Maverick Firms: An Exploratory Analysis of Mortgage Providers in Australia*

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This paper develops an empirical strategy to measure maverick-like behaviour. It applies the strategy to a dataset that contains interest rates charged by mortgage providers in Australia from January 2003 to October 2006. The Reserve Bank of Australia raised its cash rate five times in this period, which provides a natural setting to observe suppliers' responses. We examine suppliers' behaviour both in terms of the rates they charge and the time it takes them to change their rates as a response to a systemic increase in costs. These empirical observations suggest that the development of a theory for maverick behaviour be focused on dynamic, asymmetric models and informed by institutions and market dynamics that are relevant to the case at hand.

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1 Introduction

Economics has played a major role in the development and shaping of competition law.[1] Nevertheless, there exists a considerable gap between economic theory and practice (as reflected in guidelines and case law). In particular, while the analysis of unilateral effects relies

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[1]For a discussion of the goals of U.S. antritust law, see Bork (1978). See also Whinston, 2006, Chapter 6.

a great deal on economics and econometric techniques developed over the last two decades, the analysis of coordinated effects is not approached with the same scientific rigor.

The gap between theory and practice could not be more evident than in the role played by maverick firms in the analysis of coordinated effects. This paper addresses the problem of identifying and modelling maverick-like behaviour. A necessary starting point for this task is to explain the concept of a maverick firm.

The U.S. Merger guidelines define a maverick firm as *'... one that has a greater economic incentive to deviate than do most of its rivals and constitutes an unusually disruptive force in the market place.'*[2] This is not a particularly illuminating definition. Other guidelines also offer little help in identifying maverick firms. While some guidelines often stress that mavericks are likely to be small firms[3], others stress the unique or atypical characteristics of maverick firms.[4]

The New Zealand Merger Guidelines (Section 7.2) is perhaps unique in that it lists market features that are associated with a maverick firm. These features include, among others: (i) a history of aggressive, independent pricing behaviour (rather than of following the lead of other businesses); (ii) a record of innovative behaviour or low costs; (iii) a business having a substantial amount of excess capacity, particularly if allied with a low market share; and (iv) a firm having a business model that differs from the industry norm.

[2]U.S. Merger Guidelines (§ 2.12). Similar definitions can be found in the Australian Merger Guidelines (5.139), Irish Guidelines (§4.24), UK OFT Guidelines (§4.17), NZ Merger Guidelines (Section 7.2), and EU Merger Guidelines (§19-21).

[3]The Australian Merger Guidelines (5.139), for example, specifically refers to small firms: ' ... In some markets the 'maverick' behaviour of particular firms, even small firms, serves to undermine attempts to coordinate the exercise of market power. These firms tend to deliver benefits to consumers beyond their own immediate supply, by forcing other market participants to deliver better and cheaper products. Alternatively a small firm may be an innovative new entrant with a new product or process capable of upsetting established market shares....' .

[4]The New Zealand Merger Guidelines (7.2), for example, explicitly lists some characteristics that might be associated with a maverick firm: '...it may have lower costs than other businesses, or is an innovator. Such businesses can be regarded as vigorous and effective competitors, often referred to as mavericks. The independent or less predictable behaviour of such a business may be an important source of competition in the market, and may undermine efforts by other businesses to engage in coordination. The maverick may be identifiable as an observably disruptive force by, for example, its taking the lead in price wars. Alternatively, it may perform a less obvious role by refusing to follow, and therefore undermining efforts by rivals to engineer, price increases. Such a business need not be large to have an impact on competition out of proportion to its relative market size. Relatively small businesses may have a greater incentive to cheat on collusive arrangements.'

A cursory examination of the above-listed items highlights part of the reason for the disconnect between theory and practice. Standard static oligopoly models are unlikely to support equilibrium outcomes where firms have substantial excess capacity but a low share of the market as suggested in (iii). Similarly, aggressive behaviour, as suggested in (i), is often associated in standard oligopoly models with large rather than small market shares.

Moreover, standard models assume that although firms might be different from each other (e.g., exhibit different marginal cost or produce slightly different goods and services), they all choose the same strategic variable (typically either quantity or price) and they do so in order to maximise profits. However, the characteristics of maverick firms as described by most merger guidelines suggest deeper asymmetries than those considered by theory. This indicates that modelling asymmetries appropriately will be an important consideration in developing a theory of maverick firm behaviour.

Thus, in this paper, we explore a unique database on weekly prices (interest rates) charged by mortgage providers in Australia from 2003 to 2006. During this period, the Reserve Bank of Australia (RBA) changed its cash rate five times. This provides us with a natural experiment – a systemic increase in costs faced by all mortgage providers – to test the responsiveness of suppliers. In particular, we measure the responsiveness of suppliers both in terms of price levels and timing of price changes. The aim of this exercise is two-fold. The first aim is to provide possible practical approaches to identifying maverick behaviour. The second aim is to inform the development of theory.

This paper is organised as follows. Section 2 reviews the sparse literature on the economics of maverick firms. Section 3 briefly documents the significance of maverick firms in actual merger analysis across different jurisdictions. Section 4 describes in detail the data on interest rates charged by mortgage providers in Australia. We also propose, in that section, two measures of maverick-like behaviour and apply them to the mortgage data. Section 5 concludes by discussing the relevance of the empirical results for the development of theory.

2 A Review of the Literature

To the best of our knowledge there are no formal models illustrating the process by which maverick firms disrupt coordination in an oligopoly setting. Kwoka (1989) is an exception in that he examines the ex-post profitability of mergers when firms exhibit non-Cournot conjectures. Under some very specific assumptions about the conjectures of firms—which are assumed to be exogenous and asymmetric—he argues that the elimination of maverick

firms can make mergers more profitable by reducing competition post-merger and potentially leading to greater industry output contraction than that created by mergers under Cournot conjectures. However, Kwoca does not explicitly model the emergence of such conjectures and how they might arise in equilibrium. Importantly, he does not examine coordinated behaviour.

In the absence of formal models of maverick-like behaviour, most commentators seem to rely on Baker (2002), who is regularly cited by many competition regulators across the globe. Baker proposes two mechanisms through which a maverick firm can disrupt coordination. First, mavericks can initiate price wars or heavy discounting. Second, maverick firms may refuse to raise prices following a price rise by rivals.

This suggests that the very notion of a maverick firm requires it to have a pivotal role in the market. That is, the behaviour of a maverick firm will presumably spell the difference between coordination and competition in the market place. Therefore, characterising a maverick firm will require identifying conditions under which a single firm can make a difference in terms of the success or failure of coordinated action. Therefore, looking for a maverick is often akin to identifying market conditions where attempted coordination has failed.

In this spirit, Baker (2002) suggests three possible methods for uncovering mavericks. The first method involves analysing pricing behaviour. This might involve identifying sellers that precipitate price-cutting by rivals or that maintain stable prices when rivals initiate price increases. Alternatively, this might involve identifying providers who consistently offer low prices. In this paper, we offer two empirical measures of maverick-like behavior that capture aggressive pricing behaviour both in terms of low prices (relative to the market) and of the number of price changes.

The second method consists of identifying natural experiments; exogenous changes in market conditions that affect costs or demand asymmetrically. The idea is that when a maverick constrains the market price, changes in the maverick's costs or demand will affect the market price. However, changes in costs or demand faced by other sellers will not affect market price. In this paper we do not consider a natural experiment of this type. Instead, we explore an event that affects (perhaps asymmetrically) all suppliers in the industry; an increase in the RBA cash rate. Indeed, during the period under consideration, there have been five increases in the cash rate. This provides us with an opportunity to observe suppliers' responses to these systemic increase in costs in terms of changes in rates, number of changes in rates and the response time.

The third method entails an investigation of what Baker refers to as *a priori* factors

that might explain why a firm might prefer a lower coordinated price whereas its rivals prefer higher prices. These factors include: (i) low expansion costs so that returns on the maverick's additional sales can be substantial; (ii) substantial excess or divertible capacity so that the maverick has both the incentive to expand output and the ability to disrupt coordinated pricing by increasing output; (iii) ability to conceal output expansion since a firm is more likely to be a maverick if it has an unusual ability to expand its sales without the knowledge of competitors; and (iv) a short time horizon so that the maverick will attach greater weight to the short-run price cutting strategy than to the longer-run punishments that rivals might impose. We do not pursue this third method in this paper as our concern is with developing metrics of maverick-like behaviour and not with performing a full competition assessment.

As the discussion above makes clear, there is no established understanding or explicit theory explaining why maverick firms behave in such a way. There is also no formal consideration of the competitive effects of allowing maverick firms to merge with rivals—it is implicitly assumed that the merger of a firm with a maverick will eliminate an aggressive competitor from the marketplace. This lack of a solid intellectual basis is neither a new concern nor the preoccupation solely of economists. Both economics and legal scholars have manifested these concerns. Largenfeld (p. 49, 1996), for example, states that *"... Maverick behavior is often due to management decision making, rather then obvious profit-maximizing behavior based on market structure, so there may be little certainty that a maverick's behaviour will continue even absent a merger. This analysis also presumably implies that a merger that does not affect a maverick firm would be less likely to result in collusion – although the guidelines do not state this explicitly..."* .

Similarly, Jacobs (p. 568, 2001) stresses that *'the problem of the 'maverick' firm, or aggressive competitor, inheres in the imprecise terminology used to describe the maverick-in-fact, the questionable incentives created by denying it the freedom to merge, and the possibilities created by the Revised Merger Guidelines for imagining a future maverick born entirely from merger-related efficiencies. At the very least, the maverick concept needs to be expressed more precisely; at the most its rationale in the Revised Merger Guidelines need to be reconsidered.*'

Thus, it is fitting that one of the objectives of our empirical approach is to inform and stimulate the development of theory that can aid our understanding of the behaviour of maverick firms and their impact on competition. We will return to this in Section 5.

3 The role of maverick firms in practice

The reader at this stage might be wondering whether we are making a storm in a tea cup. This section puts this concern to rest by informally documenting the increasingly important role that the notion of maverick firms plays in competition analysis.

Those who are familiar with U.S. competition cases will be familiar with the following statement by William Kolasky (2002), who at the time was Deputy Assistant Attorney General of the Antitrust Division of the U.S. Department of Justice: *'. . . mavericks are playing an increasingly important role, figuring prominently in three of our last four cases.'* (Kolasky, 2002, p. 16). In addition, Coate (2006) provides a detailed case study of the FTC merger review process focused on single market horizontal mergers evaluated between 1993 and 2003. He examines a total of 124 single-market merger reviews. Of these 124 cases, 56 included concerns about coordinated effects. Coate then divided these cases into three broad areas covering alternative collusion theories: (i) structural, (ii) regime shift and (iii) maverick. The structuralist theory referred to a situation where an already weakened competitive market was deemed to be at risk of price increases or reinforcement of the collusive structure of the market as a result of the merger. The regime shift theory covered situations where mergers transform a competitive market into a collusive one. Finally, the maverick theory referred to circumstances under which one of the merging parties is a firm whose actions maintained a competitive pre-merger market and that following the consummation of the transaction will no longer exercise such constraint as it will exit the market.

Importantly, maverick theories accounted for 18% of the cases; a total of 10 cases. Moreover, while the rate of enforcement to closing a case was 9 to 1 for cases involving a maverick theory, such rates were considerably lower for the other theories; 6 to 1 for cases involving structuralist theories and 12 to 27 for cases involving regime shift theories. This clearly demonstrates the importance of theories regarding maverick-like behaviour by firms for US merger practice.

Although there are no similar systematic studies of the role played by the concept of maverick firms in case law in other countries, the existence of mavericks clearly raises a red flag when U.K. competition authorities analyse mergers. This is illustrated by the acquisition of Linpac Containers by DS Smith. DS Smith is an international firm involved in the paper and corrugated packaging, plastic packaging, office products wholesaling, and office products manufacturing sectors. Linpac Containers is involved primarily in the supply of corrugated paper packaging. In its referral of the case to the U.K. Competition Commission, the Office of

Fair Trade highlighted the perception of customers that *'LINPAC Containers might perform the role of a maverick in the market, whose removal has affected their ability to negotiate'*.[5]

The U.K. Competition Commission[6], when investigating the merger, considered the argument that Linpac was a maverick. However, customers' responses to their questionnaires suggested that Linpac had behaved in a similar manner to the other major suppliers, and did not appear to be a more aggressive competitor on price or other factors. This conclusion was supported by an examination of Linpac's pricing behavior, which was shown to be in line with DS Smith's over the previous years. Moreover, although Linpac had resisted a November 2003 price rise, other companies also resisted the price rise. In particular, the Commission did not find that Linpac's *'market share understated its impact on the competitive process.'*[7]

Similarly, maverick-like considerations are important in Australia as illustrated by the following two recent cases. On July 2006, the Australian Competition and Consumer Commission (ACCC) announced its opposition to the acquisition of Wattyl by Barloworld limited. Barloworld is the third-largest supplier of architectural and decorative paints in Australia. Wattyl is Australia's second-largest architectural and decorative paint supplier. A particular concern of the ACCC in opposing the merger was that Solver (one of Wattyl's brands) '*...is the industry maverick in the trade segment with a strategy of using price as the primary means by which to expand sales against Barloworld and Orica.'*[8]

On March 2007, the ACCC announced its decision not to oppose the acquisition of Good Stuff Bakery by George Weston Foods. George Weston is a national manufacturer and distributor of a range of consumer food products and ingredients. Its baking business includes the manufacturing and distribution of a range of breads and other baked goods. Good Stuff Bakery (covering the southern part of Queensland and northern New South Wales) manufactures and distributes assorted bread products. A particular concern of the ACCC was that the proposed acquisition would remove a maverick supplier of 'price fighting' bread (i.e., plain white, wholemeal and multigrain breads sold under brands that are not heavily marketed). However, the ACCC concluded that *'any reduced competition in the supply of price-fighting bread that could be reasonably attributable to the Proposed Acquisition, was unlikely to con-*

[5] Office of Fair Trading, 20 May 2004.

[6] U.K. Competition Commission, A report on the completed acquisition of Linpac containers Ltd by DS Smith Plc.

[7] U.K. Competition Commission, op. cit., p. 32.

[8] ACCC's Public Competition Assessment, 11 August 2006. Orica is Australia's largest supplier of architectural and decorative paints.

stitute a substantial lessening of competition across the Relevant Bread Market.' [9]

In summary, this section has shown that despite the lack of a solid foundation, the concept of a maverick firm is an important component of merger analysis across the globe. Therefore, developing a better understanding of how to operationalise this concept, which is the aim of the next section, has the potential to greatly influence merger case law and policy.

4 Mortgage Providers in Australia: Our Empirical Approach

Cannex has kindly provided us with 31,641 weekly observations on 9 different rates from 06 January 2003 to 23 October 2006. This includes data from all mortgage providers (159 in total) in Australia for which Cannex collects data. There are 199 observations (on these 199 dates) for each provider although not all providers offer all possible rates. In this paper we concentrate on the standard or ordinary variable rate. This is a standard (and very popular) mortgage product in Australia that often attracts a lower rate than other products and it includes extra features such as internet and ATM access and a limited number of withdrawals. The average ordinary variable rate for the period under consideration was 6.879%. It is important to note that the data contains only price and not quantity observations.

In order to remove the effect of providers who were only present for a small portion of the sample period, we only keep those providers for whom there is an ordinary variable rate for at least 2 years (104 weeks) worth of data. This reduced sample contains 122 mortgage providers and 23,297 weekly observations across these providers. Of the 122 providers in the sample, 103 of them have a price provided for all 199 weeks in the sample. The first column of Table 4 indicates which providers were not present during the entire sample period. Our first measure of maverick behaviour is unaffected by the length of time that a provider appears in the sample, whereas for our second measure, treatment of those providers with some missing data during the 199 weeks affects the measure. We discuss this below.

There were five RBA cash rate changes during the sample period (all upwards). As discussed above, these five changes will be an important element of one of our measures of maverick-like behaviour. The table shows the dates of these changes, the change in cash rate and the new rates.

Table 1: Changes in the RBA cash rate

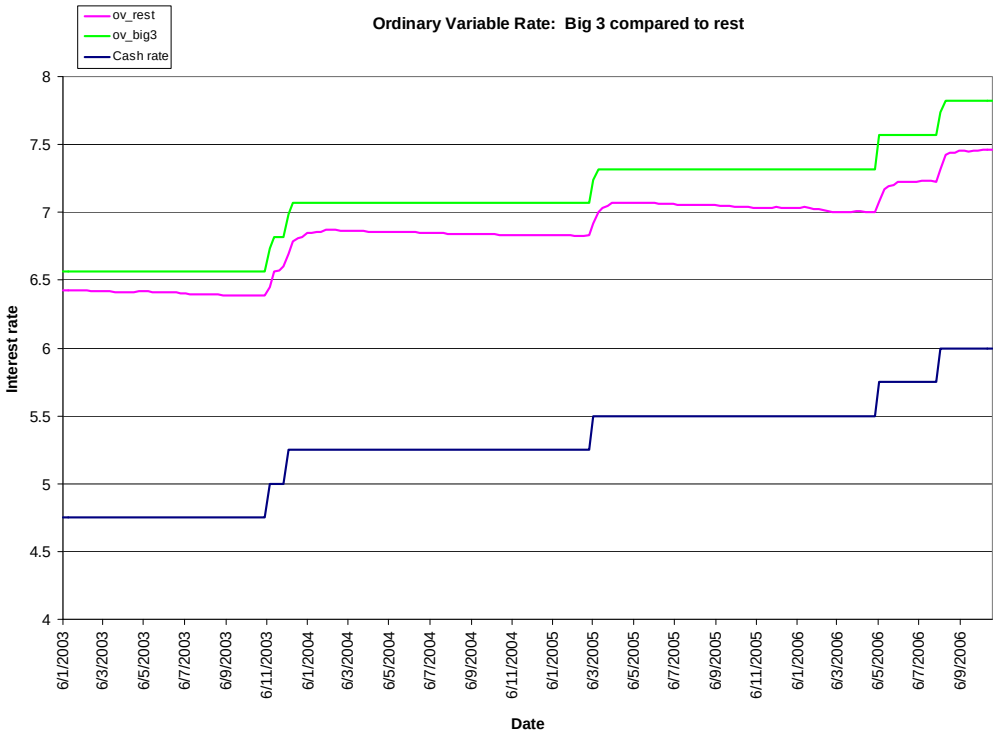
[9] ACCC's Public Competition Assessment, 16 March 2007. The *Relevant Bread Market* included other bread products such as heavily branded and market products.

Release date	**Change in cash rate**	New cash rate target
5 Nov 2003	+0.25%	5.00%
3 Dec 2003	+0.25%	5.25%
2 Mar 2005	+0.25%	5.50%
3 May 2006	+0.25%	5.75%
2 Aug 2006	+0.25%	6.00%

Figure 1 below depicts the cash rate, the average of the rates charged by three of the largest banks in Australia (Commonwealth Bank of Australia (CBA), National Australia Bank (NAB) and Westpac (WSBL))[10], and the average rate charged by the remaining suppliers. A perfunctory examination of the figure below reveals two distinct features. First, there is a clear distinction between the rates charged by the three large banks and the remaining suppliers. Second, there is more variability over time in the rates charged by the latter group of suppliers than that charged by the former group of suppliers. The two measures of maverick-like behaviour that we propose explore these two features of the data.

Before expostulating our two measures, it is worthwhile highlighting some of the shortcomings of our empirical approach. First, there is an implicit assumption that this mortgage product (standard ordinary rate) is reasonably homogenous across suppliers. For example, most providers will include features such as 100% Redraw Offset account with cheque book and ATM facility, Internet and Telephone banking, and ATM and EFTPOS access. However, there are likely to be differences across providers. Similarly, different providers might charge different fees. Finally, the nature of competition might be such that some suppliers might offer mortgages as a package (and also as a stand alone product) which include other products such as insurance, credit cards and savings and checking accounts. We argue, however, that our estimates might be thought of as an upper bound on consumers' valuation for the one-stop shop convenience of bundles or on the differences between fees or on the degree of heterogeneity of the products. Nevertheless, we acknowledge that our empirical approach is perhaps best thought of as a fact-finding exercise that aims at generating more research on this important topic.

[10] In Australia, these three banks together with ANZ Bank (ANZ) are sometimes referred to as the 'big four.' As we will see in the regression analysis below and in Table 6, the ANZ pricing behaviour from mid-2005 is quite different from the other three large banks and thus we treat it separately in this figure.


ov_rest
ov_big3
Cash rate
Ordinary Variable Rate: Big 3 compared to rest
Interest rate
8
7.5
7
6.5
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6/1/2003
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Date

Figure 1:

4.1 Measure 1: Deviation from Estimated Average

Our first measure is a simple comparison between the rate which a bank offers and the average rate across all providers. The average rate across all providers is calculated at each point in time using all providers with a non-missing ordinary variable rate. The measure for each bank is just the coefficient on a dummy variable for that bank in a regression of average ordinary variable rate against a set of dummies for every bank in the sample.

The coefficient can be interpreted as the average difference from the mean rate for each provider after controlling for variation across time. Graphically, the coefficient can be seen as the average integral of the area between the provider's rate and the average rate. Therefore, a negative coefficient indicates that, for that particular rate, the provider is charging a rate that is less than the average rate. Of course, the more negative a firm's coefficient is, the more aggressive is the firm's pricing behaviour (on average). This makes the firm a more likely candidate for being identified as a maverick.

We use the resulting coefficients from this regression as an index of how much that provider, on average, differs from the standard price for that product (as represented in this case by the average over all providers at each point in time). Table 2 summarises our results and exhibits the ranking of providers according to this measure. Three providers have rates which are not significantly different than the average: ANZ Bank, Heritage Building Society (HBS), and Defence Force Credit Union (DFCU). These providers are in italics in Table 2. 49 providers have rates which are significantly lower than the average. 70 providers have rates which are significantly higher than the average. The dispersion of rates is larger for the more competitive providers (negative coefficients) than for the less competitive providers, many of whom are clustered around the Commonwealth Bank, Westpac, and National Australia Bank averages. These three large banks have an average ordinary variable rate that is .24 percentage points higher than the average ordinary variable rate across all providers.

The differences are economically, as well as statistically, significant. Comparing the three big banks to the average (or to ANZ bank), if a customer took an average ordinary variable rate loan from one of the big three banks, she would be paying $592 per year more for her loan and a total of $17,500 more over the life of the loan (for a typical 30-year loan calculated at the average interest rate over the sample of 6.88%.).

Table 2 about here

Comparing the most competitive provider, Assured Home Loans (ASHL), to the big three,

a customer with ASHL would pay over $2,600 less per year on the loan. Over the life of a typical 30-year loan, the customer would be paying almost $80,000 less with ASHL than with one of the big three banks.

4.2 Measure 2: Providers' responsiveness

Our second measure attempts to utilise the time dimension of interest rate changes and the number of changes in rates to provide an alternative metric to gauge maverick-like behaviour. In the context of mortgages, what might constitute maverick behaviour? With our first measure, we capture the overall pricing approach of the provider relative to the industry average. But maverick behaviour, as discussed above, might also be construed as behaving differently than the 'normal' firm. In this context, looking at how firms respond to changes in the RBA cash rate gives a way to compare different firms. The big three banks, as seen in Figure 1, respond in unison to RBA changes and in all cases respond within two weeks by raising their own rates. The big three do not lower their rates at any point in the sample, in keeping with the lack of any drop in the RBA cash rate during the sample period. Some other providers do lower their rate occasionally, even though the cash rate has not changed. Other providers increase rates more frequently than the RBA increases the cash rate.

Our second measure will attempt to combine all of these aspects–responses to the 'market' as represented by the RBA cash rate and 'unprovoked' price increases and decreases–into one measure of maverick behaviour. We incorporate a time dimension by looking at the length of time the provider waits before increasing/decreasing the rate in response to RBA rate changes. Our ranking is formed by

$$\begin{aligned} r_i =& I^{+}_{RBA,i} * \overline{w}_{I,i} - D^{+}_{RBA,i} * \overline{w}_{D,i} + I^{-}_{RBA,i} * \overline{w}^{(.9)}_{I} - D^{-}_{RBA,i} * \overline{w}^{(.9)}_{D} \\ & k_1 D^{i}_{i} * \overline{w}^{(.9)}_{D} - k_2 I^{i}_{i} * \overline{w}^{(.9)}_{I} \end{aligned}$$

where

- $I^{+}_{RBA,i}$ is the number of increases by the provider in response to an increase in the reserve bank cash rate
- $\overline{w}_{I,i}$ is the average amount of time, in weeks, that a provider waits (in our data) to react to an increase in the reserve bank cash rate

- $I^{-}_{RBA,i}$ is the number of times the provider ignored increases in the reserve bank cash rate
- These are weighted by $\overline{w}_I^{(.9)}$, the 90th percentile of the distribution (over all providers) of average waiting times to increase rates in response to a reserve bank cash rate increase.
- I^{i}_{i} are rate increases initiated by the provider which are not in response to any reserve bank increase

The variables for decreases, $D^{+}_{RBA,i}$, $D^{-}_{RBA,i}$, and D^{i}_{i} and associated waiting times are defined analogously.

Notice that every time a firm fails to respond to an increase in the cash rate, the spell of non-response is right-censored in our data. Either the spell lasts until another RBA change in the rate or we reach the end of the data period. There is no way to tell in the data how long a spell might have lasted in the absence of either of these events. We deal with this problem by weighting non-responses by an arbitrary 'waiting time.' In the results presented here we use the 90th percentile of the distribution of all waiting times, across all firms, from a RBA cash rate change to a change in the firm's rate. We also re-calculated the ratings using the maximum waiting time instead of the 90th percentile and the overall results were not sensitive to this change.

Increases and decreases which are initiated by the provider and not related to any change in the RBA cash rate (I^{i}_{i} and D^{i}_{i}) are also weighted by this same 'waiting time'. k_1 and k_2 could be set to one if we wanted to give provider-initiated changes the same weight as changes in response to changes initiated by the RBA. Looking at the data, these provider-initiated changes tend to be smaller in magnitude than the responses to RBA changes. Decreases are 79% the size of increases in response to RBA changes and non-RBA induced increases are 60% the size of increases in response to RBA changes, so we set $k_1 = .79$ and $k_2 = .6$. We also calculated the ratings by arbitrarily setting $k_1 = k_2 = \frac{1}{2}$ and the overall results are much the same.

The rating is defined such that a provider which always responds immediately to any increase or decrease in the cash rate and never makes any other changes will have a rating of zero. Positive ratings are 'better' than this benchmark, and negative ratings are 'worse'. Therefore, the higher the rating of a firm, the more likely this firm is of being identified as a maverick.

Table 3 provides information on the total number of rate changes, across all providers, and the average magnitude of the various rate changes.

Table 3 about here

For 19 providers rate data is not available for all 199 weeks but only for a subset of the full sample period. For these providers, we assumed that their rating over the missing weeks of data was zero. In other words, we interpolate the rates over the missing period assuming that the provider responded immediately to any RBA cash rate changes and made no other rate increases or decreases. This will tend to bias the ranking for these providers towards zero. However, this is the most reasonable assumption that we can make about the missing data. Since this problem only affects a small proportion of the total number of providers and since these assumptions do not in any way affect the rating of the providers which are in the sample for the entire period, we are confident in the results.

Table 4 about here

Table 4 reports the results of applying our second measure. The average is 7.2 and the median is 5.0. There are 41 providers with an above-average rating while 81 providers have a below average rating. Again, as with the first measure, the dispersion is greater amongst the more competitive providers. The correlation between the two measures is 20%, with the same provider topping the two rankings (ASHL - Assured Home Loans).

One drawback of this measure is that small and large price changes are treated the same. So a firm which raises its rate .5 in response to an RBA increase of .5 will have a better rating than a firm which raises it's price by .25 in response to the same RBA increase and then implements a second increase of .25 a few weeks later. Thus, we believe that the two measures should be looked at together.

4.3 A Composite Measure

We also think consumers – and therefore the ability of maverick firms to disrupt coordination – are likely to care independently about the two measures. Consumers obviously care that the rate which they pay, on average, is low. This is captured by the first measure. But consumers also care about uncertainty and the risk that the mortgage provider will change the variable rate even in the absence of an RBA rate change. So providers who might have a low average rate, but do poorly on the second measure, might be viewed as risky from the point of view of consumers interested in minimizing 'surprise' rate increases. Table 4 includes the information that goes into our ranking for this second measure. One could

also construct volatility measures looking at the total number of changes from the third and fourth columns. Or, one could create other types of indices from the individual elements of this measure. We do not present these here as we view our combination of these individual elements as informative about competition in the mortgage industry. For other industries or analyses, one might prefer indices constructed from one or more of the individual components of Table 4.

Table 5 presents a composite measure which combines the two measures. We take each measure and transform it by subtracting the mean and dividing by the standard deviation. This has the effect of putting them on a common scale. We then sum these two measures (taking the additive inverse of the first measure so that positive numbers represent more maverick-like behaviour for both scales) to create the composite score. These results are presented in Table 5.

Table 5 about here

4.4 A Closer Look at the data

We now look more closely at the behaviour of a selected number of players in terms of our measures of maverick-like behaviour. Tables 6 and 7 provide information on all rate changes for five large Australian banks and five smaller providers. For the five small providers, we choose the two that perform best in our composite ranking (Assured Home Loans (ASHL) and Commonwealth Bank of Australia Online Only (CBOA)), the two that perform worst in our composite ranking (LaTrobe Financial Services (LHL) and Unicom Credit Union (TUCU)), and Aussie Home Loans (AHL) who arguably market themselves as a maverick provider.

Tables 6 and 7 about here

The first thing we note is that the five large banks all behave roughly similarly. There is very little movement in the interest rate and usually only in response to RBA changes. Such changes are followed quickly (within two weeks) by the large banks.

The smaller providers have much more frequent interest rate movements and the timing of such movements often appears disconnected to RBA changes. ASHL ignore the two interest rate increases of the RBA in 2003, but then have a large one-off increase of .74 in late 2004. After that point, ASHL appears to follow RBA changes much as the large banks

do. Aussie Home Loans follows the two RBA changes quite quickly in 2003 but only makes a small adjustment in response to the first RBA increase in 2005. A later adjustment, after five months have passed, makes up the remaining gap to the RBA change of .25. AHL then makes two reductions to their standard rate in October but these discounts only last for a month, as they are reversed with a large increase in November, 2005. It would be interesting to see if the decreases in October were linked to any particular marketing campaign to attract new customers.

Unicom Credit Union (TUCU) starts with a rate which is well above the market average (see Table 8). It ignores two RBA rate increases, and then makes a large downwards adjustment in late 2004. This brings TUCU roughly in line with the big banks, a position which it keeps by responding to each RBA rate increase in the second half of our sample period. LaTrobe Financial Services (LHL), our second worst-performing provider on the composite scale, has a higher interest rate than the main banks, responds to almost all of the RBA changes and also has two additional changes in January, 2004 and April, 2005 which do not seem to be in response to any particular actions by the Reserve Bank.

Table 8 provides the initial interest rate and ending interest rate for the 10 providers from Tables 6 and 7.

Table 8 about here

What comes through clearly in Tables 6 through 8 is the importance of the time dimension in any discussion of maverick behaviour. Furthermore, maverick behaviour may take place for some periods of time and not others. Does AHL's deep, but fleeting discounting in October, 2005 merit the maverick label? ASHL has below-average interest rates throughout the sample period. Their reactions to RBA increases are distinguishable from those of the big banks in the first part of the sample, but not in the second. TUCU fairs poorly in our measure because of the initial high interest rate which prevails for almost the first half of our sample. In the second half, they look not much different than the big banks both in level of interest rate and in their response to RBA increases.

4.5 Summary of Results

In this section we presented the results of our two proposed measures of maverick-like behaviour. Although there is a positive correlation between the two measures, we suggest that competition regulators are likely going to look at both pricing and timing dimensions. A

closer look at the measures for a selected number of providers suggests that maverick-like behaviour is unlikely to last for long periods of time; maverick behaviour may take place for some periods of time and not others. This raises an important potential problem for competition authorities as it suggests that looking at a particular point in time might not be enough to come to a view about whether or not a particular firm is a maverick.

5 Discussion

Our empirical approach has several important implications for the development of theory. First, the empirical results above strongly suggest that static oligopoly models will have little to say about maverick-like behaviour. Clearly the time dimension – e.g., how long it takes competitors to raise their prices following a systemic increase in costs – is an important component in the strategy toolkit of competitors and an important element of the ability of a firm to disrupt coordinated behaviour. This, however, does not imply that infinitely repeated games, with the same static game played infinitely many times over time and when firms make their choices simultaneously, represent the way forward. Quite to the contrary, the empirical analysis above demonstrates that the choice of when to reduce (or increase) prices is a clear strategic consideration.

Second, it is unlikely that useful models to understand maverick-like behaviour will be symmetric. Standard oligopoly models typically consider asymmetries in terms of product differentiation (but preserve symmetric costs and strategies) or in terms of costs (but preserve symmetry in terms of demand and strategies). The empirical approach developed in this paper suggests that firms are asymmetric in a more fundamental way. Different mortgage providers clearly make different choices in the price-time dimension nexus. Some mortgage providers are very aggressive on the price dimension but not as aggressive on the time dimension and vice versa. This highlights the need for analysts to pay careful attention to institutions and market dynamics in their choices of how to model asymmetries.

Third, a theory of maverick behaviour will need to explain how a merger involving a maverick might either change regime or reinforce current equilibrium paying particular attention to the different dimensions of competition. The degree of heterogeneity in behaviour that was picked up in the empirical analysis above suggests that it is unlikely that a general theory can be developed and rather that a case-by-case approach is a more sensible avenue to explore.

In conclusion, despite the lack of theoretical foundations, the narrative of Section 3 has clearly demonstrated that the notion of a maverick firm plays an important role in competition

analysis. Therefore, the development of techniques to identify maverick firms – and this is the focus of this paper – is likely to be helpful in competition policy and case law. This empirical approach, however, is not sufficient. Ultimately this effort needs to be two-pronged; it should involve both theory and empirical techniques. The theory, however, has to move away from static symmetric oligopoly models and into dynamic asymmetric models that are informed by institutions and actual market dynamics.

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Table 2: Rankings of providers
Ordinary variable rate (1-45).

Provider	**Ordinary Variable Rate (Relative to average)**	**Ranking**
ASHL	-0.88	1
RATE	-0.77	2
NWMC	-0.66	3
PATH	-0.66	4
HLS	-0.62	5
HIBN	-0.56	6
MOBR	-0.56	7
SMS	-0.54	8
RHC	-0.41	9
CBOA	-0.36	10
WIMC	-0.35	11
RGM	-0.33	12
MEQ	-0.32	13
SUCU	-0.32	14
LTCC	-0.31	15
CIRC	-0.31	16
QPC	-0.3	17
APIL	-0.29	18
ECH	-0.29	19
MERM	-0.29	20
MRM	-0.27	21
SWB	-0.26	22
MOA	-0.24	23
AIMS	-0.23	24
SIRO	-0.22	25
SEEC	-0.22	26
WSWA	-0.21	27
LOGR	-0.21	28
QRCU	-0.2	29
AUMC	-0.2	30
SLCO	-0.19	31
WAHL	-0.18	32
CIT	-0.17	33
YHL	-0.17	34
MACL	-0.13	35
SCUL	-0.13	36
COSE	-0.12	37
BCCU	-0.12	38
PMC	-0.11	39
SAPS	-0.11	40
NML	-0.09	41
TAFE	-0.09	42
BCHL	-0.09	43
QSCU	-0.08	44
FCU	-0.08	45

Table 2 (continued): Rankings of providers
Ordinary variable rate (51-90)

Provider	**Ordinary Variable Rate (Relative to average)**	**Ranking**
AMO	-0.06	46
MUSA	-0.06	47
BMC	-0.04	48
INTC	-0.03	49
HBS	*-0.01*	*50*
ANZ	*-0.01*	*51*
DFCU	*0*	*52*
NPB	0.02	53
PCUN	0.03	54
AUSV	0.03	55
CUA	0.04	56
UHCU	0.04	57
OMCU	0.05	58
QPS	0.05	59
CAPQ	0.06	60
AHL	0.07	61
PCSA	0.08	62
ROTH	0.09	63
UNIW	0.1	64
CDCC	0.1	65
ARMN	0.11	66
MMBS	0.12	67
HUME	0.12	68
VTU	0.12	69
GNP	0.12	70
BANN	0.13	71
ROCK	0.13	72
RAMS	0.13	73
HKB	0.15	74
BASS	0.15	75
NFST	0.15	76
HCU	0.15	77
NACO	0.16	78
NSWT	0.17	79
RICH	0.17	80
LMCU	0.17	81
WMCU	0.17	82
FSCU	0.17	83
ONE	0.19	84
UNCO	0.19	85
WCU	0.2	86
SBS	0.2	87
RTAN	0.2	88
TRAN	0.21	89
ELCU	0.21	90

Table 2 (continued): Rankings of providers
Ordinary variable rate (91-122).

Provider	**Ordinary Variable Rate (Relative to average)**	**Ranking**
MWCU	0.21	91
PACC	0.21	92
ICU	0.22	93
ABAL	0.22	94
CPS	0.22	95
QPCU	0.22	96
UCU	0.23	97
SGE	0.23	98
PSCU	0.23	99
SUMW	0.23	100
ACC	0.23	101
SGBS	0.23	102
CHS	0.23	103
PNCS	0.24	104
COG	0.24	105
QTCU	0.24	106
IMB	0.24	107
BKQ	0.24	108
HOME	0.24	109
WSBL	0.24	110
TIO	0.24	111
HSL	0.24	112
NAB	0.24	113
CBA	0.24	114
SBN	0.24	115
RIWA	0.24	116
UNI	0.25	117
BBS	0.26	118
SSCU	0.27	119
LHL	0.28	120
NECU	0.39	121
TUCU	0.78	122

Entries in italics are not significantly different than zero.

Table 3: Total number and types of interest rate changes
Ordinary Variable rate

Type of change	Total Number	Average
Decreases	97	-0.26
All increases	629	0.35
Increases in response to RBA changes	579	0.36
All other increases (not in response to RBA changes)	50	0.20

Table 4: Ordinary variable rate rankings (1-41)

Provider	Data code	# Decr	# Incr	# Incr in response to RBA	Avg weeks to Incr	# Incr by RBA ignored	Other Incr	Rating	Ranking
ASHL	F199	1	4	4	12	1	0	52.68	1
FSCU	F199	0	4	4	6	1	0	27	2
QRCU	F199	1	5	5	4.6	0	0	24.68	3
WSWA	F199	1	5	5	4.6	0	0	24.68	4
OMCU	F199	1	5	4	5.5	1	1	24.32	5
CBOA	F199	0	5	5	4.6	0	0	23	6
TAFE	F199	1	4	4	3.75	1	0	19.68	7
ROTH	F199	0	3	3	3.67	2	0	17	8
RTAN	F199	0	5	5	3.4	0	0	17	9
CUA	F199	1	5	5	2.6	0	0	14.68	10
UHCU	F199	0	5	4	3.5	1	1	14.64	11
PCSA	F199	1	5	4	3	1	1	14.32	12
CDCC	F199	0	4	4	2.75	1	0	14	13
LMCU	F199	0	3	3	2.67	2	0	14	14
AUSV	Fb	1	5	5	2.4	0	0	13.68	15
QPC	F199	0	5	4	3.25	1	1	13.64	16
RGM	F199	3	4	4	1.25	1	0	13.04	17
MACL	F199	1	5	5	2.2	0	0	12.68	18
SUCU	F199	1	5	5	2.2	0	0	12.68	19
ELCU	F199	0	5	5	2.4	0	0	12	20
NPB	F199	1	6	4	3	1	2	11.96	21
FCU	F199	1	3	3	1.33	2	0	11.68	22
MWCU	Fb	1	5	5	2	0	0	11.68	23
NSWT	F199	1	5	5	2	0	0	11.68	24
BMC	F199	3	5	5	1.2	0	0	11.04	25
BBS	F199	0	5	5	2.2	0	0	11	26
PSCU	F199	0	5	5	2.2	0	0	11	27
QPS	F199	1	5	5	1.8	0	0	10.68	28
TUCU	F199	1	3	3	1	2	0	10.68	29
SAPS	F199	3	5	5	1	0	0	10.04	30
BCCU	Fm	1	3	3	0.67	2	0	9.68	31
HCU	F199	1	5	5	1.6	0	0	9.68	32
MUSA	F199	1	5	5	1.6	0	0	9.68	33
INTC	F199	0	4	3	2	2	1	9.64	34
ACC	F199	0	5	5	1.8	0	0	9	35
TRAN	F199	0	5	5	1.8	0	0	9	36
CIRC	Fb	0	6	5	2.2	0	1	8.64	37
ARMN	F199	0	5	5	1.6	0	0	8	38
UNIW	F199	0	4	4	1.25	1	0	8	39
WCU	Fb	0	3	3	0.67	2	0	8	40
MRM	F199	6	6	5	0	0	1	7.71	41

Table 4 (continued): Ordinary variable rate rankings (42-89)

Provider	Data code	# Decr	# Incr	# Incr in response to RBA	Avg weeks to Incr	# Incr by RBA ignored	Other Incr	Rating	Ranking
SCUL	Fb	2	5	5	0.8	0	0	7.36	42
CHS	F199	0	5	5	1.4	0	0	7	43
DFCU	Fm	0	5	5	1.4	0	0	7	44
HBS	F199	0	5	5	1.4	0	0	7	45
BASS	F199	1	5	5	1	0	0	6.68	46
CAPQ	F199	1	4	4	0.5	1	0	6.68	47
NACO	F199	1	5	5	1	0	0	6.68	48
PMC	F199	3	6	5	0.8	0	1	6.68	49
SSCU	F199	1	5	5	1	0	0	6.68	50
MOBR	F199	2	7	5	1.6	0	2	6.64	51
SIRO	F199	2	4	4	0	1	0	6.36	52
LOGR	F199	0	5	5	1.2	0	0	6	53
NML	F199	0	5	5	1.2	0	0	6	54
PACC	Fm	0	5	5	1.2	0	0	6	55
RICH	F199	0	5	5	1.2	0	0	6	56
SGE	F199	0	5	5	1.2	0	0	6	57
SWB	F199	0	5	5	1.2	0	0	6	58
RHC	F199	1	5	5	0.8	0	0	5.68	59
ECH	Fm	0	6	5	1.6	0	1	5.64	60
CIT	F199	3	5	5	0	0	0	5.04	61
AMO	F199	0	4	4	0.5	1	0	5	62
BANN	Fb	2	6	5	0.8	0	1	5	63
COG	F199	0	5	5	1	0	0	5	64
ICU	F199	0	5	5	1	0	0	5	65
LTCC	F199	2	6	5	0.8	0	1	5	66
NECU	Fb	0	5	5	1	0	0	5	67
PCUN	F199	0	5	5	1	0	0	5	68
QTCU	F199	0	5	5	1	0	0	5	69
UCU	F199	0	5	5	1	0	0	5	70
WMCU	F199	0	5	5	1	0	0	5	71
VTU	F199	0	6	5	1.4	0	1	4.64	72
YHL	F199	2	7	5	1.2	0	2	4.64	73
RATE	Fb	2	5	5	0.2	0	0	4.36	74
SBS	F199	2	5	5	0.2	0	0	4.36	75
ABAL	F199	0	5	5	0.8	0	0	4	76
AIMS	F199	2	6	5	0.6	0	1	4	77
AUMC	F199	2	6	5	0.6	0	1	4	78
HKB	F199	0	5	5	0.8	0	0	4	79
IMB	F199	0	5	5	0.8	0	0	4	80
MMBS	F199	0	5	5	0.8	0	0	4	81
PNCS	F199	0	5	5	0.8	0	0	4	82
SEEC	F199	1	6	4	1	1	2	3.96	83
ANZ	F199	1	5	5	0.4	0	0	3.68	84
HIBN	F199	3	6	5	0.2	0	1	3.68	85
MERM	F199	2	5	5	0	0	0	3.36	86
BCHL	F199	1	6	5	0.8	0	1	3.32	87
NFST	Fb	1	6	5	0.8	0	1	3.32	88
NWMC	F199	1	6	5	0.8	0	1	3.32	89

Table 4 (continued): Ordinary variable rate rankings (90-122)

Provider	Data code	# Decr	# Incr	# Incr in response to RBA	Avg weeks to Incr	# Incr by RBA ignored	Other Incr	Rating	Ranking
BKQ	F199	0	5	5	0.6	0	0	3	90
HOME	F199	0	5	5	0.6	0	0	3	91
HUME	F199	0	5	5	0.6	0	0	3	92
QSCU	F199	0	4	4	0	1	0	3	93
WSBL	F199	0	5	5	0.6	0	0	3	94
RAMS	F199	3	6	5	0	0	1	2.68	95
AHL	F199	2	7	5	0.8	0	2	2.64	96
MEQ	Fb	0	6	5	1	0	1	2.64	97
SUMW	F199	2	7	5	0.8	0	2	2.64	98
CPS	F199	0	5	5	0.4	0	0	2	99
HSL	F199	0	5	5	0.4	0	0	2	100
MOA	F199	0	5	5	0.4	0	0	2	101
SMS	Fb	2	6	5	0.2	0	1	2	102
TIO	Fb	0	5	5	0.4	0	0	2	103
UNCO	F199	0	5	5	0.4	0	0	2	104
UNI	Fb	0	5	5	0.4	0	0	2	105
WIMC	F199	1	5	5	0	0	0	1.68	106
COSE	F199	4	8	5	0.4	0	3	1.63	107
CBA	F199	0	5	5	0.2	0	0	1	108
GNP	F199	0	5	5	0.2	0	0	1	109
SBN	F199	0	5	5	0.2	0	0	1	110
PATH	F199	0	6	5	0.6	0	1	0.64	111
SLCO	Fb	0	6	5	0.6	0	1	0.64	112
APIL	F199	1	6	5	0.2	0	1	0.32	113
SGBS	F199	1	6	5	0.2	0	1	0.32	114
NAB	F199	0	5	5	0	0	0	0	115
RIWA	F199	0	5	5	0	0	0	0	116
HLS	Fb	2	7	5	0.2	0	2	-0.36	117
QPCU	F199	0	6	5	0.4	0	1	-0.36	118
WAHL	F199	4	8	5	0	0	3	-0.37	119
ONE	F199	0	6	5	0.2	0	1	-1.36	120
ROCK	F199	0	6	5	0.2	0	1	-1.36	121
LHL	F199	0	6	4	0	1	2	-1.72	122

Table 5: Composite rankings (1-41)

Provider	**Ranking based upon average rate difference**	**Ranking based upon interest rate movements**	**Composite Score**	**Ranking**
ASHL	1	1	9.67	1
CBOA	10	6	3.55	2
WSWA	27	3	3.23	3
QRCU	29	4	3.19	4
RATE	2	74	2.45	5
OMCU	58	5	2.21	6
FSCU	79	2	2.14	7
TAFE	41	7	2.08	8
RGM	12	17	2.04	9
QPC	17	16	2.01	10
MOBR	6	51	1.99	11
SUCU	13	18	1.95	12
NWMC	3	87	1.90	13
HIBN	7	84	1.57	14
PATH	4	111	1.52	15
CIRC	15	37	1.34	16
RHC	9	59	1.30	17
SMS	8	99	1.26	18
MACL	35	19	1.24	19
HLS	5	117	1.23	20
MRM	21	41	1.06	21
ROTH	63	8	1.03	22
FCU	44	22	0.92	23
CUA	56	10	0.89	24
UHCU	57	11	0.89	25
ECH	18	60	0.85	26
LTCC	16	62	0.83	27
SAPS	39	30	0.80	28
AUSV	54	15	0.79	29
SWB	22	53	0.79	30
BCCU	37	31	0.78	31
PCSA	62	12	0.69	32
SIRO	25	52	0.69	33
BMC	48	25	0.68	34
RTAN	86	9	0.62	35
LOGR	28	54	0.60	36
NPB	53	21	0.58	37
CDCC	64	13	0.57	38
MUSA	46	32	0.56	39
MEQ	14	96	0.53	40
MERM	19	86	0.52	41

Table 5 (continued): Composite rankings (42-89)

Provider	**Ranking based upon average rate difference**	**Ranking based upon interest rate movements**	**Composite Score**	**Ranking**
WIMC	11	106	0.51	42
SCUL	36	42	0.49	43
INTC	49	34	0.44	44
AIMS	24	76	0.39	45
SEEC	26	83	0.35	46
PMC	40	46	0.32	47
CIT	33	61	0.31	48
LMCU	80	14	0.31	49
QPS	59	28	0.29	50
AUMC	30	77	0.28	51
YHL	34	72	0.26	52
NML	42	55	0.15	53
MOA	23	100	0.15	54
APIL	20	113	0.10	55
HBS	50	43	0.00	56
NSWT	81	23	-0.01	57
DFCU	52	44	-0.04	58
AMO	47	63	-0.10	59
ELCU	89	20	-0.12	60
MWCU	90	24	-0.16	61
HCU	74	33	-0.22	62
BCHL	43	88	-0.23	63
SLCO	31	112	-0.23	64
UNIW	65	38	-0.27	65
QSCU	45	90	-0.31	66
CAPQ	60	47	-0.31	67
ARMN	66	39	-0.31	68
PSCU	97	26	-0.33	69
COSE	38	107	-0.35	70
WAHL	32	119	-0.41	71
PCUN	55	64	-0.43	72
BBS	118	27	-0.45	73
ANZ	51	85	-0.47	74
TRAN	91	35	-0.54	75
ACC	98	36	-0.62	76
BASS	75	48	-0.64	77
WCU	87	40	-0.64	78
NACO	78	49	-0.68	79
BANN	71	65	-0.81	80
RICH	82	56	-0.81	81
VTU	67	73	-0.82	82
CHS	99	45	-0.90	83
MMBS	68	78	-0.91	84
AHL	61	97	-0.92	85
WMCU	83	66	-0.96	86
PACC	92	57	-0.96	87
HKB	76	79	-1.02	88
SGE	100	58	-1.04	89

Table 5 (continued): Composite rankings (90-122)

Provider	**Ranking based upon average rate difference**	**Ranking based upon interest rate movements**	**Composite Score**	**Ranking**
HUME	69	91	-1.05	90
SSCU	119	50	-1.09	91
NFST	77	89	-1.12	92
RAMS	72	95	-1.13	93
ICU	93	67	-1.14	94
SBS	88	75	-1.16	95
UCU	101	68	-1.18	96
COG	104	69	-1.22	97
QTCU	105	70	-1.22	98
ABAL	94	80	-1.28	99
GNP	70	108	-1.33	100
IMB	106	81	-1.36	101
PNCS	107	82	-1.36	102
UNCO	84	101	-1.45	103
BKQ	108	92	-1.50	104
HOME	109	93	-1.50	105
WSBL	110	94	-1.50	106
SUMW	102	98	-1.51	107
CPS	95	102	-1.56	108
HSL	111	103	-1.64	109
TIO	112	104	-1.64	110
UNI	117	105	-1.68	111
ROCK	73	120	-1.70	112
NECU	121	71	-1.77	113
CBA	113	109	-1.78	114
SBN	114	110	-1.78	115
SGBS	103	114	-1.84	116
QPCU	96	118	-1.90	117
NAB	115	115	-1.92	118
RIWA	116	116	-1.92	119
ONE	85	121	-1.93	120
LHL	120	122	-2.31	121
TUCU	122	29	-2.42	122

Table 6: Movements in ordinary variable rate for five large banks

	10 Nov 2003	**17 Nov 2003**	**8 Dec 2003**	**15 Dec 2003**	**7 Mar 2005**	**14 Mar 2005**	**20 Jun 2005**	**8 May 2006**	**7 Aug 2006**	**14 Aug 2006**
RBA changes	**+.25**		**+.25**	.	**+.25**	.	.	**+.25**	**+.25**	.
ANZ	.	+.25	.	+.25	+.25	.	-.70	+.25	+.25	.
CBA	+.25	.	+.25	.	+.25	.	.	+.25	.	+.25
NAB	+.26	.	+.25	.	+.25	.	.	+.25	+.25	.
St. George	.	+.25	+.25	.	+.25	.	.	+.25	.	+.25
Westpac	.	+.25	.	+.25	.	+.25	.	+.25	+.25	.

Table 7: Movements in ordinary variable rate for five mortgage providers (2003-2004)

	10 Nov 2003	**17 Nov 2003**	**1 Dec 2003**	**8 Dec 2003**	**15 Dec 2003**	**5 Jan 2004**	**18 Oct 2004**	**1 Nov 2004**
RBA changes	**+.25**	.	.	**+.25**	.	.	.	.
Aussie Home Loans (AHL)	.	+.25	.	.	+.25	.	.	.
Assured Home Loans (ASHL)	.	.	.	.	.	.	.	+.74
CBA Online Only (CBOA)	.	.	+.25	.	.	+.25	.	.
LaTrobe Financial Services (LHL)	.	.	.	+.25	.	+.25	.	.
Unicom Credit Union (TUCU)	.	.	.	.	.	.	-.95	.

Table 7 (continued): Movements in ordinary variable rate for five mortgage providers (2005)

	7 Mar 2005	**14 Mar 2005**	**4 Apr 2005**	**15 Aug 2005**	**3 Oct 2005**	**17 Oct 2005**	**21 Nov 2005**	**28 Nov 2005**
RBA changes	**+.25**	.	.	.	.	.	.	.
Aussie Home Loans (AHL)	.	+.02	.	+.23	-.53	-.07	.60	.
Assured Home Loans (ASHL)	+.25	.	.	.	.	.	.	-.02
CBA Online Only (CBOA)	.	.	+.25	.	.	.	.	.
LaTrobe Financial Services (LHL)	+.25	.	+.04	.	.	.	.	.
Unicom Credit Union (TUCU)	.	+.25	.	.	.	.	.	.

Table 7 (continued): Movements in ordinary variable rate for five mortgage providers (2006)

	8 May 2006	**15 May 2006**	**3 Jul 2006**	**7 Aug 2006**	**14 Aug 2006**	**4 Sept 2006**
RBA changes	**+.25**	.	.	**+.25**	.	.
Aussie Home Loans (AHL)	+.25	.	.	.	+.25	.
Assured Home Loans (ASHL)	.	+.25	.	+.25	.	.
CBA Online Only (CBOA)	.	.	+.24	.	.	+.25
LaTrobe Financial Services (LHL)	+.25	.	.	+.25	.	.
Unicom Credit Union (TUCU)	.	+.25	.	.	+.25	.

Table 8: Initial and final observations for ordinary variable rate for five large banks and five other providers

Provider	**Initial rate: 6 Jan 2003**	**Ending rate: 23 Oct 2006**
ANZ	6.57	7.12
CBA	6.57	7.82
NAB	6.56	7.82
St. George	6.57	7.82
Westpac	6.57	7.82
Aussie Home Loans (AHL)	6.45	7.70
Assured Home Loans (ASHL)	5.45	6.92
CBA Online Only (CBOA)	6.00	7.24
LaTrobe Financial Services (LHL)	6.60	7.89
Unicom Credit Union (TUCU)	8.00	7.80