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Measuring Competitiveness - A Case Study of the Australian Banking Industry.

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Abstract

In this paper the returns of Australia's top four banks are analysed using the capital asset pricing model (CAPM) for the period 1999-2001. The CAPM is used to predict the required rate of return of particular firms after accounting for the risk of the investment. The results show that all four banks achieved returns above that predicted by the CAPM and so could be said to be earning excessive returns, indicating a lack of competitiveness. This finding is not unexpected given that over the period of this analysis banks were known to have behaved in a non-competitive manner in relation to credit cards schemes. Analysis over a longer time period is need to establish if these above normal profits are still present in the industry

Field of research: industry economics, banking

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Introduction

The four major Australian banks are currently some of Australia's most profitable companies. These high profits coupled with the market dominance of the top four banks raise questions of a lack of competition in the sector, particularly in relation retail banking. This argument is further fuelled by the fact that this increased profitability has come at a time of substantial increases in fees on retail transaction accounts. However, high profitability and high market concentration are not necessarily an indicator of lack of competition in an industry.

In this paper the assertion that banks profitability is in excess of normal profit (super-normal profits) will be examined using the Capital Asset Pricing Model (CAPM). The presence of above normal returns would tend to indicate that the banking sector may be exercising market power in some parts of its operations.

Literature Review

Why is Competition Desirable?

In contemporary neo-classical welfare economics, the role of the firm in society is to maximise profits. In this way, provided there is no market failure in the form of monopolies or externalities, social welfare is maximised. That is, societies scarce resources are used in the most efficient way.ⁱ Despite the acknowledgement in the economic literature that the theory of perfectly competitive markets does not exist in reality and that it may not be an appropriate goal for policy, it remains a general objective in market based economies.ⁱⁱ . The benefits of the pursuit of competitive forces is summarised by Jones (1994,pages 83-84)

“Competition is the spur which ensures, at least in the long run, that firms are responsive to the demands of consumers, their production costs are kept to a minimum, their profit margins are not excessive and they are technologically progressive. Even if firms pursue objectives other than profit maximisation the discipline of competition in both the market for their output and the market for their assets (that is, the stock exchange) limits the extent to which they can depart from economically optimal behaviour. Only to the extent that firms can achieve freedom from competition through the possession of monopoly power or restrictive trade practises can they escape the discipline of the market.

Competition in the Australian Banking Industry

The Australian banking industry is characterised by the dominance of the National Australia Bank (NAB), the Commonwealth Bank of Australia (CBA), the Australian and New Zealand Bank (ANZ) and the Westpac Banking Corporation (WBC). Of the 18 banks considered in the Australian Graduate School of Managements, Risk Measurement Service for September 2005, these top 4 banks held over 90 per cent

of market capitalisation. This dominance of market share has enforced a commonly held view that banks have considerable market power. The Commonwealth Government seems to share this concern, the banking sector being subject to the “four pillars” policy which prevents the merger of two or more of the major banks – the only industry to have such a policy. This provision is over and above the fact that any merger would need to convince the Australian Competition and Consumer Commission (ACCC) that competition in the relevant markets would not be substantially reduced a requirement under Section 50 of the Trade Practises Act (Valentine and Ford 2001).

A high level of market concentration is a necessary but not sufficient condition alone for conclusions to be drawn about the extent of competition in an industry (ACCC 1999). The contemporary approach to measuring competitiveness in an industry is based on the concept of contestability, developed in the seminal article by Baumol in 1982. The key concept developed in the theory is that a contestable oligopoly will produce a competitive outcome, provided that there are no barriers to entry and that exit is costless in the sense that costs of entry can be recouped and capital is saleable or reusable. In this case entrants will be drawn into an industry when existing operators are earning above normal profits. The key part of the theory rests on the notion of potential competitors. If existing firms in the industry are behaving competitively and not earning super-normal profits then no firm will be attracted into the industry and a competitive outcome is possible with high market concentration. Valentine and Ford (2001 p41) summarise by concluding that the “contestability of an industry cannot be judged on the number of institutions in the market or on whether or not new organisations are entering the market”

Market definition is also critical when assessing competitiveness (King 2005). The objective of which is to identify competitors who through demand or supply substitutability can constrain the exercise of market power of the firms in question (Jones 2002). The financial services industry consists of distinct sub markets including investment products such as deposit accounts, shares and fixed interest securities, loans and credit cards, risk management products such as insurance and derivatives and tax advantaged instruments such as superannuation (Valentine and Ford 2001). Some of these markets are obviously and visibly highly competitive, for example home lending, while competition in others such as deposit accounts will be more difficult to assess.

The ACCC in reviewing the mergers of Westpac and the Bank of Melbourne and the Commonwealth Bank with Colonial Limited specifically noted as a concern the lack of competition in transaction accounts and as a consequence both banks were required to make certain provisions with regard to these services in order for the mergers to be approved. (Valentine and Ford 2001). Specifically in the case of the CBA/Colonial merger the ACCC found that “barriers to entry in the form of branch and ATM networks are high, customer inertia and product bundling compound these entry barriers, and fees and charges for transaction services have been rising, especially in regard to electronic and telephone banking” (ACCC 2000 p 6). The comment regarding customer inertia and product bundling would suggest that transaction accounts may have inelastic demand, meaning that

consumers are not particularly responsive to fee increases for these services. This would make fee increases above the cost of provision a likely area for banks to target to generate income. This characteristic of retail banking services can mean that banks may be in a position to exercise some monopoly power if the market is not highly competitive.

Banks have already exhibited a propensity towards this behaviour in particular areas of their business. After an extensive inquiry into the operation of credit card schemes in Australia, (see RBA (2002), *Reform of Credit Card Schemes in Australia, IV Final Reforms and Regulation Impact Statement*), it was found that the fees paid by a merchant's bank to a cardholders bank when a credit card transaction was made (interchange fee) had been set at a rate that was higher than the cost of provision of this service.

Credit cards are one method of payment offered in Australia by financial institutions. However, until recently, the price signals faced by consumers differed between payment methods. The other methods, (cash, cheque, debit cards, EFTPOS) had been priced on the basis of a "user pays" system whereas credit card schemes pricing was influenced by the set of regulations which members of the schemes (Bankcard, MasterCard and Visa) agreed to or enforced. These regulations included the setting of interchange fees, restrictions on merchant pricing and scheme entry criteria. The operation of credit card schemes in Australia has recently been the subject of review, a result of issues raised in the Final Report of the Financial System Inquiry (Wallis Report) in 1997. In 2000 a joint study of the scheme was conducted by the Australian Competition and Consumer Commission (ACCC) and the Reserve Bank of Australia, which highlighted the "private sector regulations" governing the operations of the scheme, which were a cause for concerns from a public policy standpoint. In 2001, the Reserve Bank designated the credit card schemes operated by Bankcard, MasterCard and Visa as payments systems and as such were subject to regulation under *the Payment Systems (Regulation) Act 1998*.

In investigating the details of the private sector regulations of the scheme the RBA found that the effect of these regulations was to distort the price of credit card transactions. The RBA (2002) estimates the total cost of a debit card transaction to be \$0.41 per \$100 transaction, of which \$0.50 is passed on to consumers, when the transaction exceeds the fee free threshold. In contrast, the total cost of credit card transaction is \$2.01 and consumers who pay their account in full each month receive a **benefit** of up to \$1.04 per \$100 transaction. This benefit includes the costs of the interest free period and any loyalty points. In response to these relative price signals credit card usage has outstripped debit card usage in Australia. The issue was that this price incentive was not the result of competition but rather a consequence of the regulations that govern credit card schemes. Financial institutions promoted the use of credit cards, despite their relatively high costs of provision, as it is the payment instrument that generated the highest returns for them (RBA 2002).

Overall the evidence suggests that since deregulation, competition in banking services in Australia has increased. "In aggregate, the reduction in interest margins since deregulation has significantly outweighed the rise in fees" (RBA July 2001 p 5). Specifically, the major banks domestic interest spread has decreased from around 5 percentage points in 1988 to 2.7 percentage points in 2000. This reduction in interest margins is a direct result of competition. Valentine and Ford (2001 p 46) note that "Banks have maintained their high profitability in the face of falling interest margins(arising from a highly competitive banking environment) not by raising fees, but by cutting costs and expanding into new business areas such as funds management and insurance". This statement implies that banks have not used their position of market power to earn above normal returns but rather have remained competitive by cost management and seeking new business.

In the next section the CAPM will be used to assess whether banks have earned returns above what is considered a fair return on capital after accounting for risk.

Methodology

In this section, bank returns will be examined using the Capital Asset Pricing Model to determine if these firms are making the above normal profits. Firms in a competitive market earn a normal return when they cover all costs of business, including the opportunity cost of the funds invested in the firm. Competitive forces deliver benefits to consumers and the economy generally. These forces ensure that prices that consumers pay are not inflated to increase the profitability of firms. They also ensure that resources in the economy are directed to areas where they will be used most efficiently. Excessive returns are an indication of a lack of competitive pressure among firms in the sector and can indicate the existence monopoly like behaviour.

The CAPM model is used to predict the required rate of return of particular firms after accounting for the risk of the investment. The model is

$$E(r_i) = r_f + E(r_m - r_f)\beta_i \quad (i)$$

Where:

$E(r_i)$ = required return on the equity of the stock

$E(r_m - r_f)$ = expected return on the market over and above the risk free rate

r_f = risk free rate
 β_i = beta of stock i

The Beta of a stock measures the sensitivity of the movement in the price of a stock to movements in the prices of the market as a whole and represents a measurement of market or systemic risk. The market model is given as

$$r_i = \alpha + \beta r_m \quad (ii)$$

where:

r_i = the return on stock i
 r_m = the return on the market
 α = the intercept coefficient (Y intercept)
 β = the slope coefficient (slope of the line)

The beta coefficient is therefore a ratio of the covariance between the returns on a particular share and the returns on the market as a whole. Hence a beta for a stock equal to one indicates that the stock is as risky as the market. A beta of greater than one indicates that the stock is riskier than the market and a beta of less than one indicates that the stock is less risky than the market.

Results of analysis of bank returns

The following table compares the expected required return on equity for the 4 major Australian banks, National Australia Bank (NAB), Commonwealth Bank, (CBA), Westpac (WBC) and the Australian and New Zealand Bank (ANZ) with the return on equity earned in the same time period. The CAPM model was used to calculate the expected rate of return for the banks quarterly from March 1999, to September 2001. The beta's used in the analysis were those published by the Australian Graduate School of Management, Centre for Research in Finance. The beta's are calculated every quarter and are based on the previous 48 months of data. The risk premium used in the calculations was 6.4%, drawn from analysis in Frino *et al* (2001) on the average annual real rate of return of Treasury notes compared with the All Ordinaries Accumulation Index between 1980-1997. The risk free rate used was the quarterly average of Treasury note yields for the corresponding 3

month period - ie for the March 1999 quarter the risk free rate was the average of T note yields from January 1999 – March 1999. Table 1 summarises the results of the analysis. Full calculations are detailed in appendix 1.

Table 1 Expected required returns and actual return on equity for the four major Australian banks – March 1999- September 2001, in per cent.

	NAB		CBA		WBC		ANZ	
	Required return E(r _i)	Actual return on equity	Required return E(r _i)	Actual return on equity	Required return E(r _i)	Actual return on equity	Required return E(r _i)	Actual return on equity
Mar-99	2.77	3.98	2.62	4.425	2.78	4.25	3.37	4.28
Jun-99	2.99	3.98	2.74	4.425	2.83	4.25	3.36	4.28
Sep-99	3.07	3.98	2.83	4.425	2.94	4.25	3.47	4.28
Dec-99	2.94	3.98	2.73	4.425	2.94	4.25	3.48	4.28
Mar-00	3.03	3.95	2.74	2.450	3.01	4.88	3.61	4.75
Jun-00	3.05	3.95	2.57	2.450	2.89	4.88	3.56	4.75
Sep-00	3.17	3.95	2.58	2.450	2.97	4.88	3.69	4.75
Dec-00	3.18	3.95	2.62	2.450	2.96	4.88	3.71	4.75
Mar-01	3.03	3.05	2.50	3.375	2.92	4.90	3.61	4.85

Jun-01	2.90	3.05	2.29	3.375	2.75	4.90	3.36	4.85
Sep-01	3.93	3.05	3.08	3.375	3.29	4.90	3.88	4.85

The results indicate that in all quarters examined in this analysis Westpac and ANZ earned a return greater than that required by the CAPM model. The NAB earned a return in excess of that expected in all quarters included in this study except in the September 2001 quarter where they achieved a return of 3.05 per cent which was below the expected return of 3.93 per cent. The CBA earned returns in excess of that expected in 1999 and 2001, but earned below expected returns in all quarters of 2000. A possible explanation for the lower returns in 2000 could be the CBA take over of the Colonial State Bank, which was finalised in June 2000.

These results imply that banks are earning above normal returns after accounting for risk.

Limitations of the Analysis

There are several limitations of this analysis. First, the analysis is based on a relatively short time frame. It would be interesting to observe returns over a longer time period to ascertain if excessive returns are observable only in more recent times or have been present since deregulation of financial markets. Second, the time period analysed is prior to the reform of credit card schemes which began in January 2003. Hence, the analysis will cover a period of time where collusion between the four banks and excessive pricing is known to have occurred. It remains to be seen if the reform of the credit card scheme will remove all of the excessive returns to the major four banks or if there are other sources of excessive returns embedded in the data.

Third, as with all uses of CAPM the choice of the risk premium is critical. The figure of 6.4 per cent is based on historical share and government security returns over a time that is prior to the period of analysis. This approach is based on two assumptions. First, that realised returns are equivalent to returns expected by market participants for bearing risk in the future. Second that the premium is constant over time (Frino *et al* 2001 page 169). The premium of 6.4 per cent is conservative with Frino *et al* noting that in the past few years fund managers have used market risk premiums of between 3-4 per cent. Using a premium that is smaller than 6.4 per cent would have exacerbated the excessive returns.

Conclusions

Analysis of the four major banks returns using the CAPM model showed that between March 1999 and September 2001, banks appear to have earned returns in excess of the expected rate. This along with the four majors dominance could be interpreted that the industry is non competitive and that there is some evidence of market power abuse. However, the results need to be treated with some caution as it was during this period that the banks were known to have used their market power to collude on fees on credit cards. The reform of this area of the payments system commenced in 2003. A study encompassing a longer timeframe would be of benefit in determining if these above normal returns were still present.

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Appendix 1

Calculation of Required Rate of Return.

NAB

	R risk free	Beta	Premium	R required	ROE
Mar-99	0.01165	1	0.016	2.77%	3.98%
Jun-99	0.011675	1.14	0.016	2.99%	3.98%
Sep-99	0.011825	1.18	0.016	3.07%	3.98%
Dec-99	0.012425	1.06	0.016	2.94%	3.98%
Mar-00	0.013975	1.02	0.016	3.03%	3.95%
Jun-00	0.014775	0.98	0.016	3.05%	3.95%
Sep-00	0.015575	1.01	0.016	3.17%	3.95%
Dec-00	0.0155	1.02	0.016	3.18% A	3.95%
Mar-01	0.013675	1.04	0.016	3.03%	3.05%
Jun-01	0.012	1.06	0.016	2.90%	3.05%
Sep-01	0.0185	1.3	0.016	3.93%	3.05%

CBA

	R risk free	Beta	Premium	R required	ROE
Mar-99	0.01165	0.91	0.016	2.62%	4.425%
Jun-99	0.011675	0.98	0.016	2.74%	4.425%
Sep-99	0.011825	1.03	0.016	2.83%	4.425%
Dec-99	0.012425	0.93	0.016	2.73%	4.425%
Mar-00	0.013975	0.84	0.016	2.74%	2.450%
Jun-00	0.014775	0.68	0.016	2.57%	2.450%

Sep-00	0.015575	0.64	0.016	2.58%	2.450%
Dec-00	0.0155	0.67	0.016	2.62%	2.450%
Mar-01	0.013675	0.71	0.016	2.50%	3.375%
Jun-01	0.012	0.68	0.016	2.29%	3.375%
Sep-01	0.0185	0.77	0.016	3.08%	3.375%

ANZ

	R risk free	Beta	Premium	R required	ROE
Mar-99	0.01165	1.38	0.016	3.37%	4.28%
Jun-99	0.011675	1.37	0.016	3.36%	4.28%
Sep-99	0.011825	1.43	0.016	3.47%	4.28%
Dec-99	0.012425	1.4	0.016	3.48%	4.28%
Mar-00	0.013975	1.38	0.016	3.61%	4.75%
Jun-00	0.014775	1.3	0.016	3.56%	4.75%
Sep-00	0.015575	1.33	0.016	3.69%	4.75%
Dec-00	0.0155	1.35	0.016	3.71%	4.75%
Mar-01	0.013675	1.4	0.016	3.61%	4.85%
Jun-01	0.012	1.35	0.016	3.36%	4.85%
Sep-01	0.0185	1.27	0.016	3.88%	4.85%

WBC

	R risk free	Beta	Premium	R required	ROE
Mar-99	0.01165	1.02	0.016	2.80%	4.25%
Jun-99	0.011675	1.04	0.016	2.83%	4.25%
Sep-99	0.011825	1.1	0.016	2.94%	4.25%
Dec-99	0.012425	1.06	0.016	2.94%	4.25%
Mar-00	0.013975	1.01	0.016	3.01%	4.88%
Jun-00	0.014775	0.88	0.016	2.89%	4.88%
Sep-00	0.015575	0.88	0.016	2.97%	4.88%
Dec-00	0.0155	0.88	0.016	2.96%	4.88%
Mar-01	0.013675	0.97	0.016	2.92%	4.90%

Jun-01	0.012	0.97	0.016	2.75%	4.90%
Sep-01	0.0185	0.9	0.016	3.29%	4.90%

ⁱ The central premise of welfare economics described here was developed initially by Vivaldo Parto and further developed by Marshall and Pigou. Kaldor and Hicks.

ⁱⁱ This finding was made in the Theory of the Second Best developed by Lipsey, R, G and Lancaster, K (1956-57) "The General Theory of the Second Best", *Review of Economic Studies*, Vol 24, No 63 pp11-32