Maverick Firms: An Exploratory Analysis of Mortgage Providers in Australia

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Outline
- Basic definition and what do merger guidelines say about maverick firms
- The lack of theoretical foundations
- Maverick theories are important in practice
- How to identify a maverick
- An exploratory analysis of mortgage providers in Australia
- Alternative measures of maverick-like behaviour
- Implications for the development of theory (time permitting)
- Conclusion

Basic Definition
- "A maverick firm is 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"
- U.S. Merger Guidelines (§ 2.12) but also similar definitions in the Australian Merger Guidelines (5.139), Irish Guidelines (§4.24), UK OFT Guidelines (§4.17), NZ Merger Guidelines (Section 7.2), EU Merger Guidelines (§19-21).

Australian Merger Guidelines (5.139)
- If the target firm has been a particularly competitive or innovative influence in the market, the Commission will have particular concerns regarding the likely competitive effect of the merger. 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. The Commission would be particularly concerned if such firms were the target of mergers.
NZ Merger Guidelines (7.2):

Sometimes a market contains a business that is in some way atypical. For example, 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.

Should a maverick become the target of a business acquisition, its elimination could have the effect of substantially lessening competition in the market, if there were barriers preventing the entry of new mavericks. On the other hand, an acquisition not involving the maverick could be constrained by the maverick’s continued presence in the market, despite the increase in seller concentration; or an acquisition could create a new maverick in the form of the combined entity if the acquisition were to lead to significant cost savings.

In considering these possibilities, the Commission analyses whether any business in the relevant market exhibits features associated with a maverick, such as:

- a history of aggressive, independent pricing behaviour (rather than of following the lead of other businesses);
- a record of superior innovative behaviour or low costs;
- a business having a substantial amount of excess capacity, particularly if allied with a low market share;
- a business having a primary commitment to the discount segment of the market, if such is a market feature;
- a growth rate exceeding that of the market (or the business having realistic expansion plans exceeding likely market growth);
- a firm having a business model that differs from the industry norm;
- a history of independent behaviour generally.

How to identify a maverick firm?

To the best of my knowledge there are no formal models illustrating the process by which mavericks disrupt coordination in an oligopoly setting. (Exception: Kwoca (1989) who examines unilateral effects).

Instead, most commentators rely on Baker (2002), which 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.

The main difficulty with Baker’s analysis, and indeed with the use of the notion of maverick firms in competition analysis, is that there is no clear understanding or 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.

In Search of a Theory

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The concern with the lack of theoretical foundations is not new:

“…Maverick behavior is often due to management decision making, rather than 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…” (Largenfeld, p. 49, 1996).

“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.” (Jacobs, p. 568, 2001)

In Search of a Theory (Cont’d)

- Despite the lack of an intellectually rigorous basis for analysing the role of maverick firms in competition analysis, they play an important role in competition cases, as illustrated by 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. (p. 16)

In Search of a Theory: Some Australian cases

- George Weston Foods’ proposed acquisition of Good Stuff Bakery (GSB)
  - Concerns about the removal of a maverick supplier from the market
  - The ACCC (Public Competition Assessment, 16.03.07) concluded that this was the case but that GSB were likely not sustainable

- Baloworld’s proposed acquisition of Wattyl
  - The ACCC signaled concerns with the removal of a maverick (Wattyl/Solver) from the market

<table>
<thead>
<tr>
<th>Competition Theory</th>
<th>Cases</th>
<th>Events</th>
<th>Evidence</th>
<th>Cases</th>
<th>Events</th>
<th>Evidence</th>
</tr>
</thead>
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<tr>
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<td>5 (2)</td>
<td>1</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Regime-shift</td>
<td>12</td>
<td>5 (1)</td>
<td>6 (3)</td>
<td>27</td>
<td>2 (4)</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Maverick</td>
<td>9</td>
<td>4 (0)</td>
<td>7 (0)</td>
<td>8</td>
<td>3 (0)</td>
<td>8 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>14 (3)</td>
<td>20 (5)</td>
<td>29</td>
<td>2 (4)</td>
<td>5 (12)</td>
</tr>
</tbody>
</table>

Reproduced from Coate (2006)
Our Contribution: Examining Mortgage Providers in Australia

- Cannex has kindly provided us with 31,641 weekly observations on 9 different rates for mortgage providers (no quantities!)
- There are 159 providers in the data
- The observations are weekly from 06 January 2003 to 23 October 2006
- There are 199 observations (on these 199 dates) for each provider
- Not all providers offer all possible rates
- There are also some minor data issues that I will not discuss today
- There were five RBA rate changes during the sample period (all upwards)

The Data

<table>
<thead>
<tr>
<th>Product</th>
<th>Average rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary variable rate (ov)</td>
<td>6.079</td>
</tr>
<tr>
<td>Basic variable rate (br)</td>
<td>6.027</td>
</tr>
<tr>
<td>One year introductory fixed rate (1yIFC)</td>
<td>5.981</td>
</tr>
<tr>
<td>One year fixed rate (1yFC)</td>
<td>6.209</td>
</tr>
<tr>
<td>Two year fixed rate (2yFC)</td>
<td>6.815</td>
</tr>
<tr>
<td>Three year fixed rate (3yFC)</td>
<td>6.961</td>
</tr>
<tr>
<td>Four year fixed rate (4yFC)</td>
<td>6.977</td>
</tr>
<tr>
<td>Five year fixed rate (5yFC)</td>
<td>7.029</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Ordinary Variable</th>
<th>Big 3 compared to rest</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/1/2003</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/3/2003</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/5/2003</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/7/2003</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/9/2003</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/11/2003</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/1/2004</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/3/2004</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/5/2004</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/7/2004</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/9/2004</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/11/2004</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/1/2005</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/3/2005</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
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<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/7/2005</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/9/2005</td>
<td>6.5%</td>
<td>-</td>
</tr>
<tr>
<td>6/11/2005</td>
<td>6.5%</td>
<td>-</td>
</tr>
</tbody>
</table>

Our Approach

- We provide two measures of 'aggressive' behaviour for each rate (although in this presentation we focus only on the ordinary variable rate):
  1. Estimated deviations from average rate
  2. Average number of weeks that it took a provider to increase its rate as a result of an increase in the RBA cash rate
- Our approach is best thought of as a fact finding exercise...more like a fishing expedition (Comments welcome)
- Our aim it to inform the development of theory but there are some shortcomings:
  - Are these products homogeneous (although our estimates can be thought of as bounds for how different these 'products' can be)
  - There are also fees (again our estimates can be thought of as bounds)
  - The nature of competition (some providers can be less aggressive on standard/ordinary rates but more aggressive on fixed rates)
  - There is also the issue of bundling (again we can our estimates of the differences in rates as an upper bound on consumers' valuation for the one-stop shop convenience of bundles)
Measure 1: Estimated deviation from average

- We create an average OV rate at each point in time. We regress this variable against a set of dummy variables representing each provider.
- The coefficients can be interpreted as the average difference from the mean rate for each provider after controlling for variation across time. A negative coefficient indicates that, for that particular rate, the provider is charging a rate that is less than the average rate.
- We used these regression results to create an index for being a maverick for any one rate. We can simply take the coefficient and use it 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).
- Graphically, one could think of this measure as similar to the integral of the area between the graph against time of a provider’s rate and the average rate.

Measure 1: Top 10

<table>
<thead>
<tr>
<th>OV (Relative to average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHL</td>
</tr>
<tr>
<td>RATE</td>
</tr>
<tr>
<td>NWMC</td>
</tr>
<tr>
<td>PATH</td>
</tr>
<tr>
<td>HLS</td>
</tr>
<tr>
<td>HIBN</td>
</tr>
<tr>
<td>MOBR</td>
</tr>
<tr>
<td>SMS</td>
</tr>
<tr>
<td>RHC</td>
</tr>
<tr>
<td>CBOA</td>
</tr>
</tbody>
</table>

Recall average OV = 6.88% over sample period

Measure 2: Providers’ responsiveness

- For each provider, we look at the number of increases, the number of decreases, the responsiveness of the provider to increases and decreases of the reserve bank cash rate (only increases in our sample), and the length of time the provider waits before increasing/decreasing the rate.
- 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’.

Our ranking is formed by:

\[ r_i = \frac{I_{\text{RBA}_i}}{D_{\text{RBA}_i}} + \frac{C_{\text{RBA}_i}}{D_{\text{RBA}_i}} + \frac{R_{\text{RBA}_i}}{D_{\text{RBA}_i}} + \frac{D_{\text{RBA}_i}}{D_{\text{RBA}_i}} - \left( \frac{1}{2} \right) I_{C_{\text{RBA}_i}} + \left( \frac{1}{2} \right) D_{C_{\text{RBA}_i}} \]

where:
- \( I_{\text{RBA}_i} \) is the number of increases by the provider in response to an increase in the reserve bank cash rate
- \( C_{\text{RBA}_i} \) is the number of decreases in response to an increase in the reserve bank cash rate
- \( D_{\text{RBA}_i} \) is the number of times the provider ignored increases in the reserve bank cash rate
- \( R_{\text{RBA}_i} \) is the number of times the provider ignored decreases in the reserve bank cash rate
- These are weighted by \( w_{RBA_i} \), 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
- \( I_{C_{\text{RBA}_i}} \) are rate increases initiated by the provider which are not in response to any reserve bank increase
Measure 2: Top 10

<table>
<thead>
<tr>
<th>Provider</th>
<th>Data code</th>
<th># Incr</th>
<th># Incr in response to RBA</th>
<th>Avg weeks to Incr</th>
<th># Incr by RBA ignored</th>
<th>Other Incr</th>
<th>Rating</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHP</td>
<td>F109</td>
<td>1</td>
<td>4</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>52.5</td>
<td>1</td>
</tr>
<tr>
<td>DSCU</td>
<td>F109</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>GSCU</td>
<td>F109</td>
<td>1</td>
<td>5</td>
<td>5.5</td>
<td>1</td>
<td>1</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>NWSA</td>
<td>F109</td>
<td>1</td>
<td>5</td>
<td>4.6</td>
<td>0</td>
<td>0</td>
<td>31.5</td>
<td>4</td>
</tr>
<tr>
<td>ERBA</td>
<td>F109</td>
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<td>5</td>
<td>4.6</td>
<td>0</td>
<td>0</td>
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<td>5</td>
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<tr>
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<td>3.75</td>
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<td>15.5</td>
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<tr>
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<tr>
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<td>4</td>
<td>3.5</td>
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<td>1</td>
<td>15.5</td>
<td>10</td>
</tr>
</tbody>
</table>

Level of prices and ‘responsiveness’ lead to different results but the correlation between the two measures is 20%

Implications for developing a theoretical framework

- A particular consideration is consistency: theory about coordinated effects has implications for unilateral effects and vice versa.
- A key challenge is to model how a firm with limited market share can constrain the behaviour of larger firms without gaining any market share itself.
- Standard oligopoly theory is static in nature and focus on short-run profit-maximising behaviour.
- Next we consider a simple example.

A Simple Example

- Firms: 1, ..., 5
- Zero marginal cost
- No fixed costs
- Homogenous good, \( p = 1 - q \)
- One-shot game
- Firm 1 chooses a price given choices of quantities by firms 2, ..., 4

Market Outcomes:

\[
\begin{align*}
p^* &= \frac{1}{3}Q = \frac{7}{8}, \\
q_1 &= \frac{1}{5}Q = \frac{1}{5}, q_2 = q_3 = q_4 = \frac{1}{4}
\end{align*}
\]

Standard Cournot would instead yield

\[
\begin{align*}
p^* &= \frac{1}{3}Q = \frac{2}{5}, \\
q_1 &= q_2 = q_3 = q_4 = \frac{1}{5}
\end{align*}
\]

A Simple Example (Cont’d)

- Merger between Maverick (1) and 2
- New firm (12) behaves as a Cournot competitor
- Market outcome after merger:

\[
\begin{align*}
p &= \frac{1}{4}Q = \frac{3}{4}, \\
q_1 &= q_2 = q_3 = q_4 = \frac{1}{4}
\end{align*}
\]

Merger not profitable for Insider firms

Price does not increase as much when firm 1 remains in the market.
Challenges to Theorists

- This is similar to Kowoca who considered a conjectural variation model.
  - Subject to the same criticism that the choice of strategy is arbitrary (by the modeller).
- Menezes and Quiggin (2007): focus on outcome spaces; this means price x quantity or supply function a la Klemperer and Meyer (1989).
- ‘Bertrand’ firm has elastic supply function and firms 2 to 5 have inelastic supply functions.
- One still need to determine ‘beliefs’, etc.
- Other challenges include modelling:
  - The time dimension of ‘responsiveness’
  - Going from unilateral effects model to a coordinated effects mode.
  - Equilibrium indeterminacy is an issue; it does not suffice to point out that there is an equilibrium in the super game that involves tacit collusion. Instead theory needs to explain how a merger involving a maverick might either change regime or reinforce current equilibrium.

Conclusion

- Despite the lack of theoretical foundations, the notion of a maverick firm plays an important role in competition analysis.
- The development of techniques to identify mavericks is likely to be helpful.
  - The focus of this presentation was on the construction of metrics.
  - Ultimately this effort needs to be two-pronged; it should involve both theory and empirical techniques.