Australia's 2009 ATM Reforms: Transparency for Transparency's Sake

Hugh Green[1]

Abstract

This paper reviews the effectiveness of the reforms to the Australian ATM of early 2009. Data indicate that consumers have acted on the more transparent display of fees by shifting their transactions towards fee-free ATMs provided by their own financial institution, thereby reducing the fees they pay, at the cost of added travel costs. But although consumer surplus has increased, the overall result has been a less-efficient use of the ATM network: banks have lost the whole fall in fee revenue, while consumers have gained only the fee saving, less the extra travel costs. Further, the promise of lower fees did not eventuate, and there was no significant increase in availability of ATMs. Nonetheless, the reforms have been hailed as a success because of the increased pricing transparency in the market. This paper questions the worth of increased transparency when prices are inefficient and welfare loss is the consequence.

Introduction

In March 2009 the Reserve Bank of Australia (RBA) implemented reforms aiming 'to improve competition and efficiency in the ATM system'.[2] The reforms consisted of two main changes. First, interchange fees between institutions were replaced with a direct charge on ATM customers by the machine's owner. Second, whenever an ATM transaction would result in a fee being charged, this fee was to be displayed on the screen and customers asked whether they wished to proceed with the transaction.

Prior to the reforms, customers of an ATM that did not belong to their own bank's network would typically pay a 'foreign fee' for the use of the ATM's services. This fee was charged to the customer by their bank which would in turn pay an interchange fee to the ATM owner. The foreign fee was usually around double that of the interchange fee, with all major banks charging a $2 foreign

1 The Australian National University; hugh.green@anu.edu.au

2 RBA 2010.

fee and paying an interchange fee of about $1.[3] The RBA was also concerned that interchange fees, which were set bilaterally, could lead to collusive behaviour and generally reduce the flexibility of ATM pricing.

Several studies had estimated the marginal cost of providing ATMs and concluded that this cost was substantially less than the foreign fee,[4] implying that the high fees being charged were leading to an inefficient use of the existing network. That is, the level of foreign fees at the time were encouraging an inefficiently high use of own ATMs over foreign machines.

By removing interchange fees and allowing ATM owners to charge customers directly, it was thought that this would stimulate competition among competing machines and reduce fees towards cost. This would be aided by the mandatory displaying of fees to customers who were not previously aware of the magnitude of the foreign fees they were being charged.

At the time it was understood that there were two conflicting forces that would govern behavioural responses to the reforms. The first was the (anticipated) reduction in fees that would drive down the cost of foreign ATM use, and therefore reduce the proportion of transactions carried out at own ATMs. The second was the transparency aspect of the reform which may have driven greater use of own ATMs by consumers who were initially unaware of the foreign fee. This latter effect would be smaller the more successful the reforms were at promoting competition between ATMs. Although the relative magnitude of these competing effects was unknown at the time, it was thought that Bertrand-style competition would emerge between ATMs, which essentially provide a homogenous service from the point of view of consumers, and that prices would therefore fall towards cost.

Now, three years on from the reforms, we are in a position to assess whether they have achieved their goals. For its part, the RBA claims that the reforms have been largely successful, saying, 'the Bank's assessment is that the key objectives of the reforms are being met. In particular, cardholders' reaction to the increased transparency of fees has resulted in a significant reduction in the fees paid in aggregate on ATM transactions.' The RBA estimates that consumers paid $120 million less in foreign fees in the year following the reforms.

This saving to consumers has been the result of reducing the number of transactions on foreign machines, not from a fall in fees themselves. Customers typically face the same fee now as they did prior to the reform, with most

3 Some smaller banks charged fees as low as $1.50, while others charged up to $2.10. In addition, some smaller deposit-taking institutions chose to absorb the interchange fee, charging no foreign fee, in order to attract customers to their other banking services.

4 In 2007, the RBA estimated this cost to be $0.74, while Schwartz *et al*. 2007 estimated the resource cost to be $0.75.

transactions attracting an unchanged fee of $2 when using a foreign machine. In fact, average fees have increased slightly since the reform, indicating that not all consumers may have gained.

This paper argues that the reforms have, in fact, not achieved their goals and the result has been a reduction in net welfare. While consumer surplus is likely to have increased as a result of the increased transparency, the end result has been an increase in the net costs of accessing cash as consumers travel further afield to reduce their ATM fees. The reduction in fees paid merely represents a transfer from ATM owners to consumers, which nets out in a welfare analysis.

Nonetheless, the RBA and some other commentators[5] have championed the reforms on the basis of increased transparency alone. However, in the absence of significant fee reductions, the effect of increased transparency appears to have been to awaken consumers to the fact that the fees are inefficiently high and lead them to act accordingly. Transparency is not an objective in its own right. Where the underlying price signals are efficient, increased transparency allows these signals to work effectively and improve the allocation of resources, but where price signals are not efficient there is no reason to believe that increased transparency would lead to a more efficient outcome.

What would efficiency look like?

ATM pricing is complex and, amongst other things, may be set strategically by banks to increase their market share of deposits. On the demand side, consumer desire for cash depends on a number of factors, including the relative attractiveness of alternative payment instruments such as debit or credit cards. Nonetheless, for a given level of demand for cash, we can ask what the most efficient way of granting access to it through the ATM network would be.

Efficiency is defined in this paper as the sum of consumer and producer surplus. Consumer surplus has three components: the benefit obtained from making the cash withdrawal, the fee paid, and the cost of travelling to the ATM. Producer surplus is the difference between the fee revenue and the cost of providing the ATM. Clearly the fee nets out in this analysis;[6] however, it is important in determining total travel costs through the price signal it sends to consumers. Assuming that consumers receive the same benefit regardless of the machine used, the focus of efficiency then becomes the transport cost and marginal production cost terms. There are two broad aspects to determining the

5 See, for example, King 2011.

6 Naturally, the regulator may attach a higher weight to consumer surplus than to producer surplus; however, this analysis abstracts from these equity considerations.

efficient use of the ATM network. First, given the number of ATMs available to consumers, what would be the most efficient choice of machine for processing a transaction? Second, given the cost of installing and running ATMs, what is the optimal number and distribution of machines to be supplied to the market?

With regard to the first question, it would be efficient for a consumer demanding cash to use the ATM that involves the lowest travel cost, so long as the difference in processing costs between the closest ATM and a 'domestic' ATM is less than the difference in travel cost between that ATM and the closest domestic ATM.[7] In reality, the switching costs in processing a foreign transaction are a few cents per transaction,[8] meaning that it will be efficient for consumers to minimise travel costs in all cases except for when the difference in distance between the foreign and domestic ATM is a matter of metres.

There will, of course, be some optimal level of travel costs, which will depend on the demand for cash and size of the ATM network. But given this demand, it cannot be optimal for consumers to make their withdrawals at less-convenient machines. Essentially, this implies that optimal pricing would not distinguish between own and foreign customers. As we see below, this distinction is made for strategic reasons and does not have a basis in cost differences.

Prior to the reforms, around 53 per cent of ATM transactions were conducted at customers' own-bank ATMs. Clearly, there was a strong preference for own-bank ATM transactions to avoid paying a foreign fee. The reforms intended to improve efficiency by promoting competition between ATM owners, reducing the fee charged to customers on foreign transactions and therefore reducing the incentive to use domestic ATMs over more-convenient foreign machines.

The optimal distribution of machines is perhaps more complex. Loosely, it will be optimal to supply a new ATM in an area so long as the total incremental convenience to consumers outweighs the cost of installing and maintaining a machine. A secondary objective of the reforms was to ensure that ATM owners continued to have sufficient incentives to continue deploying machines. With the average marginal cost of providing an ATM being around $0.75 per transaction, and expected to rise at a rate faster than inflation, there was concern that a $1 interchange fee may not provide sufficient revenues. A move to direct charging would ensure that ATM deployment continued to be profitable. Direct charging would also facilitate provision in areas where demand was relatively low (such as areas of low population density or in specialty venues such as stadiums or

7 Clearly, if the closest ATM to the consumer is a domestic ATM it will be efficient for them to use that machine.

8 RBA 2000 and Schwartz *et al*. 2007.

some clubs). In such places, the per-transaction cost of providing an ATM may exceed the interchange fee that was received. Indeed since the reforms, direct charges as high as $4 have been observed in some specialist venues.[9]

The paper now briefly considers the relevant literature on ATM fees and usage before turning to the post-reform evidence to assess whether the goals of competition and efficiency have been achieved.

The academic literature

There is a small but informative academic literature on ATM pricing and provision. The literature typically considers consumers who desire both deposit-taking services and access to ATMs. By choosing a particular bank, consumers in effect choose which ATMs are domestic, with the remainder of the network becoming foreign machines. Banks can use their ATM network size and level of foreign fees to encourage consumers to deposit with them. ATM pricing is therefore based on strategic motivations and need not be cost-based. Two key papers, Massoud and Bernhardt (2002) and Donze and Dubec (2009), show that banks can use ATM deployment and pricing to boost their market share of deposits.

In the direct-charging model of Massoud and Bernhardt, equilibrium results when banks charge their own customers zero ATM fees, instead recovering costs through high account fees, while charging foreign customers a fee higher than that which would maximise ATM revenue. This is because a high fee increases the cost of banking with competing institutions and therefore increases the ATM-owning bank's share of the deposit market. Indeed, Massoud and Bernhardt show that the strategic motivation behind ATM pricing may be sufficiently large that it is optimal for banks to make a loss on ATM provision.[10]

Donze and Dubec (2009) consider a similar model and compare pricing and deployment strategies under three different systems: the first, where ATM transactions are provided free of charge; the second, where an interchange fee is paid between the cardholder's bank and the ATM owner; and the third, where a direct-charge system is in place. They show that ATM provision is highest with direct charging, again as a result of the strategic effect on deposit shares. They also replicate the result that banks may make losses on ATM transactions under

9 RBA 2010.

10 This result is not just an academic curiosity. The 2006 ATM Deployer Study by Boston-based Dove Consulting found that in the US the average on-premises ATM made revenues of $1104 per month and incurred costs of $1444. For off-premises machines these figures were $1013 and $1450, respectively. Clearly motivations other than profit are behind a bank's provision of ATMs.

a direct-charging system. Foreign ATM fees are highest under direct charging but consumer surplus may be higher than under an interchange system if they place a large enough value on the convenience of the additional ATMs.

Importantly, these papers reveal that removing interchange fees in favour of direct charging should not be expected to result in Bertrand-style competition between ATM owners. The strategic interactions between ATM services and the deposit market imply that high fees on foreign transactions were likely to remain after the reforms. As we see below, this has been borne out in the Australian experience.

Evidence from the reforms

By definition, displaying fees on foreign ATM transactions will increase transparency. The question of interest to this paper is whether the move to direct charging, in conjunction with this transparency, has increased the net welfare of Australians.

There are a few key indicators as to the success of the reforms. First, the competition objective aimed at reducing fees on foreign ATM transactions. Second, a more efficient use of the ATM network would show a reduction in domestic ATM transactions. Finally, assuming that the market was not saturated, there would be an increase in ATM availability and use.

Turning first to foreign fees, there has been very little impact on the fees charged to customers of foreign ATMs. As of May 2010, just over a year after the reforms were implemented, 88 per cent of ATMs charged a foreign fee of between $1.50 and $2.[11] Of the remainder, 5.2 per cent charged a fee greater than $2, while 6.5 per cent charged a fee of between $1 and $1.50. There is some evidence that foreign fees have, in fact, risen further since then. By December 2010, the proportion of ATMs charging a fee between $1.50 and $2 had fallen by 11 per cent, to 77 per cent, while the proportion charging a fee greater than $2 had risen by 11.5 per cent, to 16.7 per cent. As of December 2010, overall, the average foreign fee increased slightly following reform, to $2.04. Clearly, the extent of fee competition envisioned has not eventuated.

Prior to the reforms, some institutions with smaller ATM networks did not charge their depositors foreign fees, choosing instead to absorb the interchange fee in order to remain competitive in the deposit market. There is evidence that this practice is continuing in some instances. A year after the reforms, two

11 RBA 2010.

institutions (Bankwest[12] and ING) had a policy of rebating direct charges their members faced on foreign ATM transactions. In addition, smaller institutions have the option of forming fee-free sub-networks among their own ATMs or reaching agreements with larger ATM providers to reduce the fee for their customers. There is some evidence that this is occurring, increasing the availability of zero-foreign-fee ATMs for customers of smaller institutions (RBA 2010). In contrast, some providers who initially chose to charge zero foreign fees prior to the reforms currently only offer to rebate direct fees from a single institution. Nonetheless, it is possible that while there has been no significant competition at the fee level, competition may have been realised at the institution level by increasing the number of fee-free ATMs available.

Of course, the ultimate test of whether competition has worked is the impact on the pattern of ATM transactions between domestic and foreign machines. As previously stated, a more efficient use would see a reduction in the domestic share of ATM transactions as consumers use more-convenient ATMs. Figure 1 shows the impact of the reforms on domestic ATM use.

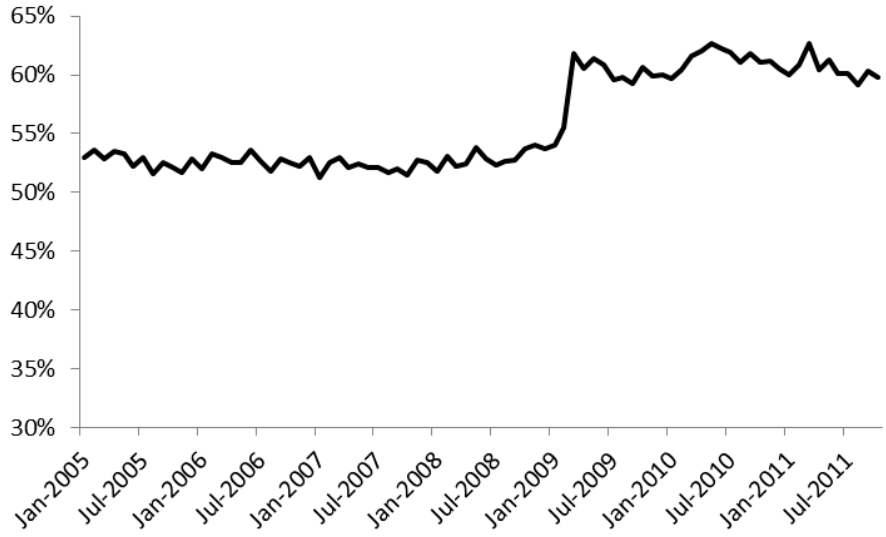

Figure 1: Share of domestic ATM transactions

Source: RBA.

Rather than reducing the proportion of transactions carried out at domestic ATMs, the move to direct charging and displaying fees at the time of the transaction has actually caused a shift towards the use of own ATMs. With the reduction in foreign fees not being realised, it is no surprise that the transparency effect

12 Bankwest offered accounts which charged zero foreign fees prior to the reforms.

has dominated and an increased share of domestic transactions has resulted. Since the reforms were implemented in March 2009, the share of domestic ATM transactions has risen from around 53 per cent to 61 per cent. The RBA calculates that this has resulted in savings to consumers of around $120 million. Clearly, armed with better information about prices, some consumers have found it in their interests to travel to domestic ATMs to avoid paying the foreign fee. The reduction in fees paid also represents a reduction in revenue received by ATM owners (and therefore their shareholders), with the net result being an increase in total costs and reduced efficiency.

To make these ideas more concrete, consider an individual who was initially unaware of the foreign fee they were being charged. They use an ATM that is most convenient to them and unknowingly pay a fee of $2. Now, since the reforms, they are aware of the foreign fee and incur a travel cost of $1 to visit the closest own ATM (of course, their own ATM may have a larger travel cost associated with it, in which case we would observe no change in behaviour). They are now net $1 better off following the reforms, while the ATM owner has lost $2 in revenue.

The RBA reports that consumers have saved $2 but does not mention travel costs (thus overstating the extent to which they are better off). I claim not only this, but that the fee is simply a transfer and that from an efficiency perspective we are *only* interested in the travel costs. Of course, consumers as a whole are better off, as with no change in fee they are simply benefitting from the additional information and changing their ATM transactions only if it is in their interest. However, this transparency clearly comes at a cost.

Other costly behavioural changes have also been observed. For example, the average value of foreign withdrawals has increased since the reforms, implying that consumers are withdrawing higher amounts of cash than originally desired in order to reduce the per-dollar cost of foreign fees. There has also been a slight shift towards other payment methods to avoid the need to withdraw cash at foreign ATMs.

The higher travel costs resulting from an increase in domestic ATM usage may be offset somewhat if the reforms have led to a significant increase in ATM provision. This appears not to be the case on aggregate. Figure 2 shows the total number of ATM transactions prior to and after the reforms.

There has been remarkably little change in total ATM usage over this period. If provision had increased in areas where ATMs were needed, we would expect the convenience to result in an increase in the number of ATM transactions. This appears not to be the result.

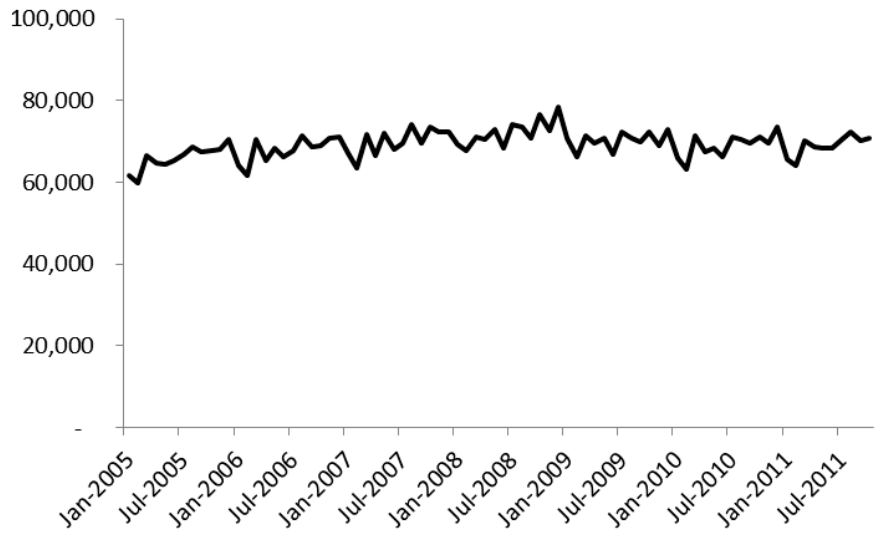

Figure 2: Total number of ATM transactions

Source: RBA.

Writing a year after the reforms, the RBA claimed that 'the year-to-year volatility in provision of machines makes it difficult to draw strong conclusions about post-reform ATM deployment relative to earlier periods. Nonetheless, the evidence suggests that the reforms have been positive for the availability of ATMs.'[13] Figure 3 shows the total number of ATMs over the last decade.

Prior to the reforms, provision had been increasing steadily and this continued over the years straddling and immediately after the reforms, with network growth of 5.3 per cent in the year to March 2009, 3.1 per cent in the year to March 2010, and a 4.5 per cent growth in the year to March 2011. A formal test for a structural break[14] in the series after the reforms showed no evidence of an increase in provision above the pre-reform trend.

13 RBA 2010.

14 The quarterly series of ATMs (number of ATMs) was modelled as an AR(1) process with a trend. A dummy variable was created which took a value of 0 prior to the reform and 1 thereafter. The estimated coefficient on this variable was -304, with a standard error of 332, indicating that it is not significant at any conventional level.

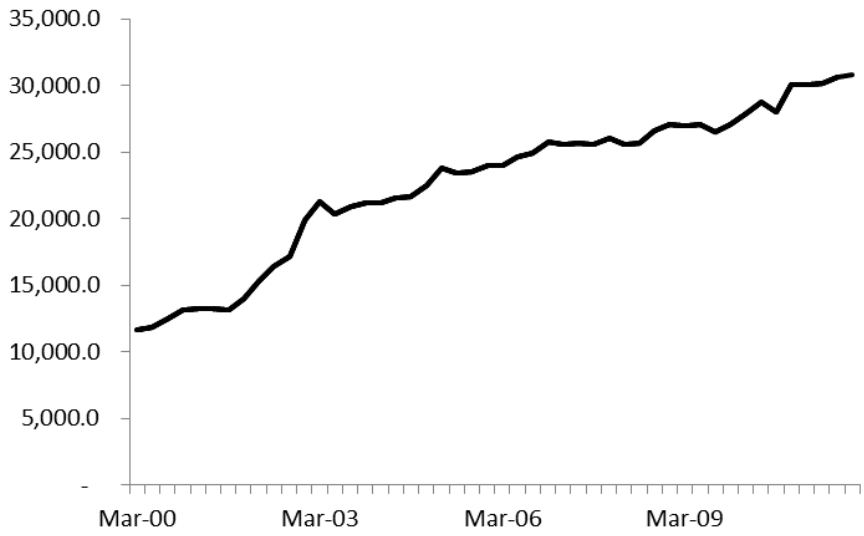

Figure 3: Total number of ATMs

Source: Australian Payments Clearing Association.

Overall it appears that the reforms have had negative effects on efficiency. The direct result has been a shift towards greater usage of domestic ATMs, increasing the total travel costs incurred by consumers. While transparency has been touted as a benefit of the reforms, it is precisely this greater transparency which has driven these inefficiencies.

Of course, the clearer price signals may have led to a net improvement in welfare if the competition aspect of the reforms had been more successful. It is interesting that, and not altogether obvious why, competition on fees did not result. The academic literature suggests strategic reasons for why banks may not respond to the reforms by reducing fees. However, around half of Australia's ATMs are owned by independent ATM deployers for which these strategic motivations are not present (the largest being Customers Limited, Cashcard and RediATM, which together account for just under one-half of the total number of ATMs). It may be that each ATM has sufficient local monopoly power that Bertrand-style competition may not result.

It may also be that the form in which fees are displayed at ATMs may not be conducive to active competition. Because fees are displayed only once the transaction is under way, consumers may be unwilling to cancel a transaction and shop around for a cheaper machine. This has led to suggestions that machines could have their fee published on the exterior of the machine so that consumers are informed of the fee prior to commencing the transaction.

However, the models in the literature assume that consumers are fully informed of foreign fees, so if strategic motivations are at play it is unlikely that clearer price signals are the answer and may even reinforce the existing situation.

Conclusion

ATMs provide great convenience to consumers who would otherwise need to visit bank branches to access cash. Given the ATM network in place, the most convenient usage of ATMs would involve using those machines which minimise a consumer's travel costs. Since there is very little cost difference in processing a transaction at a domestic and foreign ATM, the most convenient usage pattern is therefore also the most efficient. Pricing which encourages consumers to use their own ATMs over foreign ATMs will therefore distort efficient decisions and reduce welfare.

It is apparent that prior to the 2009 reforms a significant number of consumers were not aware of the prices they were charged on foreign ATM transactions, or at least acted in a way that indicated that fees were not being taken into account in their purchasing decisions. This had the interesting result that many consumers acted as though they were part of a competitive market, even though prices were significantly higher than the competitive level.

Increased transparency was easily achieved by displaying fees at the time of a transaction and, as is the goal of any transparency regulation, consumers responded to the clearer pricing signals. The problem was that with the competition objective not achieving its goals, the pricing signals remained inefficient. The end result is likely to have been a fall in welfare.

The fact that this result was not anticipated is to some extent not surprising. There was little information at the time the reforms were implemented to inform decision-makers about the likely reactions of consumers or ATM owners. While the academic literature does highlight the strategic motivations behind ATM pricing, this literature was not well established at the time. Indeed, over the last decade Australia has been a testing-ground for several issues in payments-system regulation, with these reforms often preceding the academic literature.[15]

However, despite the unanticipated outcomes and resulting welfare losses, the RBA and others have claimed that the reforms have been successful on the basis of achieving transparency alone. But surely the goal of transparency should be to allow efficient price signals to be communicated to consumers. When

15 Particularly developments in the theory of two-sided markets and the efficiency implications of interchange fee regulation.

these signals are inefficient, it is unclear what benefit communicating them to consumers would have. What value should we place on transparency itself when the end result is a net destruction of welfare?

References

Donze, J. and Dubec, I. 2009, 'Paying for ATM usage: Good for consumers, bad for banks?' *Journal of Industrial Economics* 59: 583–612.

King, Stephen P. 2011, 'Competition Regulation in Australia: A Report Card', the 2011 Colin Clark Lecture.

Massoud, N. and Bernhardt, D. 2002, 'Rip-Off ATM Surcharges', *Rand Journal of Economics* 33(1): 96–115.

RBA and ACCC 2000, *Debit and Credit Card Schemes in Australia: A Study of Interchange Fees and Access*.

RBA 2009, *The Introduction of Direct Charging for ATMs*.

——— 2010, *Reform of the ATM System — One Year On*.

Schwartz, C., Fabo, J., Bailey, O. and Carter, L. 2007, 'Payment Costs in Australia', prepared for the *Payments Systems Review Conference* at the Reserve Bank of Australia, November 2007.