and centralised cash storage centres.<sup>26</sup>

Separate cost data were not collected for deposits and withdrawals, and it is not clear whether, or how, costs differ across these two types of transactions. It is also difficult to determine exactly how the cost of a cash transaction at a branch varies with the size of the transaction. A reasonable first approximation is that the costs increase with the size of the transaction, perhaps in a linear fashion (at least after some point). According to the data reported above, the average resource cost of a cash transaction at a branch was equivalent to 0.14 per cent of the average value withdrawn.

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23 *This assumes that in most instances the act of obtaining cash is incidental to the EFTPOS purchase. An alternative treatment of costs for combined EFTPOS purchase/cash-outs is to apportion costs to the cash withdrawal component using the ratio of the relative values of the cash-out and purchase components of the transaction. Using this approach, for each cash withdrawal through the EFTPOS system – incorporating both cash-out only and purchase/cash-outs – financial institutions incurred, on average, resource costs of around \$0.13.*

24 *Interest foregone, or 'float', costs for wholesale stocks of cash held by banks (i.e. Verified Cash Holdings held in Approved Cash Centres) were only included to the extent that they were not covered by payments from the Reserve Bank for interest foregone on these holdings.*

25 *Some banks allocated the cost of branch rent to activities based on the number of transactions undertaken. This methodology may over-allocate rental costs to cash (and cheque) transactions and under-allocate rent to other branch activities such as lending, financial planning and general account management and customer service.*

26 *The cost category 'wholesale cash handling and storage' includes costs to financial institutions for fraud, theft, counterfeiting and related insurance costs. At the branch level, costs for fraud, theft and related insurance are included in the cost category 'other branch costs'. While there was wide variation, costs for fraud, theft and related insurance were typically a low share of these cost categories.*

**Table 5: Financial Institution Costs of Branch Cash Transactions**  
\$ per branch cash transaction

	Weighted average	Median
<b>TOTAL COSTS</b>	<b>3.70</b>	<b>3.49</b>
<i>of which:</i>		
Transaction processing	1.77	1.44
Rent	0.57	0.58
Technology (equipment, systems and software)	0.35	0.43
Wholesale cash handling and storage (excl. ATMs)	0.39	0.26
Cost of capital	0.09	0.08
Other branch costs	0.23	0.27
<i>Float (transfer to Government)<sup>(a)</sup></i>	<i>0.30</i>	<i>0.25</i>
<b>TOTAL RESOURCE COSTS</b>	<b>3.40</b>	<b>3.27</b>

(a) Transfer to Government excluded from resource cost calculations.

### 3.3.4 Costs of coin and note production

The cost of a cash payment includes public sector costs associated with currency production. Unlike other payment methods, where the means of payment is produced by private financial institutions, cash is produced by the public sector; notes are produced by the Reserve Bank, through its wholly owned subsidiary, Note Printing Australia, and coins are produced by the Royal Australian Mint.

The relevant costs are those associated with the currency production process, including materials, equipment and staff, as well as related functions such as distribution, storage and security, research and development and note fitness testing and counterfeit prevention.

There are two broad approaches to estimating these costs on a per cash payment basis. One is to simply sum the relevant annual costs incurred by the Reserve Bank (including Note Printing Australia) and the Royal Australian Mint, and divide by an estimate of the annual number of cash payments undertaken. The second approach is to divide the cost of producing a note or coin by an estimate of the number of times the note or coin is used during its life. Both approaches pose difficulties given that the number of cash transactions and the average number of times a coin or note is used are not measured. Nevertheless on reasonable estimates, the average currency production cost per cash transaction is likely to be around \$0.01. Brits and Winder (2005) found that costs of currency production in the Netherlands also averaged around \$0.01 per payment. Data presented in Williams and Anderson (2007) show that note production costs in a number of countries range from the Australian dollar equivalent of around \$0.05 to \$0.30. Even at the high end of the range, a note only needs to be used around 25 times for costs to average around \$0.01 a payment.

### 3.3.5 Summary

The data presented above can be put together to obtain an estimate of the average cost that financial institutions (including the public sector) incur for each cash transaction in the economy. The main difficulty is that, unlike the case for electronic transactions, data are not readily available on the number of cash transactions in the economy. The approach taken here is to

use information from *Household Payment Patterns in Australia*,<sup>27</sup> and in particular, a survey of how individuals make payments conducted by Roy Morgan Research on behalf of the Reserve Bank.<sup>28</sup> Based on this survey, it is estimated that the number of cash payments made in Australia per year is currently around 8½ billion. Further details, including the significant qualifications that surround this estimate, are provided in Appendix C.

To obtain the average cost of a cash payment, estimates of financial institutions' aggregate costs of cash withdrawals and deposits were divided by the estimated number of cash transactions.

The total cost of ATM withdrawals was estimated by multiplying the weighted-average cost per withdrawal (from Table 4) by the total number of ATM withdrawals in Australia. For EFTPOS, the total cost was estimated as the product of the financial institution cost per cash-out only transaction from Table 2 (\$0.22) and the total number of EFTPOS cash-out only transactions in Australia; as discussed above, the additional cost of withdrawing cash when combined with an EFTPOS purchase transaction is assumed to be zero.<sup>29</sup> For branch costs, scaling up the responses received is more difficult, as information on the number of branch cash withdrawals and deposits in Australia is not available. Given the lack of relevant data, the approach taken here has been to scale up the number of branch cash transactions provided by participants in the study by 10 per cent. This appears reasonable given that the reporting institutions are likely to account for the bulk of branch cash transactions in Australia.<sup>30</sup>

Based on these assumptions, it is estimated that financial institutions in Australia incurred costs of around \$0.20 for the average size cash transaction (Table 6).<sup>31</sup> Of this, around \$0.02 is a transfer to the public sector, with the remainder being resource costs. The cost of cash withdrawals and deposits in bank branches comprise nearly 60 per cent of these resource costs, with the cost of ATM withdrawals accounting for the bulk of the remaining costs. The cost of producing notes and coins is very small compared to these other costs. On a per withdrawal basis, withdrawing cash through branches is costly, although the cost as a share of the value withdrawn is lower than for the other methods, reflecting the much higher average value of an over-the-counter withdrawal.

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27 See Reserve Bank of Australia (in this volume).

28 These are data collected for the *Consumer Financial Transactions Diary Project* (as described in detail in Appendix A of *Household Payment Patterns in Australia*).

29 The number of ATM withdrawals and EFTPOS cash-out only transactions were obtained from the Reserve Bank's Retail Payments Statistics.

30 Data collected for the Retail Payments Statistics indicate that the study's sample of banks represents more than 90 per cent of total over-the-counter cash withdrawals made using debit cards. On the other hand, APRA data shows that the stock of deposits held by surveyed institutions comprises around 80 per cent of total household and business deposits at deposit-taking institutions. Arguably, however, the surveyed banks may have a higher proportion of total cash transactions than their deposit share suggests (for example, total financial institution deposits includes those of banks that only allow electronic deposits and withdrawals). Further, for the reason that surveyed institutions have had difficulty identifying costs and transaction numbers related solely to cash transactions in branches it would not seem prudent to scale up their costs to reflect their share of deposits. On balance, a scaling factor of 110 per cent was chosen.

31 This is the total cost for ATM withdrawals, EFTPOS cash-outs, over-the-counter withdrawals and cash deposits divided by the number of cash payments in the economy.

**Table 6: Financial Institution Direct Costs of Cash Payments**

	Average resource cost		Per cash payment in the economy <sup>(a)</sup>	Share of total resource cost
	Per withdrawal	Per cent of withdrawal value		
		\$		
<b>TOTAL COSTS</b>			<b>0.20</b>	
<i>of which:</i>				
ATM withdrawals	0.75	0.43	0.07	42
EFTPOS cash-out <sup>(b)</sup>	0.01	0.03	0.00	0
Branch costs (withdrawals and deposits)	3.40 <sup>(c)</sup>	0.12 <sup>(c)</sup>	0.10	58
Float (transfer to Government) <sup>(d)</sup>			0.02	
<b>TOTAL RESOURCE COSTS</b>	<b>–</b>	<b>–</b>	<b>0.18</b>	<b>100</b>
<i>Memo items:</i>				
Cost of currency production			0.01	
No. of cash payments		8.4 billion		
Average value of ATM withdrawal		\$174		
Average value of EFTPOS cash-out <sup>(e)</sup>		\$56		
Average value of branch cash transaction		\$2 758		

- (a) Estimated as the annual aggregate costs for each category divided by the estimated total number of cash transactions in the economy per year.
- (b) Aggregate cost of EFTPOS cash-out only transactions divided by all EFTPOS cash-out transactions comprising cash-out only and combined purchase/cash-out transactions.
- (c) Cost per branch cash transaction, including withdrawals and deposits.
- (d) Transfer to Government excluded from resource cost calculations.
- (e) For card issuers. Weighted average of the value of cash-out only transactions and the cash-out component of combined purchase/cash-out transactions.

### 3.4 Direct payment costs – cheques, direct entry and BPAY

Estimates of the average cost that financial institutions incur for a cheque, BPAY and direct entry payment are presented in Table 7. These estimates cover the costs of both the ‘paying’ and the ‘collecting’ institution.<sup>32</sup>

The results suggest that cheques are the most costly payment method, with financial institutions incurring costs of \$4.22 for each cheque payment. The cost to the collecting institution of receiving cheques is particularly high, reflecting the manual processing of cheque deposits. Processing involves significant staff and branch costs, particularly for cheques deposited over the counter. Costs incurred by the collecting institution include transporting cheques to the cheque processing centre, amount encoding, capture of individual cheque information including validation to enable creation of electronic files, taking electronic images of the physical instrument, sorting and batching cheques and sending cheques to the paying institution – costs not relevant for the electronic payment methods of BPAY and direct entry.

<sup>32</sup> Some costs, mainly overheads, are common to both the paying and collecting institution roles. For each payment instrument, these common costs are aggregated across institutions and divided by half the total number of paying and collecting institution transactions. This treatment, which effectively assumes that participating financial institutions form a closed sample, avoids double counting of transactions.

**Table 7: Financial Institution Direct Costs for Cheque, BPAY and Direct Entry Payments**

\$ per average transaction for each payment method

	Cheque <sup>(a)</sup>			BPAY			Direct entry			
	Weighted average	Median	Weighted average	Median	Weighted average	Median	Direct debit		Direct credit	
							Weighted average	Median	Weighted average	Median
<b>TOTAL COSTS (excluding interchange fees)</b>	<b>4.22</b>	<b>4.30</b>	<b>0.51</b>	<b>0.52</b>	<b>0.10</b>	<b>0.11</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>
<i>of which:</i>										
Overheads	1.13	1.15	0.16	0.09	0.04	0.03	0.04	0.03	0.04	0.03
Processing	0.40	0.48	0.13	0.07	0.03	0.02	0.03	0.02	0.03	0.02
Exceptions	0.22	0.26	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Cost of capital	0.12	0.09	0.04	0.02	0.01	0.00	0.01	0.00	0.01	0.00
Cheque production	0.08	0.10	-	-	-	-	-	-	-	-
Receipt of deposits	2.27	2.02	-	-	-	-	-	-	-	-
Marketing	-	-	0.02	0.01	-	-	-	-	-	-
Scheme fees	-	-	0.10	0.11	-	-	-	-	-	-
Set-up and servicing	-	-	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
<b>TOTAL RESOURCE COSTS</b>	<b>4.22</b>	<b>4.30</b>	<b>0.51</b>	<b>0.52</b>	<b>0.10</b>	<b>0.11</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>
Internet and phone banking costs	-	-	0.17	0.10	-	-	-	-	0.07 <sup>(b)</sup>	0.08 <sup>(b)</sup>
<i>Interchange fees</i>										
Paid by the receiving institution to the paying institution	-	-	0.40	0.44	-	-	-	-	-	-
<i>Memo items:</i>										
Average transaction size	3 159		597		4 008		4 781			

(a) Estimates exclude a major financial institution that was unable to report data for all cost categories and provided total cost data that was an extreme outlier compared to other institutions.

(b) Applies only to direct credits made using internet banking.

The cost of an average BPAY payment is significantly lower than that of a cheque payment. The main estimated direct costs of a BPAY payment are in three areas: scheme fees, processing and overheads. Fees paid by financial institutions to BPAY, averaging around \$0.10 per transaction, reflect the costs of managing the BPAY scheme, including branding, maintaining and operating the central BPAY processor, maintaining links with financial institutions, and managing biller codes and the payment validation process. On the payer institution side, processing costs incurred cover the steps of validating the payment instruction against biller files supplied by the central processor, confirming funds are available, debiting the account, issuing a receipt and sending batch files to the central processor. On the biller institution side, they cover the costs of creating and delivering payment files to each of the institution's billers, and crediting and reconciling the biller's account.

The average cost of a direct entry payment to financial institutions is considerably lower than both BPAY and cheques at around \$0.10.<sup>33</sup> Direct entry is a bilateral system, unlike BPAY, so there are no resource costs associated with operating a scheme.<sup>34</sup> Processing costs are also lower for direct entry than BPAY, reflecting lower processing requirements for recurring payments such as direct debits or payroll direct credits. Overhead costs are also reported to be lower for direct entry, consistent with relatively less information on payments being provided to merchants for a direct entry transaction than for BPAY. Some of the reported cost differences also potentially reflect that, as direct entry is a mature system, more costs are likely to be fully written off or mixed with other functions than the costs of the newer BPAY system.

For BPAY and direct entry, in addition to the direct costs of making payments, there is a case to include some of the overhead costs associated with telephone and internet banking services. These platforms are required to make a BPAY payment. Internet banking can also be used to initiate direct credits, although direct entry payments can be made through other methods. Estimating the relevant costs, however, is not straightforward. One approach is to allocate a share of the relevant overhead cost to the payment method, based on the share of internet and phone banking 'actions' that are payments by that method. On this basis, around 15 per cent of total transaction account internet and phone banking costs would be allocated to BPAY, and 10 per cent of transaction account internet banking costs would be allocated to direct credit.<sup>35</sup> Including these costs adds around \$0.10 to a BPAY payment and \$0.08 to direct credits that are initiated via internet banking.<sup>36</sup> The inclusion of these costs does not make any difference to the relative cost ranking of payment methods.

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*33 Direct entry payments are defined here as interbank transfers passing through the Bulk Electronic Clearing System (BECS). Intrabank transfers were not captured in the study but presumably are of lower cost than interbank transfers. There is very little difference in cost to financial institutions of direct debit payments (initiated by the recipient of the payment) and direct credit payments (initiated by the payer), though direct debit payments have slightly higher costs associated with merchant servicing and exceptions.*

*34 The Australian Payments Clearing Association incurs costs in operating the clearing streams for direct entry and cheque payments but these costs – as proxied by fees – are negligible on a per transaction basis.*

*35 The study focuses on the cost of making BPAY payments from a transaction account, which account for the overwhelming majority of BPAY payments. If incorporating the costs of a BPAY payment from a credit card account, some portion of internet and phone banking costs for credit card accounts would also need to be allocated, which would increase the cost of the average payment.*

*36 Given variation in reported internet and phone banking costs, with one observation having a strong influence on the weighted average, the median is cited here as more representative. These estimates are likely to provide an upper bound, as internet and phone banking costs are only allocated across measured 'actions' – some institutions could not report all 'actions' using internet and phone banking, while balance enquiries using internet banking are inherently difficult to measure.*

Of the payment methods, the financial institution cost estimates that differ most from previous estimates in Australia are for cheques. The estimate here (\$4.22) is considerably above the estimate of marginal cost (\$0.16) in Simes, Lancy and Harper (2006) and the estimate of total cost (\$1.60-\$1.75) in Department of Communications, Information Technology and the Arts (2006). In those papers, however, costs are not measured directly, but based on publicly available information such as consumer bank fees. While for this study financial institutions faced numerous challenges in gathering data for cheques, and the cost estimates presented could potentially be an overestimate, it is clear that the average costs to financial institutions of cheque payments are considerably higher than other payment methods.

## 4. Merchant Costs

This section presents estimates of the average costs to merchants and billers of the various payment instruments.<sup>37</sup> Separate results are presented for merchants for whom payments mainly occur at the point of sale and for merchants for which payments predominantly occur remotely. This latter group includes, for example, utilities that routinely bill their customers.

### 4.1 Point-of-sale payments

The focus here is on payment methods used at the point of sale, namely cash, credit cards, EFTPOS and cheques. The main results are summarised in Table 8.

A notable feature of the results is the importance of ‘tender time’ (the time taken to process a payment at the check-out) in merchants’ estimates of their own costs in accepting the various payment methods. A number of merchants with high turnover have supplied the Reserve Bank with formal estimates of tender time by payment method drawn from time and motion studies.<sup>38</sup> These data show that the average time taken to process a cash transaction (at around 20 to 25 seconds) is lower than that for EFTPOS (around 35 to 40 seconds) and credit cards and scheme debit (around 45 to 50 seconds), with cheque payments taking longer still (around 90 seconds, but with a much wider range reported than other payment methods).

This ranking is consistent with the findings of international studies, and has a significant bearing on the relative resource costs of accepting payment methods for merchants included in this study.<sup>39</sup> For example, using typical wage rates in the retail industry, a 30 second saving in tender time could save a merchant around \$0.17 per transaction. For other merchants, particularly small businesses, tender time may be less important as a driver of costs. This is particularly so in environments in which queues at the check-out are atypical, and where the time taken for the payment to be processed can be used by the merchant to develop a stronger relationship with the customer. In our sample, some merchants with lower turnover estimated payment costs on the basis of informal estimates of tender time which were much closer across payment methods than those based on time and motion studies.

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<sup>37</sup> In a handful of areas this covers costs typically, but not always, borne by the merchant and biller sector. For example, costs of card acquiring such as point-of-sale (POS) devices are not included as a cost to merchants, as only a minority of merchants acquire their own EFTPOS transactions. Rather, this is captured as a financial institution cost.

<sup>38</sup> Tender time is measured from the time the customer is informed of the transaction amount to the time the payment is consummated (i.e. when the cashier delivers the receipt and/or change to the customer).

<sup>39</sup> See, for example, Brits and Winder (2005) and Food Marketing Institute (2000).

For the merchants who provided data to the Reserve Bank, cash payments had the lowest weighted-average cost, primarily reflecting the lower tender time. The weighted-average cost of a cash transaction to merchants was reported to be \$0.25, of which about half is accounted for by tender time, with the remainder being largely related to costs associated with cash deliveries, cash register pick-up and back-office processing.<sup>40</sup> There was, however, considerable variation in the cost estimates provided, as evidenced by the higher median. Merchants with lower turnover typically reported higher cash costs, primarily reflecting longer estimated tender times. The average size of cash payments across the sample of merchants is \$19.

The weighted-average cost to merchants of the average EFTPOS transaction, at \$0.34, is a little higher than that for the average cash transaction. This is due to the longer average tender time, with other payment-related costs being lower than for cash transactions. Due to the timing of the study, the fees that merchants currently pay financial institutions for acquiring are underestimated, as some of the data reported to the Reserve Bank covers the period prior to the change in EFTPOS interchange fees in November 2006, while others cover the period after the change in interchange fees.

Of the three electronic payment methods, merchants reported the highest cost for credit cards. The main factor here is the higher merchant service fees, reflecting the higher interchange fees in the credit card system. With the average credit card transaction at the point of sale for reporting merchants equal to \$68 (which is significantly below that for the economy as a whole), fees paid to financial institutions (mainly merchant service fees) averaged \$0.54 per transaction. Abstracting from these fees, credit card payments were still considered to be the most expensive, largely due to the longer tender time.

A limited number of merchants also supplied the Bank with cost data for scheme debit transactions. Excluding merchant service fees, the cost to merchants were broadly the same as for credit cards. These data are not reported here due to the small sample size involved.

The estimates in Table 8 also confirm that cheques are the most expensive payment method for the reporting merchants, with the average cost to the merchant of accepting a cheque payment being more than \$3. This high cost reflects the time taken to process a cheque payment at the point of sale, costs associated with cheque verification and authorisation services, and higher back-office processing costs.

A number of the costs reported in Table 8 are for services provided to merchants by financial institutions, with the costs that these institutions incur in providing these services reported in Section 3.2. In addition, some costs are transfers, such as float costs. Abstracting from these costs – to focus just on those resource costs typically incurred directly by merchants – the ranking in the cost of the various payment instruments remains unchanged.

The discussion above has focused on the cost of an average size transaction for each payment method. As a *percentage* of the average payment made with each payment method, however, the relative costs look quite different. In particular, the resource cost to merchants for a cash transaction of average size is around 1.3 per cent of the value of the transaction. This is above that for EFTPOS (around 0.4 per cent), credit cards (0.6 per cent) and even cheques (0.9 per

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<sup>40</sup> *Costs of theft – commonly referred to as ‘shrinkage’ – are included in other costs, and make up around 1 per cent of total resource costs of cash. Cash handling costs will also reflect any cost of providing cash-out through the EFTPOS system. Any cost, however, is likely to be small, with potential for the cash-out provision to actually reduce cash handling costs in some circumstances.*

**Table 8: Merchant Costs for Credit Card, EFTPOS, Cash and Cheque Payments**

\$ per average transaction for each payment method

	Credit card		EFTPOS		Cash		Cheque	
	Weighted average	Median						
<b>TOTAL COSTS</b>	<b>0.95</b>	<b>0.95</b>	<b>0.34</b>	<b>0.36</b>	<b>0.25</b>	<b>0.41</b>	<b>3.37</b>	<b>2.66</b>
<i>of which:</i>								
Tender time	0.31	0.32	0.24	0.23	0.13	0.16	1.14	0.99
Other point-of-sale	0.07	0.02	0.06	0.02	0.05	0.07	1.61	1.14
Back-office processing	0.01	0.01	0.01	0.01	0.02	0.02	0.19	0.21
Other	0.01	0.00	0.00	0.00	0.04	0.06	0.20	0.27
<i>Fees paid to financial institutions<sup>(a)</sup></i>	<i>0.54</i>	<i>0.57</i>	<i>0.02</i>	<i>0.02</i>	<i>–</i>	<i>–</i>	<i>0.16</i>	<i>0.11</i>
<i>Other transfers</i>	<i>0.01</i>	<i>0.00</i>	<i>0.01</i>	<i>0.00</i>	<i>0.01</i>	<i>0.00</i>	<i>0.08</i>	<i>0.05</i>
<b>TOTAL RESOURCE COSTS<sup>(b)</sup></b>	<b>0.40</b>	<b>0.40</b>	<b>0.31</b>	<b>0.34</b>	<b>0.24</b>	<b>0.40</b>	<b>3.14</b>	<b>2.54</b>
<i>Memo items:</i>								
Average transaction size (\$)	68		73		19		357	
Resource cost (% of average transaction size)	0.59		0.43		1.29		0.88	

(a) A minority of merchants acquire their own EFTPOS transactions. In this case, acquiring costs are a resource cost incurred directly by the merchant, covering POS devices, communication link and switching services. The costs presented in this paper, however, are based on the common arrangement of financial institutions providing the acquiring service.

(b) Excluding fees paid to financial institutions and other transfers.

cent). This reflects the different average transaction size of each of the payment instruments. How these costs might vary with the size of payments is discussed in Section 7.

## 4.2 Non-point-of-sale payments

This section examines merchants' costs of accepting bill payments. It covers only those bill payments made 'remotely' – by credit card (phone or internet), cheque (by mail), direct debit and BPAY. For cheques, resource cost estimates include fees paid by merchants to third parties for lockbox services (i.e. for collecting and reconciling cheque payments) as these costs have not been separately collected from financial institutions.<sup>41</sup> The results are summarised in Table 9.

In terms of total costs to the merchant for the average transaction size observed over the sample period, credit cards are the most expensive payment method, followed by BPAY and cheques, while direct debit payments have the lowest cost.<sup>42</sup> These relativities partly reflect the fees paid by billers to financial institutions. These fees are highest for credit card payments (\$1.55 on average), and include the merchant service fee and any fees paid to the acquirer for leasing of equipment. Billers also pay fees to financial institutions for BPAY payments (\$0.54 on average). Fees paid to financial institutions for cheques and direct debit are significantly lower, at \$0.01 and \$0.05 respectively, although for cheques this is an under representation; fees charged by financial institutions for lockbox services – serving as a proxy for the underlying resource cost – cover the fees that the financial institution would typically charge for cheque deposits.<sup>43</sup>

Focusing solely on resource costs incurred directly by billers, the relativities across instruments are somewhat different, with cheques becoming the most costly instrument, followed by credit cards, direct debit and finally BPAY. The bulk of cheque costs lie in the 'back-office' category, which covers reconciliation, deposit preparation and cheque deposit. Where applicable, lockbox fees are also included in this category. There was considerable variation in cheque costs, with larger billers tending to report lower costs, suggesting some scale advantages in cheque processing.

For credit cards, the bulk of the biller's costs lie in 'overheads' and 'back-office'. These categories mainly reflect the cost of the biller either operating a bill payment platform to accept credit card payments or paying fees to a third-party credit card payment processor.<sup>44</sup> Unlike cheques, once the payment has been received the costs of processing are relatively low.

A point of interest is the difference in the resource costs of direct debit (\$0.18) and BPAY (\$0.03). Discussions with billers indicate that, fees aside, BPAY is viewed as a low-cost instrument, partly reflecting low back-office processing costs as BPAY provides additional functionality assisting in reconciliation of payments. In comparison, direct debit payments can be quite costly, particularly in setting up and in processing when the payment is rejected due to lack of funds.

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41 Although financial institutions were not asked to provide costs associated with lockbox services it is possible that some related costs have been included in financial institution data provided for cheques.

42 The resource costs of accepting a cheque or a credit card payment not at the point of sale are significantly lower than the costs presented for payments at the point of sale in Section 4.1 because of the difference in tender time costs. However, total credit card costs not at the point of sale are higher than at the point of sale because the larger average payment size results in a larger fee being paid, since fees payable are ad valorem.

43 Also, although cheque dishonours typically incur fees for billers, some billers recover these fees from customers and therefore did not report them as a cost.

44 A minority of billers surveyed also accept credit card payments over the counter, but the share of these transactions in the sample is negligible.

**Table 9: Biller Costs for Credit Card, Cheque, BPAY and Direct Debit Payments**

\$ per average transaction for each payment method

	Credit card		Cheque		BPAY		Direct debit	
	Weighted average	Median						
<b>TOTAL COSTS</b>	<b>1.76</b>	<b>2.21</b>	<b>0.52</b>	<b>0.74</b>	<b>0.57</b>	<b>0.58</b>	<b>0.24</b>	<b>0.24</b>
<i>of which:</i>								
Overheads	0.08	0.02	–	–	0.00	0.00	0.04	0.02
Back-office	0.13	0.21	0.49	0.56	0.02	0.01	0.14	0.14
Exceptions	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00
Cost of capital	–	–	–	–	–	–	–	–
<i>Fees paid to financial institutions</i>	1.55	2.00	0.01	0.00	0.54	0.54	0.05	0.05
<b>TOTAL RESOURCE COSTS<sup>(a)</sup></b>	<b>0.21</b>	<b>0.21</b>	<b>0.51</b>	<b>0.69</b>	<b>0.03</b>	<b>0.04</b>	<b>0.18</b>	<b>0.15</b>
<i>Memo items:</i>								
Average transaction size (\$)	146		1 098		136		106	
Resource cost (% of average transaction size)	0.14		0.05		0.02		0.17	

(a) Excluding fees paid to financial institutions.

The discussion above has focused on the cost of each payment method for an average transaction size by each payment method. As a *percentage* of the average payment for each payment method, the cost of cheque payments is second lowest, reflecting the much higher average size of a cheque bill payment (over \$1 000 compared to between \$100 and \$150 for the other payment methods). The resource costs to billers of these payment methods are fairly invariant to the value of the transaction.

## 5. Consumer Costs

The main resource cost directly incurred by consumers is the cost of their time to make payments. Consumers also incur charges by financial institutions (and in some cases merchants) for payment services, although these are not considered here given that the cost of providing these services is measured elsewhere in this study.

The various estimates in the literature of costs to consumers in making payments are heavily dependent on assumptions about time associated with these payments and the value of that time.<sup>45</sup> As such, estimates in this area are quite different in nature to those for the resource costs incurred by financial institutions and merchants, where direct measurement is practical. Notwithstanding the difficulties, this section presents some estimates of the time involved in the use of different payment instruments and the value of consumer time. These suggest some previous estimates of consumer costs have been overstated.<sup>46</sup>

The time involved in the use of a payment instrument includes not only the time taken to make the payment but also the time taken for other related activities. An obvious example of these other activities is obtaining cash from an ATM to make cash payments. But there are also time costs associated with the use of payment instruments other than cash. Examples include: the time associated with checking credit card statements for fraudulent or mistaken activity; the time involved in reconciling credit card and debit card account statements; and the time spent paying credit card bills and speaking with customer service representatives about account-related queries.<sup>47</sup>

Of these various time costs, the easiest to measure is tender time – the time spent at the check-out while the payment is being processed. The estimates below draw on the tender times discussed in Section 4.1, which showed that the fastest processing times are for cash payments, followed by EFTPOS, credit cards and cheques.

Obtaining estimates of the other time costs is more difficult. For ATM withdrawals, Garcia Swartz, Hahn and Layne-Farrar (2006) assume, for example, that it takes US consumers an average of four minutes to travel to an ATM and a further minute to withdraw cash from the ATM, an assumption also employed for Australian consumers in Simes, Lancy and Harper (2006). In contrast, Bergman, Guibourg and Segendorf (2007) use an average travel time of one

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45 See, for example, Garcia Swartz, Hahn and Layne-Farrar (2006) for the United States, and Simes, Lancy and Harper (2006) and DCITA (2006) for Australia.

46 It is important to note that these consumer costs are internalised and considered by consumers when they make decisions about which payment instrument to use.

47 Some previous studies, such as Garcia Swartz, Hahn and Layne-Farrar (2006) and Simes, Lancy and Harper (2006) also include the cost of consumer time spent queuing at the point of sale. This cost is an externality arising from the payment which is greatest for payment instruments with a relatively long tender time. However, this cost is internalised by some merchants through measures such as the use of a greater number of check-outs during peak periods, and provision of cash-only registers.

minute for Swedish consumers and an estimate by the Swedish Bankers Association that the average ATM transaction takes 50 seconds from the time of inserting a card to receiving the cash, card and receipt.

These estimates of the time taken to make an ATM withdrawal assume that each ATM withdrawal requires a special trip. In many cases, however, consumers withdraw cash when passing an ATM on the way to another activity, so that travel time is likely to be small, or non-existent. This issue was explored in the survey conducted by Roy Morgan Research as part of the Reserve Bank’s *Household Payment Patterns in Australia* study. In particular, individuals were asked to indicate whether they considered the ATM withdrawal to be a ‘special trip’. The results indicated that only one third of survey participants made a specific trip to obtain cash, with the others viewing the cash withdrawal as part of another activity.

On the basis that it takes 50 seconds at the ATM to withdraw cash, and the average ATM withdrawal supports eight cash payments, the average time per cash payment associated with obtaining cash is estimated to be between 9 and 16 seconds (Table 10).<sup>48</sup> The higher estimate is obtained by assuming that one third of all ATM withdrawals incur travel time of four minutes and the other two thirds of withdrawals incur no travel time; the lower estimate is obtained by assuming that one third of all ATM withdrawals incur travel time of one minute with no travel time for the remaining withdrawals.

There are no formal estimates of the time taken to perform the other payment-related activities mentioned above. For transactions from credit card and transaction accounts, it is assumed that each transaction takes 5 seconds for consumers to reconcile. To the extent that consumers reconcile their statement against their receipts, the time taken would be considerably higher. In addition, for credit card accounts, it is assumed that it takes, on average, 2 minutes to pay a monthly credit card bill. The average number of transactions on a credit card is around 9 per month, so the bill payment time adds an additional 13 seconds per payment to the estimate of the time per credit card transaction.

The various time estimates discussed above are collected in Table 10 to provide an estimate of the total consumer time per transaction. As can be seen, the rankings in the table primarily reflect the tender time and the addition of the other time estimates does not change this ranking.

**Table 10: Consumer Time – Point-of-sale Payments**  
Seconds per transaction

	Credit card	EFTPOS	Cash	Cheque
Tender time	45	35	20	90
ATM withdrawal time	–	–	9 - 16	–
Statement reconciliation	5	5	1	5
Bill payment	13	–	–	–
<b>TOTAL</b>	<b>63</b>	<b>40</b>	<b>30 - 37</b>	<b>95</b>

<sup>48</sup> The average of eight cash payments per ATM withdrawal is estimated using the results of the survey of individuals conducted by Roy Morgan Research. This is the mean number of transactions per ATM withdrawal for respondents who only used ATMs in the sample period. It is important to note that the survey supports the contention that consumers who make more cash payments have higher ATM withdrawal amounts. That is, people display apparently rational behaviour whereby they anticipate their cash needs and adjust their withdrawals accordingly.

With the time estimates in hand, the next issue is how to value this time. This is a contentious issue. Some previous studies on payment instrument costs have valued time at the average wage rate. As Leclerc, Schmitt and Dubé (1995) make clear, however, time is not always like money. Their experiments suggest that the implicit value of time varies significantly with the context and that, because time cannot be saved for later, there are likely to be very many periods in a day where the value of time to a consumer is very low – periods when consumers may well undertake mundane but quick tasks such as withdrawing cash from an ATM, checking their credit card statement for fraudulent activity, or paying their credit card bill. Another reason not to value time at the average wage rate is the fact that many people are already fully employed or are on a salary and could not practically work an additional hour for pay at their notional wage rate. Their opportunity cost of time will, therefore, be below the wage rate. Becker (1965) mentions this when noting that he obtains an estimate of the value of consumer time spent commuting at approximately 40 per cent of the average wage rate. An additional reason to consider that any time spent travelling to an ATM is not completely wasted is that this time can be used for other activities, such as listening to music, talking to friends, or getting exercise. Given these considerations, it is more appropriate to value consumer time associated with payment instruments at below the average wage rate. In the absence of any further guide, a value of half the average wage rate of around \$25 per hour was used.<sup>49</sup>

Multiplying the time estimates in Table 10 by \$12.50 per hour provides estimates of the value of consumer time involved in the use of different payment instruments. For cash, using the midpoint of the range, this yields an estimate of \$0.12 per cash transaction. For EFTPOS the estimate is \$0.14, for credit cards it is \$0.22, and \$0.33 for cheques. Consumer costs included in Table 11 in the following section are based on these calculations.

These results obviously need to be interpreted with considerable caution given the complexities involved and the inevitably judgemental nature of the assumptions. As will be seen below, however, these estimates do not fundamentally alter the ranking of the resource costs of the different payment instruments.

## 6. Overall Resource Costs

This section draws together information presented in Sections 3, 4 and 5 in two ways. Firstly, estimates of the average resource costs of each payment method for transactions observed over the sample period are presented. Secondly, these cost estimates are combined with information on the number of payments to calculate estimates of aggregate resource costs of payments by individuals.

### 6.1 Average cost of payments

Before presenting results of the combined average payment costs across various sectors of the economy, it is worth drawing attention to a number of issues.

The first is the treatment of overhead costs – those incurred in establishing and maintaining accounts. These costs are significant relative to the costs that are actually incurred when payments

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<sup>49</sup> This is calculated from Australian Bureau of Statistics data as average weekly earnings divided by actual hours worked for 2006 (see ABS 2006a, 2006c). Strictly speaking, the after-tax wage rate may be more relevant but given the nature of the exercise such precision is considered unwarranted.

are made (with the exception of cash payments) and are separately identified in the results below. The approach taken has been to divide the total annual overhead costs associated with accounts of a given type by the number of transactions, comprising debits and credits, on that account over the year in order to obtain an estimate of the average overhead cost per transaction.

The second is the fact that the average transaction size captured in the data provided by merchants is smaller than the average transaction size across the economy as a whole. This means that strictly the costs of merchants and the financial institutions reported earlier should not be added together, particularly if costs vary significantly with the size of payment. However, as discussed in the following section, merchants' costs are unlikely to vary very much over the size of the transaction being considered and, as a result, are added here to financial institution costs. Similar considerations apply to consumer costs.

The third is the treatment of credit cards. Our focus here is on the resource costs associated with the payment function. While the payment and credit function are inextricably linked by the nature of the product, the credit function represents an additional service of credit cards not offered by other payment methods. Focusing on the payment function allows comparisons of costs across payment methods on the basis of common functionality. Nonetheless, credit function costs – and the costs of operating reward schemes – remain resource costs associated with the payment that, on a broader view, are relevant when considering the total costs of payments by credit cards. These additional costs are presented separately.

The fourth issue to consider when interpreting the results is the precision of the estimates. While every effort has been made to promote accuracy, precise estimation of payment costs is a challenging task. Difficulties include that many costs are common to a number of different payment methods, requiring assumptions for these costs to be allocated. In addition, to calculate costs of cash payments, assumptions are required about the number of cash payments. Notwithstanding these challenges, the data collected are broadly consistent across respondents, and the findings presented show a clear ranking of costs among payment methods that is robust to reasonable variations in the assumptions. These results should, however, be interpreted as providing a guide to the general orders of magnitude, rather than precise estimates.

These caveats aside, the estimates of the overall resource costs for point-of-sale payments presented in Table 11 show a clear ranking of costs. The lowest costs are for cash payments, followed by EFTPOS, credit cards and, considerably higher again, cheques. This ranking is unaffected by the exclusion of financial institution costs relating to account overheads or non-payment credit card functions, or the inclusion of consumer costs.<sup>50</sup> The ranking is largely determined by the costs that financial institutions incur in providing the various payment instruments. The reasons for these differences were discussed in Section 3.

The extent to which the resource cost of an average size credit card payment exceeds that for cash and EFTPOS depends on the basis of comparison. Focusing only on 'production costs'

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<sup>50</sup> *Financial institutions' overhead costs for cash transactions are calculated by estimating the weighted-average overhead cost for each type of cash withdrawal (ATM debit card, ATM credit card, over-the-counter, EFTPOS cash-out), multiplying these unit overhead costs by the relevant number of economy-wide withdrawals, and dividing the total of these costs by the estimated number of cash payments in the economy. A simple alternative, dividing the overhead cost for an ATM withdrawal (\$0.48 – the same as for other payments on a transaction account) by an estimate of the average number of payments made with the cash withdrawn (eight) produces a similar estimate of \$0.06.*

**Table 11: Resource Costs – Point-of-sale Payments**

\$ per average size transaction by each payment method, weighted-average costs

	Credit card	EFTPOS	Cash	Cheque
<b>TOTAL PRODUCTION COST</b>	<b>2.68</b>	<b>1.01</b>	<b>0.49</b>	<b>7.84</b>
<i>of which:</i>				
<b>Financial Institution<sup>(a)</sup></b>	<b>2.28</b>	<b>0.70</b>	<b>0.23</b>	<b>4.70</b>
Account overheads	0.82	0.48	0.05	0.48
Direct payment costs	0.59	0.22	0.18	4.22
Credit and other functions <sup>(b)</sup>	0.87			
<b>Merchant<sup>(a)</sup></b>	<b>0.40</b>	<b>0.31</b>	<b>0.24</b>	<b>3.14</b>
<b>Public Sector</b>			<b>0.01</b>	
<b>TOTAL PAYMENT PRODUCTION COST<sup>(c)</sup></b>	<b>0.99</b>	<b>0.53</b>	<b>0.44</b>	<b>7.36</b>
<b>Consumer costs</b>	<b>0.22</b>	<b>0.14</b>	<b>0.12<sup>(d)</sup></b>	<b>0.33</b>
<b>TOTAL PAYMENT COST (including consumer costs)</b>	<b>1.21</b>	<b>0.67</b>	<b>0.55</b>	<b>7.69</b>

(a) Sectoral breakdowns include some third-party processor costs, as outlined in Sections 3 and 4.

(b) Includes costs of credit collections and write-offs, cost of capital covering credit risk and the operating costs of rewards programs.

(c) Excludes financial institution costs of account overheads and credit and other functions.

(d) Based on a time of 33.5 seconds for each cash payment (the midpoint from Table 10).

Note: The average transaction sizes from the sample are: credit card (\$132 for financial institutions and \$68 for merchants); EFTPOS (\$59 for financial institutions and \$73 for merchants); cash (\$19 for merchants); and cheque (\$3 159 for payer financial institutions and \$357 for merchants).

of the payment function – the average costs per payment incurred by financial institutions and merchants and, for cash, the public sector – the estimated cost for a credit card payment is \$0.99, compared with \$0.53 for EFTPOS and \$0.44 for cash. When including costs of account overheads and the extra features of credit cards not directly related to the payment function, the average cost for a credit card payment is estimated to be \$2.68, compared with \$1.01 for EFTPOS and \$0.49 for cash.

While the estimated average resource costs of cash and EFTPOS payments are considerably below credit cards on all measures, there is less difference between costs for cash and EFTPOS payments. For production costs directly related to the payment, cash payment costs are estimated to be around \$0.10 lower, mainly reflecting the shorter tender time at the point of sale for cash payments. The cost differential is broadly maintained when incorporating estimates of consumer costs, as although consumers use less time paying by cash than EFTPOS, this is roughly offset by the time cost associated with cash withdrawals. When considering broad ‘production costs’, cash payment costs are estimated to be around \$0.50 lower, reflecting lower account overhead costs because, as explained in Section 3, on average, each cash withdrawal supports a number of payments.<sup>51</sup>

<sup>51</sup> This result reflects the assumptions made for the allocation of account overheads; that is, dividing total overhead costs by the total number of debits and credits and, for cash, dividing this per withdrawal overhead cost by the average number of payments per withdrawal. Different assumptions might produce different results.

The key aggregate findings are broadly supported by comparing the rankings of costs across payment types for individual financial institutions and merchants. For all individual financial institutions, among non-cash point-of-sale payments, cheques are the highest cost payment method, and costs of credit cards are above those for EFTPOS payments. Calculating cash payment costs per institution requires assumptions to be made about the number of cash payments supported by each institution. Using each institution's costs of ATM withdrawals divided by an average of eight payments as a proxy, cash payments are lower cost than EFTPOS for all but one institution.

For each of the merchants who provided data cheques are the most costly payment instrument, and credit cards are consistently ranked as more (or in one case, equally) costly than EFTPOS. Reflecting the discussion in Section 4.1, however, the relative ranking of costs between card and cash payments varies with merchant type. High turnover respondents, such as supermarkets, reported that cash payments are lower cost than EFTPOS and credit card payments. For department store type retailers, however, EFTPOS and credit card payments were reported to be lower cost than cash, reflecting that these retailers typically considered there to be relatively little difference in tender time across these payment methods.

Most studies of payment costs find similar relative rankings between the resource costs of point-of-sale payment methods at payment sizes for which they are commonly used. In particular, the conclusion that EFTPOS is less costly than credit cards is very widely found, but findings on the relative costs of cash and credit card payments are more mixed, often reflecting assumptions around consumer costs and the payment size used as a basis for comparison.

Studies comparable to the approach taken here, such as Brits and Winder (2005) and National Bank of Belgium (2006), find that for average size transactions, and focusing only on 'production costs', cash payments use less resources than debit card payments (i.e. EFTPOS) which, in turn, use significantly less resources than credit card payments. Bergman, Guibourg and Segendorf (2007), which focuses only on variable costs of payments and includes consumer costs, estimates that, for average transaction sizes for each payment method, debit card payments are the least costly from society's perspective, while cash and credit card payments use broadly similar amount of resources.

Less directly comparable are papers such as Garcia Swartz, Hahn and Layne-Farrar (2006) and Simes, Lancy and Harper (2006) which present marginal payment costs for payments of various common sizes – as opposed to the average of each payment method – and also use various assumptions about consumer benefits to reach conclusions about net social costs. Focusing solely on the estimates of costs presented, debit card payments are found to be the lowest cost payment method. Cash payments are found to be lower cost than credit cards for payments of low value – the payments for which cash is most commonly used – though credit card payments are found to be lower cost than cash for higher value payments.

Estimates of the average resource costs of non-point-of-sale payments are presented in Table 12. As with Table 11, the most robustly estimated costs are the 'production costs' incurred by financial institutions and merchants. Broadly defined, there is a clear tiering of costs, with the lowest costs for direct debit payments, followed by BPAY, credit cards and then cheques. Again, account overheads and the extra features of credit cards add significantly to the average cost of

a credit card payment. For ‘production costs’ of the payment function, the relative cost ranking of payment methods remains, although the combined resource costs to financial institutions and merchants for BPAY and credit card payments are much closer together. As with point-of-sale payment instruments, much of the cost difference between payment methods reflects financial institution costs.

**Table 12: Resource Costs – Non-point-of-sale Payments**  
\$ per average size transaction by each payment method, weighted-average costs

	Credit card	Cheque	BPAY	Direct debit
<b>TOTAL PRODUCTION COST</b>	<b>2.49</b>	<b>5.21</b>	<b>1.01</b>	<b>0.77</b>
<i>of which:</i>				
<b>Financial Institution<sup>(a)</sup></b>	<b>2.28</b>	<b>4.70</b>	<b>0.98</b>	<b>0.58</b>
Account overheads	0.82	0.48	0.48	0.48
Direct payment costs	0.59	4.22	0.51	0.10
Credit and other functions <sup>(b)</sup>	0.87			
<b>Merchant<sup>(a)</sup></b>	<b>0.21</b>	<b>0.51</b>	<b>0.03</b>	<b>0.18</b>
<b>TOTAL PAYMENT PRODUCTION COST<sup>(c)</sup></b>	<b>0.80</b>	<b>4.73</b>	<b>0.53</b>	<b>0.29</b>
<b>Consumer costs</b>	<b>~ 0.48</b>	<b>~ 0.43</b>	<b>~ 0.43</b>	<b>~ 0.23</b>
<b>TOTAL PAYMENT COST (including consumer costs)</b>	<b>~ 1.28</b>	<b>~ 5.17</b>	<b>~ 0.97</b>	<b>~ 0.51</b>

(a) Sectoral breakdowns include some third-party processor costs, as outlined in Sections 3 and 4.

(b) Includes costs of credit collections and write-offs, cost of capital covering credit risk and the operating costs of rewards programs.

(c) Excludes financial institution account overheads and credit and other functions.

Note: The average transaction sizes from the sample are: credit card (\$132 for financial institutions and \$146 for merchants); cheque (\$3 159 for payer financial institutions and \$1 098 for merchants); direct debit (\$4 008 for financial institutions and \$106 for merchants); and BPAY (\$597 for payer financial institutions and \$136 for merchants).

In addition, some illustrative estimates of resource costs incurred by consumers for non-point-of-sale payments are included in the broader cost estimates. These costs are difficult to measure and were not discussed in Section 5, which focused on the consumer costs of payments at the point of sale. In order to include these costs, a variety of simple assumptions have been required. These include:

- the consumer’s transaction time is equivalent across credit card, cheque and BPAY payments at 2 minutes, while direct debit payments are faster at one minute;<sup>52</sup>
- statement reconciliation takes 5 seconds per payment for each payment method;
- the time taken to pay the credit card account is the same as in Section 5; and
- additional costs of the various channels by which these payments could be made (telephone, mail, internet) are assumed to be broadly equivalent and are not included.

While undoubtedly different assumptions could have been made, the broad ranking of costs for non-point-of-sale payments in Table 12 appears robust to plausible alternatives.

<sup>52</sup> These are simplifying assumptions. For direct debit payments, some individuals will only incur the time cost related to the initial set-up of the direct debit. For others there may be additional time costs associated with disputed transactions and/or for periodically checking that sufficient funds are available in their account.

## 6.2 Estimates of aggregate costs

The focus of the above discussion has been on the average cost of payments actually made in the economy. These estimates can be combined with estimates of the number of transactions for each payment instrument to provide a measure of the overall cost to the economy of payments.<sup>53</sup>

The results presented below are for the cost of payments made by individuals, rather than businesses. This reflects the nature of the data collected as part of this study. In particular, data were not collected on the overhead costs that financial institutions incur in developing and maintaining business transaction and credit card accounts, or the costs that businesses incur in making payments or in receiving payments from other businesses.<sup>54</sup> In considering credit card costs, we focus narrowly on payment function costs, though resource costs of the credit function and the operation of reward programs could also be included.

Information on the number of economy-wide payments by individuals for most payment instruments was obtained from the Reserve Bank's *Retail Payments Statistics*. The number of cash payments was derived using information from the Roy Morgan Research survey of the use of payment instruments (see Appendix C), while the number of direct entry payments was calculated using estimates collected as part of this study.<sup>55</sup>

The results are presented in Table 13. In total, the annual resource cost to financial institutions and merchants in providing payment services to individuals (including public sector costs of currency production) is estimated to be at least \$8½ billion, or 0.8 per cent of GDP.<sup>56</sup> This is broadly similar to findings in overseas studies. For example, studies in the Netherlands, Belgium and Sweden found that payments at the point of sale used between 0.40 per cent and 0.74 per cent of GDP; broader studies of payment costs have typically found a relatively higher use of resources.<sup>57</sup> Total consumer costs are estimated to add a further \$1.6 billion, although given the value of leisure time is not included in GDP, these costs are not compared to GDP.

Three aspects of these estimates stand out.

The first is that the aggregate resource costs of cash payments are significant, accounting for nearly half of total costs. While the average cost of cash payments appears to be quite low, the large number of cash payments means that the total cost of cash payments is significant. As detailed in *Household Payment Patterns in Australia*, cash payments make up around 70 per cent of the number of payments by individuals in the economy.

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53 Estimating economy-wide payment costs using estimates from the sample implicitly assumes that all merchants consider tender time to be a payment cost.

54 The potential to capture financial institution overhead costs for business accounts was explored in consultation but indications from financial institutions were that widening the scope would be overly burdensome in the time frame required.

55 The respective number of direct debit and direct credit payments by individuals is not known, with only the total number of direct entry payments by individuals collected as part of the study. For simplicity, although many direct credit payments by individuals are to other persons, not merchants, it is assumed that both direct debit and direct credit payments incur merchant resources of \$0.18 per transaction (see Table 9). This assumption has negligible effect on the aggregate payment costs identified in Table 13.

56 Including resource costs associated with the credit function and operating reward programs, the estimated cost is \$9.5 billion, or 0.9 per cent of GDP.

57 Studies of payment costs at the point of sale were Brits and Winder (2005), National Bank of Belgium (2006) and Bergman, Guibourg and Segendorf (2007). In a broader study, Humphrey, Pulley and Vesala (2000) estimated that payments in the United States used up to 3 per cent of GDP.

**Table 13: Economy-wide Resource Costs of Payments by Individuals**

Payment method	Production and acceptance			Total	Consumers	Estimated no. of payments <sup>(a)</sup>
	Financial institutions		Merchants			
	Account overheads <sup>(b)</sup>	Direct costs	Total			
			\$billions	% of GDP	\$billions	Billions
Cash	0.4	1.6 <sup>(c)</sup>	2.0	3.9	0.9	8.0
Credit card <sup>(d)</sup>	0.9	0.7 <sup>(e)</sup>	1.6	2.1	0.3	1.2
EFTPOS	0.5	0.2	0.8	1.2	0.2	1.1
Scheme debit	0.1	0.1	0.2	0.2	0.0	0.2
Cheque	0.1	0.6	0.7	0.1 <sup>(f)</sup>	0.0	0.1
Direct entry <sup>(g)</sup>	0.1	0.0	0.2	0.1	0.1	0.3
BPAY	0.1	0.1	0.2	0.0	0.1	0.2
<b>TOTAL</b>	<b>2.3</b>	<b>3.3</b>	<b>5.5</b>	<b>8.5</b>	<b>1.6</b>	<b>11.0</b>

(a) Personal transactions only, except BPAY which includes all BPAY payments from transaction accounts. The number of cash transactions excludes the estimated number of cash payments by businesses.

(b) Includes account overhead costs related to the payment function only. For each payment instrument, this is calculated by multiplying the average account overhead cost per debit and credit on the account by the number of economy-wide payments.

(c) Includes costs to the public sector of currency production.

(d) Assumes that 84 per cent of credit card transactions are at the point of sale, and 16 per cent are not at the point of sale. This reflects the relative shares for credit card transactions acquired in Australia.

(e) Costs of the payment function only. The resource costs associated with the credit function and operating reward programs are around an additional \$1 billion.

(f) Assumes all cheque payments are not at the point of sale.

(g) Includes reported direct debit and direct credit costs for financial institutions. For merchants, the reported cost of direct debit transactions is assumed to also apply to direct credits.

The second is that for financial institutions the overhead costs of establishing and running transaction and credit card accounts comprise a significant share (around two fifths) of the total costs they incur in providing payment services to individuals. These overhead costs are much less likely to vary with the number of payment made than the direct costs incurred in the payment process.

And the third is that financial institutions' resource costs are significantly larger, in aggregate, than merchants' resource costs. This mainly reflects the costs to financial institutions of account overheads (\$2.3 billion), as aggregate costs directly related to payments are only slightly higher for financial institutions (\$3.3 billion) than for merchants (\$3.0 billion). Including account overheads, financial institutions incur more resource costs than merchants for all payment instruments, though the difference is small for cash payments. The finding that merchants bear a relatively higher share of resource costs for cash payments than electronic payment methods has also been observed in international studies.<sup>58</sup>

## 7. The Influence of Payment Size

As has been noted a number of times, the results presented above are for the average cost of payments actually made over the reporting period, with significant variation in the average size of these payments across payment instruments. While these estimates are helpful in understanding the costs currently incurred in the payments system, it is also useful to understand how costs vary across payment methods for transactions of a given size. This comparison is particularly relevant in analysing the effects on total payments system costs of transactions moving from one payment method to another. This section presents estimates of costs across common payment sizes for the point-of-sale payment methods that are the main focus of the study – cash, credit cards and EFTPOS.

Obtaining estimates of the costs for standardised transaction values requires assumptions about how costs vary with the size of the payment. To provide some guidance as to appropriate assumptions, the Reserve Bank sought input from industry as part of the data collection exercise, specifically asking reporting institutions whether costs varied with the number and/or value of the payment. Based on the responses and discussions with industry participants, costs have been either assumed to be invariant to the value of the transaction, or to vary with the value of the transaction. Given that these assumptions require significant judgement, the estimates presented below should be viewed as illustrative rather than definitive.

The cost estimates focus on 'production costs' – resource costs incurred by financial institutions, merchants and, for cash, the public sector – although the broad conclusions are robust to the inclusion of consumer costs. In estimating the costs of the different payment methods, the various transfers – principally interchange fees and seigniorage – have been excluded from the calculations. The overhead costs of establishing and maintaining transaction accounts have also been excluded.

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<sup>58</sup> See, for example, *Brits and Winder (2005)* and *Bergman, Guibourg and Segendorf (2007)*.

## 7.1 Cash

The results reported in Section 4 indicated that the average resource cost of a cash transaction of a reporting merchant is \$0.24, with the average transaction size equal to \$19. Of this total cost, \$0.13 is for tender time. The time taken to process a specific cash transaction at a check-out is likely to depend upon a range of factors, including the particular combination of notes and coins offered by the customer. Very large cash payments (say \$1 000) are likely to take longer than small payments, although for most of the transactions for which cash is actually used, it is assumed that the average tender time is invariant to the size of the transaction (i.e. fixed).<sup>59</sup> For the other cash-related costs incurred by merchants, it is assumed that \$0.06 is invariant to the size of the transaction, while the remainder varies with the size of the transaction, the latter mainly relating to the costs of cash handling both within the store and externally through armoured car companies.<sup>60</sup> Given these assumptions, from the merchants' perspective cash transactions involve a fixed cost of \$0.20, with the costs increasing by \$0.02 for an extra \$10 of value. Currency production costs are assumed to be fixed, and add \$0.01 to the cost of each cash purchase.

Developing estimates of how financial institution costs of cash vary with the size of the transaction is more difficult, partly because of the various ways customers withdraw cash. Given the complexities, the approach explored here is to focus on the cost of cash withdrawals (i.e. deposit costs of financial institutions are excluded). Further, the focus is on typical behaviour by assuming that cash is exclusively supplied through ATMs, and examining costs over small value payments. Two different assumptions are employed for the treatment of costs.

The first is to assume that the cost of supplying cash through ATMs is solely a function of the size of the cash transaction; an implication of this assumption is that it costs significantly less to supply the cash for a \$1 transaction than it does for a \$100 transaction. This assumption would obviously be invalid if individuals went to an ATM before every cash transaction, given that a number of the costs of an ATM transaction are invariant to the size of the transaction. But the usual practice for most people is to take out an amount of cash and to use that cash for multiple transactions. Given that, on average, the resource cost to financial institutions of an ATM withdrawal is around \$0.75, and the average amount withdrawn is around \$175, this approach yields a cost estimate of \$0.04 for every \$10 withdrawn.

The second approach is to assume that all resource costs are spread equally across the eight payments that are, on average, made with the cash withdrawn.<sup>61</sup> Based on this assumption, financial institutions face an average cost of around \$0.09 for each cash purchase.

Both approaches have their limitations in representing financial institution ATM withdrawal costs. While the first approach has some appeal in characterising these costs for small payments, it is likely to significantly overestimate the cost of large cash payments. It effectively assumes

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<sup>59</sup> According to the survey of individuals conducted by Roy Morgan Research, 96 per cent of cash transactions in Australia are under \$100 in value.

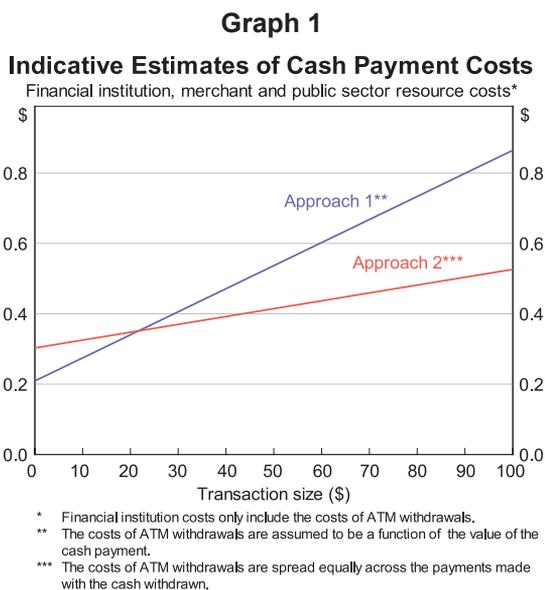
<sup>60</sup> The merchant cost categories that are assumed to vary with transaction value are cost of capital, and 50 per cent of the following: register pick-up and delivery; deposit preparation; armoured truck; shrinkage, theft and counterfeit notes; and insurance.

<sup>61</sup> This is estimated from the survey of individuals conducted by Roy Morgan Research. For those individuals only making ATM withdrawals (i.e. no other types of withdrawals), the average number of cash transactions made per ATM withdrawal was eight.

that an individual withdraws cash from the ATM – and the financial institution incurs \$0.75 of resource costs – for each \$175 payment whereas, in practice, an individual facing a prospective large cash payment would be likely to increase the size of their cash withdrawal. The second approach may be a better indication of the costs of larger payments, but with no allowance for costs to vary with value, it is likely to provide a lower bound. It effectively assumes that a \$175 payment attracts the same fixed costs as a \$1 payment, on the rationale that, on average, each withdrawal from an ATM supports a mixture of eight payments.

Putting this all together, the first measure of cash payment costs has fixed costs of \$0.21 per cash transaction (\$0.20 for merchants and \$0.01 in public sector costs) and incremental costs

of \$0.07 for each \$10 spent. The second measure has fixed costs of \$0.31 per cash transaction (as for the first measure plus \$0.09 in financial institution costs) and incremental costs of \$0.02 (merchant variable costs) for each \$10 spent (Graph 1). These costs would be somewhat higher if financial institution branch costs were included, as financial institutions incur costs of accepting payment proceeds as deposits and in providing over-the-counter cash withdrawals. These additional costs explain why the estimates of typical financial institution withdrawal costs presented here are below estimates of average financial institution cash payment costs presented earlier.



## 7.2 Cards

There is considerable difference in the extent to which payment costs for EFTPOS and credit card payments vary with the value of the payment.

Almost all EFTPOS costs are invariant to the value of the transaction. The average resource cost of an EFTPOS transaction of a reporting merchant is \$0.31 (for an average transaction size of \$73), almost all of which is assumed to be fixed. Financial institution costs are also largely invariant to the size of the transaction, with the exception of cost of capital and fraud. EFTPOS costs incurred by financial institutions are therefore assumed to consist of \$0.19 in fixed costs for each transaction and incremental costs that round to \$0.00 for each \$10 EFTPOS purchase. Putting this all together, EFTPOS transactions are assumed to have fixed costs of \$0.49 for each EFTPOS transaction, and incremental costs of significantly less than \$0.01 for each \$10 spent.

For credit cards, costs are more variable with the size of the payment, reflecting some specific financial institution costs. The average resource cost of a credit card transaction of a reporting point-of-sale merchant is \$0.40 (for an average transaction size of \$68) and, as for EFTPOS, this

is assumed to be almost wholly invariant to the value of the payment. For financial institutions, however, card issuer costs associated with the payment function – fraud (including fraud-related scheme fees), cost of capital (excluding credit risk) and net chargeback write-offs – are assumed to fully vary with the value of the payment.<sup>62</sup> Reflecting these assumptions, the payment function costs of credit card payments incurred by financial institutions are assumed to consist of \$0.39 in fixed costs for each transaction and incremental costs of \$0.01 for each \$10 credit card purchase.

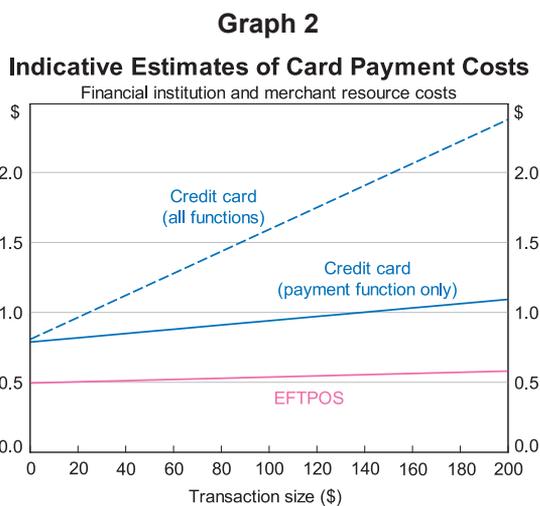
The additional costs incurred by financial institutions for credit card payments associated with the credit function and cardholder rewards costs also vary substantially with the value of the payment; all of the costs of credit collections and write-offs and cost of capital (credit risks), and half of the costs of operating cardholder rewards programs are assumed to vary with the value of the payment. Additional credit card payment costs related to the credit function and cardholder rewards are therefore estimated to consist of \$0.02 in fixed costs for each transaction and incremental costs of \$0.06 for each \$10 credit card purchase.

Adding together merchant and financial institution costs, the payment function for credit card transactions has fixed costs of \$0.78 for each credit card transaction, and incremental costs of \$0.02 for each \$10 spent. When both the credit and cardholder rewards functions are incorporated, credit card transactions have fixed costs of \$0.80 for each credit card transaction, and incremental costs of \$0.08 for each \$10 spent. Since a larger share of credit card costs vary with value than for EFTPOS transactions, the additional cost associated with credit card payments over EFTPOS rises with the value of the payment (Graph 2).

### 7.3 Summary

A comparison of these illustrative costs highlights the finding suggested by the average cost data: cash is the lowest cost payment method for low-value payments. For example, for payments of \$10, the resource costs of a ‘typical’ cash payment – funded through an ATM withdrawal – are estimated to be between \$0.28 and \$0.33, compared with \$0.50 for payments made by EFTPOS (Table 14). Estimated credit card resource costs for \$10 payments are significantly higher, ranging between \$0.80 and \$0.88, depending on which costs are included.

<sup>62</sup> In addition, card acquirer costs that are assumed to fully vary with value, both for credit card and EFTPOS payments, are monitoring, collections and write-offs, fraud, and cost of capital.



**Table 14: Indicative Estimates of Point-of-sale Payment Costs**  
\$ per transaction, production resource costs only

Transaction size	Credit card		EFTPOS	Cash	
	Payment function only	All functions		Approach 1 <sup>(a)</sup>	Approach 2
\$10	0.80	0.88	0.50	0.28	0.33
\$20	0.82	0.96	0.50	0.35	0.35
\$50	0.86	1.20	0.52	0.54	0.42
\$100	0.94	1.59	0.54	0.87	0.53
\$200	1.10	2.39	0.59	na	0.75
\$500	1.57	4.76	0.73	na	1.42

(a) Cash estimates under Approach 1 are only presented for payments up to \$100 reflecting that the underlying assumption is more appropriate for small value payments.

For payments of around \$50 and above, however, it appears that the cost of cash payment exceeds that of EFTPOS payment (particularly if an allowance is made for financial institution branch costs). This reflects the fact that the cost of a cash payment rises more sharply with the size of the transaction than is the case for an EFTPOS payment.

The costs of credit card payments are higher than EFTPOS at all payment sizes, even when considering only the costs associated with the payment function. This reflects that costs that are invariant to the value of the payment – such as tender time – are lower for EFTPOS than credit cards, as are costs that vary with the value of the payment – such as fraud and cost of capital. As the value of the payment rises, the relative costs of a credit card payment increase.

This cost structure means that the average cost of credit card payments is also considerably higher than the average cost of cash payments at low-payment values. If considering only payment function costs, however, the cost difference between credit card and cash payments narrows as payment size rises. Depending on the assumptions, costs are not dissimilar for payment sizes ranging from around \$100 to around \$500. If considering credit card costs relating to the credit function and reward programs, however, credit cards remain more costly than cash payments, even for high-value payments.

These findings are broadly in line with the limited number of international studies of payment costs that examine this issue in detail, even though there is some divergence in approaches used in the literature. For example, Brits and Winder (2005), National Bank of Belgium (2006) and Bergman, Guibourg and Segendorf (2007) all conclude that cash payments involve the lowest resource costs for low transaction values, but higher costs than EFTPOS for higher transaction amounts.<sup>63</sup> For the two of these studies that assume credit card costs vary with the payment value, credit cards are found to be more costly than cash at all payment sizes.

<sup>63</sup> These studies largely focus on variable costs of payments and allow some costs to vary with the value of payments. While Brits and Winder and the National Bank of Belgium only include costs for financial institutions and merchants, Bergman et al also includes consumer costs. The point at which EFTPOS and cash payments costs were found to be equivalent was typically lower than the range found in this study, at a little under AUD20 when converted at current exchange rates. The estimated 'break-even' points should be treated with caution, however, given the imprecise nature of the exercise and different assumptions and methodologies in each study. For example, the studies' focus on variable costs is different to this study which includes fixed costs.

## 8. Concluding Remarks

This paper has presented comprehensive estimates of the resource costs involved in making payments by individuals. The majority of these costs are incurred by financial institutions, but significant costs are also incurred by merchants and, to a lesser extent, by individuals themselves. In aggregate, the costs incurred by financial institutions and merchants for payments by individuals are the equivalent of at least 0.8 per cent of GDP. The total costs involved in the payments system as a whole would be higher still, given that business-to-business payments are not covered in this study.

In terms of the average cost of point-of-sale payments actually made, the ranking of the various payment instruments is reasonably clear, with cash being the lowest cost, followed closely by EFTPOS, with more of a gap to credit cards and then cheques. The cost of cash payments, however, increases with the value of the transaction, so that for larger payments, EFTPOS payments have lower cost.

For all transaction sizes, credit card payments are more costly than for EFTPOS payments. This not only reflects the higher costs associated with the extension of credit and the operation of reward schemes, but also higher fraud costs, scheme fees and the higher capital costs associated with operational risk. Credit card payments, on average, also take longer for merchants to process than do EFTPOS payments.

While cash is a relatively low-cost payment instrument for the bulk of transactions for which it is used, a significant share of the total costs of the payments system arise from cash payments. This reflects the fact that cash remains the predominant payment instrument in the economy, accounting for around 70 per cent of all payments by individuals.

As noted at the outset, for practical purposes the primary focus of this paper has been on the *average* cost of transactions made using the various payment methods. This measure of costs provides a reasonable indication of the long-run incremental resource cost of a payment method – the additional resource costs that would be incurred in the long term if a substantial number of extra payments used the method. A couple of caveats, however, are warranted.

The first is that the estimates of average costs reflect a mixture of costs that are fixed and variable in the short run. Where there is surplus capacity in a payment system, the incremental cost of additional payments in that system over the short run is likely to be below the estimates presented in the paper, given the economies of scale of utilising the existing infrastructure more intensively.

The second is that assessing the extent to which average costs might change in the long run as the volume of payments changes is difficult and has not been attempted in this paper. To the extent that long-run economies of scale exist, they might be expected to be stronger in the electronic systems than the cash system. Notwithstanding this, with the possible exception of cash and EFTPOS – which currently have broadly similar costs for a range of payment values – any long-run economies of scale are unlikely to be so strong as to overturn the broad cost rankings presented in this paper, at least not based on current technology.

Finally, costs are only one aspect of an assessment of the efficiency of the payments system; increased use of the lowest-cost payment system does not necessarily promote efficiency of the overall system. The benefits offered by various payment systems are also important to consider, as is the speed and degree of innovation over time. The Payments System Board will consider these issues, along with the detailed cost data presented in this paper as part of its review. The Reserve Bank thanks all financial institutions and merchants that have participated in the study, and welcomes comments on the estimates presented and the broad conclusions drawn in this paper.

## Appendix A: Cost Study Templates

The full sets of cost study templates and explanatory notes distributed to financial institutions and merchants are available at <http://www.rba.gov.au/PaymentsSystem/Reforms/RevCardPaySys/Pdf/PSRConference2007/index.html>. Respondents were asked to complete templates for payment methods relevant to them.

For *financial institutions*, the survey templates were in two broad groups; the first captured overhead costs of personal accounts used to facilitate payments, and the second captured costs more directly related to each payment method. The structure of the templates is shown in Table A1, with each box representing a separate template.

The overhead cost template captured the predominantly common costs associated with account set-up and maintenance, with costs captured separately for transaction accounts and credit card accounts.

Data on costs more directly related to the payment method were gathered through an individual cost template for each of cards (credit cards, EFTPOS and scheme debit), cheques, direct entry and BPAY, and two templates for cash to capture costs associated both with branches and ATMs. Each template had cost categories applicable to the various stages of initiating, accepting and exchanging value in a transaction. For these templates, respondents reported on the basis of costs and transactions across all customer classes.

For *merchants*, there were individual templates for each of cash, cards, cheque, direct debit and BPAY (Table A2). In addition, there was a template for costs of receiving payments through agency arrangements. Where possible, respondents were asked to provide costs and transaction information on personal payments as opposed to information on payments by large commercial entities.

**Table A1: Financial Institution Cost Templates Structure**

Cash	Cheque	BPAY	Direct entry	EFTPOS	Scheme debit	Credit cards
<b>Account Set-up, Overheads and Maintenance Template</b> <i>for Payer's Transaction Account</i>						
<b>for Payer's Credit Card Account</b>						
1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management	1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management	1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management	1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management	1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management	1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management	1) Systems and IT; 2) Product development and marketing; 3) Application processing and set-up; 4) Receipt and processing of credits to account (excluding OTC deposits); 5) Internet banking; 6) Phone banking; 7) Statement production and distribution; 8) General customer service; 9) General account management
<b>Direct Costs of Payments</b>						
<b>Cash template*</b> 1) Wholesale cash handling and storage 2) Branch/OTC withdrawals and deposits 3) Cost of capital 4) Cost of ATM withdrawals (relevant costs from 'Cards - Issuers' template) 5) Cost of EFTPOS cash-outs (relevant costs from 'Cards - Issuers' and Cards - Acquirers' templates)	<b>ATMs – Owners and Acquirers template</b> <i>Owners</i> 1) Owner centre management 2) Signing up new ATM sites 3) Cash handling and storage 4) Site rental 5) Float 6) Owner equipment 7) Authorisation and transaction processing 8) Fraud and theft 9) Insurance 10) Cost of capital <i>Acquirers</i> 11) Acquirer centre management 12) Acquirer equipment 13) Authorisation and transaction processing 14) Fees 15) Cost of capital	<b>Cheque template</b> <i>Common costs</i> 1) Cheque overheads 2) Cost of capital <i>Payer institution</i> 3) Cheque production and distribution 4) Processing 5) Exceptions <i>Collecting institution</i> 6) Receipt of cheque deposits 7) Processing 8) Exceptions	<b>BPAY template</b> <i>Common costs</i> 1) BPAY overheads 2) BPAY fees 3) Cost of capital <i>Bill payer institution</i> 4) Specific overheads 5) Processing costs 6) Fees <i>Bill institution</i> 7) Biller set-up costs 8) Specific overheads 9) Processing costs 10) Fees	<b>Direct entry template</b> <i>Common costs</i> 1) Direct entry overheads 2) Fraud 3) Cost of capital <i>Direct debit</i> 4) User servicing 5) Customer servicing	<b>Cards – Issuers template</b> 1) Card production and delivery; 2) Authorisation processing; 3) Transaction processing; 4) Cardholder reward programs; 5) Disputes; 6) Net chargeback write-offs; 7) Fraud; 8) Credit collections and write-offs; 9) Cost of funds; 10) Cost of capital; 11) Interchange fees (ATM and EFTPOS); 12) Other fees	<b>Cards – Acquirers template</b> 1) Acquirer centre management; 2) Application processing; 3) Merchant servicing (equipment); 4) Authorisation and transaction processing; 5) Merchant servicing (non-equipment); 6) Monitoring, collections and write-offs; 7) Disputes; 8) Fraud; 9) Cost of funds; 10) Cost of capital; 11) Interchange fees (credit card and scheme debit); 12) Other fees

\* Calculations for costs of cash payments incorporate costs from other templates as noted.

**Table A2: Merchant Cost Templates Structure**

Cash	Cards	Cheque	Direct debit	BPAY	Agency
<p>Cash template</p> <ol style="list-style-type: none"> <li>1) Point of sale</li> <li>2) Back-office processing</li> <li>3) Deposit and cash deliveries</li> <li>4) Cash theft/losses</li> </ol>	<p>Cards template (credit cards, EFTPOS, scheme debit)</p> <ol style="list-style-type: none"> <li>1) Point of sale</li> <li>2) Back-office processing</li> <li>3) Net write-offs</li> <li>4) Account management</li> </ol>	<p>Cheque template</p> <ol style="list-style-type: none"> <li>1) Point of sale/Receipt of cheque</li> <li>2) Back-office processing</li> <li>3) Deposit</li> <li>4) Exceptions processing and write-offs</li> </ol>	<p>Direct debit template</p> <ol style="list-style-type: none"> <li>1) Overheads</li> <li>2) Back-office processing</li> <li>3) Direct debit set-up and maintenance</li> <li>4) Exceptions processing and write-offs</li> </ol>	<p>BPAY template</p> <ol style="list-style-type: none"> <li>1) Overheads</li> <li>2) Back-office processing</li> <li>3) Fees</li> <li>4) Exceptions processing</li> </ol>	<p>Agency payments</p> <ol style="list-style-type: none"> <li>1) Overheads</li> <li>2) Back-office processing</li> <li>3) Agency fees</li> </ol>

## Appendix B: Payment Activity in the Sample

Nine *financial institutions* (including ATM operators) provided information. Summary details on the use of *transaction accounts* at these institutions are provided in Table B1. ATM withdrawals and EFTPOS transactions typically account for around 60 per cent of the total number of debits to these accounts. Around 20 per cent of debits are in the form of electronic transfers through the direct entry and BPAY networks, or intrabank transfers, with these transfers of high average value. In total, the average number of debits per year (125) was significantly higher than the number of credits (35). Around two thirds of these credits are through the direct entry system, while cash and cheque deposits are relatively infrequent but of high average value.

**Table B1: Average Activity on Personal Transaction Accounts<sup>(a)</sup>**  
Annual

	Number		Average value (\$)	
	Weighted average <sup>(b)</sup>	Median	Weighted average	Median
<b>Credits</b>	<b>35</b>	<b>35</b>	<b>1 187</b>	<b>1 344</b>
<i>of which:</i>				
Cash	2	2	1 189	837
Cheque	2	2	6 875	4 633
Direct entry	24	24	838	947
Other transfers	7	7	936	1 699
Other	1	3	289	299
<b>Debits</b>	<b>125</b>	<b>128</b>	<b>271</b>	<b>322</b>
<i>of which:</i>				
Cash	31	30	235	213
<i>Over-the-counter</i>	1	2	1 578	972
ATM	30	29	170	172
<i>Other</i>	0	0	285	361
EFTPOS	43	41	64	67
<i>Purchase only</i>	37	34	58	59
<i>Purchase and cash-out</i>	6	6	96	98
<i>Cash-out only</i>	1	0	76	80
Scheme debit <sup>(c)</sup>	9	12	87	86
Cheque	4	4	1 385	1 400
Direct entry	11	10	505	466
BPAY	6	5	600	581
Other transfers	7	5	1 090	956
Other	23	25	74	4

(a) Includes all outstanding personal transaction accounts recorded in the sample, including inactive accounts.

(b) Weighted-average totals do not equal the sum of the components as not all respondents provided data for each category.

(c) Only for those banks that issued scheme debit cards.

The average value of payments from a *credit card account*, and the average amount repaid, was around \$15 000 per annum (Table B2). Credit card holders made, on average, slightly more than one credit card repayment per month (15 per year). Although electronic methods of payment (BPAY and credit transfers) were popular for paying credit card bills, cash and cheque payments still accounted for one fifth of repayments by number. Most debits to credit card accounts were purchases, though fees and interest charged to card holders (the bulk of the ‘other’ category) are not insignificant.

**Table B2: Average Activity on Personal Credit Card Accounts<sup>(a)</sup>**  
Annual

	Number		Average value (\$)	
	Weighted average <sup>(b)</sup>	Median	Weighted average	Median
<b>Credits</b>	<b>15</b>	<b>15</b>	<b>1 016</b>	<b>906</b>
<i>of which:</i>				
Cash	2	3	1 355	579
Cheque	1	1	1 653	1 606
Other transfers	4	8	1 317	831
BPAY	4	3	718	856
Other	2	2	659	386
<b>Debits</b>	<b>118</b>	<b>106</b>	<b>126</b>	<b>121</b>
<i>of which:</i>				
Purchases	104	93	125	125
Cash advances	3	3	308	296
BPAY	1	1	345	307
Other transfers	1	1	472	1 009
Other	15	13	37	32

(a) Includes all outstanding personal credit card accounts.

(b) Weighted-average totals do not equal the sum of the components as not all respondents provided data for each category.

For *merchants*, the cost estimates are drawn from a sample of twelve respondents. Estimates for costs of *point-of-sale* payments are based on a sample of seven large retailers, including supermarkets, department stores and other general retailers. Given the size of the largest contributors, the data are highly reflective of supermarket activity.

Over the one year sample period the respondent merchants reported almost 2.4 billion point-of-sale transactions at an average size of \$35 (Table B3). Of the total transactions at these merchants, around 70 per cent were in cash by number, and 36 per cent by value. The average size of a cash transaction was \$19, significantly lower than for EFTPOS (\$73) and credit cards (\$68). Among electronic payment methods, EFTPOS was used more frequently than credit cards, with scheme debit payments much less common. Cheques were used quite infrequently in point-of-sale retail environments, but the average value was relatively high (\$374).

These results are broadly comparable with those from the Roy Morgan Research survey conducted on the use of payment instruments. In particular, the share of cash payments among these payment instruments in the sample closely correspond with the equivalent shares by number (70 per cent) and value (38 per cent). The mix of card payments in the sample is a

little more skewed towards EFTPOS than credit cards in both number and value, reflecting the relatively heavier use of EFTPOS in supermarkets than in the broader economy.

**Table B3: Payments at Point of Sale**

	Number	Value	Average value	Share of total	
	Million	\$ million	\$	Number	Value
				%	%
Cash	1 614	30 094	19	68	36
Credit card and scheme debit <sup>(a)</sup>	339	22 642	67	14	27
EFTPOS <sup>(b)</sup>	414	30 146	73	17	36
Cheque	2	904	374	0	1
<b>TOTAL</b>	<b>2 369</b>	<b>83 788</b>	<b>35</b>	<b>100</b>	<b>100</b>

(a) The average value of credit card transactions is \$68.

(b) Includes EFTPOS cash-outs.

Estimates of the costs of *non-point-of-sale* payments draw on data from seven organisations with involvement in household bill payments (including five ‘billers’ and two retailers which provided data on loan repayments). BPAY was the most commonly used method, by number, in our sample, accounting for 45 per cent of non-point-of-sale payments (Table B4). This was followed by credit card payments (including direct debits from credit card accounts) which accounted for 34 per cent of the number of payments. The remainder were split between direct debits from a transaction account and cheque payments. The average size payment was between \$100 and \$150 for all payment methods except cheques, which had an average value of \$1 098, probably reflecting the effect of some large corporate bill payments. As a result, cheque payments accounted for the largest share of the value of bill payments in our sample.

**Table B4: Payments at Non Point of Sale**

	Number	Value	Average value	Share of total	
	Million	\$ million	\$	Number	Value
				%	%
Credit card	30	4 412	146	34	22
<i>of which: direct debit</i>	8	516	66	9	3
Cheque	8	8 872	1 098	9	45
Direct debit	10	1 041	106	11	5
BPAY	40	5 487	137	45	28
<b>TOTAL</b>	<b>88</b>	<b>19 812</b>	<b>224</b>	<b>100</b>	<b>100</b>

## Appendix C: Estimating the Economy-wide Number of Cash Transactions

Although data are regularly collected on the number and value of non-cash payments, similar data are not readily available for cash payments. After cash has been withdrawn from financial institutions it is difficult to track how it is used and to know how many individual payments the cash withdrawal supports. Given the lack of existing information on cash payments, the Reserve Bank commissioned Roy Morgan Research to conduct a survey of how individuals pay for goods and services. As part of this survey, 662 participants aged 18 years and over recorded all payments made over a two-week period.<sup>64</sup>

According to the survey, the average number of cash payments made each week by individuals aged 18 and over was 9½.<sup>65</sup> Scaling this number up to reflect the population aged 18 and over yields an estimate of about 7.4 billion cash payments annually (Table C1). In obtaining an estimate of the total number of cash transactions, two adjustments were made to this number.

The first was to take account of cash transactions made by those aged under 18 years. In particular, it was assumed that no cash transactions were made by those aged 8 years and under, and persons aged 9 to 18 years made, on average, half the number of cash transactions of those aged 18 and over. This adjustment adds about 0.6 billion to the estimated number of cash transactions. As a result, the estimated total number of cash payments by individuals was around 8 billion.

**Table C1: Estimate of the Number of Cash Transactions**

	Number of cash transactions Billions
Survey participants (grossed up to adult population)	7.4
<i>Plus</i>	
Adjustment for cash transactions made by those aged under 18	0.6
<b>Estimate of cash transactions by individuals</b>	<b>8.0</b>
<i>Plus</i>	
Estimate of cash transactions made by business sector	0.4
<b>Estimate of total cash transactions in the economy</b>	<b>8.4</b>

The second adjustment was to take account of business-to-business payments made in cash, as these were not captured in the survey of individuals. The total number of cash transactions was required to determine the average cost to financial institutions of a cash payment – reported financial institution costs of cash transactions covered those by individuals and businesses. Unfortunately, there is little data available on the use of cash for business payments. Many

<sup>64</sup> The details and results of this survey are presented in Household Payment Patterns in Australia.

<sup>65</sup> This is adjusted for survey fatigue.

businesses are, however, likely to make little use of cash for payments, given the widespread use of direct entry, cheques and credit cards. In the absence of data, the number of cash payments made by individuals is increased by 5 per cent to account for business cash payments, although it needs to be recognised that this approach is subject to more than the usual degree of uncertainty.<sup>66</sup>

Given these adjustments, the total number of cash transactions is estimated to be 8.4 billion. This estimate is broadly in line with Department of Communications, Information Technology and the Arts (2006) which estimated that there were 8.8 billion cash transactions in 2004. That study used the number of cash withdrawals and an estimate of the number of cash payments per withdrawal to gauge the number of cash transactions.

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<sup>66</sup> For the roughly 2 million actively trading businesses in Australia in June 2006 (see ABS 2007), this assumption implies an average number of cash transactions of nearly four per week.

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# HOUSEHOLD PAYMENT PATTERNS IN AUSTRALIA

*David Emery, Tim West and Darren Massey†*

## 1. Introduction

This paper reports the results of the study on payment patterns in Australia undertaken by the Reserve Bank of Australia as part of its 2007/08 review of the payments system reforms.

The study aims to provide a comprehensive picture of how individuals in Australia make payments for goods and services. While, historically, reasonably good data have been available on the aggregate use of electronic and cheque payments, there have been comparatively little disaggregated data available and little information about the use of cash for payments. This study fills these gaps.

Understanding how individuals pay for goods and services is a key input into the Reserve Bank's review. It is important for making assessments about the potential for substitution between various payment methods and, combined with data on the cost of running individual payment systems, can help provide an indication of the aggregate costs of the payments system. This study should also assist those in the payments industry to better understand how, and where, various payment instruments are used.

The study draws on three main sources. The first is a survey commissioned by the Reserve Bank in which individuals were asked to record all their day-to-day payments over a two-week period. The second is detailed payments data provided by financial institutions and large merchants. And the third is a survey of small merchants on the use of different methods of payment by their customers.

The main conclusions of this study are as follows.

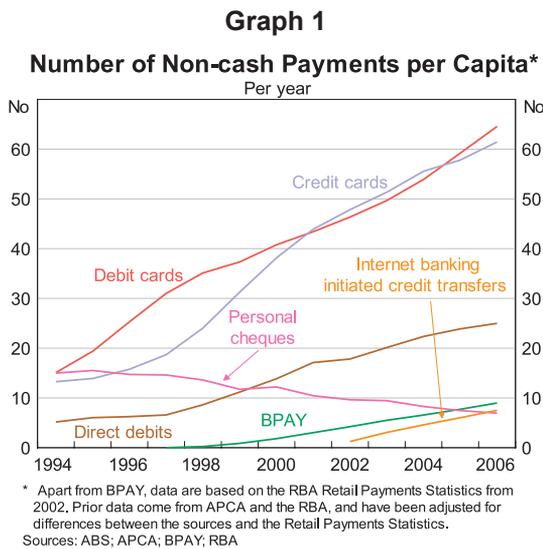
- Cash is by far the most widely used payment instrument in Australia, accounting for around 70 per cent of everyday transactions. On average, cash transactions tend to be for relatively small amounts, so that cash's share of the value of payments is considerably lower at around 38 per cent.
- Cards are the dominant payment method for transactions between \$50 and \$500. Both debit and credit cards are used extensively for these mid-sized payments, although there is a tendency for the share of spending on credit cards to increase as the payment value rises. Above \$500, credit card payments outnumber debit card payments by a ratio of 4 to 1.
- Cheques are infrequently used for point-of-sale payments, although they are still used reasonably frequently for bill payments and for high-value transactions. The use of electronic bill payment methods has increased significantly over recent years. Since 2002, the number of BPAY payments has doubled, while the number of direct debits has increased by almost 50 per cent.

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† *This paper was prepared by a team from Payments Policy Department of the Reserve Bank. The authors would like to thank Stephanie Weston for her substantial contribution to this study in its early stages.*

- Payment patterns vary considerably across businesses. Cash tends to be used most in situations where average payment values are low and where quick tender times are preferred (e.g. take-away stores and newsagents). Conversely, cheques and BPAY are used more frequently for bill payments where payments are larger. Card payment methods are used across a wide range of merchant types. Debit cards, in particular, are used frequently at supermarkets and petrol stations, while credit and charge cards are used widely for holiday travel and accommodation, and on insurance and health/medical spending.
- Age appears to play a role in influencing payment patterns. Generally, older individuals tend to use cash and cheques more frequently than younger people, who use debit cards more often. The use of credit cards is highest for those aged between 30 and 50.
- ATMs are the most common channel for withdrawing cash, with ATM withdrawals accounting for around two-thirds of total cash withdrawn from bank accounts. Larger value withdrawals tend to take place over the counter at a bank branch, a method more frequently used by older Australians.

The paper is structured as follows. Section 2 briefly summarises the available aggregate data on payment patterns in Australia, while Section 3 discusses the new data sources used in this study. Section 4 then summarises the data from the survey of individuals, while Sections 5 through 7 provide more detailed information about the use of cash, cards and other payment instruments. Section 8 concludes.



## 2. The Aggregate Data

The existing aggregate data on payment patterns in Australia have been discussed extensively by the Reserve Bank over recent years, including in the Payments System Board's Annual Reports. These data include details of the number and value of the main electronic forms of payments as well as cheques. They show that the use of the various non-cash payment methods has changed substantially over the past decade or so (Graph 1). In particular, the use of electronic and card-based payment methods has grown very strongly, while the use of cheques

has declined. Since 1994, the number of personal cheques written per person has more than halved, while the number of card-based payments per person has increased fourfold. There has also been substantial growth in the use of direct debits, BPAY and internet payments.

The aggregate data also suggest that over the year to June 2007, Australians made an average of around 14 million non-cash payments per day, with debit and credit card payments accounting for around half of these (Table 1). Most of the value of non-cash payments is,

however, accounted for by cheques and the direct entry system (direct debits and direct credits), reflecting the large average value of these payments. For example, the average value of a direct credit is almost \$5 000, in contrast to the average value of a debit card payment of \$68. Although the number of credit card payments is roughly the same as the number of debit card payments, credit card payments account for around twice the value of debit card payments, given their higher average value.

**Table 1: Non-cash Payments in Australia**  
Year to June 2007

	Number Million	Value \$billion	Number per day Million	Average value (\$)
Debit cards <sup>(a)</sup>	1 393	95	3.8	68
Credit cards	1 296	179	3.6	138
Direct credits	1 184	5 880	3.2	4 966
Direct debits	531	4 284	1.5	8 068
Cheques	432	1 743	1.2	4 035
BPAY	198	133	0.5	672
<b>Total</b>	<b>5 035</b>	<b>12 314</b>	<b>13.8</b>	<b>2 446</b>

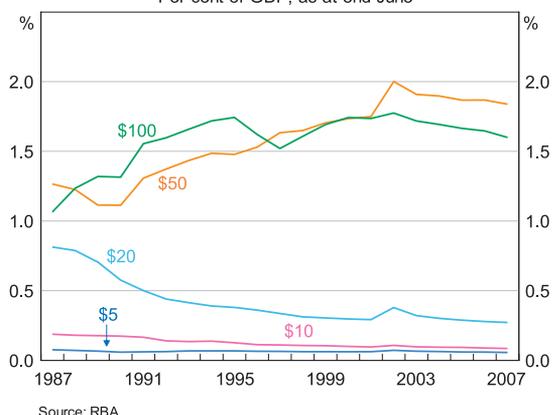
(a) Excludes cash-out.  
Sources: RBA, BPAY

In comparison, little information is available regarding the use of cash as a payment method. The main available data relate to the value of notes and coins outstanding. These data show that the value of currency on issue has grown broadly in line with GDP over recent years, with the ratio of currency to GDP averaging 3.9 per cent over the year to June 2007, very close to its average of the past 30 years. There has been very strong growth in the value of \$50 notes outstanding, and a corresponding decline in the value of \$20 notes outstanding (Graph 2).

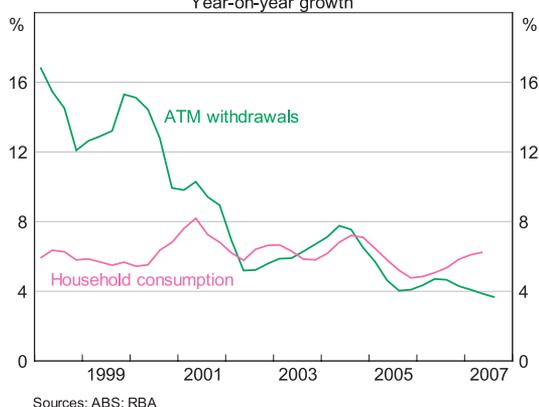
Another source of data on cash is the value of cash withdrawals through ATMs. These withdrawals grew very strongly during the 1990s, as ATMs increasingly replaced branches as the main means by which individuals obtained cash. More recently, however, the value of ATM withdrawals has been growing at a rate slightly lower than that of final private consumption, providing some evidence of a slowdown in the growth of the use of cash for transaction purposes (Graph 3).

**Graph 2**

**Value of Banknotes on Issue**  
Per cent of GDP, as at end June



**Graph 3**  
**Value of ATM Withdrawals and Household Consumption**  
 Year-on-year growth



There are only limited data on the use of cash for payments in Australia. The main source has been information occasionally provided by large retailers, which suggests that cash is used widely.<sup>1</sup> However, to the Reserve Bank's knowledge, there has, to date, been no systematic collection of comprehensive transaction-level data on the use of cash in Australia.

### 3. The Data Used in this Study

This study uses three new sources of data to provide a more comprehensive picture of payment patterns than can be obtained from the aggregate data

summarised in the previous section. The first is a survey of individuals commissioned by the Reserve Bank and conducted by Roy Morgan Research. The second is data from a range of financial institutions and merchants. And the third is data provided directly by small business, in response to a survey conducted by the Reserve Bank.

#### 3.1 Survey of individuals

The main source of data for the paper is a survey of individuals undertaken for the Reserve Bank by Roy Morgan Research. Individuals participating in the survey were asked to record the details of every purchase they made over a two-week period in June 2007 in a specially designed pocket-sized diary. Roy Morgan Research recruited 1 000 participants, who were asked to enter information on the payment method used, the size of the transaction, the merchant category and the channel (for example, point of sale, internet, telephone or mail). Participants were also asked to provide details on the frequency, size and methods of cash withdrawal over the survey period. Automated payments, such as periodic payments by direct debit, were captured via a separate questionnaire, filled in upon completion of the diary.<sup>2</sup> In total, 662 individuals filled out the diary, generating a sample of almost 17 000 payments for a total value of around \$850 000. In addition, around 1 800 cash withdrawals were recorded for a value of around \$320 000. Further details of the survey are provided in Appendix A.

The main results of the survey are presented in Section 4. The survey is, however, also used to provide context to the discussion of individual payment instruments in other sections of the paper.

<sup>1</sup> See also the survey conducted for DCITA (2006) which asked participants what they considered to be their most frequently used payment method for transaction values of \$10, \$30 and \$100. The stated preferences were quite similar to the diary survey results (see Section 4).

<sup>2</sup> This questionnaire also captured information on surcharging, the results of which are briefly noted in Appendix A.

### 3.2 Data from financial institutions and merchants

To supplement the data provided in the survey, the Reserve Bank also collected information from financial institutions and merchants on the number and value of transactions for various payment instruments. Financial institutions provided anonymous data on all payments made by debit and credit cards, cheque, BPAY and internet banking for the month of March 2007. The full database contains over 166 million transactions.

For EFTPOS, scheme debit and credit card transactions the data include information related to transaction value, any cash-out component (if applicable), transaction date, and an indicator identifying the merchant industry. Transactions made on business credit cards and internationally issued cards have not been included in the analysis. Cheque, BPAY and pay-anyone data contained basic transaction information, including the date and transaction amount.

To simplify the analysis, all unit level data were aggregated into transaction ranges of \$5, up to \$5 000, with transactions larger than \$5 000 aggregated into one group. These ranges were then used to generate payment distributions for each method. Given the very large sample sizes involved, these data provide a more complete description of the use of certain payment instruments than is available from the survey.

Data on the number and value of payments received during March 2007 were also obtained from eleven retailers, including supermarkets, department stores, hardware and electrical stores, and a number of smaller businesses. Some of these merchants were also able to provide data on the distribution of payments by value. The data provided amounted to a total transaction value of more than \$6 billion.

A range of merchants and organisations issuing bills on a regular basis also provided data on the total number and value of payments received by various payment methods. In most cases, the data were for March 2007, although where organisations advised that data for March were either not available or not representative of their regular patterns, data were provided for an alternative time period. Data were provided by six merchants from the telecommunications, insurance and energy industries, and by the major third-party billing agency, Australia Post. In total, the value of payments reported was over \$2 billion.

### 3.3 Survey of small business

The third source of data is a survey of small business, conducted by the Reserve Bank, of their acceptance of different payment methods and on the use of these methods by their customers. This survey was conducted online with the assistance of the Office of Small Business, the National Small Business Roundtable, and a number of industry associations, namely the Australian Newsagents' Federation, the Australian Retailers Association, the Council of Small Business Organisations of Australia, CPA Australia, the Motor Trades Association of Australia, the National Institute of Accountants, the Pharmacy Guild of Australia, and Restaurant and Catering Australia. Responses were received from 263 businesses. The survey methodology is set out in Appendix B.

In general, respondents to the survey were genuinely small or 'micro' businesses – the average respondent had six employees and an annual turnover of around \$1 million – but there was a large range of businesses amongst the sample.

The results of this survey are more limited in scope than for the survey of individuals and the data from financial institutions and large merchants. In addition, while some respondents were able to supply information on the value of electronic payments received, they were not always in a position to indicate the number of payments received. Furthermore, most were unable to estimate the number and value of cash payments received. Nevertheless, the survey provides some robust information on the methods of payment accepted by this sample of small merchants and demonstrates some clear differences in payment patterns between particular merchant types.

#### 4. The Diary Results

The use of various payment methods as reported in the diary is summarised in Table 2. Cash accounted for around 70 per cent of all payments made, and around 38 per cent of the value of all payments. Card-based payments accounted for the bulk of the remainder of payments, and around 40 per cent of the value of payments. BPAY and cheques both accounted for much smaller shares of the number of payments, but each accounted for around 9 per cent of the value.<sup>3,4</sup>

**Table 2: Payment Methods**  
Per cent of number and value<sup>(a)</sup>

	Share of number	Share of value
Cash	70	38
EFTPOS	11	14
MasterCard/Visa debit card	4	6
MasterCard/Visa credit card	9	17
American Express/Diners Club card	1	2
Petrol/Store card	*	*
Cheque	1	9
BPAY	2	9
Other <sup>(b)</sup>	1	3

(a) Amounts less than 0.5 per cent are marked with an asterisk.

(b) 'Other' payment methods include instruments such as money orders and Cabcharge payments.

Source: Roy Morgan Research

In contrast to the aggregate data reported in Section 2 – which show a roughly equal number of credit and debit card transactions – more debit card transactions than credit card transactions were recorded in the survey. In part, this is explained by the tendency for businesses – which were not included in the survey – to use credit cards more frequently than debit cards.

Over the two-week survey period, 1.8 payments per day were recorded, on average, by each participant. This figure is, however, likely to slightly underestimate the number of payments actually made, given some evidence that a number of participants suffered from 'survey fatigue'. Adjusting for this fatigue leads to a slightly higher estimate of 1.9 payments per person, on

3 These figures do not take into account payments made through automated debits from deposit and credit accounts. These data are discussed in Section 7.5.

4 As a matter of terminology, 'EFTPOS' in this document refers to debit card transactions made using a PIN; sometimes also referred to as 'proprietary debit'. In addition, with the exception of Table 1, 'cheque' refers to personal cheques only.

average, per day.<sup>5</sup> This implies that adult Australians each make around 700 payments each year, including around 490 cash payments. Extrapolating this to the wider population and combining it with existing data suggests that there are around 11 billion payments made by individuals each year, of which around 8 billion are cash payments by individuals.<sup>6</sup>

#### 4.1 Typical payment sizes

The average size of all payments recorded in the survey is \$51, although the average differs significantly across payment instruments (Table 3). Cash payments have the lowest average size – at \$28 – and cheques, the highest – at \$387. Consistent with the aggregate data, the average size of a (MasterCard/Visa) credit card transaction (\$96) is larger than the average size of an EFTPOS transaction (\$65). The average for credit cards is, however, lower than in the aggregate data, reflecting the higher average value for credit card transactions by businesses which, as noted above, are not included in the survey.

**Table 3: Payment Values**  
Dollars

	Average	Median
Cash	28	11
EFTPOS	65	40
MasterCard/Visa debit card	81	40
MasterCard/Visa credit card	96	47
Amex/Diners Club card	115	54
Petrol/Store card	51	45
Cheque	387	100
BPAY	215	100
Other	184	60
<b>All payment methods</b>	<b>51</b>	<b>19</b>

Source: Roy Morgan Research

The average payment values from the survey are similar to the averages indicated by the data provided by a range of large retailers (Table 4). Consistent with the survey data, the retailer data indicate that cash is typically used at lower values, while cheques are used predominantly for high-value payments. The average payment values for card transactions are quite similar – all falling within the range of \$73 to \$82.

For all payment instruments, the median size of payments is considerably smaller than the average, reflecting the nature of payment distributions, with many more small payments than large payments (Graph 4). The median size of all payments recorded in the survey was \$19, less than half the average size of payments (Table 3). The median cash payment was \$11, compared with the average payment of \$28. Interestingly, the median sizes of credit and debit card

<sup>5</sup> The adjustment involved excluding from the calculation of the average number of payments per day those respondents who made substantially fewer payments in week 2 than in week 1 of the survey (around 100 participants). It should be noted that these respondents have not been excluded from other results reported, as the distribution of payments across the various payment instruments is consistent through the survey and seemingly not affected by any survey fatigue.

<sup>6</sup> The estimate of the number of cash transactions is described in more detail in Appendix C of the parallel study Payment Costs In Australia. Table 13 in that document sets out the estimated total number of transactions by individuals.

**Table 4: Average Payment Values at Retailers**  
Dollars

	Average
Cash <sup>(a)</sup>	22
EFTPOS <sup>(b)</sup>	73
MasterCard/Visa credit card <sup>(b)</sup>	76
Amex/Diners Club card	82
Petrol/Store card	77
Cheque <sup>(a)</sup>	271
<b>All methods</b>	<b>41</b>

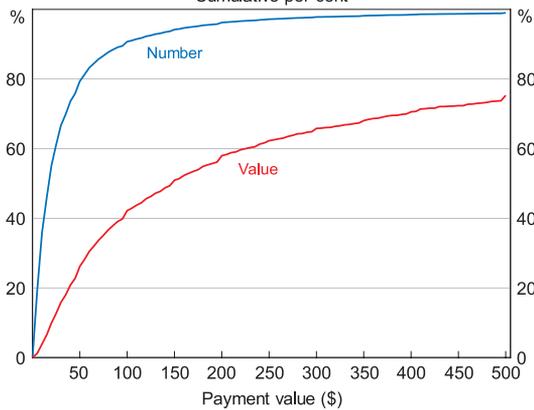
(a) Some cash and cheque figures were estimated by the retailers.

(b) Some retailers included scheme debit transactions in their data for credit cards. Most reported them as part of EFTPOS.

Source: Data from selected retailers

**Graph 4**

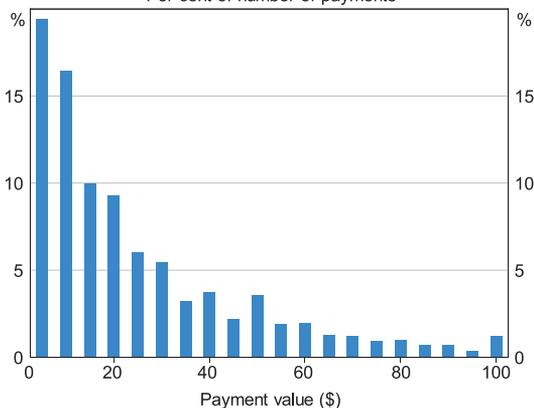
**Distribution of Total Payments**  
Cumulative per cent



Source: Roy Morgan Research

**Graph 5**

**Distribution of Payments under \$100**  
Per cent of number of payments



Source: Roy Morgan Research

payments are similar to one another, whereas the average size of credit card payments is considerably higher than the average size of debit card payments. This reflects the fact that while for many types of payments, credit and debit cards are often used in the same way, credit cards tend to be used more than EFTPOS for very large payments (see Section 6).

The survey results indicate that 91 per cent of payments are for less than \$100, with two-thirds of all payments for amounts under \$30 (Graph 4 and Graph 5). At the other end of the scale, the 2 per cent of payments above \$335 account for a third of the value of payments in the survey.

## 4.2 Use of payment instruments by payment size

The survey results suggest that the size of the payment is an important factor determining what payment instrument is used. The data indicate that cash tends to be used primarily for low-value payments, cheques and BPAY for high-value payments, and the various card payment methods for mid-sized payments (Graph 6).

Cash is by far the most commonly used payment instrument for low-value transactions, accounting for nearly all transactions under \$10 and three-quarters of all transactions between \$11 and \$25 (Graph 7). Around 75 per cent of cash transactions have a value of \$25 or less. Conversely, cheques and BPAY are prominent at the high-value end of transactions, accounting for 29 per cent of the payments above \$500.

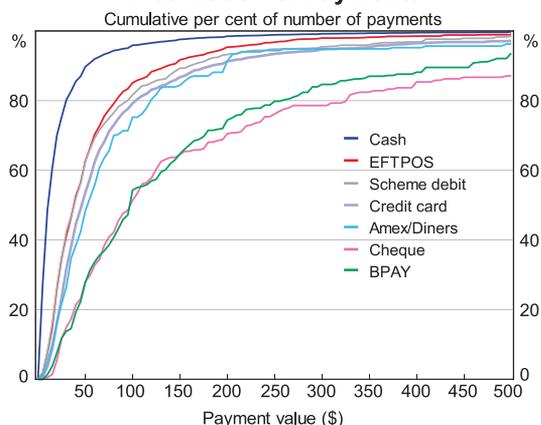
Cards are used extensively across all but very low transaction values. For transactions between \$25 and \$200, debit and credit/charge cards account for 45 per cent of all transactions. For transactions above \$200, debit cards tend to be used less than credit cards; for example, the diary survey results indicate that the number of credit card transactions recorded in excess of \$500 is around twice the number of EFTPOS transactions above this value. Data from financial institutions indicate that for all card payments this pattern is more pronounced – in March 2007 the ratio of credit card to debit card use above \$500 was around 4 to 1.

### 4.3 Payments by merchant category

The majority of payments recorded by individuals reflect day-to-day payments for living expenses and are associated with the purchase of food and petrol. Payments made in supermarkets, other retailers, small food stores, take-away and fast food outlets, and petrol stations accounted for 65 per cent of the number of payments recorded (Graph 8). The average size of payments made at these merchants is smaller than the overall average, so that they accounted for 42 per cent of the value of all payments.<sup>7</sup> The largest average value payments were made in housing and utilities, travel and accommodation, insurance and professional and home services. These sectors only accounted for 7 per cent of the number of payments, but around 26 per cent of the value.

**Graph 6**

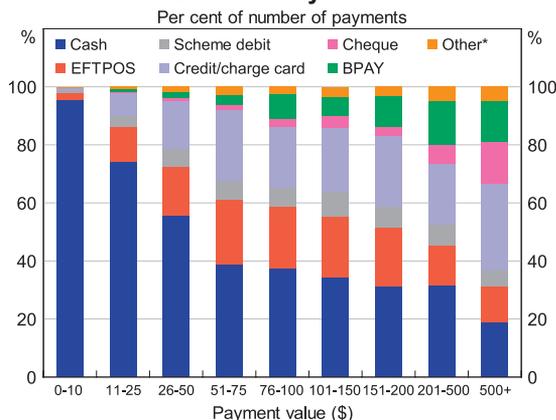
#### Distribution of Payments



Source: Roy Morgan Research

**Graph 7**

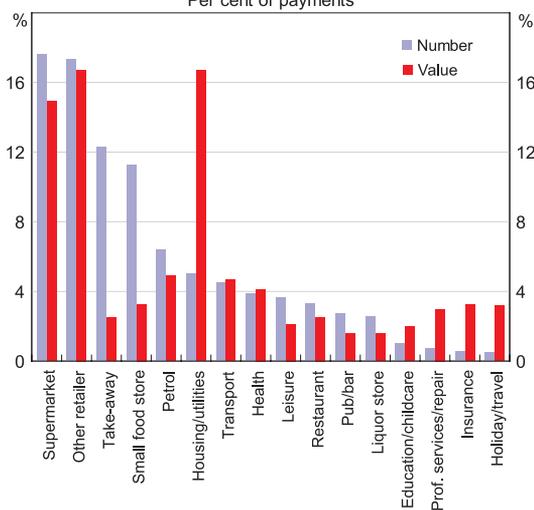
#### Share of Payments



\* Includes petrol/store cards and 'other' payment methods  
Source: Roy Morgan Research

<sup>7</sup> Excluded from Graph 8 are payments classified as falling into 'other' merchant categories. These include a range of merchants, goods and services which do not fit neatly into any particular category. From data received from financial institutions, the main payments in the 'other' category are tax payments, securities transactions and the payment of credit card balances.

**Graph 8**  
**Consumer Payments by Merchant Category**  
 Per cent of payments



Source: Roy Morgan Research

## 4.4 Payment channels

The majority of the payments recorded in the diary, including nearly all payments undertaken using cash and EFTPOS, were made in person (Table 5). Most scheme debit, credit and charge card transactions were also made in person, although these instruments were also used over the phone and the internet to varying degrees. The only payment method that was extensively used through the mail was the cheque. BPAY is only available by phone and internet and therefore followed a pattern unlike the other instruments: around three-quarters of BPAY payments were via the internet.

**Table 5: Payment Channels**  
 Per cent of number and value<sup>(a)</sup>

	In person		Phone		Internet		Mail	
	Number	Value	Number	Value	Number	Value	Number	Value
Cash <sup>(b)</sup>	100	100	-	-	-	-	*	*
EFTPOS <sup>(c)</sup>	99	97	*	1	1	2	*	*
Scheme debit	87	77	6	9	6	14	1	*
Credit/charge	86	73	6	12	7	13	1	2
Cheque	57	81	-	-	-	-	43	19
BPAY	-	-	27	24	73	76	-	-

(a) Amounts less than 0.5 per cent are marked with an asterisk.

(b) A very small proportion of transactions were reported as cash through the mail.

(c) A small proportion of EFTPOS transactions were reported as taking place via phone, internet and mail.

Source: Roy Morgan Research

The following sections discuss the various payment instruments in more detail, drawing on the survey results as well as the other data collected by the Reserve Bank.

## 5. Cash Payments

### 5.1 The use of cash

As discussed above, cash is the most frequently used method of payment. During the survey, 70 per cent of payments, and around 38 per cent of the value of total payments, were undertaken using cash. Cash is most extensively used for low-value payments, being used more frequently than all other payment methods combined for transactions up to \$50 (Graph 9).

There are a number of reasons that explain why cash is used so extensively for low-value transactions. One is that the tender time associated with small cash transactions is considerably less than for other forms of payment, allowing transactions to be completed more quickly. In addition, some merchants impose minimum transaction values for card payments which limit the use of cards for small payments. For example, around one-third of respondents to the small business survey who accepted debit and credit cards indicated that they imposed a minimum transaction value for the use of cards, with the typical minimum value being \$10. This limit reflects, in part, the costs to merchants of small card-based transactions, both in terms of bank charges and tender time. Cash is also accepted almost universally: of the businesses participating in the small business survey, nearly all indicated that they accepted cash payments (Graph 10). The use of cash is also anonymous and does not require any electronic linkages.

## 5.2 Merchant categories

Cash is used extensively in most, but not all, merchant categories (Graph

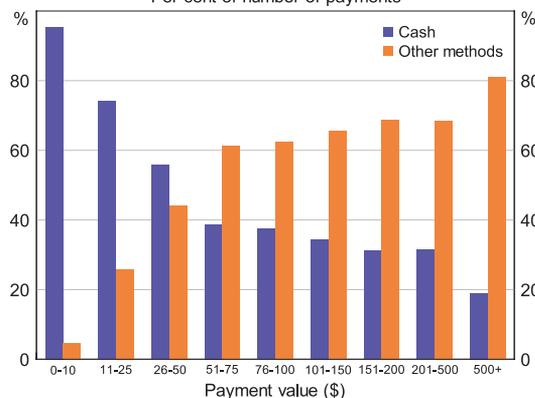
11). Its use is highest in the take-away food/fast food sector, where around 95 per cent of transactions by number are made using cash. This is partly explained by the low transaction values in this sector – the median transaction value is \$8 – and the fact that many merchants do not accept card payments. Cash is also particularly heavily used in a number of other sectors, including pubs and bars, small food stores, and transport.

In almost all sectors, the share of the number of transactions made in cash exceeds the value of transactions made in cash reflecting the fact that cash tends to be used for smaller transactions. This is perhaps most noticeable in the transport sector, where high-value payments (including payments for such items as motor vehicle registrations and transport season tickets)

**Graph 9**

### Use of Cash

Per cent of number of payments

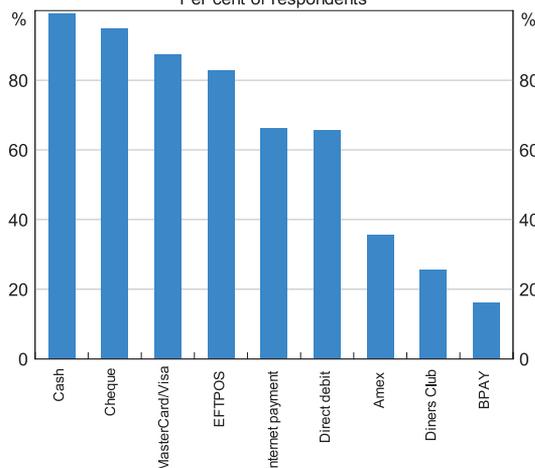


Source: Roy Morgan Research

**Graph 10**

### Payment Methods Accepted by Small Businesses

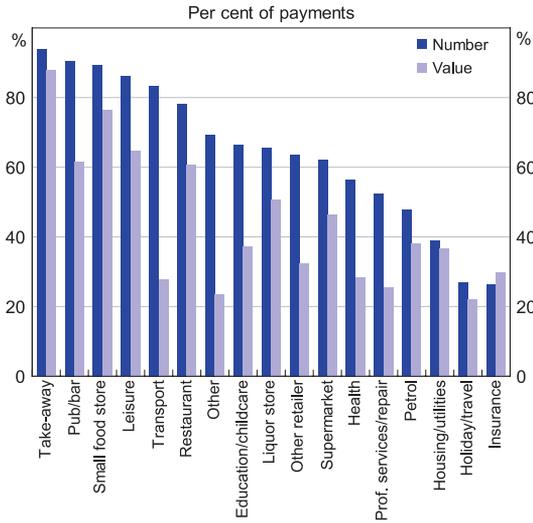
Per cent of respondents



Source: RBA Small Business Survey

**Graph 11**

**Cash Use across Merchant Categories**



Source: Roy Morgan Research

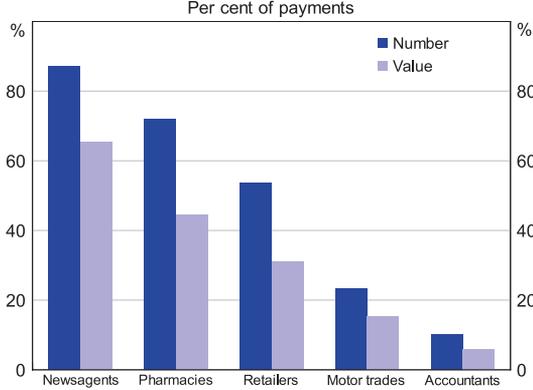
are often made by non-cash payment instruments, while individual fares are typically paid for in cash.

The use of cash is much less common in the travel and insurance industries. Insurance payments, for example, are mostly made via non-cash methods. Similarly, in the holiday travel and hotel accommodation sector, cash is used relatively infrequently, with cards being the most common method of payment (see Section 6). In both these merchant categories, payments tend to be for relatively high values.

Data collected directly from merchants as part of this study also provide information on the use of cash in different parts of the economy. In particular, responses to the survey of small business confirm that cash tends to be used more frequently in sectors where transaction sizes are small. As an example, newsagents indicated that the vast majority of payments received were cash: 87 per cent by number and 65 per cent by value. In contrast, accountants reported only very limited use of cash: 10 per cent by number and 6 per cent by value (Graph 12).

**Graph 12**

**Use of Cash at Small Businesses**



Source: RBA Small Business Survey

The data provided by a group of retailers also suggest that the bulk of transactions

in their stores are in cash, and that cash transactions are relatively small (Graph 13). These data indicate that while cash payments comprise around 35 per cent of the value of transactions at these retailers, they account for around 65 per cent of transactions by number. The disaggregated data provided by some retailers also confirm that the majority of cash payments are for low values, with the median cash payment typically being between \$10 and \$15, and between 80 and 90 per cent of cash transactions being for less than \$50.

### 5.3 Consumer characteristics

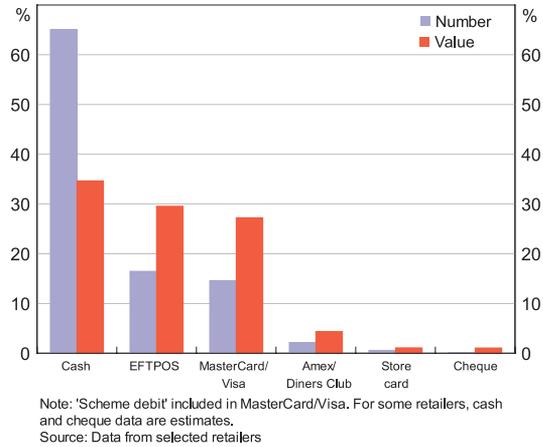
All age groups make extensive use of cash, but there is a clear trend indicating that older individuals make greater use of cash (Graph 14). People over the age of 60 use cash for almost 80 per cent of their payments, compared to just over 60 per cent for those aged between 30 and 39. The more frequent use of cash by older Australians is a likely corollary of lower card ownership by these people, an issue that is discussed in more detail in Section 6. The greater use of cash by older individuals may also reflect the fact that they developed their payment habits before the widespread availability of cards.

The data also suggest that around 15 per cent of people exclusively use cash to make payments. This is somewhat lower than the results of a recent study in the United Kingdom that indicated that around 20 per cent of people in the UK only use cash.<sup>8</sup> Consistent with patterns of cash use overall, cash-only consumers in Australia tend to be older, have lower than average incomes and do not hold a credit card. Almost every respondent made at least one cash payment over the two-week survey period.

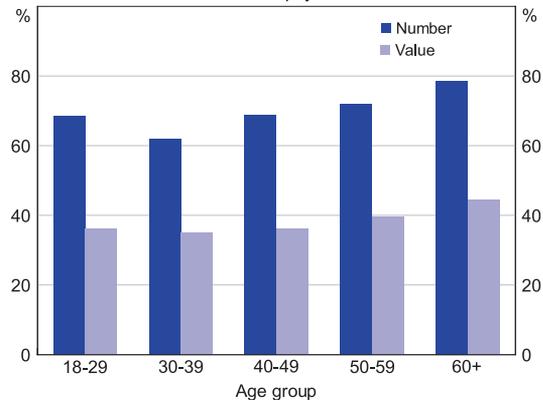
### 5.4 Obtaining cash

The survey data indicate that the average cash withdrawal is \$180. As for other payment transactions, the median is considerably lower, at \$100. Around 77 per cent of withdrawals in the survey were for amounts of \$200 or less, and around one third of withdrawals were for \$50 or less (Graph 15).

**Graph 13**  
**Payment Methods at Large Retailers**  
Per cent of payments



**Graph 14**  
**Use of Cash by Age Group**  
Per cent of payments

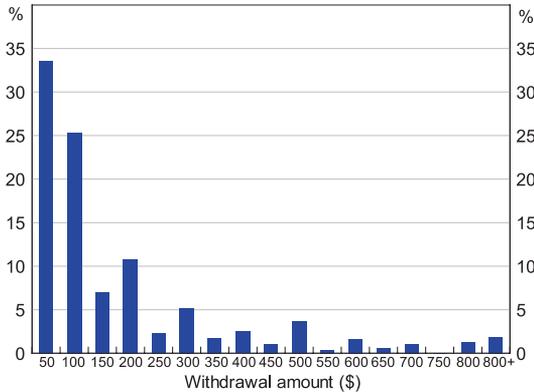


<sup>8</sup> APACS (2007), p6.

**Graph 15**

**Obtaining Cash**

Per cent of cash withdrawals



Note: Withdrawal amount refers to a transaction band e.g. \$100 represents transactions from \$50.01 to \$100  
Source: Roy Morgan Research

Around 87 per cent of individuals acquired cash on at least one occasion during the two-week survey, with the average time between withdrawals being around four to five days; 14 per cent of people had at least one day where they obtained cash twice or more. The data suggest that for the typical individual, each cash withdrawal supports around 9 cash payments.<sup>9</sup>

The most common method of obtaining cash is through an ATM, with ATM withdrawals accounting for 64 per cent of the number of cash withdrawals and 65 per cent of the value withdrawn (Table 6).

**Table 6: Methods Of Obtaining Cash**

Method of withdrawal	Share of number (%)	Share of value (%)	Average value (\$)	Median value (\$)
ATM	64	65	183	100
EFTPOS cash-out	21	10	84	50
Over-the-counter	10	20	382	250
Other <sup>(a)</sup>	5	4	157	85

(a) 'Other' includes, amongst other things, payment in cash by employers, person-to-person payments and Medicare rebates.  
Source: Roy Morgan Research

The second most commonly used method is through EFTPOS cash-out facilities. EFTPOS withdrawals account for 21 per cent of the number of cash withdrawals, although only 10 per cent by value of cash withdrawn, reflecting the lower average size of withdrawals through this channel. The median EFTPOS cash-out is \$50, compared with the median ATM withdrawal of \$100, with around 81 per cent of cash withdrawals through EFTPOS being for \$100 or less (compared to 56 per cent for ATM withdrawals) (Graph 16). The financial institution data indicate that around 15 per cent of EFTPOS transactions involve a cash-out, with the bulk of these (13 per cent) involving both a purchase and a cash-out.<sup>10</sup> Most of these transactions take place at supermarkets and petrol stations, with the median amount withdrawn at supermarkets equal to \$50, and the median amount withdrawn at petrol stations equal to \$20. There is some evidence to suggest that the average purchase size is smaller for EFTPOS transactions involving a cash-out compared to those where cash is not withdrawn.

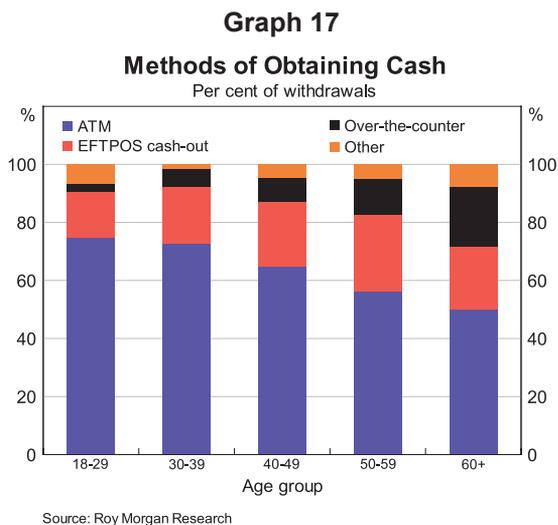
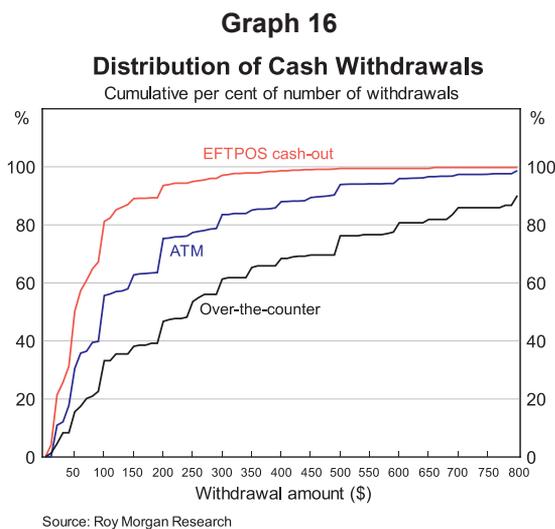
<sup>9</sup> This figure is based on the median withdrawal (\$100) and the median cash payment (\$11). Using the average withdrawal and average cash payment implies a figure of 7 cash payments per withdrawal.

<sup>10</sup> This is consistent with data from the Reserve Bank's Retail Payments Statistics collection.

Over-the-counter cash withdrawals account for only around 10 per cent of the number of withdrawals, but the relatively large average size of these withdrawals means that they comprise around 20 per cent of the value of cash withdrawn. The median size of an over-the-counter withdrawal is \$250, 2½ times higher than the median ATM cash withdrawal and 5 times higher than the median EFTPOS withdrawal. Around a third of cash withdrawals in excess of \$500 are made over the counter. Obtaining cash through other means accounted for 5 per cent of cash withdrawals in the survey.

The way in which individuals obtain cash appears to be influenced by their age (Graph 17). Respondents under the age of 40 use ATMs for the vast majority of their cash withdrawals, and use over-the-counter methods infrequently. Conversely, those over the age of 60 use a financial institution branch for around 20 per cent of the number of their withdrawals (and, when the larger average value for over-the-counter withdrawals is factored in, for almost 40 per cent of the value). While ATM use decreases with age, the use of EFTPOS cash-out is relatively consistent across most age groups, although individuals under 29 and over 60 tend to use this withdrawal method less often.

ATM use is higher in capital cities compared to regional areas, reflecting the greater availability of ATMs in metropolitan areas: 68 per cent of withdrawals in cities are via ATMs, compared to 58 per cent in regional areas. In regional areas, EFTPOS cash-out and over-the-counter withdrawals account for 24 and 13 per cent of withdrawals, compared to 19 and 8 per cent in capital cities.

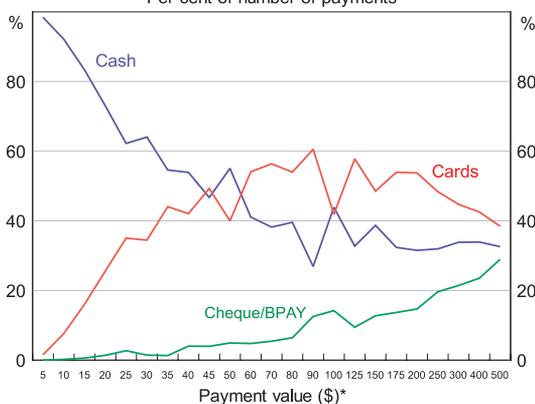


## 6. Card Payments

Credit and debit cards are widely used for payments in Australia, accounting for over half of all non-cash payments. Card use is not, however, universal. Although most individuals carry a debit card, many do not have a credit card (around 91 per cent hold a debit card of some sort, compared to 55 per cent who hold a credit card).<sup>11</sup> Furthermore, some merchants do not accept cards and others impose restrictions on their use, including minimum transaction sizes. This section discusses the use of cards and how this varies across merchant categories and consumer characteristics. It draws on both the survey conducted by Roy Morgan Research and data supplied by financial institutions.

**Graph 18**

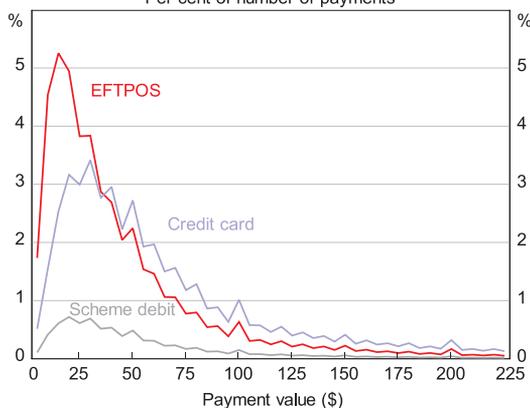
**Share of Payments**  
Per cent of number of payments



\* Horizontal axis is condensed at higher values  
Source: Roy Morgan Research

**Graph 19**

**Share of Total Card Payments Below \$225**  
Per cent of number of payments



Source: Financial Institution Data

### 6.1 Use of cards

As noted above, the survey data show that the use of cards for everyday payments is second only to cash. Card payments account for a quarter of the number and 40 per cent of the value of these payments. For transactions between \$50 and \$200, debit, credit and charge cards account for more than 50 per cent of the number and value of payments (Graph 18).

Although cards are used across a wide range of payment values, the majority of card payments are made for relatively low transaction values. Payments under \$225 account for 90 per cent of all card transactions. For these payments, EFTPOS cards are used more frequently for lower-value transactions than are credit cards (Graph 19). EFTPOS is the most commonly used card-based payment method for payments under \$25, where the number of EFTPOS transactions is almost double the number of credit card transactions.

The broader profile shows the share of card transactions made on EFTPOS cards falls consistently as the payment value rises, from around 80 per cent at low transaction values,

<sup>11</sup> Roy Morgan Research (2006).

to under 5 per cent for larger valued payments (Graph 20). The effect of daily transaction limits on EFTPOS accounts is evident, with significant peaks in transaction share for \$800 and \$1 000 payments (the typical daily limit), followed by a marked decline in relative use following these limits.

In contrast, the proportion of transactions on scheme debit cards remains largely unchanged across all transaction values. The absence of daily withdrawal limits results in scheme debit cards being used consistently for higher valued payments, even beyond the limits imposed on EFTPOS cards.

Despite credit cards being held by only slightly more than half the population, they are the most used card for high-value payments. Their share of card-based transactions increases from around 20 per cent for \$5 transactions to over 80 per cent for transactions greater than \$800, and increases again to 90 per cent for transactions over \$1 000. The credit card share of the value of payments is even larger – credit cards account for 91 per cent of the value of all payments above \$800.

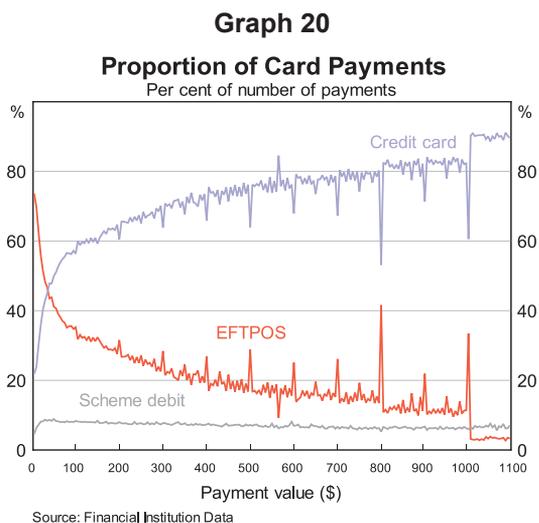
Across the distribution of card payments, there are peaks in the number of transactions at \$5 intervals. These ‘round transaction values’ reflect the influence of a number of merchant categories (see Box A).

## 6.2 Card use by industry

While the average transaction values differ significantly across industries, the average size of EFTPOS transactions is lower than the average size of credit card transactions in all industries, except insurance (Table 7). In almost all cases, the average size of scheme debit transactions lies between the average sizes of EFTPOS and credit card transactions. The disaggregated data provided by a number of retailers are consistent with this finding. The median card payment is typically in the range of \$30 to \$50, depending on the type of card and retailer.

According to the data provided by financial institutions, over 40 per cent of all EFTPOS transactions occurred at supermarkets (25 per cent) and petrol stations (15 per cent), with these two merchant categories accounting for one third of spending on debit cards (Table 8). In contrast, supermarkets and petrol stations accounted for a lower 22 per cent of the number of credit card transactions and 10 per cent of the spending on credit cards.

Credit cards tend to be more heavily used in industries with relatively high transaction sizes and where payments do not take place at the point of sale. For example, in the case of



insurance, holiday travel/hotels, and professional services sectors, around 80 per cent of the value of card receipts (and 60 per cent of the number of payments) is accounted for by credit cards (Graph 21 and Graph 22). In contrast, where the average transaction size is low, for example in supermarkets, take-away outlets and petrol stations, EFTPOS cards are used more frequently than credit cards.

**Table 7: Transaction Value by Merchant Category**  
Dollars

	EFTPOS		Scheme debit		Credit card	
	Average	Median	Average	Median	Average	Median
Education/childcare	127	64	277	89	436	130
Health/medical care	67	42	94	50	132	56
Holiday travel/hotel accommodation	79	37	181	66	349	110
Housing/utilities	78	42	92	50	137	61
Insurance	321	283	153	70	193	87
Liquor store	38	30	49	35	75	44
Other	76	40	114	48	174	56
Other retailer	63	36	87	43	136	53
Petrol/fuel for motor vehicles	37	30	43	38	55	47
Prof. service/home repair/improvements	78	47	116	50	199	65
Pub/bar	38	30	46	33	66	40
Restaurant/formal dining	32	22	54	36	81	48
Small food store	31	21	43	28	63	33
Leisure	50	25	94	41	146	55
Supermarket	48	29	55	35	64	41
Take-away food/fast food	12	9	19	14	25	17
Transport	89	32	131	44	175	50
<b>All categories</b>	<b>53</b>	<b>30</b>	<b>84</b>	<b>41</b>	<b>130</b>	<b>51</b>

Source: Financial Institution Data

**Table 8: Spending by Industry**  
Merchant category per cent share of number and value

EFTPOS	Number		Value
Supermarket	25	Supermarket	22
Petrol	15	Petrol	10
Health/medical care	5	Health/medical care	6
Take-away/fast food	5	Transport	5
Restaurant	4	Housing/utilities	5
Credit Card	Number		Value
Supermarket	13	Housing/utilities	10
Housing/utilities	10	Holiday travel/hotel accommodation	10
Petrol	9	Professional service/home repair	7
Health/medical care	6	Supermarket	7
Professional service/home repair	5	Health/medical care	6

Source: Financial Institution Data

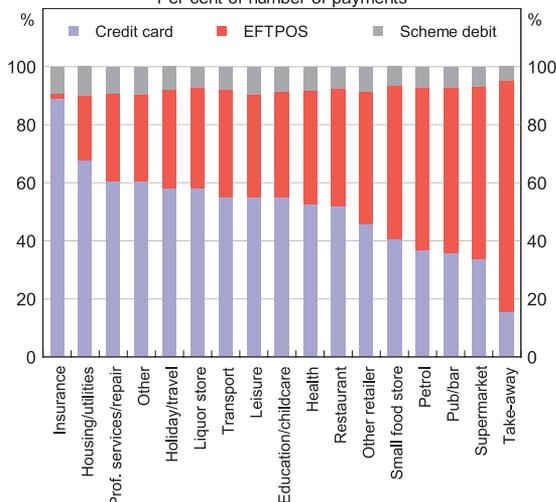
In supermarkets, almost 60 per cent of total card transactions are made using an EFTPOS card. EFTPOS is more likely to be used than a credit card for transactions under \$400, while for transactions above this value a credit card is more likely to be used (Graph 23). If the cash-out component is included as part of the transaction total, the cross over point is around \$650.

The data from the survey of individuals indicate that cards are used across a wide range of merchant categories (Graph 24). EFTPOS and scheme debit cards are used frequently at petrol stations and supermarkets, accounting for 32 and 25 per cent of the number of payments in these categories. Credit and charge cards are the most frequently used payment method for holiday and travel accommodation transactions, accounting for 42 per cent of payments in this sector. As discussed in Section 5.2, there are particular merchant categories where cash is the dominant payment instrument (e.g. take-away stores, small food stores, pubs and bars). In these categories, card payments tend to make up the balance of the use of payments (in other words, cards are the only method used apart from cash in these industries).

### 6.3 The influence of consumer characteristics

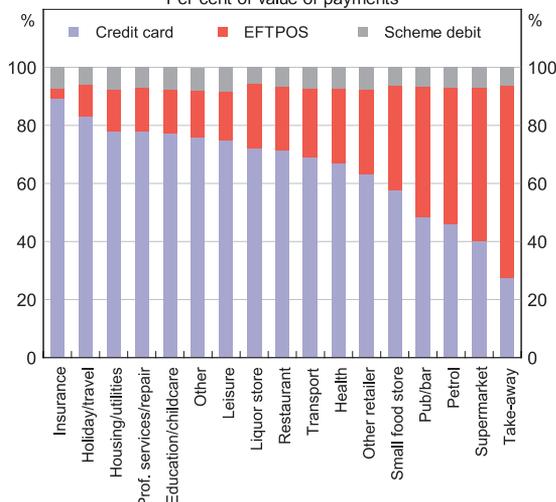
The use of the particular types of cards appears to be influenced by age (Graph 25). In particular, the use of EFTPOS is highest in the youngest age group and declines with age. The same is true for scheme-based debit cards. Conversely, the use of credit cards is lowest for the youngest age group. These patterns are likely to reflect the fact that credit cards are not as widely available to younger people; in the survey, 34 per cent of respondents aged 18-29 held a credit card

**Graph 21**  
Debit and Credit Card Spending by Industry  
Per cent of number of payments



Source: Financial Institution Data

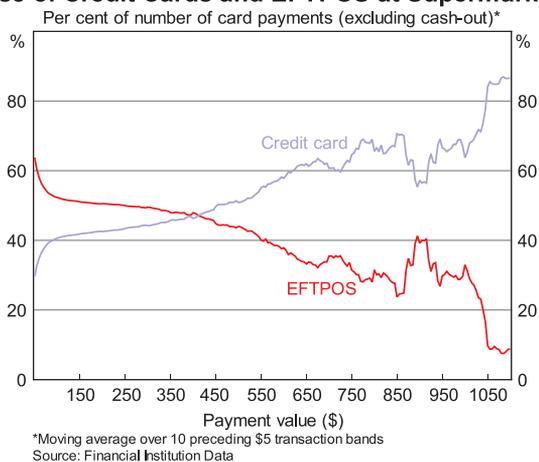
**Graph 22**  
Debit and Credit Card Spending by Industry  
Per cent of value of payments



Source: Financial Institution Data

**Graph 23**

**Use of Credit Cards and EFTPOS at Supermarkets**

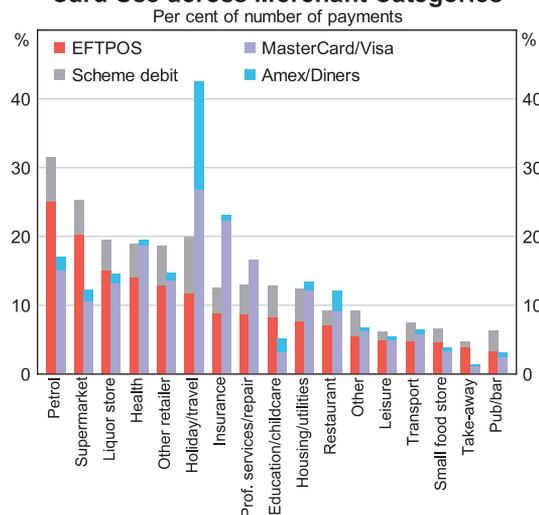


(compared to 55 per cent of the adult population). In addition, a number of older respondents may never have used a debit card, having developed their transactions behaviour before this method became widely available. Data from 2006 indicate that around 22 per cent of Australians aged over 65 do not hold a debit card, compared to only 9 per cent across the wider population.<sup>12</sup>

The relative use of card payment methods also appears to be influenced by income. Credit and charge card use increases at higher income levels, while debit card use is highest for middle income bands (Graph 26). Those with a personal income of \$80 000 or greater used credit and charge cards for around 18 per cent of their payments, more than twice the rate of use by those earning under \$40 000.

**Graph 24**

**Card Use across Merchant Categories**



Source: Roy Morgan Research

For holders of credit cards, payment patterns also appear to be influenced by whether the entire amount is usually paid off each month (transactors) or whether only part of the balance is paid off (revolvers). In particular, transactors use credit cards more frequently than revolvers – around 22 per cent of transactions compared to 12 per cent, and 35 per cent of the value of spending compared to 22 per cent

for revolvers (Graph 27). Conversely, revolvers are more likely to use debit cards. In part, this pattern reflects the fact that for revolvers an additional purchase on their credit card accrues an interest charge immediately, increasing the incentive to use a debit card if funds are available in a deposit account.

Of those respondents holding credit or charge cards, 31 per cent used them for all of their card payments (i.e. they did not use a debit card at all). 38 per cent of all transactors exclusively used credit and charge cards for their card payments, compared to 18 per cent of revolvers.

<sup>12</sup> Roy Morgan Research (2006).

## 6.4 Prepaid cards

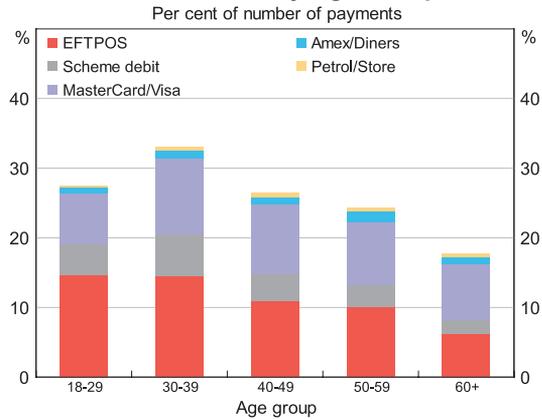
Although prepaid cards are a relatively recent development in Australia, there is some evidence that they are being used for lower value transactions than other cards. Several institutions have begun issuing prepaid cards under the brands of the major credit card companies. Prepaid cards can be used exactly like a scheme debit card or credit card, without the need for a linked account with a financial institution. To date, prepaid cards have been aimed at the gift card market, people without access to banking services, and travellers. This different target market is reflected in where and how the cards are used.

While their use is not widespread, some preliminary analysis indicates that the average transaction value is \$66, but the median is significantly lower at around \$12. This is very similar to the median cash transaction value reported in the diary survey. Over 90 per cent of the number of payments by prepaid card are for amounts less than \$150.

The spending profile for prepaid cards is different from other card products. One third of all transactions and 40 per cent of value occur at 'other retailers'. Most of these transactions occur at newsagents, discount stores and music retailers. Supermarkets account for only 12 per cent of the number of prepaid card transactions (and five per cent of the value), much less than for debit and credit cards.

**Graph 25**

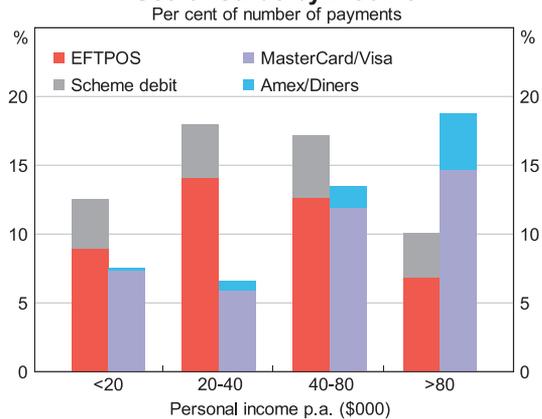
### Use of Cards by Age Group



Source: Roy Morgan Research

**Graph 26**

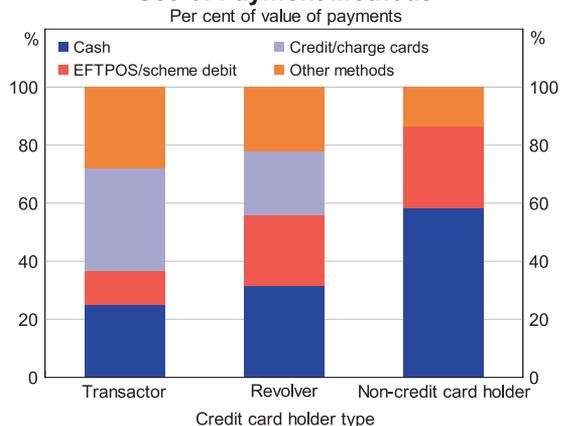
### Use of Cards by Income



Source: Roy Morgan Research

**Graph 27**

### Use of Payment Methods

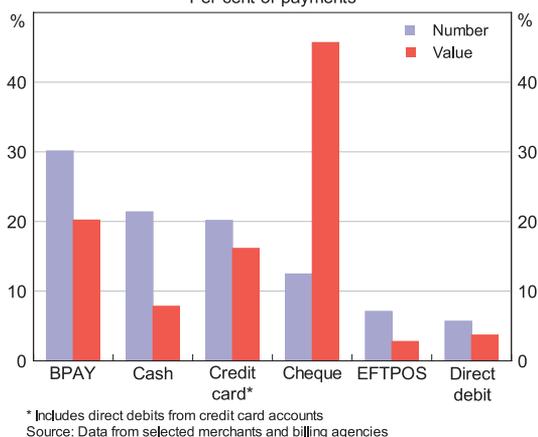


Source: Roy Morgan Research

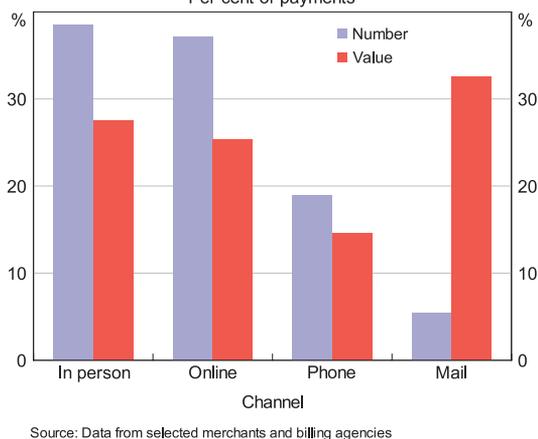
## 7. Bill Payment Methods

A wide variety of payment instruments can be used for the payment of bills – defined here as transactions with merchants where payment is not made at point of sale (including where the payment is made via a billing agency). This section discusses the various ways that bills are paid, focusing particularly on the use of cheques and BPAY.

**Graph 28**  
**Bill Payments by Method**  
 Per cent of payments



**Graph 29**  
**Bill Payments by Channel**  
 Per cent of payments



### 7.1 Instruments used for bill payments

For most households, regular bills include those for utilities such as gas, electricity and water, telecommunications (including telephone, internet and cable television), and insurance for home, car and health cover. Most businesses typically offer their customers a number of ways to pay these bills, as well as a variety of channels through which to do so.

The data collected from businesses that issue a large number of bills suggest that BPAY is the most frequently used bill payment method, accounting for around 30 per cent of bill payments (Graph 28). Cash and credit cards are also used regularly to pay bills, each accounting for around 20 per cent of bill payments. In comparison, cheques are used less frequently than these other payment instruments, but the large average size of cheque payments means that cheques account for the largest share of bill payments by value (around 46 per cent). The EFTPOS and direct entry systems are also used for bill payments, although they each account for less than 5 per cent of the value of all bill payments.

### 7.2 Bill payment channels

The data supplied by billers suggest that many bills are still paid over the counter, typically through a third-party agent, such as the post office or a bank, with this form of payment accounting for

a little less than 40 per cent of all bills paid (Graph 29). Data provided by Australia Post – a major third-party agent – show that a majority of all the over-the-counter payments it processes are in cash, with cash payments being the most common form of payment up to around \$500 (Graph 30). EFTPOS and cheque payments account for roughly equal shares of the remaining over-the-counter payments at Australia Post, with cheques being the predominant payment method for large bills.

Internet and other electronic ('online') forms of payment account for a similar share of bill payments as over-the-counter payments (around 37 and 39 per cent respectively), with payments over the phone accounting for a further 19 per cent of the total number of payments. Payments sent by mail represent about 5 per cent of the total, although given that these are predominately made by cheque with large average values, payments through the mail account for a significant share of the value of all payments.<sup>13</sup>

### 7.3 The use of cheques

Cheques have a long history of use for payments in Australia. One reason for this is their broad acceptance by merchants, with the survey of small business finding that over 90 per cent of small businesses accepted cheque payments.<sup>14</sup> However, as discussed in Section 2, the use of cheques has declined significantly over the past decade, with data from Roy Morgan Research indicating that only around 30 per cent of people currently have access to a chequebook.<sup>15</sup> Further, the available data suggest that the median number of cheques drawn per account per month is just two, and 90 per cent of cheque accounts have eight or fewer cheques drawn per month.<sup>16</sup>

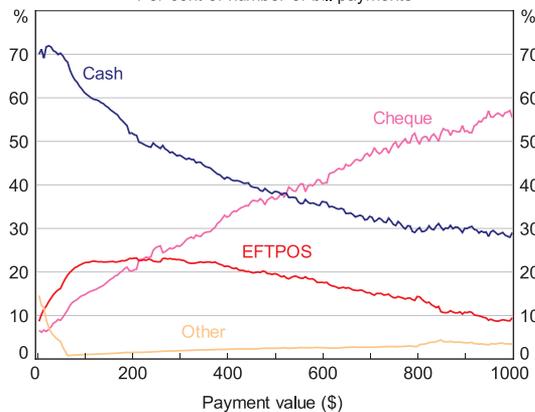
13 It is likely that some of these are business-to-business cheque payments.

14 This is consistent with the recent DCITA (2006) study which found that 89 per cent of businesses accept cheque payments.

15 The data from Roy Morgan Research (2006) indicated that 22 per cent of people had used a chequebook within the past four weeks.

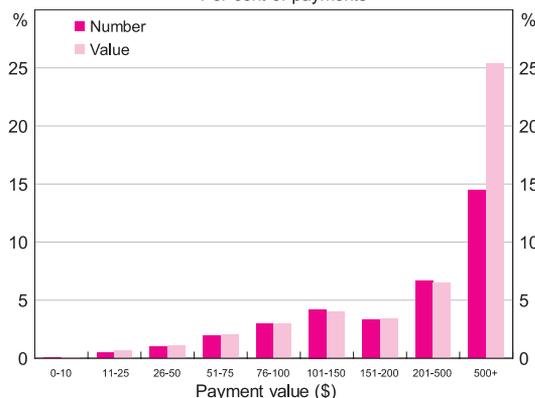
16 These figures are based on data from financial institutions.

**Graph 30**  
**Payment Methods at Australia Post**  
Per cent of number of bill payments



Source: Australia Post

**Graph 31**  
**Use of Cheques**  
Per cent of payments

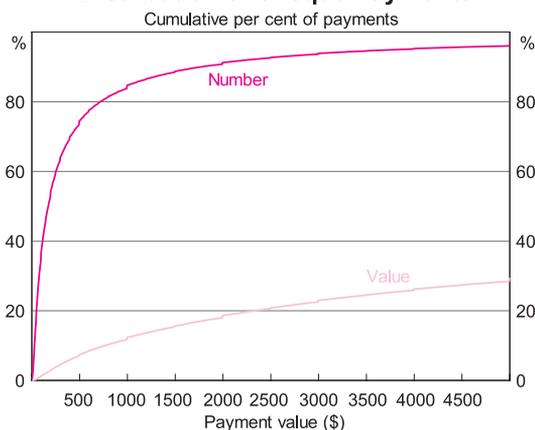


Source: Roy Morgan Research

While the use of cheques has declined, they remain an important payment method for high-value transactions. In the diary survey, cheques accounted for only 1.1 per cent of all payments, but for around 15 per cent of payments of \$500 or over and around 25 per cent of the value of these large payments (Graph 31). The average cheque payment recorded in the diaries was \$387,

**Graph 32**

**Distribution of Cheque Payments**

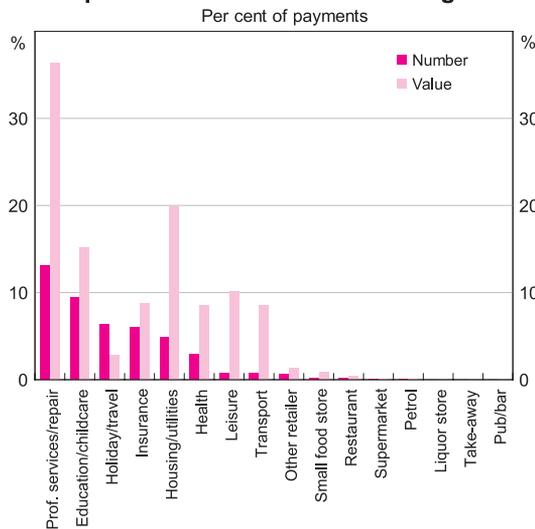


Source: Financial Institution Data

and the median was \$100.<sup>17</sup> Data provided by financial institutions on cheques written on personal accounts show a broadly similar picture, although the average and median values are higher (\$1 500 and \$171 respectively). Reflecting the fact that some cheque payments are for very large amounts, the data provided by financial institutions show that cheques over \$2 000 account for around 80 per cent of the value of cheques written on personal accounts, but only around 10 per cent of the number of these cheques (Graph 32).

**Graph 33**

**Cheque Use across Merchant Categories**



Source: Roy Morgan Research

**7.3.1 Merchant categories**

Cheques tend to be much more frequently used to pay for services and utilities than for goods purchased at retailers. According to the diary survey, around 13 per cent of payments for professional services are by cheque, whereas cheques are used very infrequently, if at all, in a range of merchant categories, including take-away food and liquor stores (Graph 33). Cheques are more likely to be used where there is some type of ongoing relationship between the payer and the recipient of the cheque which can be called upon if the cheque ‘bounces’. They are also used extensively for payments by mail and are used infrequently at

large retailers. Data supplied by retailers indicate that payments by cheque account for less than two per cent of turnover (see Graph 13 in Section 5.2).

<sup>17</sup> The divergence from the financial institution data reflects the long-tailed distribution of cheque payments, which is not necessarily captured in a two-week survey.

Data from the small business survey support these findings. Cheques, for example, were the most frequently used method of payment in the accounting and motor trades sectors, both categories in which payments are relatively large and where there is likely to be an ongoing relationship between the individual and the business. On the other hand, cheques were very seldom used for payments at pharmacies, retailers and newsagents (Graph 34).

### 7.3.2 Consumer characteristics

Cheque use appears to be at least partly dependent upon the age of the individual. Data from the diary survey suggest that cheque use accounts for a larger share of payments for those over 50 than for those under 50, and in particular cheque use is extremely limited for those under the age of 30 (Graph 35). People aged over 50 account for 63 per cent of the number and 48 per cent of the value of all cheques written.

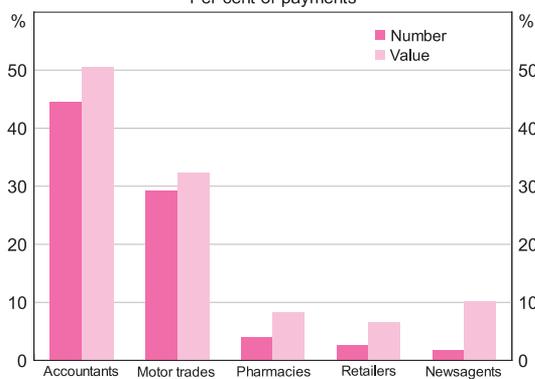
In addition, cheques are more frequently used in regional areas than the capital cities, with cheques forming 1.3 per cent of the number of payments by people living in regional areas, compared to 1 per cent in capital cities.

## 7.4 The use of BPAY

Like cheques, the average value of BPAY payments is relatively high, reflecting its role as a bill payments facility. Data from financial institutions show that the average value of a BPAY payment is around \$530, with over 10 per cent of payments for amounts over \$1 000.

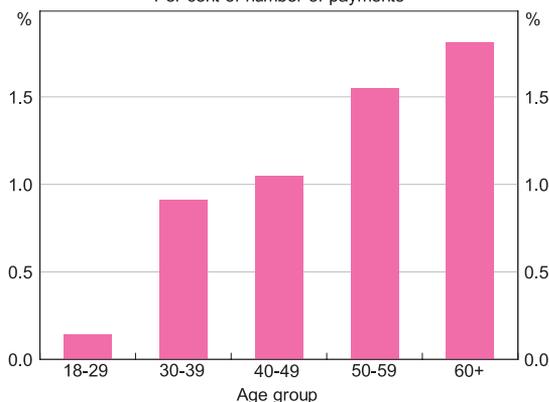
BPAY is used to make some very large payments, with payments over \$5 000 accounting for around 40 per cent of the value of all BPAY payments (Graph 36). Like other payment instruments, however, the bulk of payments are for relatively small values, with the median value of a BPAY payment equal to around \$120.

**Graph 34**  
**Use of Cheques at Small Businesses**  
Per cent of payments



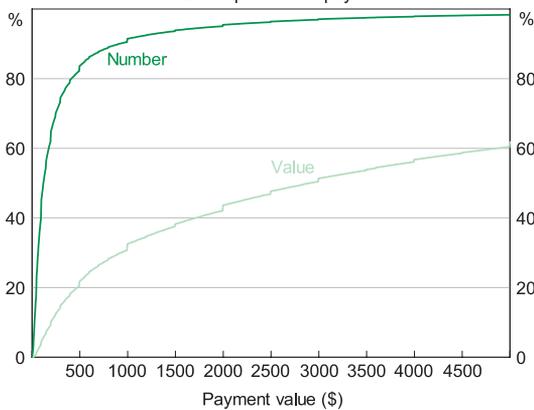
Source: RBA Small Business Survey

**Graph 35**  
**Use of Cheques by Age Group**  
Per cent of number of payments



Source: Roy Morgan Research

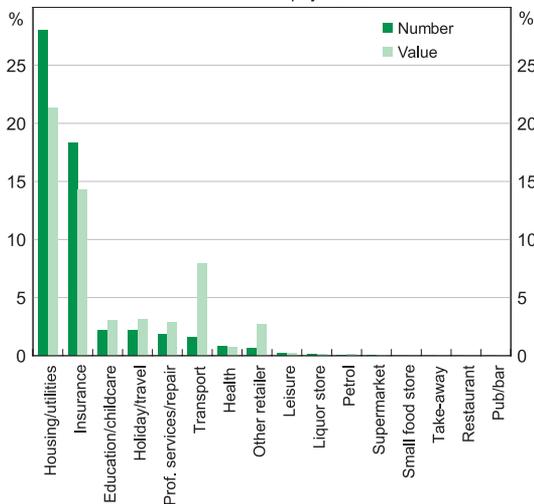
**Graph 36**  
**Distribution of BPAY Payments**  
 Cumulative per cent of payments



Source: Financial Institution Data

sectors surveyed, other than some limited use for payments to accountants and motor traders. This reflects the fact that many of the businesses in the survey were essentially ‘point-of-sale’ businesses, for which BPAY is typically not feasible.

**Graph 37**  
**BPAY Use across Merchant Categories**  
 Per cent of payments



Source: Roy Morgan Research

While BPAY payments can be initiated over the phone or the internet, it is the latter channel that has grown most strongly in recent years, with data from BPAY indicating that, in 2007, 74 per cent of payments were made over the internet.<sup>18</sup>

Data from the diary survey confirm the tendency for BPAY payments to be used for high-value transactions. For the survey, the median BPAY payment was \$100 and the average \$215.<sup>19</sup>

The small business survey did not reveal extensive use of BPAY in the

#### 7.4.1 Merchant categories

BPAY transactions are concentrated in a small number of merchant categories for which payments are typically large and infrequent. These include housing and utilities, insurance, and certain transport-related payments (Graph 37). BPAY was also the most frequently used instrument for those merchant categories falling into the miscellaneous classification of ‘other’ (not shown in Graph 37). Data provided by financial institutions indicate that by value this category consists mostly of tax payments and securities transactions, as well as payments such as fines and gifts to charity. There were no BPAY

payments in more than half of the categories in the diary survey, reflecting the more limited circumstances in which BPAY is a payment option.

<sup>18</sup> BPAY (2007).

<sup>19</sup> As with cheque payments, the median and average values for BPAY in the consumer survey are lower than reflected in the data from financial institutions, due to the long-tailed distribution of such payments.

### 7.4.2 Consumer characteristics

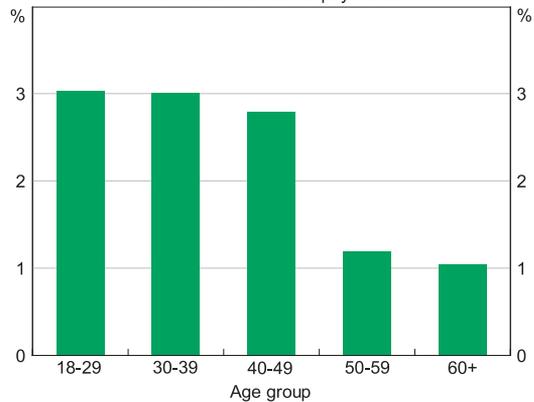
Age also appears to play a role in the use of BPAY. In contrast to patterns of cheque use, BPAY tends to be more frequently used by younger people, with age groups under 50 using BPAY at three times the rate of those over 50 (Graph 38). People between the ages of 18 and 49 account for 79 per cent of the number and 72 per cent of the value of BPAY payments.

### 7.5 The use of automated debits

Participants in the survey of individuals were asked to complete a separate questionnaire on automatic debits from their deposit or credit card account over the two-week period of the survey (the separate questionnaire reflected the fact that as these payments are automated, they are not identifiable at the time of payment and thus not suitable for a diary survey). Of the 662 diary respondents, 587 filled out this questionnaire. Around 70 per cent of this subset of respondents recorded an automatic debit from at least one of their accounts, with an average value of \$138. It is not possible to determine whether those people who omitted to return the questionnaire did so because they did not make any automated debits. In the absence of information on these non-respondents, the data presented here relate to the subset of individuals who reported making an automated debit transaction (if, as is probable, the non-respondents tended to make fewer or no automated debits, the results represent upper bound estimates of the use of automated debits).

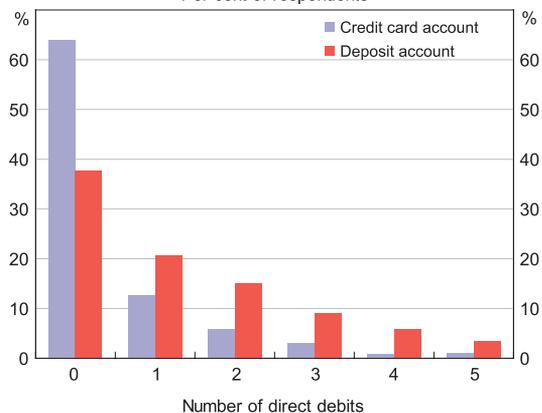
The data indicate that direct debits from deposit accounts are more frequently used than direct debits from credit card accounts (Graph 39). Around 62 per cent of the subset of respondents had a direct debit from their deposit accounts, with 26 per cent having three or more direct debits over the two-week period. The average automated debit from a deposit account is for \$136, but this varies with the number of arrangements. For example, respondents who had

**Graph 38**  
Use of BPAY by Age Group  
Per cent of number of payments



Source: Roy Morgan Research

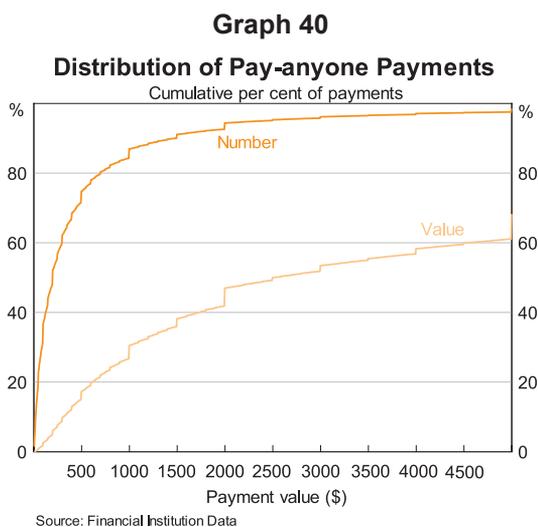
**Graph 39**  
Direct Debits  
Per cent of respondents



Source: Roy Morgan Research

five automated debits had an average as low as \$50, while those with just one direct debit had a much higher average at \$227.

Of those respondents who completed the questionnaire, 25 per cent reported having made an automated debit from a credit card account.<sup>20</sup> Compared to the occurrence of multiple direct debits from deposit accounts, fewer respondents reported making more than one credit card account debit.



## 7.6 The use of third party funds transfers (pay-anyone)

The data from financial institutions also provide some insights into the use of ‘pay-anyone’ funds transfers (Graph 40). Third party funds transfers, which are typically available via internet banking services, offer a means of transferring funds between individuals and businesses. Payments can be made immediately, scheduled for future payment, or set as a regular payment from an account. While such payments are convenient, they do require the sending party to enter the personal details, including name and account number, of the recipient.

In 1998, just one per cent of adults used the internet to make bill payments or transfer funds.<sup>21</sup> In contrast, a more recent survey reported that almost 50 per cent of bank customers had accessed their internet banking accounts several times a week in the six months to June 2006.<sup>22</sup>

Internet pay-anyone functionality tends to be used for larger valued payments. The average payment is for \$702. The median, while significantly lower (at around \$200), is above the medians for cheques and BPAY. This larger average transaction amount may reflect the transfer of funds between accounts of the same person, as opposed to actual payments for goods and services.

The data indicate that people who make transfers by pay-anyone tend to make regular use of this facility. Around 70 per cent of people making a pay-anyone transfer in March 2007 made more than one payment or transfer from their account. In addition, over 50 per cent of people recorded more than \$1 000 in transfers and payments via this method (these data include transfers between different accounts, as well as payments to third parties).

<sup>20</sup> 10 per cent of respondents provided information on deposit account debits but not on direct debits from credit card accounts. Hence the credit card figures in Graph 39 do not sum to 100 per cent.

<sup>21</sup> ABS (1998).

<sup>22</sup> ACNielsen (2006).

## 8. Conclusions

Australian households make around 11 billion payments per year. Cash, which accounts for around 8 billion of these payments, is the most widely used form of payment for individuals, and is the dominant method of payment for small transactions. In some merchant categories, cash is used for more than 80 per cent of all payments – again, typically where the average size of payments is low. Evidence from *Payment Costs in Australia* reveals that cash typically provides for shorter tender times than other instruments, especially for low-value transactions.<sup>23</sup>

Card payment methods are also widely used. Taken together, debit and credit cards are the most frequently used form of payment for transactions between \$50 and \$500. At lower payment values, EFTPOS is more frequently used than credit and charge cards. This pattern is reversed, however, for high-value payments: credit cards account for more than 80 per cent of card payments above \$800. In the case of EFTPOS, daily transaction limits of around \$1 000 are at least one influence on these patterns. Cards are used across a wide range of merchant categories – in particular, EFTPOS is used frequently for supermarket and petrol spending, where the availability of cash-out plays a role, while credit cards account for a substantial proportion of transactions in sectors such as insurance, holiday and travel spending, and housing and utilities payments.

While the use of cheques has been gradually declining, cheques remain an important part of the retail payments system, with cheque payments via the mail still accounting for a substantial share of the value of bills paid. Conversely, BPAY has been growing in importance as a payment method, and is the most frequently used method for payment of bills. A substantial number of bills are, however, still paid over the counter, rather than electronically.

Demographic factors, in particular the age of Australians, appear to have a significant influence on payment patterns. Generally, older individuals tend to use cash and cheques more frequently than do younger people. Conversely, debit cards are more frequently used by people aged between 18 and 40. The use of credit cards is highest for those aged between 30 and 50, while BPAY is used more often by those under 50.

ATMs are the most used method of obtaining cash, accounting for more than 60 per cent of the number and value of withdrawals. Cash-out at point of sale is also used frequently, but generally for quite small values. Over-the-counter withdrawals tend to be used more frequently by older people and, on average, are for larger amounts than withdrawals through ATMs.

Finally, the Reserve Bank thanks all the financial institutions, businesses and individuals who participated in this study. The Bank welcomes comments on the findings presented in this paper.

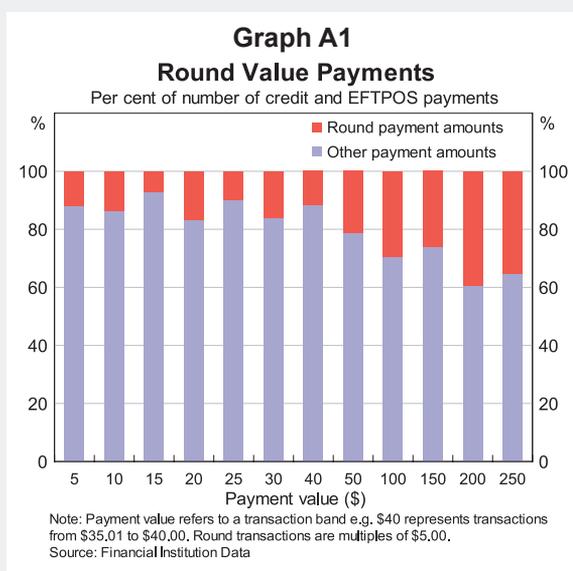
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<sup>23</sup> Reserve Bank of Australia (in this volume).

## Box A: Round Payment Amounts

Data provided by card acquirers suggest that there is a strong pattern in electronic transactions for payments to occur precisely at multiples of \$5.00.

As outlined, transactions have been aggregated into buckets of \$5, combining up to 500 different, but closely related transaction sizes. The data indicate that instead of a uniform distribution across these transaction sizes, some buckets have a large proportion of transactions at exact \$5 multiples. In these circumstances, these 'round' payment amounts can account for one quarter, and up to 40 per cent, of the number of total transactions in that bucket (Graph A1). For example, one-third of card payments between the values \$95.01 and \$100 are for \$100 exactly.



Examination of disaggregated merchant industry codes shows the primary drivers of these transactions to be pre-authorised direct debits, or services provided by professionals. At lower transaction values, charity donations and parking stations are the primary merchants who collect round transaction amounts (Table A1). Mid-range transactions are largely transport related, covering tolls and fees, and service stations, while larger transaction values are dominated by professional services and large retail purchases such as spending on car repairs, hotel accommodation and furniture.

**Table A1: Proportion of Round Value Transactions by Merchant Category**

Per cent of round value payments

		\$5		\$10		\$20	
Low value	Charity	23	Charity	20	Service stations	18	
	Restaurant	13	Parking	9	Charity	12	
Medium value		\$40		\$50		\$100	
	Service stations	16	Toll/bridge fees	12	Toll/bridge fees	14	
	Charity	6	Service stations	11	Hotels	7	
High value		\$500		\$800		\$1 000	
	Car sales/service	12	Furniture	10	Car sales/service	16	
	Furniture	6	Hotels	5	Furniture	9	

Source: Financial Institution Data

## Appendix A: Survey of Individuals

The Bank commissioned Roy Morgan Research to design and conduct a survey of the day-to-day use of payment methods in Australia. The survey involved individuals recording the details of every purchase they made over a two-week period in a specially designed pocket-sized diary. Participants were also asked to enter details in the diary every time they obtained cash during the survey period.

The survey shares some similarities with two previous studies – the Visa Payment Panel Study in the United States and APACS' Consumer Payments Survey in the United Kingdom – both of which employ a diary methodology to gather information on the use of payment methods. These overseas studies are conducted on an ongoing basis.<sup>24</sup>

A representative sample of 1 000 individuals was selected by Roy Morgan Research from its Single Source database in late May 2007.<sup>25</sup> Each of these individuals was sent an information package containing the Financial Transactions Diary and accompanying instructions shortly after telephone recruitment interviews. Participants were asked to complete the survey over a two-week period in early June 2007. Responses were received from 677 people. Fifteen respondents had reported making credit or charge card transactions despite being recorded as not holding a credit or charge card, and hence were excluded from the final dataset of 662 responses. An additional questionnaire on automated debits and surcharging was included for completion at the end of the two weeks. 587 of these questionnaires were returned.

The sample was designed to be representative of the Australian population, although ultimately older age groups were over represented in the completed diaries. Accordingly, Roy Morgan Research applied weightings to ensure that the final data were representative of the population as a whole.

The diary captured data on the use of nine different payment methods in 17 merchant categories. The diary also captured information on the 'channel' the individual used to make the payment – for example whether the person used a credit card in person at a store, or over the internet. Participants were also asked to mark a check-box for purchases where they were charged a fee by the merchant for using a particular payment method (a 'surcharge'). In addition the diary captured information on the use of four methods of obtaining cash, and whether people made a 'special trip' each time when obtaining cash. The various items that participants were asked to record in the diary are shown in Table AA1.

General demographic information on the participants was provided by Roy Morgan Research from its Single Source database.

The diary survey results indicated that around 5 per cent of credit card transactions attracted a surcharge. Of those respondents who reported facing a surcharge on a credit card payment, and subsequently filled in the automated debits and surcharging questionnaire, 44 per cent reported that it affected their choice of payment instrument 'very much' or 'somewhat', while 52

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<sup>24</sup> See APACS (2007) and Visa USA Research Services (2006).

<sup>25</sup> The process is described in detail in Roy Morgan Research (2007).

**Table AA1: Fields in the Diary Survey**

	Payments <sup>(a)</sup>	Cash withdrawals
Date	Yes	Yes
Transaction amount (rounded to nearest dollar)	Yes	Yes
Method	One of the following methods: 1. Cash 2. Debit card using a PIN 3. MasterCard/Visa debit card 4. MasterCard/Visa credit card 5. American Express/Diners Club card 6. Petrol/Store card 7. Personal Cheque 8. BPAY 9. Other	One of the following methods 1. ATM 2. EFTPOS cash-out 3. Over-the-counter 4. Other
Channel	One of the following channels: 1. In person 2. Phone 3. Internet 4. Mail	Not Applicable
Merchant Type	One of the following merchant types: A – Supermarket B – Liquor store C – Small food store E – Other retailer F – Petrol/fuel for motor vehicles G – Transport H – Take-away/fast-food J – Restaurant/formal dining K – Pub/bar L – Sporting and entertainment (Leisure) M – Holiday travel/hotel accommodation N – Insurance P – Health/medical care R – Housing/utilities S – Education/childcare U – Professional service/home repair or home improvements Z – Other	Not Applicable
Surcharge Paid	Yes	Not Applicable
Special Trip	Not Applicable	Yes/No

(a) Participants were asked to report payments of bills as payments but were asked not to include any repayments of loans such as credit card repayments or mortgage instalments. Participants were asked to record only personal payments and exclude 'business' payments such as those made on behalf of an employer.

per cent thought it affected their choice ‘very little’ or ‘not at all’. Roy Morgan Research noted that some respondents may have incorrectly understood the instructions on surcharging, as a number of respondents reported being surcharged for the use of cash.

The results exhibited some signs of ‘survey fatigue’. There was a drop-off in payments reported after the first day of the diary survey (suggesting that some respondents filled in the first day in more detail than the remaining two weeks), but there was only a small difference in the number of payments recorded thereafter. The Bank conducted further analysis of this ‘survey fatigue’ and concluded that while it did not appear to affect the results regarding the relative use of payments, it may have served to underestimate the total number of payments made. A small adjustment for this was therefore made when calculating the average number of payments per day per respondent.

The diary survey provides a snapshot of where Australians make their payments. This information should be tempered with the recognition that many payments are seasonal, and so the composition is influenced by the time of year that the survey was taken. (For example, certain sectors would be expected to be influenced by Christmas shopping and January/July sales. Similarly, travel spending would likely peak during school holiday periods.) An analysis of the Bank’s retail payments statistics, however, indicates that June is a reasonably representative month compared to overall averages.

## Appendix B: Survey of Small Business

In March-April 2007 the Reserve Bank conducted a survey of small business across Australia on the methods they used to receive payments from customers. The survey – which was largely conducted online – was undertaken with the assistance of the Office of Small Business (OSB) and a number of industry associations. These included the Australian Newsagents' Federation, the Australian Retailers Association, the Council of Small Business Organisations of Australia, CPA Australia, the Motor Trades Association of Australia, the National Institute of Accountants, the Pharmacy Guild of Australia, and Restaurant and Catering Australia.

An initial draft of the survey was circulated to the participating industry associations for their comment, with the survey forms being tailored to the particular industry sectors. In total, 11 different versions of the survey were produced, reflecting the participating industries; a 'generic' example of the survey is provided below. After the surveys were finalised, they were circulated to businesses by the participating industry associations for completion by 30 April 2007. For the Australian Retailers Association, in addition to the online survey, a paper version of the survey was produced and circulated within a national magazine.

The survey was kept brief so as to encourage completion. In total, 263 responses were received and a summary of the results was provided to participating industry associations in June 2007.



## Reserve Bank of Australia

### 2007M Use of payments Methods – Survey of Australian Businesses

#### 1. Introduction

Reforms to credit card and EFTPOS arrangements by the Reserve Bank over the past 5 years have had a significant impact on Australian businesses. The Reserve Bank is reviewing these reforms and invites you to participate in a web-based survey. The survey is short and relatively straightforward. All the questions you will be asked are on this page.

If you wish to verify that this research is being conducted by the Reserve Bank of Australia, or if you would like more information about the purpose of this study, please contact Stephanie Weston or David Emery at the Reserve Bank. They can be contacted directly by email at [paymentssurvey@rba.gov.au](mailto:paymentssurvey@rba.gov.au) or by telephone during business hours through ... or ....

All responses using this online survey are sent over a secure encrypted connection. Individual responses will remain confidential. Aggregate and summary information will provide input to the Reserve Bank’s policy deliberations and may be included in material published by the Bank for the review of payments reforms.

If you’d like to leave the survey at any time, just click “Exit this survey”. Your answers will be saved. When you have finished the questions, click “Next” at the bottom of the page.

*If you click on “Exit this survey”, you will leave the secure connection and be taken to the RBA website. Your computer’s web browser may inform you that you are leaving a secure connection and ask if you wish to continue. You should select “Yes”.*

#### 1. Please indicate which of the categories below best describes your business. You may select more than one.

- Supermarket
- Liquor store
- Hardware/Home Improvements/Manchester
- Clothing – Childrenswear/Ladieswear/Menswear
- Cards/Gifts/Newsagents
- Fashion Accessories
- Auto Accessories
- Sportswear/Sports Accessories
- Home Entertainment
- Pharmacies/Optical/Dental/Medical
- Department stores/Discount stores
- Other (please specify)

#### 2. Please provide the following information regarding the location and size of your business. If exact figures are not available, please provide estimates.

Postcode of principal place of business:

Number of employees:

Annual turnover \$:


#### 3. How many payment transactions did you receive from your customers/clients in the last year? Please specify an exact figure if you can, otherwise select a range which you think is close to your total transactions for the year.

- Up to 5,000
- 5,001 to 20,000
- 20,001 to 50,000
- 50,001 to 100,000
- 100,001 and over
- Exact (please specify)

#### 4a. What methods of payment does your business accept from customers/clients?

	Yes, Accept	No - do not accept due to cost	No - do not accept due to other reasons
Cash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EFTPOS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VISA/MasterCard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AMEX	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diners Club	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cheque	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BPay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Direct debit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet payment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**4b. Do you apply a minimum transaction value for any of the following payment methods?**

*If you do not apply a minimum transaction value, or do not accept that payment method, please leave the relevant box blank.*

Cash \$	
EFTPOS \$	
VISA/MasterCard \$	
AMEX \$	
Diners Club \$	
Cheque \$	
BPay \$	
Direct debit \$	
Internet payment \$	

**5. To answer questions 6 to 7 you need to know the value and number of transactions made by your customers. Please provide this information for March 2007.**

**6a. For March 2007, what was the total value of payments from your customers/clients?**

\$

**6b. For March 2007, what was the value of payments from customers/clients, for each payment method you accept?**

*Example: if your business received \$5000 in cash and \$12,000 in EFTPOS transactions, you would put 5000 and 12000 in the first two boxes. If you do not accept a particular payment method, please leave the box blank.*

Cash \$	
EFTPOS \$	
VISA/MasterCard \$	
AMEX \$	
Diners Club \$	
Cheque \$	
BPay \$	
Direct debit \$	
Internet payment \$	

**7a. For March 2007, what was the average value of a payment transaction for payments made to your business by your customers/clients?**

Average value of a transaction: \$

**7b. For March 2007, what was the total number of payments made to your business by your customers/clients, by each payment method?**

*Example: if you received 500 cash transactions, 380 EFTPOS transactions, and 320 VISA/MasterCard transactions, you would place 500, 380 and 320 in the first three boxes. If you do not accept a particular payment method, please leave the box blank.*

Cash	
EFTPOS	
VISA/MasterCard	
AMEX	
Diners Club	
Cheque	
BPay	
Direct debit	
Internet payment	

**8a. Please specify whether you surcharge or discount for any of the following types of payment method. If you do not accept a payment method, please leave the line blank.**

	Surcharge - % of transaction	Surcharge - flat fee	Neither surcharge nor discount	Discount
Cash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EFTPOS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VISA/MasterCard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AMEX	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diners Club	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cheque	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BPay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Direct debit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet payment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**8b. Where you indicated a surcharge above, please specify the surcharge rate you apply to the following types of payment method.**

*If you don't apply a surcharge, please leave the line blank.*

Cash	<input type="text"/>
EFTPOS	<input type="text"/>
VISA/MasterCard	<input type="text"/>
AMEX	<input type="text"/>
Diners Club	<input type="text"/>
Cheque	<input type="text"/>
BPay	<input type="text"/>
Direct debit	<input type="text"/>
Internet payment	<input type="text"/>

**9. You are welcome to make any other comments on the Australian payments system in the box below.**

## 2. Thank you

Thank you for completing this survey. When you click on "Done", you will leave the secure connection and be taken to the RBA website.

*Your computer's web browser may inform you that you are leaving a secure connection and ask if you wish to continue. You should select "Yes".*

We have included fields for your business name and contact details. These are entirely optional and may be left blank - your responses will still form part of the survey. However, completion of these will enable us to contact you should we require further information or seek clarification.

**Please enter business name, and name and contact details of the person completing the survey (optional).**

Business name:	<input type="text"/>
Name:	<input type="text"/>
Contact phone:	<input type="text"/>
Contact email:	<input type="text"/>

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# Discussion

## 1. Jenny Fagg<sup>1</sup>

Thank you Vince. I would also like to thank the RBA and Melbourne Business School for organising this Conference. You have put together an impressive agenda and I am very pleased to have been invited to be a discussant for this session. For the purposes of my discussion I plan to limit my comments to the RBA's Costs Study (Payment Costs in Australia).

As a lead-in to my comments, I would like to show you two ANZ advertisements which in my view highlight some key advantages associated with credit cards and ATMs. These are two of the more commonly run banking advertisements in Australia.

*Dr Fagg screened two ANZ advertisements at this point during her presentation. Both had been used on television in Australia in recent times. The first advertisement depicted the use of ANZ's proprietary anti-fraud system, known as 'Falcon', to identify and prevent fraudulent spending on a customer's credit card overseas. The second advertisement showed an ATM following a customer around the streets to emphasise the widespread availability of ANZ's ATMs.*

These advertisements highlight to consumers the security benefits of using a credit card and the convenience of using an ATM network.

As rational bankers we are prepared to invest in advertising these product features because we know they are valued by customers. Our market research tells us that consumers are concerned about more than the price of the payment instrument they use. We have identified security and convenience as core customer requirements and sought to position ourselves as a market leader in card security and having an extensive ATM network offering access to cash when it's needed.

The 'honour all cards' rule is key to the branding of convenience and security – no matter where they are in the world, customers need to know they can use their card wherever their card's brand is accepted.

We agree therefore with the statement in the RBA's Costs Study that (page 128):

... costs are only one aspect of ... the efficiency of the payments system; increased use of the lowest-cost payment system does not necessarily promote efficiency of the overall system. The benefits offered by various payment systems are also important to consider, as is the speed and degree of innovation over time.

It is not entirely clear what definition of efficiency is being used to judge the success of the RBA's payments system reforms. The quote from the Costs Study tells us that while recognising the importance of what economists call 'dynamic efficiency' in practice it is not built into the analysis.

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<sup>1</sup> *Managing Director Consumer Finance, Australia and New Zealand Banking Group Limited.*

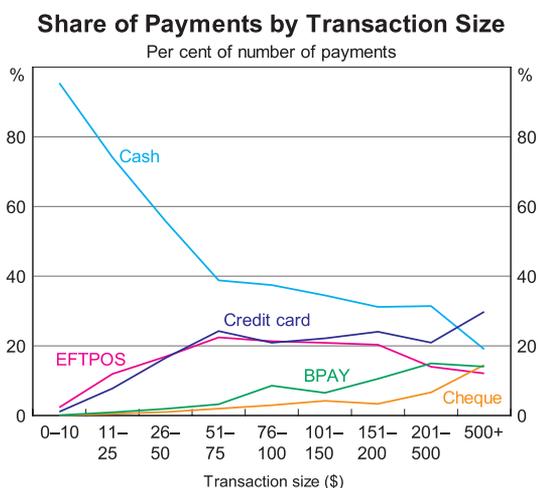
Of course, measuring the costs and benefits of payment instruments with precision is difficult. We can say with confidence, though, that these will vary over time and we know that consumer preferences and behaviour change over time.

## Cost rankings

The Study's main finding is that based on average cost of point-of-sale payments, cash is the lowest cost payment instrument, followed by EFTPOS, scheme debit, credit cards then cheque. This is consistent with ANZ's own estimates and is an outcome we would have expected.

Costs vary with the size of transaction. The cost of cash payments increases with transaction value so that for larger payments of \$50 to \$100, depending on the cost measurement approach, EFTPOS is cheaper. For all transaction sizes the Study finds that credit card payments are more costly than EFTPOS.

**Graph 1**



Notes: Data sourced from consumer payment diaries created over a two week period as part of the Reserve Bank's study 'Household Payment Patterns in Australia'. Scheme debit and 'other' instruments have been excluded as each has less than a 10 per cent share.  
Sources: RBA; Roy Morgan Research

The payment instrument used by consumers depends on transaction size (Graph 1). Cash is the dominant payment means for low value transactions. Credit cards and EFTPOS are similar up to transactions of around \$100. Above \$100, credit cards' share of transactions begins to rise, though they do not really dominate until transactions are around \$500 or higher. The share of cash transactions drops sharply for transactions over \$500.

To the extent that the share of transactions made by EFTPOS and credit card is similar for transaction sizes of \$25 to \$100 we would suggest that this reflects the value placed by consumers on these payment instruments for transactions of that size. For larger transactions, credit cards are preferred for their security and their credit function. It is worth noting that since the credit interchange reforms of 2003 consumers are now paying more through annual fees on credit card accounts. The fact that consumers continue to use credit cards despite this increase in costs clearly demonstrates that they value the additional features offered by credit cards as a payment mechanism.

Overall, consumers are transacting as we might expect.

Over time we would expect to see a continued shift away from cash. As electronic payment volumes grow, it is likely that the cost per transaction will fall somewhat as economies of scale are further realised. In addition, as chip plus PIN functionality is rolled out we are also likely

to see some narrowing in the gap between credit card and EFTPOS costs due to a reduction in tender time and lower fraud costs.

### **Study assumptions**

The Study is broader in scope than the Joint Study published in October 2000 and it includes the full range of payment instruments which is useful. However, we think it likely that the Study has underestimated the cost of cash and of EFTPOS transactions and overestimated the cost of credit cards and cheques.

Some examples of why we think this is the case are:

- There has been negligible investment in the EFTPOS infrastructure for many years so that the ongoing overhead cost (maintenance and cost of capital) of this system is understated. However, were an EFTPOS scheme to be established we would expect an injection of investment into the scheme which would lead to an increase in EFTPOS costing;
- While the cost of fraud and fraud prevention is included for credit cards, equivalent costs for cash (such as robbery or loss) or BPAY do not appear to be included in the estimates;
- The Study uses lower limits for the time taken to make cash withdrawals (rather than a weighted average) and makes no allowance for having to occasionally queue at an ATM. Equally, when the ATM visit is part of another activity, travel time is assumed to be zero, despite the fact that each trip probably involves a minor detour of some kind;
- The Study includes the time spent checking statements for credit cards, but does not include the time spent checking cash receipts against a weekly budget, or in fact ATM withdrawals against an account statement; and
- The Study does not include a portion of the cost of maintaining internet banking and phone banking services in estimating the costs associated with BPAY and direct entry payments.

Obviously, assumptions have to be made in developing a costing methodology, but the decisions on which assumptions to use and which not to use will ultimately affect the conclusions. It is a subjective process but one which can significantly impact on the outcomes. We do not assert that allowing for these shortcomings would necessarily change the rank order of payment instruments. However, they do illustrate the limitations of this Study and for that matter other cost studies that have been published around the world, as instruments for intervening in markets to set prices.

### **Concluding remarks**

As noted in the Study, cost is not the only measure of the efficiency of a payments system, which suggests that defining or designing an optimally efficient payments system is a particularly difficult exercise.

As I have outlined, the RBA reforms have influenced the final cost to consumers in that banks have passed on a portion of the interchange fee previously paid by merchants to cardholders. Notwithstanding the Study's conclusions regarding the costs of individual payment instruments, we believe the relative cost rankings are about right and are broadly what we would have expected to have seen. It is therefore difficult to argue that additional reform, such as reducing regulated interchange fees further, is required.

Numerous studies – including this one – have tackled the subject of the cost of payment instruments and their use in an efficient system, yet there is still no answer as to what the ideal or optimal structure looks like within a regulated environment. It is ANZ’s view that it would now be appropriate for the RBA to allow the market to set interchange rates.

## 2. Ric Simes<sup>2</sup>

Let me begin by welcoming the latest research that Carl and his Reserve Bank colleagues have undertaken into the operations of the retail payments system. As with all economic policy, the better the quality of the data and the empirical analysis, the easier it is to develop appropriate responses. My comments will concentrate on the RBA’s paper on payment costs since this is more directly relevant to the 2007-08 Review deliberations than the accompanying paper on payment patterns.

Early in 2006, along with Ian Harper and Annette Lancy, I explored some of the issues covered in the Bank’s paper on the costs of different instruments.<sup>3</sup> At that point, our basic conclusion was that the resource costs associated with card schemes that had been estimated in the RBA/ACCC Joint Study<sup>4</sup> were overstated relative to costs for other instruments, and that this may have unduly influenced the regulations that the Payments System Board subsequently introduced.

We also emphasised conceptual and practical difficulties in this exercise and encouraged further work to be undertaken. I am thus pleased to see that the Bank has done so, and done so in a whole-hearted fashion.

I would like to comment on two aspects of the paper:

- Firstly, and quite briefly, the relevance of the notion of resource costs for decisions to regulate different payment systems.
- Secondly, some of the main findings concerning the relative (resource) costs, namely the findings related to the costs of:
  - (i) cash;
  - (ii) EFTPOS relative to scheme cards; and
  - (iii) BPAY and direct debit relative to scheme cards.

### Relevance

Having clearer information about the workings of the payments system will help decision-making in government and business. However, the issues being addressed in this paper are very narrow. They may point to the need for deeper analysis if there is a substantial difference in resource costs but, by themselves, differences in resource costs provide little guidance for how the system should be regulated.

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<sup>2</sup> Ric Simes is a Director of Access Economics. He has consulted on payments systems for Visa International. The views expressed here are his own.

<sup>3</sup> Harper, Lancy and Simes (2006).

<sup>4</sup> RBA and ACCC (2000).

It appears from the outside that the Reserve Bank experts understand that the basis for the regulations on card systems that the Payments System Board has introduced over recent years has theoretical shortcomings, but that the empirical relevance of these is not sufficient to prevent the regulations being imposed. For example, the authors state that (page 88):

... the Payments System Board was concerned that, due to a variety of practices and restrictions, the relative resource costs associated with the credit card and EFTPOS systems were not being reflected in the relative prices that consumers faced when deciding between these payment instruments. The result, in the Board's view, was a less efficient payments system than might otherwise have been the case.

There are two main problems with the Board's view as expressed here:

- it only looks at costs and not the benefits provided by the different instruments; and
- it ignores the efficiency considerations associated with two-sided networks, which mean that it would be sheer luck if relative resource costs should in fact be directly reflected in relative prices that consumers face, for economic efficiency to be maximised.

That is, resource costs considered in isolation could well provide a poor guide for the design of policy. We simply do not know whether the regulations are resulting in an improved allocation of resources or not. Without such a clear basis for judging that measures would lead to efficiency improvements, a less interventionist approach should be pursued for (especially) the regulation of interchange.

But let me put that caveat to one side and just consider the results from the paper in its more narrow context.

## Main Findings

As I see it, the three central findings from the paper that may be most relevant to the Review are:

- Cash is the least costly instrument for transactions of up to around \$50 in value.
- The difference in resource costs for the payment function of credit (and presumably scheme debit) cards and EFTPOS is between about 30 and 50 cents depending on transaction size. It is around 40 cents for a \$100 transaction.
- BPAY and direct debit involve fewer resource costs than scheme cards for non-point-of-sale payments.

## Cost of cash

The result that I found most surprising was that cash involved fewer costs than EFTPOS for transactions up to \$50 in value,<sup>5</sup> and than credit cards for transactions over \$100 in value.<sup>6</sup> In part, I think that my surprise results from the research only focusing on the costs side of the equation. Personally, I rarely use cash for transactions over about \$20 in value and I think that the reasons that I do not use cash for higher valued transactions relate to convenience and security.

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<sup>5</sup> This assumes the use of 'Approach 1' – it is \$100 in value using 'Approach 2'.

<sup>6</sup> Only the estimated costs for the payment function of credit cards are considered here.

On *convenience*, the survey evidence reported in the paper indicates that individuals make an average of eight cash transactions between trips to the ATM, and most of these trips are incidental to their daily business. This evidence seems reasonable although, for me, it applies to a situation where my average transaction size when using cash is much lower than the averages presented in the paper. I already find cash handling to be a minor irritant and that would become more so if I were to use cash for either \$50 or \$100 transactions.

The *security* issue raises a more fundamental, conceptual point with the paper, namely what is a cost and what is a benefit? The risk of losing cash for individuals or petty theft for merchants is not included in the estimates. Implicitly, these are treated as benefits rather than costs. In contrast, the costs of fraud and fraud prevention are included for scheme cards (and in a more muted form, for EFTPOS).

Intuitively, it would seem to me that the *net* costs associated with theft and/or loss for cash are higher for cash than for electronic payments, but this is not reflected in the results for resource costs in the paper.

### **EFTPOS versus scheme cards**

The issue of the relative (resource and user) costs of using EFTPOS versus scheme cards has been a particular focus of the Board's attention. Because of the way that the data have been compiled, most of the information provided in the report is presented in the form of costs per transaction rather than adjusted for transaction size. However, for the purposes of the Review, the relevant comparisons should analyse the costs and benefits of using different instruments for a common transaction. Hence, the (summary) material in Section 7 is the most relevant for the Review.

The gap between the resource costs for using a credit card for payment purposes and EFTPOS – the most relevant point of comparison – varies between about 30 cents on a \$20 transaction to 50 cents on a \$200 transaction (see Table 14). For a \$100 transaction the gap in estimated costs is 40 cents.

In part the gap reflects differences in tender time – how long it takes to make a transaction at the till using EFTPOS versus a credit card. To the extent that this is an issue, the obvious solution would be for credit cards to make use of PINs rather than rely on signatures, something that the marketplace may deliver.

Most of the rest of the gap is accounted for by a combination of:

- scheme fees;
- costs of fraud and fraud prevention;
- IT costs; and
- marketing costs.

In each case, the estimates of the costs are intimately dependent on how the authors – or those being surveyed – attribute costs in the context of services that are being jointly produced and offered as bundles of services. Any attribution in these circumstances will be problematic.

In addition, there are reasons to believe that the approach will artificially widen the gap between the estimated resource costs for EFTPOS and scheme cards. Three examples may help to illustrate why this may be the case.

Firstly, direct marketing costs for transaction accounts will be low because the services tend to be offered as part of broader packages. In particular, consumers' selection of which bank to use as their primary banking relationship is often related to where they hold a mortgage or, less frequently, where their employer deposits their pay. Decisions related to the use of transaction accounts will form part of this wider decision.

In addition, switching between primary banks is relatively low. There is little incentive for financial institutions to heavily promote transaction accounts *per se* but, instead, they will use more generic forms of marketing to support the broader relationships.

- In contrast, it is easy to switch between credit card providers. Marketing specifically related to credit cards then becomes important.<sup>7</sup>
- As a consequence, a financial institution's marketing costs that are identified in the survey used by the authors as directly relevant for transaction accounts are likely to be understated relative to those identified for scheme cards.

Secondly, the greater functionality of scheme cards complicates any comparison. For example, the wider range of outlets at which scheme cards can be used requires additional fraud prevention expenditure whereas fraud control related to EFTPOS will tend to be subsumed within a bank's overall budget.

The final example of the difficulty in attributing costs relates to scheme fees. In a sense, the card schemes represent an outsourcing of services that could be carried out in-house (as in the case of EFTPOS). The costs associated with the outsourcing are clearly identified while many of the comparable in-house costs will be hard to separate given that they are produced jointly with other services:

- Indeed, the RBA estimates do not identify a comparable in-house cost to the scheme fees for EFTPOS.

To illustrate the nature of the problems that arise in trying to identify comparable costs, consider the trend to using outsourced services in many parts of the economy. It is hard to conceive how the methodology that has been employed in the paper would have supported, for example, Westpac's decision to outsource some of its IT systems to IBM. This decision was presumably taken on the basis of reduction in in-house IT services, plus a recognition that there was expertise and support within IBM that may be difficult to duplicate in-house. Neither factor, however, is likely to be fully captured in a survey along the lines conducted here.

## **BPAY and direct debit**

One of the reasons why card schemes are attractive to consumers is that cards can be readily used at many more outlets, both domestically and internationally, than can EFTPOS. These benefits increase the attractiveness of scheme cards to consumers and, in turn, make it attractive

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<sup>7</sup> Indeed, the marketing of cards will form part of a bank's broader marketing program and may even generate indirect benefits for the profitability of the bank's transaction accounts.

for financial institutions to support them as part of their offerings on transaction accounts. This makes it easier for card schemes to compete in other areas.

The cost estimates outlined in the RBA paper, however, imply that financial institutions will have an incentive to continue to support and promote BPAY and direct debit, thereby further increasing competition across platforms. While the magnitude of the effect is not certain – and, as I have said, the costs identified here are only one part of the full picture – this should place some downward pressure on merchant service fees (and interchange fees) in all payments.

## **Conclusion**

Let me reiterate the point I made at the outset, namely that the data and analysis that are presented in these papers represent a significant enriching of our understanding of how Australia's retail payment systems operate. This will provide a much more solid base for future research on a range of related issues.

Also, as I have said, the findings need to be treated very carefully from the perspective of the 2007-08 Review into the regulation of the retail payments system. To the extent that they are relevant, however, the conclusion that I draw is that they lend some support to the proposition that a more light-handed regulatory regime should be adopted, especially with regard to interchange regulation. I base this conclusion on two observations:

- The likelihood that cost considerations will see the growth of other electronic payment platforms continuing to assume a stronger competitive position in the non-point-of-sale space.
- The fact that the gap between the resource costs for EFTPOS and card schemes is estimated to be around 40 cents for a \$100 transaction, a figure that is much lower than the estimates in the earlier ACCC/RBA Joint Study. Indeed, for reasons alluded to above, even the 40 cent figure looks to be an overestimate of the gap and a value closer to the 10-20 cent range we found in our earlier – albeit more rough and ready – work may be close to the mark.

Given these estimates do not take into account the additional functionality that card schemes entail compared with, in particular, EFTPOS, it hardly seems to be a strong basis for regulatory intervention.

## **References**

Harper, I, A Lancy and R Simes (2006), 'Costs and Benefits of Alternative Payments Instruments in Australia', Melbourne Business School Working Paper No 2006-08.

RBA and ACCC (2000), 'Debit and Credit Card Schemes in Australia: A Study of Interchange Fees and Access', October.

## **3. General Discussion**

The discussion in this session focused primarily on the Reserve Bank's study of payment costs in Australia.

It was generally acknowledged that the study provides a comprehensive picture of the costs of Australia's main payment systems. A recurring theme of the discussion, however, was the *scope* of the study. In particular, it was noted that the study does not consider the economic benefits of the various payment methods. Some specific examples of these benefits were cited, including the ability to use scheme debit online and overseas, and the credit functionality of credit cards. It was noted that there may also be external benefits associated with particular payment methods; electronic tolls, for example, provide a benefit of faster clearance for all drivers, even those paying by cash.

Although it was accepted that benefits must also be considered in any assessment of efficiency, it was noted that some of these benefits are difficult to measure. It was suggested that the results from the study of payment patterns might provide some evidence by revealing actual choices of consumers in particular circumstances.

There was also considerable interest in the costs of cash and, in particular, whether the study underestimated them. For example, the cost of theft might not have been adequately captured in the study. Furthermore, it was noted that there are social costs associated with cash – including cash-related criminal activity and the informal economy – that potentially make cash a costly payment instrument for society.

Discussion of credit card transactions focused on the significant costs incurred by issuers of credit cards. It was noted that, if there were no interchange fees, issuers would need to recover these costs directly from cardholders which could lead to a substantial increase in the cost of holding and using credit cards and potentially large changes in consumer behaviour.

The methodology of the study was also discussed. It was noted that attributing the costs of establishing and maintaining a banking relationship to specific payment methods can be difficult. Mr Schwartz acknowledged that the bundling of services presented a challenge to measuring costs but noted that the study did offer guidance on the allocation methods used.

# LUNCHTIME ADDRESS

*Christopher Hamilton*<sup>1</sup>

Governor Stevens, Professor Harper, Ladies and Gentlemen,

I am grateful for the opportunity to address such a distinguished audience of payments system luminaries. As an industry policy ‘lifer’, I view a senior industry audience the way an actor views a stage: one never passes up the opportunity to deliver a soliloquy.

My natural inclination is to expound at length on payments system policy – but after nearly four hours of it, with more to come, I recognise some obligation to give you a break over lunch!

I therefore propose to look past today’s immediate debates, and talk more generally about the overall process we are engaged in. I want to promote a conversation about solving tomorrow’s problems, rather than just trying to solve today’s – or even worse, yesterday’s. Ladies and gentlemen, I want to make some observations about improving Australian payments industry governance. In doing so, let me make absolutely clear that I speak only for myself: my views have not been endorsed by any of the members of the Australian Payments Clearing Association (APCA).

We tend to think of the current debate as an exercise in regulatory reform: what kind of competition policy framework do we need in order to deliver a sound, efficient and competitive payments system? I want to suggest that the proper area for debate is ‘industry governance’, which covers rather more than regulation. It amounts to how a given industry is organised for long-term health and growth while continuously satisfying government and community expectations. The point is, regulation cannot be reformed independently of industry governance.

The word ‘governance’ has acquired a lamentable taint, courtesy of the global debate on ‘corporate governance’. As any stock market investor knows, the ‘corporate governance’ page in a company’s annual report can be reliably dismissed as the most boring page in the book; and yet, when companies collapse amid allegations of unethical conduct, commentators and regulators are quick to diagnose a failure of corporate governance. It’s curious really: there are not many activities that appear simultaneously boring AND suspicious.

Industry governance is very different, or at least I hope it is. Regulation is only one important manifestation of governance. There is also the formulation and articulation of underlying industry objectives (both public policy goals of government, and industry policy goals of participants), processes for industry planning and development, and a wide range of implementation actions: network administration, technical standards, operational procedures, industry communications, public education, network operation, compliance, and so on.

As we engage in today’s debates, we take for granted a large and complex separate body of industry governance, through APCA, the card schemes and others. We more or less assume static

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<sup>1</sup> *Chief Executive Officer, Australian Payments Clearing Association.*

existence of these industry structures as a backdrop. Yet this body is constantly evolving: as merely one example, chip card implementation has made, and will continue to make, significant changes to industry governance structures in almost every area, including today's subjects of interchange fees, merchant restrictions and access criteria.

I want to question the wisdom of a segregated approach. To state the obvious, our industry is a continuously evolving network, with complex interconnections. We simply cannot assume a static environment and industry structure into which to insert targeted competition policy reforms. A much more holistic, evolutionary approach is needed.

To explore this, I am afraid I am going to need a sporting analogy, much as I generally dislike them. So bear with me while I talk about ... netball. I assume you have all seen it played: like basketball, but with more players and a lot of extra rules to promote team cooperation. This provides a context to talk about the interplay of industry rules and competition, but there are some other good reasons to mention netball. For one thing, Australia has just become world champion, again, with New Zealand the runner up – again. For another, netball is the highest participation sport in Australia, with more than a million players. Netball is our sport.

I am not particularly a netball fan, although anything that keeps my daughter happy and running around outdoors is fine with me. But it is hard not to be impressed by those massive fields of netball courts in full swing on a Saturday, sometimes 20 or 30 games going on at once, game after game, a profusion of colour and movement punctuated by periodic blasts of the quarter-time siren. Well over a thousand young ladies and, increasingly, young gentlemen, might take their exercise each Saturday at any one location. And this is happening across the country.

All those players and teams are focused on competing. They don't spend a lot of time thinking about who sets the rulebook, who administers the disciplinary system, how the divisions are organised, who runs the program and supplies the referees, who promotes and develops the sport; the teams just want to play.

But even the most one-eyed fan would have to concede the necessity of a substantial support hierarchy beyond their beloved team. Clubs, leagues, state associations and national associations all play a role. This, ladies and gentlemen, is netball governance: the total framework within which the game is played, with some of the most important work taking place off the court. A good framework will see entertaining games featuring skilled and innovative teams, a happy and growing band of players and spectators and hopefully, over the long term, a prosperous and growing sport. A bad framework could see a sport in decline – and no more world titles. Clearly, Netball Australia is doing something right!

If I can stretch my analogy a little further, the complex and serious business of netball governance is achieved collectively by players, or ex-players, and their families: those that know and often quite literally have skin in the game work together to help it prosper. And so it is with payment systems: historically, the great majority of system governance has been and still is done by the players, through associations like APCA and, historically, the card schemes.

Payment systems, however, are in no sense a game. They are vital to a well-functioning economy. That is all the more reason to think about the design of industry governance. Our industry features millions of games played amongst dozens of clubs, some fielding just one team,

some fielding thousands, every single day. There are multiple divisions, a complex rule book and teams constantly looking to innovate and find a competitive edge – and we wouldn't have it any other way.

For a host of reasons that are still, as we have seen, hotly debated, the central bank has intervened in specific, but important, aspects of the governance framework in order to achieve particular public policy goals. My immediate concern is not whether the reforms were necessary. Nor is it how that intervention came about. Rather, my concern is the implications of recent history for the long-term evolution of the industry.

To illustrate, I am afraid I am going to tell you a very little about the rules of netball. Netball has a 'one step' rule: in simple terms, when you catch the ball you have to stop and pass before you can take another step. Quaintly, I believe this derives from Victorian ladies wishing to play basketball in long skirts, bustles and button-up shoes. This is hard to imagine, with the speed and athleticism of the best players today. In the modern game, the step rule has been criticised as leading to player injury: the sudden stopping turns ankles, twists knees and causes other joint damage. I have heard it argued that netball, not rugby, is responsible for Australia's global leadership in knee reconstruction techniques.

Now imagine, if you will, a netball governance crisis. Please note I am making this part up: I am sure nothing like this would ever happen to the real Netball Australia, by all accounts a highly professional organisation. The sport's imaginary administrators are under pressure to fix the step rule and reduce the injury rate. Their inclination is to resist, regarding the rule as integral to the grand traditions of 'their' sport. They argue amongst themselves, but cannot distil a consensus to act.

An imaginary Minister for Sport, perhaps faced with electoral defeat and casting around for vote-winning issues, fixes on a plan to win the support of all netball players: eliminate injury from the sport. He (note the gender) tries consulting with the netball administrators, but gets nowhere – they resent the interference. With the election bearing down on him, the Minister enacts legislation requiring that the umpires must allow two extra steps after catching the ball. Very noble, you might say: a targeted intervention based in sound public policy. The press is very positive.

The clubs are not so sure. Initially, there is confusion and dispute: what does the legislation mean? Who interprets it and explains it to thousands of referees, given the netball administrators dislike the whole idea? The other rules, built on an assumption that there is a step rule, now don't make sense, and have to be overhauled by these same disgruntled administrators. They reluctantly comply, but seek to minimize impact on the way the game is played by requiring senior players to take two tiny little steps after catching the ball, with a complex table of increasing step-lengths for different divisions. Teams react by changing tactics to focus on speed, and the faster game leads to more player contact and, ironically, new injuries. The injury rate does not perceptibly decline. Finally, other countries don't have this rule: the Australians have to play differently away from home. At the next world championship, the New Zealanders take the Australians to the cleaners. Back home, the netball administrators take the Minister to court.

A silly example, perhaps, and I am sure there will be a range of views about the validity of the analogy with payments system regulation. I certainly mean no specific criticism of anyone

involved in payment systems – or netball for that matter! But regardless of whose side you are on in my imaginary netball crisis, some very unfortunate results arose from a lot of people acting with the best of intentions.

So, to recap the message so far: we need to focus on the industry governance process itself, and think beyond specific regulatory reforms to encompass the long-term health and evolution of the industry. We need to look beyond today's problems, and establish a framework to solve tomorrow's.

There is, in fact, a well-trying method for undertaking this holistic and evolutionary governance exercise. It is used in every market economy, and has provided the backdrop for breathtaking industry success stories, such as the growth of the world's financial markets in the last 20 years. It has also had some notable failures, which serve as cautionary tales for the future. I refer, of course, to industry self-governance.

It is my conviction that industry self-governance, that is, governance with the wholehearted engagement of participants, is critical for the long-term success of the payments industry. Self-governance allocates governance responsibilities and costs to those with the resources, the expertise, and the incentives, to carry them out over the long term, and as the environment changes.

On the other hand, it has its particular challenges: of regulatory capture, credibility and promotion of healthy competition. The need to provide assurance and oversight that these risks are managed leads to a co-regulatory partnership: industry and government each have a role. The hard bit for government usually lies in accepting that, in a partnership, one side does not get to call all the shots; the hard bit for industry usually lies in accepting the need to invest senior time and expertise in industry governance, when they could be maximising returns from competitive activity.

This line of thought led APCA and its sister organisations in the United Kingdom, Europe, Canada, Ireland and South Africa to do some work together recently. The results are contained in 'Principles of Payment Industry Self-Governance' published a few days ago. The Principles were developed by the 'International Council of Payment Association Chief Executives' – affectionately, if unfortunately, known as 'ICPACE'. Copies of the Principles can be found on APCA's website. It turns out that ICPACE is a pretty good group for this work: we are veterans of self-governance in a range of financial services disciplines, and our jobs necessarily involve working extensively *with* Government in its many forms, as we work *for* industries. We have learned a lot from each other.

I won't take you through the detail of the Principles today, but let me cover the highlights. Effective payments industry self-governance will exhibit five key characteristics:

- **Certainty**, or if you like clarity and consistency, not just at the level of rules and processes, but at the level of underlying policies and objectives;
- **Legitimacy**, revolving around the engagement of all stakeholders, public and private, and the industry's ability to make good governance 'stick';
- **Transparency**, summarising a broad commitment to due process and accountability;

- **Flexibility**, harnessing one of the great strengths of self-governance: regulation that is responsive to rapidly changing market conditions; and
- **Efficiency**, focusing on imposing the minimum restriction and cost on industry activity consistent with widely supported industry and public objectives.

The Principles contain a deal of underlying analysis, including some overseas comparisons. But they are not a recipe for success; more a set of analysis tools. There is no one ‘right’ way to do payments system self-governance, given the enormous variations in history, culture and market dynamics around the world.

Perhaps the most recent experiment derives from the United Kingdom, where a newly formed Payments Council, comprising both industry participants and independents, has in the last few days published a consultative document for a proposed National Payments Plan to, and I quote, ‘work with all those involved in payments to drive payments forward’. You cannot get much more holistic and evolutionary than that.

A much longer-standing, and quite different, example of self-governance derives from the Canadian Payments Association, formed under legislation and with delegated legislative powers. The Association’s Board is chaired by the central bank, composed of industry participants, and assisted by a legislated Stakeholder Advisory Council comprising industry users and service providers.

I hope the Principles can be used to develop a broader debate about Australian payments industry governance. I do not mean to suggest that today’s conference is not valuable – unquestionably it is. But our current process raises a question in my mind, relating back to the certainty and legitimacy principles mentioned above. The question is this: who really owns the governance framework? The Reserve Bank of Australia (RBA) rightly asserts responsibility for public policy objectives in the payments system, together with an oversight and, if necessary, enforcement responsibility. But is it, to borrow the British phrase, ‘driving payments forward’? The Wallis Committee in 1997 got rather close to suggesting this for the proposed Payments System Board (PSB). But the PSB itself has, if I may say with due respect, sensibly recognised the great difficulty in a government regulator taking up such a role. In a 2006 speech, Dr Lowe said:

We have a strong view that the issues of architecture and governance are best dealt with by industry, rather than through regulation. After all, it is industry that, at least in the first instance, must pay for any investment in the system, and it is industry that must operate the system.

Dr Lowe had made similar observations about technological evolution. I certainly acknowledge the wisdom of this, but perhaps differ on the extent to which the more controversial elements of competition policy are severable.

The ICPACE Principles provide the starting point for a different kind of co-regulatory partnership between payments industry and payments regulator. The industry must assume responsibility for its own governance, and do so within a framework of long-term commitment to industry health and growth. This is the best way to provide certainty, flexibility and efficiency. However, it also needs to validate governance actions against public policy goals clearly enunciated by the regulator, thereby achieving transparency and legitimacy. In simple terms, the

regulator's job is to ask the hard policy questions; but the industry must both provide, and own, the answers.

So, how could our imaginary netball governance crisis have been resolved? Well no doubt, great value could be had from a series of empirical studies of injury occurrence patterns and injury costs and some contributions from the sports medicine academic fraternity. But as well as high-quality inputs, they needed a quality process: a platform for engagement that commits stakeholders to the long-term solution. The answer must be built into the overall framework and culture of the industry; it must be forward-looking and flexible.

This requires our Minister for Sport to recognise that the intervention, however necessary from his perspective, creates a new challenge to long-term governance: it raises uncertainty about who really is responsible for minimising injury. Equally, the netball administrators need to invest in reaching a result that credibly takes account of the public concerns about player injury, and can also distil a clear way forward from the wide range of interests and views across the sport – and if you've ever been to a suburban netball game, you will know that passions run high. A payments conference is tame by comparison.

An industry committee within APCA has been exploring possible options for Australian Payments, but what we need now is the input of others. APCA's submission to the RBA review proposed the involvement of all stakeholders in the joint design and implementation of a new self-governance process. If any group can make this happen, ladies and gentlemen, this audience can. I believe there are solid indicators that the time is right. Let me mention some governance developments outside the controversial area of today's conference.

- Following some joint work by the four largest banks, and an Australian Bankers' Association (ABA) council decision, an APCA committee is developing a business development scheme proposal for the domestic EFTPOS system, responding to RBA commentary on EFTPOS governance. This has significant implications for proposals on card reform, because it provides an important step towards promoting competition in the card services market.
- The industry has also (eventually) responded constructively to the RBA's public policy concerns regarding the ATM network, with ABA sponsoring a reference to APCA to implement a governance solution hammered out between all the main players. APCA is on track to meet that challenge and provide a fully self-regulatory solution designed by and for industry participants in response to the RBA's policy concerns.
- The industry has been working cooperatively on ensuring the smooth and consumer-friendly implementation of chip cards, a topic that last year attracted Parliamentary Standing Committee attention. A steering group comprising financial institutions, merchants and card schemes is now developing industry-wide coordination plans for chip rollout.
- APCA has recently conducted a public consultation process to respond to Commonwealth Treasury concerns about barriers to account switching in Australia. I hope we will see results early next year.
- In low-value payments, the industry is working towards a response to governance, access and innovation questions raised by the RBA, again through an APCA committee. We hope to present a suggested roadmap for industry debate in the first half of 2008.

Ladies and gentlemen, this program of work suggests a significant and growing level of commitment to industry self-governance, and the basis for a better way forward. I have spent my working life in complex financial services network industries, as have my colleagues in ICPACE. We are acutely aware of the great strengths, and at the same time the frustrations, of industry self-governance. Sir Winston Churchill famously observed that:

No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the worst form of government, except all those other forms that have been tried from time to time.

And so it is with participative governance generally, be it payments industry self-governance, or even, dare I say it, netball administration.

Thank you.

# FORUMS

The afternoon sessions were structured as a pair of open forums, moderated by Professor Ian Harper. Prior to the conference, Professor Harper wrote to all participants asking for their views on the topics to be covered in the forums. On the basis of the feedback received, it was decided to devote the first forum to a discussion of interchange fees and the second to access and innovation. A number of participants were asked to provide introductory remarks for each topic.

## FORUM I – INTERCHANGE FEES

### Introductory Speakers

#### 1. Leigh Clapham<sup>1</sup>

Evidence demonstrates that five years after the Reserve Bank of Australia (RBA) regulated the payments industry, the RBA's objectives to improve efficiencies remain largely unachieved.

In fact, evidence submitted by MasterCard to the RBA's Review of payments system regulations shows that, far from reducing costs to consumers, the combination of increased annual fees, reduced benefits and the increased prevalence of surcharging at the point of sale actually means cardholders have been disadvantaged. The unintended impacts of the RBA's regulation simply underline the fact that strong competition is superior to direct price regulation.

MasterCard believes that the RBA should focus on facilitating workable competition between payment systems instead of enforcing draconian and *ad hoc* price regulation.

In relation specifically to interchange – a complex balance with numerous issues impacting the way the market establishes the rate – it is clear that any artificial, academic manipulation of those market forces will always result in a skewed system. This is best evidenced by the fact that the regulations have now placed American Express in a position of competitive advantage.

MasterCard believes strongly in vibrant and robust competition which operates on a level playing field. In our full submission MasterCard highlighted evidence that shows that the existence of payment cards, and credit cards in particular, provides tangible benefits to an economy. Benefits the regulator has so far failed to consider. For example, the value to merchants of accepting credit cards is particularly important to them in terms of sales promotion and competitive success.

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1 Executive Vice President – Australasia, MasterCard Worldwide.

Two types of shopping behaviours are targeted by merchants in their marketing and sales efforts: (a) impulse spending which is defined as spending decisions made on the spot and not part of a planned purchase; and (b) optimistic spending defined as spending above planned purchases.

A 2007 survey by MasterCard of shoppers' impulse and optimistic spending behaviours across five cities (Sydney, Hong Kong, Singapore, Manila and Taipei) showed that both types of spending are positively correlated with credit card usage. In short, it demonstrated that credit card acceptance is critical to helping merchants increase sales and therefore adding value to merchants over and above simply being a convenient payment instrument.

Previous independent research has also shown that the presence of payment tools such as cards builds economies.

The RBA has described itself as a 'reluctant regulator' in this area. If that is truly the case, then now is the moment for the RBA to support the industry's calls to move toward a model of self-regulation which is in the broader interests of consumers and an effective, efficient market economy.

## **Cards – more than just a payment tool**

It is fair to say that every industry and organisation involved in this process approaches the discussion of regulatory intervention with a fair amount of emotion. Regulation – by its very nature – provokes some sort of response from all parties.

From a business perspective, there is no question that the RBA's intervention in introducing a regulatory regime has damaged MasterCard's business, as has been demonstrated by the declining growth rates in payment card usage, and that of our issuing and acquiring customers.

To that end, MasterCard has invested considerable time and resources – both using our own internal, global experts and making use of outside, independent analysts – to investigate the specific impact of regulation.

## **Consumers have suffered**

What we found reinforced our view that consumers have suffered. Five years after the regulatory intervention by the Reserve Bank – which had the specific goal of enhancing competition, improving efficiency, and benefiting consumers – available evidence suggests that the Bank's objectives have been largely unachieved. Overall, the payments market has not been made more competitive or efficient and Australian consumers are now saddled with higher costs as issuers increased annual fees and reduced benefits to compensate for the RBA-mandated reduction in interchange fees.

The detailed written submission MasterCard made to the RBA's Payments System Review describes the impacts of the regulations as supported by evidence in the Australian marketplace. Some of the intended and unintended ramifications of the regulations have included:

- higher cardholder fees and interest rates, with reduced features and benefits;
- a reduction in average merchant fees of more than 0.60 per cent since the introduction of the regulations equating to approximately A\$1 billion per annum;

- no evidence of reduced consumer prices to reflect the reduced merchant cost;
- a widening in the gap between the average merchant fees of the regulated and unregulated schemes;
- a competitive advantage derived by the unregulated three-party schemes, as evidenced by growth in the collective market shares of American Express and Diners Club;
- the interchange regulations disadvantaging one regulated scheme against the other regulated scheme, simply due to the differential make-up of each scheme's portfolio;
- the surcharging of credit card transactions by merchants across all retail and non-retail segments (with some examples of price-gouging);
- no significant new entrants into the Australian market since the introduction of the regulations in 2003; and
- reduced investment and innovation in payment products (e.g. significant delay in the introduction of chip/PIN cards).

### **Competition versus regulation**

The experience of the past five years has merely served to reinforce the general presumption that competition is superior to direct regulation in achieving efficient outcomes. MasterCard considers that regulators should therefore focus on facilitating workable competition between payment systems rather than directly regulating interchange fees.

Such an approach by the Bank would be entirely consistent with the evidence from Australia and Europe that a merchant's ability to discourage card usage through such means as offering cash discounts, steering and surcharging means that the merchant community has the ability to effectively constrain interchange fees. Indeed, we see regular evidence of merchant behaviour discouraging card usage to the point where it is clear the balance of power lies increasingly with the merchant. Through the various tools at their disposal (including surcharging), they are well equipped to make a decision as to which payment mechanism they accept without actually blocking card acceptance.

While MasterCard believes surcharging is not consumer friendly, in the spirit of achieving a mutually acceptable outcome we believe that the merchant's ability to impose a surcharge, or just as importantly, the ability to threaten the imposition of a surcharge, is preferable (along with the various other tools available to merchants) to continuing on with what can only be described as a draconian measure of regulating price through interchange.

So, while we have seen evidence of merchant segments taking up their option to reduce card acceptance where they feel it benefits them for strategic, competitive reasons (for example acceptance of pre-paid) we also see some segments – including online retailers – rapidly growing card acceptance. Cards – and the ability to accept payments remotely – have spurred a whole new economy. Without the flexibility of card payments, there is every reason to believe that online retailers would not exist. And there remain many other retail segments where card penetration is growing rapidly – such as utilities and government payments.

It should be noted that the Australian payments landscape (and the Australian economy with it) has changed significantly over the last five years. As mentioned above, online payments have

grown exponentially, as has the power of the retailer. Whether these changes can be directly attributed to the regulations is debatable, but what is clear is that this has been an historic period of substantial change. One could argue that the Australian payments system has matured and is now a lot more sophisticated than it was as recently as five years ago.

These changes are reflected in the manner in which the four-party card schemes now set interchange fees. Five years ago banks set the fees and there were only three interchange categories in operation for domestic transactions. Indeed, as has been previously documented, the schemes had the same interchange categories and the same level of fees. Today, the schemes (MasterCard and Visa) set the fees and have well over a dozen interchange categories each. The categories are not only split by transaction type, but also by product and merchant category. Some merchants have forced down their effective interchange fee to 0.30 per cent, while other merchants are prepared to pay more than double that rate. This reflects that many merchants do heavily influence the level of interchange fees, while for some other merchants it is not an important consideration in the running of their business: further evidence – if it were needed – that merchants are in as strong a position as they have ever been to make decisions as to what mechanism they choose to accept payment.

And the payments landscape in Australia still has a long way to go in its development. Many merchant segments continue to have no or very low levels of card acceptance. Urban transit systems and taxation agencies are only two examples of merchants which do not accept card payments in Australia, but enthusiastically accept cards as a cost reduction tool in other markets. Australian merchants have proven that card acceptance is an option, and not an involuntary requirement of business. They have also proven that the cost of card acceptance is not the main determinant of their decision to accept cards, but a whole range of factors inform their decisions in this regard. That example is underlined with numerous examples of countries with relatively high interchange in comparison to Australia that also have deep and strong card acceptance including, among others, Spain, Japan and Hong Kong.

### **MasterCard's approach**

Considering the above, MasterCard has looked at this debate through the consumer's eyes – the well over 90 per cent of Australians above the age of 18 who carry and use some sort of payment card. We wanted to know how regulation has affected them. Has it changed costs? Do they think they are more or less convenient or efficient? How has it changed how they use their cards?

For the record, and in the interest of full and frank disclosure, MasterCard approaches today with the belief that – as indicated by independent research – regulatory intervention has demonstrably hurt consumers. But in the spirit of co-operation and in an attempt to reach an outcome that is acceptable to the majority of players, MasterCard has been prepared to agree to a middle ground solution.

As has been discussed above, MasterCard believes it is now clear that merchants do have and do exercise significant power when it comes to the determination of merchant fees. To this end, MasterCard has expressed to the Reserve Bank its willingness to agree to a model of co-regulation whereby the market re-assumes control for the setting of interchange fees, with the retention of regulations relating to surcharging and the 'honour all cards' rule. It should be

noted, however, that MasterCard does believe that further protections need to be enshrined in Australian law or regulations which protect consumers from excessive surcharging.

MasterCard is open-minded to the call by other industry participants for the replacement of the interchange regulations with a set of agreed principles. Obviously MasterCard cannot commit to such an arrangement until it becomes privy to the details, and would want assurance that such an arrangement does not create the opportunity for prosecution under competition law, whether it be by the ACCC or a private litigant.

Finally, MasterCard would point out that if the Bank is genuinely serious about promoting competition in the payments market in Australia, then all payment vehicles should be put on the same footing for consideration; which would include not only four-party schemes, but three-party schemes, two-party payment cards, as well as cash and cheques. While MasterCard has some serious reservations about the cost research undertaken by the Bank and discussed in detail today, we do note that payment cards when compared to most other payment instruments deliver higher average transaction sizes, and are cheaper to merchants as a proportion of the transaction size than most other forms of payment. The research demonstrates that payment cards deliver significant advantages to merchants – even when understated in the manner done in this research.

From this perspective, the key consideration should not be the prices at which each of these vehicles are available to the market, but the values delivered to the end users (the consumers) by these competing payment vehicles. Only consumers and merchants, moreover, are in a position to decide what value is being delivered to them. More often than not consumers' perceptions of such value are highly sensitive to where and when they need to make a payment, and for what purposes. No regulatory authority can hope to understand what the needs of millions of consumers may be at any given time and how their needs may change over any period. Only the consumers themselves know, and hence only they are in a position to decide what values are being delivered to them by each product or service.

This is no different from the pricing of two similar personal fashion accessories, one with a designer brand and the other without. Their costs of production may be similar; and yet consumers perceive vastly different values between them, and consequently are willing to pay a much higher price for the former than for the latter.

Focusing exclusively on interchange is equivalent to a government regulatory authority aiming to regulate the pricing of personal fashion accessories and deciding that the branded goods should be priced the same as the unbranded if their production costs are similar – an absurd conclusion. Such a stance is also against the broader interests of consumers and an effective market economy.

## **2. Paul Rickard<sup>2</sup>**

The Commonwealth Bank appreciates the opportunity to offer these introductory comments on interchange fees at the Reserve Bank of Australia's (RBA's) Payments System Review Conference.

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<sup>2</sup> *Executive General Manager, Premium Business Services, Commonwealth Bank of Australia.*

Our recent submission to the Reserve Bank made the following key points in relation to interchange fees:

- Interchange fees should be transparent, simple, and relatively stable;
- Interchange fees may change over time to maintain or further develop a market;
- Direct pricing in end-markets is a key complement to interchange fees;
- Network owners and participants should be able to self-manage, with transparency in approach and review;
- While costs are an important consideration, a focus only on costs for setting interchange fees is an unduly narrow approach; and
- Regulatory intervention should only occur when there has been a demonstrated, or there is a perceived risk of, market failure.

The introductory comments presented below discuss these, and related, issues. In addressing the suggested scope for these comments and questions posed by Professor Harper, we offer the opinion that the opportunity now exists for the Reserve Bank to step back from regulation of interchange fees in favour of a principles-based approach to self-regulation.

## The role for interchange fees

Interchange fees play an important role in developing, maintaining, operating and enhancing many networks, including payment systems. That role can go beyond the role of ‘encourag[ing] the growth of payment networks by redistributing revenues between participants to induce them to join’.<sup>3</sup> Interchange fees also provide an effective mechanism to maximise the benefit to each group of customers in many two-sided markets.

There may be some markets where zero interchange is the right answer. This is not the case for credit cards, nor for many other payment systems. To arbitrarily set interchange fees at zero for all payment systems would be to ignore a useful tool for facilitating efficient use of resources to meet the needs of business and personal consumers.

Interchange fees should be *simple* and *relatively stable* over time. They can (but may not need to) change over time to maintain/further develop a network or in response to competitive pressures in light of changes to the market.

## Questions for discussion

In suggesting the scope of the discussion regarding interchange fees, Professor Harper reported that he’s received feedback which suggested ‘particular interest in a number of issues relevant to interchange fees, including:

1. whether changes such as removal of the no-surcharge rule and honour-all-cards rule have themselves adequately addressed concerns about competition;
2. the prospects of self-regulation of interchange fees; and
3. to the extent that competitive issues remain how should they be addressed?’

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3 ‘Debit and Credit Card Schemes in Australia’, RBA and ACCC Joint Study, October 2000.

I will return to those issues shortly, but to help set the context for those questions, it is worth recalling the reasons behind the current regulatory regime, as stated by the Payments System Board at the time of their decision to designate card systems. The Board's concerns were set out in the Payments System Board's Media Release of 12 April 2001, quoting from the previous RBA/ACCC Joint Study:

- A. 'interchange fees are not reviewed regularly by system members on the basis of any formal methodologies;
- B. interchange fees are higher than can be justified by costs, and system members lack clear incentives to bring these fees into line with costs;
- C. price signals are encouraging the growth of credit card usage at the expense of other payment instruments, particularly debit cards and direct debits, that consume fewer resources; and
- D. restrictions by credit card systems on which institutions can enter the acquiring business were unjustified and restrictions on access to card issuing needed to be reviewed'.

If these concerns were the reason for the Payments System Board imposing regulation of interchange fees, the corollary is that interchange regulation is no longer required once these concerns have been resolved. I will address these concerns in order.

### **A. Regular reviews**

The first concern is perhaps the easiest to address, because it can be entirely within the control of the industry, or of each scheme or payment system operator. If it was true that interchange fee regulation was required because of the lack of regular review based on formal methodologies, then that reason for regulation is removed once the relevant scheme or payment system operator commits to regular reviews on the basis of formal methodologies.

### **B. Costs**

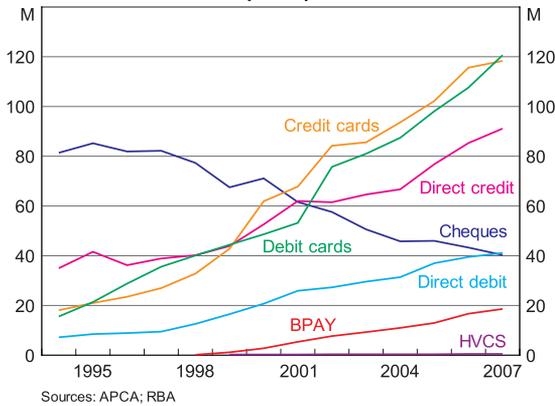
The second concern was that interchange fees were higher than can be justified by costs, and system members lacked clear incentives to bring these fees into line with costs. We should be very clear about what it means for interchange fees to be justified on the basis of costs. To focus *solely* on costs as the basis for interchange is too narrow.

Cost is certainly one necessary factor to consider, but other factors are also very important. These include the competitive environment (payment systems should compete with each other) and the provision of incentives to participants for innovation. The latter is critical if the industry is going to evolve and meet the needs of end-users. Restricting interchange to cost alone would impede the ability of the payment system to respond to competitive pressures and to provide important incentives to participants.

### **C. Pricing signals and the growth of credit card transactions**

The third concern was that inappropriate price signals were encouraging the disproportionate growth of credit cards. To evaluate the current state of that concern we need to consider the current growth of EFTPOS and credit card transactions, changes to the pricing of EFTPOS and credit cards, and the effect of changes to the no-surcharge rule and the honour all cards rule.

**Graph 1**  
**Payment Volumes**  
 May each year



*Credit card transactions are no longer growing faster than debit transactions*

Data published by the RBA and APCA (which admittedly includes scheme debit with EFTPOS) show that debit transactions have grown faster than credit transactions (Graph 1). Our own merchant acquiring data indicate that EFTPOS growth (i.e. with scheme debit transactions excluded) is higher than the growth of credit card transactions, by a significant multiple. These data indicate that the growth of credit card transactions is not disproportionate.

### *Changes to the consumer price for EFTPOS and credit cards*

Since the reforms commenced, financial institutions have made substantial changes to the pricing of transaction accounts with EFTPOS capability, to effectively eliminate discrete fees associated with EFTPOS transactions. This, along with devalued loyalty schemes for the use of credit cards, has resulted in the cost of an EFTPOS transaction and a credit card transaction being now much more closely aligned than when the reforms commenced.

While some institutions have acknowledged that those transaction account fee structures were introduced in the expectation of zero EFTPOS interchange, other institutions adopted fixed price accounts well after the current EFTPOS Interchange Standard had been set, and did so in response to strong forces of competition.

### *Surcharging and the honour all cards rule*

Since the abolition of the no-surcharge rule and the honour all cards rule, merchants now have complete freedom to determine which cards they will accept, and the price to the consumer at which the merchant will accept each type of card. While many merchants do not surcharge, data presented by the RBA Issues Paper in May this year show a substantial minority of merchants do surcharge, and the number is growing rapidly. There are even examples of merchants charging prices well above the cost of their merchant service fees. In addition to those that explicitly surcharge, many others achieve the same effective result by offering discounts for alternative payment methods such as cash.

By choosing the amount to surcharge, at zero or otherwise, and by alternative pricing signals which achieve the same result, merchants now play an important part in determining the end consumer price of alternative transaction methods. If a large proportion of merchants choose not to surcharge, then clearly the benefit of accepting the cards and absorbing the merchant service fees is of greater value to the merchant than refusing the cards.

Each of the developments described above has modified the pricing signals to customers, diminishing the extent to which credit card transactions are encouraged in preference to debit transactions. Altered pricing signals have changed the relative rates of growth of credit card and EFTPOS transactions. For each of these reasons, the previous concern that pricing signals were encouraging the growth of credit card usage at the expense of debit transactions is no longer relevant. We maintain that the current arrangements which prevent previous restrictions around surcharging and honouring all cards are sufficient, and that ongoing restrictions on wholesale pricing or interchange fees are unnecessary.

## **D. Access**

Of the four concerns quoted, the first three are core to the question of whether interchange regulation is still required. The fourth issue of ‘access’ will be discussed separately at this conference. For the purposes of this discussion it is sufficient to note that former restrictions on access have been removed, or could be removed if any remain.

Having addressed the original concerns cited by the Payments System Board as its reasons for regulating, I return now to the three questions posed by Professor Harper.

### **1. Have changes such as removal of the no-surcharge rule and honour all cards rule themselves adequately addressed concerns about competition?**

The abolition of those two rules has definitely addressed the issue of pricing signals to end-consumers, but other developments described above have also helped. Most importantly, if interchange fees were deregulated and rose, then the mechanism now exists through which a future pricing change could be immediately passed on to consumers. The existence of that mechanism means that competitive forces do, and will continue to, apply downward pressure on interchange fees.

It also follows from this that there is no fixed ‘correct’ level of surcharging in the market. As in any multiple-variable equilibrium system, the number of merchants who surcharge will rise and fall over time in response to changes to other variables. If interchange fees are relatively low, then the level of surcharging should be expected to be low too. It is important that the public policy objective should be to achieve the *ability* of merchants to surcharge, as the Reserve Bank has already done, and not to achieve any specific *level* of surcharging.

### **2. What are the prospects for self-regulation of interchange fees?**

Perhaps an unintended consequence of the current arrangements, whereby the RBA has set a limit on the weighted average interchange fee, and the schemes have determined individual category interchange fees, is that it fails the key tests of being simple, transparent and stable. While the myriad of individual interchange fees are transparent, the methodology being applied by the schemes to determine these fees is not transparent. Further, the frequency of change is providing uncertainty to participants, which is not conducive in an environment where participants face major investment decisions to upgrade and re-invest in their technology.

Noting the Reserve Bank's view of itself as a 'reluctant regulator', a self-regulatory arrangement which achieves the principles outlined above is clearly preferable to the current situation. Self-regulation exists now in the Australian market, and works well in the BPAY scheme.

In BPAY, interchange fees known as 'Capture Reimbursement Fees' are reviewed regularly on the basis of a formal methodology. The methodology includes costs as an important component. BPAY's Capture Reimbursement Fees have been thoroughly investigated by the ACCC and the Reserve Bank, and have withstood scrutiny. Interchange fees are now published by BPAY to achieve the Reserve Bank's objective of transparency.

Self-regulation is already working very well for BPAY, and could work equally well for any scheme or payment system.

### **3. To the extent that competitive issues remain, how should they be addressed?**

The reforms to date, especially the removal of the no-surcharge rule and elements of the honour all cards rule, have effectively addressed the issues of competition which were previously identified by the Joint Study. The only issue remaining is that the design of interchange fees is now driven largely by imposed regulation rather than through transparent self-regulation. That issue should be addressed by each scheme or payment system individually demonstrating that it is capable of self-regulation of interchange fees.

#### **The way forward**

Moving to a lighter regulatory touch is the preferred way forward. The industry, including the RBA as regulator, now has this opportunity.

Work is already under way within APCA to explore ways in which a principles-based approach to industry self-regulation could be implemented, and we support that work. Alternatively, the card schemes could establish and publish a methodology for self-regulation of their own interchange fees, based on sound principles. They could also commit to have interchange fees reviewed regularly in line with their published methodologies, with reviews conducted in line with published time-frames, and by suitable independent experts.

This process should commence as soon as each scheme, payment system or industry body is ready, and does not require the whole industry to move at the pace of the slowest participant.

#### **Conclusion**

To sum up, I'd like to reiterate the following key points. Interchange is an important tool for achieving efficient outcomes in many payment systems. The removal of the no-surcharge rule and elements of the honour all cards rule has addressed important concerns regarding price signals to consumers, while other factors such as re-pricing of transaction accounts and credit cards have also resulted in closer alignment of consumer prices for credit card and debit transactions. Access issues will be addressed at another point in the conference, but access to issuing and acquiring markets has been liberalised.

The industry, or the operator of any card scheme or payment system, should now be able to establish a methodology for self-regulation of their own interchange fees, based on sound

principles, and subject to review by an appropriately qualified independent expert. This process should commence as soon as any scheme or payment system is ready, and does not require the whole industry to move at the pace of the slowest participant.

### 3. Douglas Swansson<sup>4</sup>

Good afternoon. My name is Douglas Swansson. I am the Group Manager for Payment Services for the Coles Group. I would like to thank the Reserve Bank of Australia (RBA) for this opportunity to address you all today, and to be able to provide a retailer's perspective on payments reform and, more specifically, on the issue of interchange fees.

Let me start by saying that we fully support the underlying principles that have been at the heart of the RBA's reform agenda, namely transparency, efficiency and competition. These principles we believe are key to ensuring that we have a payments system that ensures low cost, efficient payment instruments thrive at the expense of less efficient ones.

Fundamentally this boils down to the issue of price signals and the relative pricing of payment instruments. Which brings me to today's topic of discussion – interchange fees.

Interchange fees have been the subject of much debate the world over; they have been the subject of litigation both here and overseas and have attracted the interest of central banks and competition authorities.

The reason is simple in our view. Interchange fees are a subsidy that distorts the pricing of payment instruments and in turn their usage and acceptance costs for merchants.

In our view interchange fees are an unnecessary distortion and lead to inefficiencies – or, as Alan Frankel has explained, '...exploit externalities rather than solve them'.

We support the Australian Merchant Payments Forum's (AMPF) position that there is no justification for interchange fees and that they should be abolished. I appreciate that this is not a position that we have always held, at least with respect to EFTPOS debit, and to be clear we would not support the removal of EFTPOS debit card interchange fees in isolation.

It is with an opportunity to reflect over the past few years, and with a view to the fundamental principles outlined in the RBA's May 2007 *Issues Paper*, that we have come to this position.

The key question for us is what justification do we have for interchange fees being used to subsidise one party's costs over another's. In relation to scheme cards why are issuers' costs for authorisation, processing, interest-free periods and fraud subsidised by merchants via an interchange fee?

These are not costs that merchants can influence or control and ultimately these costs are borne by all consumers not just the scheme cardholders as they are passed on in the pricing of goods and services.

We would argue that the principle of user pays should apply; otherwise it is difficult to see how consumers can be presented with clear pricing signals for these payment instruments.

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<sup>4</sup> Group Manager, Payment Services, Coles Group.

In our view looking forward, what is needed is a simple and transparent system where these hidden cross-subsidies are removed.

It is argued by some that card payment systems will not survive without interchange, that there is something inherently different about card payment systems from other payment instruments that have and continue to operate without the need of interchange fees.

Further it was claimed that the mandated reductions in credit card interchange fees introduced as part of the RBA's reforms in 2003 would lead to a 'death spiral'. Clearly this has not been our experience.

That said, the reduction of this cross-subsidy has obviously led to increased fees for credit cardholders, but this is exactly the point. A greater proportion of the costs of providing these payment instruments is now priced into the products that issuers offer to their customers.

It has also been argued that reduced interchange fees would hinder innovation; again this has not been our experience. We have seen, for example, significant developments in prepaid and gift cards, low interest rate credit card products, MasterCard scheme debit, contactless, PIN on credit, Triple-DES, near field communications, and chip cards.

I understand that the issue of innovation will be discussed in more detail later this afternoon.

Another issue relevant to interchange fees that has been raised is the question of whether changes such as the removal of the no-surcharge rule and the 'honour all cards' rule have themselves adequately addressed our concerns.

To be clear the no-surcharge rule and the honour all cards rule we believe were unjustified commercial restrictions on our business that restricted competition. We supported their removal and continue to do so.

As to whether these reforms alone are sufficient to address our concerns regarding interchange fees our answer is clearly no.

It is somewhat ironic that those who argued that the no-surcharge rule should not be removed, now offer it as a potential solution to the concerns we have expressed about interchange fees and their impact on pricing signals.

Whilst the adoption of surcharging has increased since the removal of the no-surcharge rule, it is by no means widespread and we believe there will always be barriers to its adoption by some merchants for a number of valid reasons, such as the costs to develop systems and processes to collect these surcharges and competitive pressures within the retailing industry.

But why should merchants be expected to address these hidden cross-subsidies – is this not a case of treating the symptoms not the cause? We feel that this is a distraction from the key issue, namely what is the justification for interchange fees in the first place.

To summarise then, we advocate a move to eliminate interchange fees to remove unnecessary and unjustified cross-subsidies. We support a continuation of the abolition of the no-surcharge rule and the honour all cards rule.

Overall we believe that the RBA's intervention on interchange fees has been beneficial to the Australian public and we urge that it continues moving forward with its reforms.

Thank you.

# Discussion

The discussion in this session covered five broad themes. These were: the effects of the reforms; the rationale for interchange fees; the regulation of interchange fees; the no-surcharge and ‘honour all cards’ rules; and transparency.

## Effects of the Payments System Reforms

There were divergent views on the effects of the Reserve Bank’s reforms. There was some support for the view that the reforms have not achieved their objectives and have had unintended consequences. There was, however, also support for the view that the reforms have been broadly successful and, in fact, should go further.

There was some discussion of the widening gap between merchant service fees on American Express and Diners Club cards and those on MasterCard and Visa cards. It was argued that the three-party schemes have been given a competitive advantage over MasterCard and Visa. It was conceded, however, that the market share of the three-party schemes has risen only slightly since the reforms were introduced.

A number of participants commented that merchants now have greater bargaining power in negotiations with acquirers. This arises from their ability to impose surcharges on credit card payments, offer discounts for cash, ‘steer’ customers and threaten to reject some types of cards. One merchant commented that it no longer felt ‘bullied’ now that the Reserve Bank regulates interchange fees. It was also noted that the reforms provide merchants with more freedom to negotiate lower fees with American Express or impose surcharges on American Express transactions.

There was considerable debate about whether the regulation of interchange fees had discouraged innovation in the payments system. One view was that the implementation of chip technology had been delayed because of the reduction in interchange fees. An alternative view was that interchange fee regulation has not hindered innovation and examples such as the development of pre-paid and low-rate cards, and the move to PIN on credit cards were cited as evidence. Furthermore, it was noted that innovation has taken place overseas in the absence of interchange fees, including the development of electronic cheque presentment in the United States, and innovation in the Canadian debit network. The subject of innovation was also addressed in the second open forum.

Finally, there was some discussion about whether the access reforms had been successful in promoting competition. It was noted that there have been only a limited number of new entrants despite the Reserve Bank’s access reforms. On the card issuing side, it was suggested that this is a result of interchange regulation decreasing the attractiveness of issuing cards. On the acquiring side, however, it was argued that the reforms have made it easier for new entrants. It was argued, for example, that the Reserve Bank’s regulation of interchange fees

has made it easier for pure acquirers to enter the market, since they not only enjoy lower interchange fees but also greater certainty.

## **Rationale for Interchange Fees**

There was considerable discussion on the rationale for interchange fees with a broad range of views expressed. One view, mainly held by merchants, was that interchange fees are unnecessary and even detrimental to economic efficiency. It was suggested, for example, that interchange fees lead to a cross-subsidy from those who pay by cash to those who pay by card and that a user-pays system would be more appropriate. Others argued that interchange fees are necessary for the development, maintenance and operation of a payment system, and that they help fund innovation.

The user-pays argument was also used to *support* the view that interchange fees are a necessary feature of credit card systems. In particular, it was argued that the benefit to a merchant of a payment by credit card may be above that for payment by cash, since the availability of credit may allow additional or higher value purchases. It was suggested that the merchant should be prepared to pay for this benefit through an interchange fee levied by the issuer of the card. This suggestion met with resistance from merchants who questioned whether the benefits of the credit function accrue entirely to merchants.

## **Should Interchange Fees Be Regulated?**

The discussion highlighted three broad perspectives on interchange fee regulation.

The first – held mainly by merchants – called for interchange fees to be abolished in all payment systems. The main argument for this position was that interchange fees create inefficient outcomes because they result in a deviation from a user-pays arrangement. It was noted that, consistent with this stance, merchants are no longer arguing in favour of interchange being paid to acquirers in the EFTPOS system.

The second perspective was that, if interchange fees are not abolished, they should continue to be regulated by the Reserve Bank. The basis for this view was that the card schemes and financial institutions will set interchange fees taking into account their own commercial interests, which will inevitably result in their being set higher than optimal – and possibly even higher than their levels prior to regulation. It was argued that the Reserve Bank is a neutral party that looks to the interests of all stakeholders in the payments system, and is therefore the most appropriate regulator of interchange fees. Furthermore, the Reserve Bank can be held accountable for its decisions through public reporting and consultations in a way that industry cannot.

The third perspective was that interchange fee regulation should be removed. There were a number of variations on this theme. One view was that there is no market failure and therefore no need for any regulation, including those removing restrictions on merchants. It was suggested that interchange fees set by card schemes in the absence of regulation would produce a superior outcome as card schemes would be able to compete more effectively with one another. This assertion was challenged, however, with some arguing that interchange fees would rise to at least their former levels if the Reserve Bank were to remove its regulations, and that this would not be an efficient outcome.

An alternative view acknowledged that the removal of restrictions on merchants has improved competition and argued that there is, therefore, no need to continue regulating interchange fees. It was also suggested that the Bank's focus going forward should be on promoting competition, including by removing further impediments to competition. In this context, it was argued that the formation of an EFTPOS scheme to coordinate business strategy for EFTPOS might provide some competition to the established schemes and hence some confidence that unregulated interchange fees would not rise too far.

The possibility of self-regulation was again raised. It was argued that experience in a number of industries, including telecommunications, suggests that in the long term cost-based regulation is ineffective and causes distortions. The BPAY Capture Reimbursement Fee was cited as a good example of interchange fees being set by the industry in a way that has satisfied public policy concerns. It was also recognised, however, that the industry has not yet provided a concrete proposal on self-regulation that would meet the Reserve Bank's public policy objectives for card payment systems.

## **No-surcharge and 'Honour All Cards' Rules**

There was some discussion of the effect on merchant power of the removal of the no-surcharge rule. It was noted, for example, that surcharging enables merchants to price discriminate, gives them more bargaining power with respect to acquirers, and allows some merchants to have a lower advertised price for their goods than would have been possible without surcharging.

Some concern was expressed about these effects. One card scheme representative, for example, argued that surcharging is doing substantial damage to the scheme brand, particularly where merchants surcharge at a higher rate than their merchant service fee. A number of others supported the view that surcharging is often excessive and has been used by merchants in an opportunistic way, and called for the Reserve Bank to impose a cap on surcharges.

On the other hand, there was also substantial support for surcharging, particularly from merchants. It was argued that merchants should be entitled to impose a surcharge if they wish, just as they can, in principle, recover the costs of any other inputs by imposing a surcharge. It was suggested that excessive surcharging is not common and is an issue only in specific industries which are characterised by a lack of competition.

The discussion also highlighted concerns about the modification of the 'honour all cards' rule. It was argued that the ubiquity of card acceptance is a major driver of card use, and that further modification of the schemes' 'honour all cards' rules could lead to less acceptance, confusion among consumers and, therefore, greater use of less efficient payment methods, including cash. It was also suggested that further modifications to the 'honour all cards' rule would involve a very substantial effort in re-educating customers and would result in damage to scheme brands.

The merchants held a contrasting view. They questioned the basis for the rule, arguing that a merchant should not be obliged to accept all products from a scheme just because it wishes to accept one of them. It was argued that this is not the case for any other goods stocked by a retailer. Furthermore, it was noted that card schemes overseas promote each of their general

cards (e.g. credit, debit, prepaid) as a separate brand, rather than promoting a single brand representing the entire scheme.

Finally, there was debate over whether the regulation of interchange fees is necessary now that surcharging is permitted and separate acceptance decisions are possible for scheme debit and credit cards. On this view, the removal of these restrictions has allowed competition to put downward pressure on interchange fees, removing the need for interchange regulation. There was support from some card schemes and financial institutions for retaining the no-surcharge and 'honour all cards' Standards if this meant that interchange fee regulations could be removed. It was noted that surcharging does not actually need to take place for the no-surcharge Standard to be effective – the threat of surcharging is enough.

The contrasting view was that the removal of the no-surcharge rule and modification of the 'honour all cards' rule have not been sufficient, by themselves, to improve competition. Merchants highlighted the difficulties of refusing to accept particular cards and of imposing surcharges. Nonetheless, the merchants remained supportive of the removal of those restrictions and some called for further modification of the 'honour all cards' rule. It was acknowledged, however, that the 'honour all issuers' aspect of the schemes' rules is important.

## **Transparency**

The discussion of transparency focused on interchange fees and scheme fees. There was debate about whether the current process of setting interchange fees (under the Reserve Bank's Standards) is sufficiently simple and transparent. Some argued that it is, and questioned how the industry would determine interchange fees in a transparent manner if the Reserve Bank were to step back from regulation. Others argued that it is not, but the discussion did not clarify what methodology might be adopted in order to address this concern.

There was some discussion of the move by the credit card schemes to create a substantially expanded schedule of interchange categories. It was argued that this has resulted in more complexity and therefore less transparency in interchange fees. It was also suggested that this is a direct result of the Reserve Bank's cap on the weighted average of interchange fees combined with ongoing market pressure for higher interchange fees.

A number of financial institutions noted that interchange fees are still not fully transparent to merchants. It was argued that, apart from a small number of large merchants on interchange-plus contracts, merchants typically face one merchant service fee regardless of the transaction type. These merchants therefore do not face different price signals for different types of cards, and therefore have no incentive to discriminate between cards and impose competitive discipline on interchange fees.

Finally, there was some discussion of scheme fees. It was argued, particularly by merchants, that scheme fees are not disclosed and greater transparency is required. In particular, there was concern that card schemes could use scheme fees to circumvent interchange regulation in a way that would not be apparent unless scheme fees were transparent.

# FORUM II – ACCESS AND INNOVATION

## Introductory Speakers

### 1. Geoff Bebbington<sup>1</sup>

The National Australia Bank (NAB) welcomes the opportunity to prepare a short paper to act as a discussion starter on ‘Access and Innovation’ in respect of the Reserve Bank of Australia’s (RBA’s) regulatory reforms for the Payments System Review Conference.

After analysing stakeholder submissions to the RBA’s Review, NAB believes that there should be more emphasis on discussing innovation, and in particular the role that interchange plays, as it will have a more significant longer term public policy impact.

That is not to say that access is not important. It is. However, the access reforms to date have not generated a significant amount of comment from stakeholders with respect to the RBA’s paper *Reform of Australia’s Payments System: Issues for the 2007/08 Review*, henceforth referred to as Reserve Bank of Australia (2007).

Before moving on to innovation, NAB would like to begin with access.

### Access

#### General

At the outset of the reform process, access was a major focus of the RBA’s and the Australian Competition and Consumer Commission’s (ACCC’s) October 2000 report on *Debit and Credit Card Schemes in Australia – A Study of Interchange Fees and Access* (the Joint Study).

Based on the conclusions of the Joint Study, the RBA’s main concern about access was that restricting access lessens competition, resulting in less pressure on margins and interchange fees.

In particular, the Joint Study states for credit cards (p. 55):

... the provision of credit card services in Australia generates revenues well above average costs, particularly for financial institutions which are both significant card issuers and acquirers. In a competitive market, it would be expected that competition from new entrants would put downward pressure on these margins and on interchange fees.

With EFTPOS the Joint Study states (p. 70):

... the need to negotiate bilateral agreements for access, may provide established players with market power and make entry more expensive. For example, if a small issuer is unable to negotiate a bilateral arrangement with every acquirer it will need to use more expensive gateway arrangements to provide its customers with a debit card which has universal acceptance. This can give large acquirers power to charge interchange fees above cost and can raise the cost of access for new entrants. The large acquirers are also issuers and in competition with those institutions seeking to establish interchange arrangements.

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<sup>1</sup> *Head of Payments, Policy & Support, National Australia Bank.*

In this section NAB will:

- summarise the access reforms to date and the RBA's rationale for imposing them;
- summarise the submissions received by the RBA for the current review; and
- discuss the issues raised.

## Summary of access reforms to date and their rationale

The table below is an extract from Reserve Bank of Australia (2007).

### Summary of Access Reforms

Reform Area	Description
Credit cards and scheme debit	Schemes must treat applications for membership from Specialist Credit Card Institutions on the same basis as those from traditional authorised deposit-taking institutions (ADIs). A participant in the MasterCard or Visa credit card schemes, or the Visa Debit system, must not be penalised by the scheme based on the level of its card issuing activity relative to its acquiring activity, or <i>vice-versa</i> . Schemes must make available the criteria for assessing applications to participate in the MasterCard credit card system, or the Visa credit or debit card systems. The schemes must: assess applications in a timely manner; provide applicants with an estimate of the time it will take to assess an application; and provide reasons for rejected applications.
EFTPOS	The price of establishing a standard direct connection with another participant must not exceed a benchmark published by the Reserve Bank, currently \$78 000 (ex GST). An existing acquirer (issuer) cannot require a new issuer (acquirer) to pay (accept) a less favourable interchange fee than any other issuer (acquirer) connected to the acquirer (issuer).
EFTPOS Access Code	Under the EFTPOS Access Code developed by the Australian Payments Clearing Association (APCA), new and existing EFTPOS participants have specific rights to establish direct connections with other participants within a set time frame.

With the introduction of the Credit Card Access Regime, the RBA stated in its impact statement *Reform of Credit Card Schemes in Australia: IV Final Reforms and Regulation Impact Statement* (August 2002)<sup>2</sup> that, in conjunction with its other reforms at the time, the Access Regime would improve overall system efficiency by putting downward pressure on interchange fees, margins on acquiring services, interest margins on credit card borrowings and annual fees.

In the above document the RBA also stated that for EFTPOS the introduction of the Access Regime in conjunction with the Access Code would significantly improve access to Australia's EFTPOS System.

<sup>2</sup> Reserve Bank of Australia (2002).

It is important to note that since the RBA's incursion into credit card access reform, the industry has shown willingness for voluntary reform with EFTPOS and ATMs.

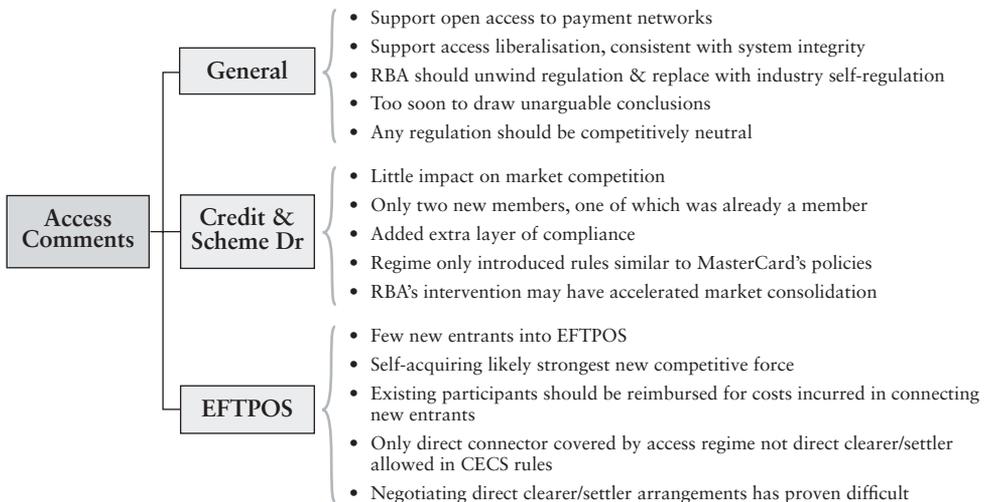
## Summary of submissions received

In the current review discussion paper the RBA asked three questions about access:

- What has been the effect of changes to access arrangements?
- What is the effectiveness of existing arrangements?
- If the current regulatory approach is retained, what changes, if any, should be made to access regimes?

Only 9 out of 25 submissions received made substantial comment about access. The key access issues are summarised below.

### Access Submission High Level Comment Summary



## Discussion of access issues raised

Based on the comments received, NAB believes the two key themes that warrant further consideration are:

- replacing the existing access arrangement with an entirely voluntary self-regulatory regime; and
- extending the EFTPOS access mechanism beyond direct connectors to cover direct clearer and settler relationships.

### Access self-regulation

As stated above, EFTPOS access is already subject to voluntary industry self-regulation, in that EFTPOS participants already have specific rights to establish direct connections with other

participants within a set time frame. The RBA, with agreement from the industry, used its powers as a practical way to set caps for direct connection cost reimbursement and interchange fees.

It is conceivable that either through the creation of a scheme for EFTPOS which is currently being explored by the industry, or by utilising some other means, the RBA's Access Regime could be withdrawn and replaced with another entirely self-regulatory mechanism that could achieve desirable outcomes.

Credit and scheme debit card access could also be examined to see whether the RBA's Access Regime could be withdrawn and replaced with voluntary self-regulation. In fact, as MasterCard stated in its response, 'MasterCard's rules, before the introduction of the Access Regime, had permitted regulated and supervised financial institutions to participate in the MasterCard system'.<sup>3</sup>

To achieve the unwinding of the RBA's Access Regimes as described above NAB endorses the approach proposed by APCA in its submission. Its approach is for the industry and the RBA to engage in 'a co-regulatory process (self-regulation with active appropriate public policy oversight) that will give the RBA confidence to unwind its existing direct regulation (Access Regimes and Standards) within a reasonable transitional time frame'.<sup>4</sup>

### **Merit of extending EFTPOS access mechanism to direct clearer/settlers**

The concept of a direct clearer/settler was not envisaged in the industry's creation of the existing EFTPOS access mechanisms. NAB believes that consideration should be given to the public policy merits of extending the EFTPOS access mechanism to cover direct clearer/settlers, as part of the overall approach to developing a co-regulatory environment as proposed by APCA in its submission.

## **Innovation**

### **General**

In Reserve Bank of Australia (2007), the RBA sought comment in two key areas of innovation.

The first, under the general heading of 'The effect of interchange fee reforms on financial institutions', was 'the effect of the reforms on product innovation'. The second, under the general heading 'The effect of the reforms on the competitive position of different payment systems', was 'any effects of the reforms on product innovation'.

In this section NAB will:

- summarise the submissions on the questions above received by the RBA for the current review;
- discuss the issues that arise; and
- discuss how interchange regulation is inhibiting innovation of 'new' types of payment methods and how it should be rectified.

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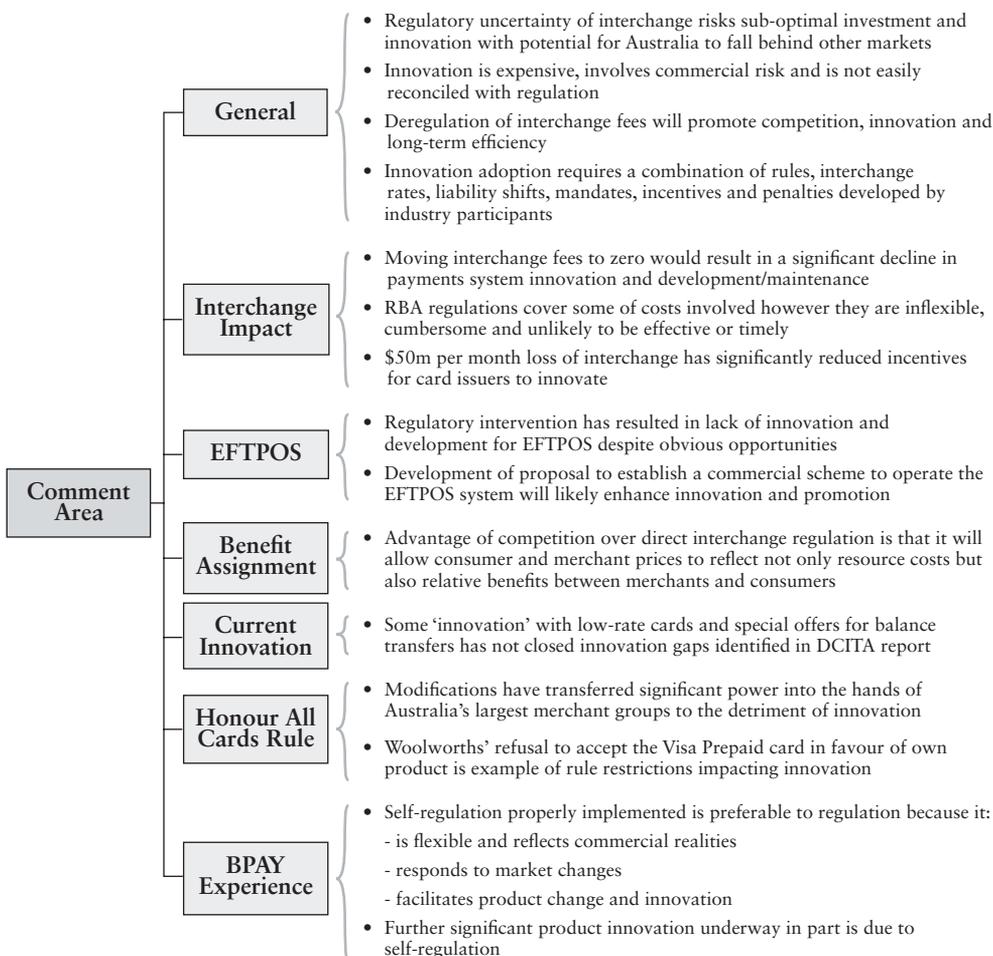
<sup>3</sup> MasterCard (2007), pp. 30-31.

<sup>4</sup> APCA (2007), p. 16.

## Summary of submissions received

There were a significant number of submissions to the RBA around the problems that the RBA's intervention has caused for innovation. NAB has summarised them below.

### Summary of Innovation Comments Made



## Discussion of innovation issues raised

From the above summary it is clear that industry participants believe that the RBA's interventions have indeed put innovation at risk, and that deregulation, particularly of interchange, will go a long way to resolving the situation.

ACIL Tasman's submission on behalf of American Express supports the above views and contends, based on Productivity Commission statements, that regulators are likely to set prices sub-optimally for innovation. They say:

One concern expressed regarding price regulation is the difficulty of collecting information to undertake the task of setting an efficient price in a non-competitive market. According to the Productivity Commission:

‘... this is a complex task requiring information that typically is not available. So, in practice, regulators are likely to end up setting prices above or below the efficient level. Yet if they are set too high, consumers are penalised, unless there is a market response which drives prices down. For firms that use the good or service, it could impede their performance and discourage investment. If prices are set too low, investment can be discouraged and firms may exit the industry, leading to more severe problems for consumers and the economy generally in the long term, including limited capacity, less innovation or inadequate maintenance or new investment’.<sup>5</sup>

As with access, NAB contends that the co-regulatory process outlined by APCA would be the mechanism by which an approach could be developed for the RBA to withdraw from its existing interchange regulation.

### **Interchange regulation inhibiting innovation of ‘new’ types of payment methods**

Some industry participants have expressed a view that Australia runs the risk of falling behind the rest of the world because of its lack of innovation.

The RBA has also expressed its concerns as to whether Australia is failing to keep up with overseas developments. In a speech entitled *Presentation to Australian Bankers’ Association and Australian Payments Clearing Association Forum on Payment Systems Evolution*, Philip Lowe – the RBA’s Assistant Governor (Financial System) – posed the issue as to:

... whether the development of payment products in Australia has been keeping pace with that abroad.<sup>6</sup>

In this speech he also talked about developments in business products:

There have been a number of recent developments overseas which appear to have improved the efficiency of electronic payments for business customers, particularly by upgrading the interface between the payments system and business accounting systems and facilitating better opportunities for straight-through processing for business-to-business (B2B) payments.

He went on to speak about ‘online debit’ being available in 13 countries but not in Australia.

NAB believes that the RBA interchange regulation not only has an impact on innovation in existing and derivative payment types/channels as per the submissions summarised above, but also affects innovation for substantially ‘new’ methods of payment as well.

Large financial institutions need to choose from two broad approaches when it comes to developing ‘new’ payment methods. Because of the nature of payment products they usually need to opt for either an industry based or ‘on-us’ approach.

An example of an industry solution is BPAY View, whereas examples of an on-us option are any number of payables or receivables products sold to large corporates.

More often than not, this is a difficult and complex decision to make, with many factors needing to be taken into account.

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<sup>5</sup> *ACIL Tasman (2007)*, pp. 26-27.

<sup>6</sup> *Lowe (2006)*, p. 1.

Some of these factors are:

- potential customer demand;
- existing and potential market share;
- pricing level versus customer benefit;
- competitive advantage;
- potential competitor response;
- value of first mover advantage; and
- level of potential interchange.

Innovation by its very nature is risky and can often result in poor commercial outcomes which fail to meet shareholder financial return objectives. To achieve these return objectives it is essential that the end-user pricing be such that the potential rewards offset the level of risk associated with the innovation.

In the past, decisions have resulted in both approaches being selected. However, since the RBA's cost-based approach to interchange setting has been introduced, there is an industry concern that the level of reward required will not offset the risk involved, as pricing will tend to commoditise too quickly.

On the other hand, there is a view that on-us solutions provide first movers with a competitive advantage resulting in a greater level of control over pricing and the associated risk reward balance. The downside of this from a total industry perspective is that these types of models are not in the best interests of long-term efficiency of the payments system.

Interchange set by the industry itself has worked spectacularly well in the past, properly matching the benefits, revenues and costs amongst the participants during start-up. The initial credit card and EFTPOS networks are testament to this fact.

Even the RBA believes there are respectable arguments for interchange in new and developing networks. Dr Lowe stated before the *House Of Representatives Standing Committee on Economics, Finance and Public Administration* that:

I think the issue here is whether an interchange fee is in the public interest. There are respectable arguments for why such a fee is in the public interest and promotes efficiency in the system. It helps develop the network.<sup>7</sup>

If interchange is set too high with 'new' payment methods, take-up would decrease because either merchants or consumers would not use them. Only market forces are best able to determine the correct balance between the benefits and costs used to establish the level of interchange.

NAB believes that it is in the best interests of the long-term efficiency of the payments system that interchange for 'new' payment instruments should be competitively set and not regulated. The RBA could endorse this approach immediately, and APCA's co-regulatory process could be used to agree a self-regulatory basis that the industry could use to review the interchange fees when 'new' payment methods had matured.

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<sup>7</sup> *House of Representatives (2006), p. 46.*

## Issues for Discussion

Based on this overview of the issues raised on access and innovation, the following key questions arise:

1. Has the right level of access already been achieved by the Reserve Bank's regulatory intervention?
2. Can industry now take a greater self-regulatory role in ensuring access going forward?
3. How important is interchange in ensuring investment in innovation, particularly for 'new' payment methods?

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## 2. Manuel Garcia<sup>8</sup>

Thank you, Ian, for the opportunity to speak today on the subjects of access and innovation in the Australian payments system. These are both subjects that are of significant importance to our organisation and where more work is still needed, particularly if we aim to have a payments system that allows new entrants and promotes an environment that is progressive and open to change.

To put my comments into context, let me briefly explain who Indue is. We are an authorised deposit-taking institution (ADI) which specialises in providing 'own labelled' and co-branded

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<sup>8</sup> *Chief Executive Officer, Indue Limited.*

payment solutions to smaller organisations who wish to provide payment functionality to their customers. Two important differentiators for us are flexibility and agility. These are also important competitive advantages for us and allow us to customise our solutions so that they integrate efficiently and seamlessly with our customer's own environment. This empowers them to develop the type of customer experience they believe is important to them. For our organisation, we compromise flexibility and agility when we allow complexity to creep into our solution. So at Indue keeping things simple is top of mind.

Equally, our customers want solutions fast. While we have made much improvement in this area over the last few years, there is still more work to be done. Going beyond the customer, agility for us is more than just getting a product into the market quickly. It is also about the cost associated with delivering that product and the resource drain that product places on us. Clearly, the less agile we are as an organisation, the greater the cost of bringing a product to market.

I believe there are some parallels between what is our experience in providing our customers with payment functionality and the ease with which one can gain access to the payments system; and once in it, how creative and innovative one can practically be.

I am conscious that I only have a limited amount of time available today and will restrict my comments to three specific areas, namely: physical access to the payments system; connectivity within the payments system; and creating an environment that is conducive to encouraging organisations to be creative and innovative.

Improving access to the payments system has been a feature of the Reserve Bank's (RBA's) reforms since the beginning. In the first instance the RBA considered how to improve access to the Visa and MasterCard schemes. This led to the creation of a special class of institution called Specialist Credit Card Institutions. Next we considered access within the EFTPOS system and as a result we now have the Access Code and the Access Regime which together have created a greater level of certainty for those seeking to become a direct connector, both in terms of the process and the cost. Now we have the Australian Payments Clearing Association (APCA) looking at the issue of access to the ATM system and an ATM-specific Access Code is expected by August 2008. By and large I believe the work undertaken on access through the reform process has moved us forward as an industry and, therefore, been successful.

However, there is more work to be done in the area of access and we must widen our focus and consider access on a whole of system basis; particularly in the EFTPOS payment system. In the EFTPOS system, our bid to improve access has focused our attention on only one aspect of access, namely that of securing a direct connection. While this is important, particularly for a new entrant looking to enter the market as an acquirer, establishing a connection is not the only piece of the puzzle required to have effective access to the system. While a direct connection will certainly enable them to exchange messages – and, where they introduce new technology, realise the benefits of this – they also need to be able to exchange value with the issuers of cards whose transactions they acquire. In this case, securing access to direct settlement and clearing arrangements requires the same level of certainty as currently exists for direct connection. At present this is not the case.

Of course this is not just an issue for acquirers but is also an issue for issuers who may wish to re-engineer their settlement and clearing arrangements in a bid to unlock important cost savings. In our organisation, re-engineering our remaining indirect settlement and clearing arrangements will unlock up to 66 per cent of the cost of performing this function indirectly.

The need to allow a market participant to re-engineer their settlement and clearing arrangements was foreseen by APCA during the development of the Access Code. As a consequence, changes were made at that time to the Consumer Electronic Clearing Stream (CECS) rules which allowed a market participant with at least 0.5 per cent of the national throughput to request direct settlement and clearing arrangements with an existing direct settler and clearer. It also gave some certainty with respect to the change windows when such changes can be scheduled to occur. While these changes are welcomed, they are not enough in removing the barriers to entry for a market participant who wishes to enter the payments system as a direct settler and clearer.

Unlike the position for a direct connection where certainty exists with respect to the level of costs to be incurred by an access seeker, the same certainty does not exist for a seeker wishing to establish direct settlement and clearing arrangements. Instead the access provider gets to set their own price and, in our experience, the disparity between the price demanded by the various access providers varies significantly. In one encounter we have been quoted a price that is more than double that set in the Access Regime, namely \$78 000, for a direct connection – and the work involved in establishing a direct connection is far more extensive and complex. While I can accept that some organisations may suffer from inefficient legacy systems, why should the access seeker have to pay for this inefficiency and lack of investment?

Furthermore, the split interchange rate for EFTPOS transactions, specifically the unregulated fee, also has the potential to frustrate access, as there is no obligation on the access provider to negotiate fairly.

These all combine to restrict the level of access that I believe was in the spirit of what was intended to be achieved when access was first raised as an issue in the payments system. We need to also understand that unless we correct this in the current review, then any restrictions that remain and favour the existing access providers will only hurt the system as a whole. Particularly, the more innovative organisations, who typically will be smaller organisations like Indue, will be handicapped in their endeavours to secure reasonable passage into the payments system, specifically when it comes to direct settling and clearing.

Being restricted in the level of access one can gain to the whole of the payments system will limit the degree of innovation one can reasonably expect to see within the payments system. Equally, where a system, because of its inherent structure, accommodates complexity, innovation will also suffer. I said earlier that for our organisation simplicity in how we develop our systems is paramount in giving us flexibility and enhancing our agility. Both of these combine to help us develop ‘out of the box’ solutions for our customers which often are creative, if not innovative, because of how we have adapted to meet the needs of our customers. It is no different in the payments system.

Complexity is usually an arch enemy of innovation and often we tend to innovate to remove the complexity that time allows to creep into the system. The inherent structure of our EFTPOS payment system at present has all 8 direct connectors bilaterally connected to each other. By its very nature in its current form, with every new connector that is added, the level of complexity in the system will increase. However, given the uncertainty that previously existed in the process for securing a direct connection, the potential for complexity, understandably, has not been a major concern. However, with the greater degree of certainty introduced by the Access Code and the Access Regime, the potential for new direct connectors increases and, as such, we face the real risk that our web of 8 connectors may become potentially a far more complicated web.

But complexity is not just limited to the technical infrastructure that supports our current bilateral web of connections. Certainly as more organisations seek to become direct connectors, the number of connections required will increase. While we have capped these costs at \$78 000, we must not forget that with every new connection added, the cost for a new entrant increases by a multiple of \$78 000 each time. In a short space of time it is not difficult to see that, if the number of connectors increases, then notwithstanding the cap imposed in the Access Regime it may still prove to be price prohibitive, and in effect become a barrier to access and innovation.

So how can we remove this potential for complexity from our current access arrangements? Well, one way would be to remove the need for future new entrants to have to seek direct bilateral connections with every organisation they wish to establish a direct link with. This could be achieved by re-engineering the underlying communication infrastructure of bilateral links to achieve a central hub. This would mean that our potentially increasing web of connections would by and large remain relatively simple. Consequently, connection costs could be kept as low as just \$78 000 for any new entrant.

While moving to such an environment no doubt threatens the very fabric of what we hold dear today, let me ask you to think about why we remain locked into the current web of connections. Is it because we feel that the act of switching transaction messages between institutions gives us some form of competitive advantage – and hence, to relinquish control makes us less competitive? It is hard to think that there could be any competitive advantage in sending and receiving a standard message format. At this level of switching, I would argue that it is a commodity and, as such, the issue is all to do with the cost of switching these messages. I would expect that all of us at this level would want this done as cheaply as possible. While I can accept that perhaps some may feel some cost advantages may exist in the actual processing of these messages, this would still remain a function of each institution's host environment, and hence any competitive advantage an institution may have in this area would be unaffected.

Some work I acknowledge has been done on exploring this idea of a central hub by APCA through its CECS Interchange Communications Facility Project. While I believe this project made good progress in its efforts to try and simplify access and create the means for innovation and creativity to be allowed to flourish, I find it disappointing that this work did not receive funding in APCA's 2007-08 project plan – and, by implication, did not receive priority. If as a community of financial organisations we believe ourselves to be progressive, how can we not see this work as important?

Lastly, let me explore briefly some of the things we should consider if we are to create an environment within the payments system that will facilitate access and promote and foster innovation and creativity. In this sense, the challenge I believe is how to facilitate an effective governance structure that will work towards these goals.

At present in the payments system we have three ways of creating change. We have the RBA, which under the *Payment Systems (Regulation) Act 1998* has the powers to designate a particular payment system which, among other things, they believe to be inefficient and where change to that system would be in the public interest. Next we have APCA which is an administering body and by and large oversees the efficient operation of the various payment streams in terms of their policy, standards and procedures; and then we have self-regulation or voluntary reform from within the industry.

Over the last 5 years we have seen all three methods of change in action. The least intrusive method, namely self-regulation, we have applied to ATM reforms. This process commenced in 2002 with the formation of the ATM Industry Steering Group and only in the last 12 months, after 5 years of discussions, do we have an agreed way forward. An important turning point in this process was when the RBA intervened in March 2007 by holding a series of meetings for industry participants. At the first of these meetings the RBA stated clearly that unless the industry could agree to a position, the RBA would exercise its powers and designate the ATM system. This single action crystallised years of debate.

APCA developed for us the Access Code for EFTPOS and generally this was a successful process. However, I think it is important for us to acknowledge that access to the EFTPOS system was flagged by the RBA in June 2004 and so we, the industry, knew that access was an important issue for the RBA and therefore, we would frustrate APCA in its work to our detriment. History will say that the Access Code was developed and accepted by the Industry and pretty much delivered an important element of the RBA's planned reforms for the EFTPOS payment system. However, I ask you the question: had the RBA not made access an important public issue, would APCA have been successful in driving the development of the Access Code?

The RBA, over the last 5 years has invoked its powers under the *Payment Systems (Regulation) Act* to designate a number of payment systems to drive reform. Clearly, in invoking these powers it must have reached the view that the path of self-regulation, while ongoing, was not going to achieve a satisfactory outcome within a reasonable time frame. Now whether you agree with all that the RBA has done or not, one thing is certain: by its action it has brought focus to the payments system in totality and driven change. I think it would be hard to deny that the RBA's intervention has improved access, particularly with regards to direct connection. Certainly, for our organisation we are all the better for the work of the RBA on access and have realised real benefits because of it.

However, the RBA's work has been intrusive and intensive and most likely I think we would all agree (including the RBA) that we would prefer to find a better way for future reforms of the payments system.

I believe from watching the proceedings of the last 5 years, one of the reasons we have found self-regulation difficult to enact has been because we can only move forward once we have by and large a unanimous view. Even then, the four major banks must agree to the change before

the rest of the industry can then be convinced of the benefits of change. This is fine if the change is good for the major banks and is something they want to do, or if the regulator is making its intended desire painfully clear. But what if the change is not so welcome by the majors?

Under this scenario can APCA play a role in reconciling the views? Well yes it can, but let us not lose sight of the fact that the majors have 43 per cent of the voting rights at APCA and, hence, have a strong position of influence. To be perfectly clear, I am not suggesting that the majors behave badly. Like the rest of us, they are commercial businesses and, in practical terms, need to run their businesses in a manner that best suits them. Change for them, and us, is always best at a time when we are ready to receive it.

While it may sound as if I am about to make a strong case for leaving all future reforms to the RBA, as our experience of the last 5 years shows that they have been the most effective means of driving change, in fact I am advocating quite the opposite. In order for change to be sustainable, change itself must be driven from within. When change is created from within the industry, there is normally a greater commitment to it and a stronger sense of urgency towards its implementation. But this does not mean that all want the change. Often not all want change for a variety of reasons, and this is where good leadership and good stewardship need to exist. In instances where doubt exists over change, the industry must be able to turn to an independent arbitrator who can exercise leadership and make a decision, after due consideration of all pertinent facts, that is in the best interests of all. This is true of an organisation, and I see no reason why this would not also be true of our payments system.

In summary, let me recap on the three points I have made. With respect to access, I believe we must create the same level of certainty in the payments system for those looking to become direct settlers and clearers as we have created for those wishing to become direct connectors. Secondly, if we want to foster an environment within our payments system that will promote innovation and creativity, we must look towards ensuring that our communication infrastructure remains simple and adaptable. We must support APCA's work in exploring how to streamline the current web of bilateral connections to avoid the growth of these connections becoming an effective barrier to entry for smaller and more innovative organisations. Lastly, we have tried the path of self-regulation over the last 5 years and, if we are honest with ourselves, we have failed to self-regulate. While this should not be a reason to rule out self-regulation in the future, the lessons from the last 5 years suggest that where we have failed is in our pursuit to secure unanimous consent to change. Therefore, we need help in breaking this pursuit for unanimous consent by putting in place strong leadership that will help us, as an industry, govern ourselves by making decisions that will, in the long term, be for the good of the whole payments system.

# Discussion

Most of the discussion in this session focused on whether innovation in the Australian payments system has fallen behind that overseas and, if so, why this might have occurred. There were also some comments about access and the potential for further reforms in this area.

Concern was expressed that the Australian payments system is lagging behind international best practice. A number of innovations were cited as having occurred overseas but not in Australia, including: online PIN debit; electronic invoicing for business-to-business payments; mobile phone payments; contactless payments; PIN on credit cards; the introduction of chip technology; and more flexibility in the information that can be included with direct entry payments.

Although there was some disagreement about the significance of these various innovations, two views emerged on the reasons for the apparent lag. The first was that payments system regulation, particularly interchange regulation, has impeded innovation. There were two main reasons given for this. First, interchange fee regulation was said to have limited the pool of funds available to issuers for investment and, due to the compliance burden, resulted in a drain on resources that might otherwise be directed towards innovation. Secondly, the reforms were argued to have created uncertainty about returns on investment. Since investment in payment systems is a long-term proposition, it was suggested that a climate of regulatory uncertainty has made institutions less likely to invest.

The second view, however, dismissed the relationship between regulation and innovation. It was pointed out, for example, that interchange fees in the United States average around 1.8 per cent, far higher than in Australia, yet PIN authorisation for credit cards and chip technology have not been introduced in the United States. It was also noted that there needs to be a business case for investment to take place. Some participants argued, for example, that the introduction of chip functionality in Australia has been delayed, not because of regulation, but because fraud rates have not been high enough to generate a business case for its introduction.

Those who supported this second view typically argued that the lack of recent innovation in Australia's payments system is more likely due to a lack of suitable governance arrangements. It was argued that payment systems with central governing bodies appear to be more successful at innovation than those without such bodies. It was, therefore, suggested that the industry should focus on creating an appropriate self-governance structure to promote innovation. It was argued, for example, that the EFTPOS system requires structural improvements to remain competitive, but this is unlikely to occur unless a more appropriate governance structure is put in place. It was broadly acknowledged that there are challenges in advancing any innovation which requires industry-wide agreement, and that an appropriate governance structure could help overcome such impediments.

Finally, there was some discussion about access. It was suggested that access reforms have benefited competition and that new entrants, although few in number, have encouraged innovation. The continuing difficulties with access to Australia's bilateral payment systems were highlighted – and it was argued by some that the Reserve Bank should go further in its access

reforms. In this context, the question of the architecture of Australia's EFTPOS system was again raised: specifically, whether EFTPOS should move from a bilateral to a centralised system. It was noted, however, that it could be costly and time-consuming to restructure the existing EFTPOS system, and that significant investment in the current system should not be overlooked.

# BIOGRAPHIES OF CONTRIBUTORS

## **Jenny Fagg**

Jenny Fagg is Managing Director, Consumer Finance at ANZ, a position she has held since December 2004. She is responsible for ANZ's Consumer Cards, Commercial Cards, Personal Loans, Merchant Services and ATM businesses and ANZ's call centres in Australia. These businesses comprise some 2 000 people. Prior to joining ANZ in 2000, Dr Fagg worked as Director Retail Lending at KPMG, where she developed a practice in the retail finance market. She joined KPMG from Citibank Australia in 1997. During her 9 years at Citibank, she held executive roles in a variety of disciplines (risk, operations, marketing, sales and product management) for the mortgage, small business, share finance and credit cards businesses. Previous roles at Kodak (Australasia) and Federation Insurance were in human resources. Dr Fagg has a Bachelor of Economics (with 1st Class Honours in Organisational Psychology) from the University of Queensland and a Doctorate in Management (Risk) from the University of Sydney.

## **Alan Frankel**

Alan Frankel is a Senior Vice President at economic consultancy Lexecon in Chicago. He is a leading expert in the analysis of competitive issues arising in payment systems and has served as a consultant to competition authorities, networks, merchants and consumers. His widely cited articles on payment systems and interchange fees contend that competitive restraints on merchants reinforce the ability of networks to exercise market power through high interchange and merchant fees, and that removal of such restraints is warranted, but likely insufficient to ensure fully competitive markets.

## **Christopher Hamilton**

Christopher Hamilton commenced as Chief Executive Officer and Executive Director of the Australian Payments Clearing Association (APCA) on 1 January 2006. APCA is the payments industry self-regulatory body and industry association. Prior to this appointment, he was Executive General Manager, Clearing & Settlement at the Australian Stock Exchange (ASX). Mr Hamilton worked at ASX throughout the transition from a stockbrokers' mutual into the world's first self-listed stock exchange, a period that also saw the market explode in activity with average trades per day rising tenfold from 12 000 to 120 000 over a 10 year period. For 4 years until 2005, he was responsible for ASX's clearing and settlement business: managing counterparty risk for ASX's equities and options markets, ensuring securities delivery against payment for trades worth \$2 - 4 billion per day and keeping the central register of Australia's 1.2 million most active shareholdings.

While at ASX, he was responsible for the establishment of the Australian Clearing House (ACH) under the Financial Services Reform legislation through the merger of separate equities and derivatives clearing houses. He negotiated for ASX on the establishment of the Reserve Bank Financial Stability standards for financial markets clearing and settlement. Mr Hamilton

has served on the board of Austraclear Limited (the Australian debt security depository), as a secondee with the International Association of Stock Exchanges (the WFE) and as Vice Chairman of CCP-12, the industry association of the world's clearing houses. Prior to 1994, Mr Hamilton carried on a securities market practice at Australian commercial firm Minter Ellison. He holds a Master of Laws and Bachelor of Arts from the University of Sydney.

## **Ian Harper**

Professor Ian Harper is one of Australia's best known academic economists. He has worked closely with governments, banks, corporates and leading professional services firms at the highest level. As a member of the celebrated Wallis Inquiry, he was at the forefront of financial market reform in Australia. Professor Harper is currently Executive Director, Centre for Business and Public Policy at the Melbourne Business School, where he holds the Sidney Myer Chair of Commerce & Business Administration. From March to November 2004, he served as Acting Dean and Director of the School.

In October 2005 Prime Minister John Howard announced Professor Harper's appointment as inaugural Chair of the Australian Fair Pay Commission. The Commission is an independent statutory body whose role is to set and adjust minimum wages in Australia. He is also Principal of his own consulting company, Harper Associates Australia; a Senior Consultant with Access Economics; and a Senior Adviser to Aon Australia. Professor Harper is sought after as a commentator and public speaker on economic and financial issues, and has been described as 'one of those relatively rare academics who can communicate extremely well with both the business community and the academic community'. In 2000 he was elected to a Fellowship of the Academy of Social Sciences in Australia in recognition of his standing as an academic economist. More recently, he was elected to the ANU Faculty of Economics and Commerce Alumni Hall of Fame.

## **Stephen King**

Stephen King is a member of the Australian Competition and Consumer Commission. He began his 5 year term with the Commission in June 2004, and currently chairs the Commission's Merger Review Committee. Dr King's research in industrial economics includes work on credit card interchange fees, such as his paper with Joshua Gans on 'The neutrality of interchange fees in payment systems'. This research has been published in Australian and international journals. In 1985, Dr King received the University Medal from ANU for his undergraduate studies in economics. He completed his PhD in economics from Harvard University in 1991. He is a Fellow of the Academy of Social Sciences in Australia.

## **Tom Pockett**

Tom Pockett is currently Finance Director of Woolworths Limited, and has been a member of the Woolworths Board since November 2006. He joined Woolworths Limited as Chief Financial Officer in August 2002, having previously held the position of Deputy Chief Financial Officer at the Commonwealth Bank of Australia (CBA). Prior to his role with the CBA Mr Pockett was with Lend Lease Corporation. While there he held several senior finance roles in different companies across the Lend Lease Group, including Property and Financial Services, culminating

in his being General Manager Finance for Lend Lease Corporation. Before joining Lend Lease he was with chartered accounting firm Deloitte.

Mr Pockett was educated in Sydney, receiving a Bachelor of Commerce degree from the University of New South Wales. He is a member of the Group of 100 and was the National President from August 2000 to January 2003. He is an Australian Chartered Accountant (ACA) and was a member of the Financial Reporting Council from March 2003 to March 2006.

### **Jean-Charles Rochet**

Jean-Charles Rochet is a former student of Ecole Normale Supérieure (Paris) and holds a PhD in Mathematical Economics from Paris-Dauphine University. His dissertation won the Arconati-Visconti award. He has taught in Paris, France (Dauphine University, ENSAE and Ecole Polytechnique) and London, UK (BP visiting professor, London School of Economics, 2001-02). He is a member of the Institut Universitaire de France and a Fellow of the Econometric Society since 1995. He has also been a council member of the European Economic Association, and associate editor of *Econometrica*. He is currently Professor of Economics at Toulouse University and Research Director at the Institut D'Economie Industrielle. He has written more than 50 articles in international scientific journals (including *Econometrica*, *Review of Economic Studies*, *Journal of Economic Theory* and the *Rand Journal of Economics*) and 3 textbooks, including *Microeconomics of Banking* (with X. Freixas) MIT Press (1997). His research interests include platform competition, nonlinear pricing, theory of contracts, banking crises, and solvency regulations for financial institutions.

### **Carl Schwartz**

Carl Schwartz is a Chief Manager in the Payments Policy Department at the Reserve Bank of Australia. He has a broad range of experience in the Bank's Economic, Financial Markets and Financial System groups. His qualifications include a B.Com (Hons) from the University of Melbourne and a Graduate Diploma in Applied Finance and Investment from the Securities Institute of Australia.

### **Ric Simes**

Ric Simes is a Director of Access Economics. He heads Access Economics' financial services practice, advises on a range of public policy and regulatory matters and is Chief Strategist for Access Capital Advisers. Dr Simes has had an extensive career in the Australian Treasury, financial institutions, economic consultancies and as a Research Fellow at the ANU. He was Senior Economic Adviser to Prime Minister Keating between 1992 and 1996. His research interests comprise a variety of economic and policy issues, especially as they pertain to financial markets. Other areas of interest are: macroeconomic policy; competition; regulatory design, especially in the finance sector; and the environment.

### **Stuart Weiner**

Stuart E. Weiner is Vice President and Director of Payments System Research at the Federal Reserve Bank of Kansas City. Among his responsibilities, he advises Federal Reserve policymakers on payments system issues. He has served as a technical expert for the IMF and has participated

in numerous domestic and international joint research projects. His current areas of study include analysing interchange issues in credit and debit card markets and exploring the role of non-banks in the payments system. He holds a bachelor's degree in economics and mathematics from Cornell University and a PhD in economics from Northwestern University.

### **Julian Wright**

Julian Wright is an Associate Professor in the Department of Economics at the National University of Singapore. He obtained his PhD from Stanford University in 1996. His broad research interests are in industrial organisation, network economics and competition policy. Much of his recent work has been on the study of two-sided markets. At the industry level, he has focused his research on telecommunications and card payments industries. Regarding the latter, his research has analysed the sources of market failures in the setting of interchange fees, the impact of inter-system competition on interchange fees, the bilateral setting of interchange fees, the welfare effects of the no-surcharge rule, a comparative analysis of payment card settings across different countries, as well as eight common fallacies arising from analysing payment networks as one-sided markets.

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