

FINANCIAL REGULATION DISCUSSION PAPER SERIES

Banking Profitability, Bank Capital and Competition

FRDP 2012 – 1

February 20, 2012

In this Australian Centre for Financial Studies Financial Regulation Discussion Paper, Professor Kevin Davis looks at Australian bank capital and bank profitability. The evidence regarding whether banks are making excessive profits is mixed, although high market to book ratios for the major banks (stock market value of equity relative to its accounting book value) are indicative of some inadequacies in competition. In order to generate the returns that shareholders require on the value of their investments, high market to book ratios (averaging around 1.5) mean that the major banks need to target accounting returns in the order of 15 per cent p.a. or more. The majors compete with each other within that constraint.

But that leaves unanswered the question of why other competitors who should be able to operate with lower target accounting returns are not exerting a restraining influence on bank pricing and profitability. It also leaves unanswered the question of how market to book ratios for the major banks evolved to such levels – with inadequate competition over many years being a prime suspect. This FRDP provides an overview of the issues, but more detailed research is needed to evaluate whether calls for greater regulation or special taxation have merit.

There is currently much heated debate over whether Australian banks are exploiting a privileged position to make excessive profits. The major banks (to varying degrees) have been announcing record high dollar profits, while at the same time increasing loan interest rates and reducing employee numbers. With memories of government support to the banks during the Global Financial Crisis still relatively fresh, there have been a range of calls for regulation or taxation targeted at preventing “excessive profits”.

To determine whether the major banks are making *excessive profits* it is important to be clear about the interpretation of profit rates and rates of return, and to recognize the different perspectives arising from differences between the book value of equity (shareholders funds) and its share market value. Those differences help explain why CEOs of the major banks believe they are engaged in a highly competitive game, while others point to their high profit rates as evidence of inadequate competition.

An analysis of bank market to book ratios and alternative measures of rates of return is suggestive of past and present inadequacies in banking competition, and of accounting profit rates of 15 plus per cent being somewhat higher than is needed to meet shareholder demands. But this is a complex topic where assumptions can be disputed and more research is required. Moreover, even accepting those conclusions, no simple, politically palatable, policy conclusions are readily apparent.

Understanding rates of return

It is important to note that profit rates reported by banks (and other firms) are *accounting* measures, which relate accounting profits to the book value of equity. Thus, for example the

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CBA's recent announcement of a half year profit of \$3.6 billion for the six months ending December 2011, was reported as a return on equity of 19.2 per cent p.a. on (the book value of) shareholder equity of \$38.9 billion. But at the end of 2011, CBA had some 1.6 billion shares on issue which at a share price of around \$50 gave it a market capitalization of around \$78 billion – approximately twice the book value.

For shareholders who had bought CBA shares at around \$50 (the level they have hovered around for two years) the half yearly earnings of \$2.31 per share would, if repeated in the second half year, give earnings of \$4.62 for the year, which is an annual return on their investment of around 9.2 per cent. That does not seem like an excessive rate of return, and a similar gap between accounting and shareholder rates of return prevails if the latter are measured as dividends received plus capital gains relative to the share price!

How is this vast gap between the accounting and economic (shareholder) rates of return reconciled and explained?

Financial accounting academics have developed a relatively simple framework (known as the residual income model) within which to study this type of issue.¹ It posits that market value (MV) and book value (BV) of equity at any date t are related as:

$$MV_t = BV_t + \text{Present value of expected future abnormal earnings.}$$

In turn, abnormal earnings at any future date τ are given by $(roe_\tau - r_\tau)BV_{\tau-1}$, where roe is the accounting rate of return achieved and r_t is the required rate of return of shareholders, both applied to the book value at the start of that period. The formula includes the expected value of such abnormal earnings into the distant future, and these need to be discounted to a present value to allow for the delay and risks.

The intuition is straightforward. If investors think that managers will be able to use the financial resources (book value of capital) available to them to generate a return (roe) greater than that required (r), they will be willing to bid up the share price (market value) above its book value.² In an efficient market, the share price (market value) will settle at a level which investors believe is consistent with their receiving just their required rate of return.³

Market value, Book value and Bank CEO's: Between a rock and a hard place?

While the precise relationship between accounting rates of return and shareholder equity returns and book and market values is complex, the message should be clear. Bank CEOs need to deliver profits (or confirm expectations of future profit growth) which are sufficient to meet the rate of return required by their shareholders on the market value of their investment. If the market to

¹ See for example Peter Easton "Estimating the Cost of Capital Implied by Market Prices and Accounting Data," Foundations and Trends in Accounting, 2, 2009, 241-364.

² Another source of expected future abnormal earnings may be if the company is believed to have real options in the form of proprietary rights to undertake future projects which will earn excess returns and have positive net present values.

³ As a simplistic example, suppose that a company could earn \$20 p.a. in perpetuity on a capital base of \$100 (ie a roe of 20 per cent p.a.), but investors only required a 10 per cent rate of return. Investors would bid the share price (market value) up to \$200, such that their return is 10 per cent p.a..

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book ratio is greater than unity, the required accounting rate of return on book equity will exceed the required return of shareholders. If accounting profits (both current and forecast) are not sufficient to deliver the required return for shareholders on the market value of their investment, the share price will fall.

It is somewhat difficult to feel sympathy for highly remunerated bank CEOs but, with high market to book ratios they are caught between a rock and a hard place. Unless they deliver apparently excessive accounting profits and incur political and social wrath, they will not meet the demands of their shareholders for a fair return on their investment. And with most Australians being bank shareholders (through superannuation if not directly) that alternative would not be a popular outcome either.

For the major banks this is the situation they face. Table 1 presents recent figures for the market to book ratio for Australian banks, and shows that the four majors have ratios well in excess of unity.⁴ It also highlights a significant dichotomy between stock market valuations of the four majors and the other banks – which have market to book ratios well below unity. Whether those numbers indicate excessive profitability and market power of the major banks is returned to shortly. But first, it is worthwhile to examine how bank shareholders have fared recently, what rate of return shareholders require from banks, and what accounting rate of return is consistent with that.

TABLE 1: Market to Book Ratios of Australian Banks; February 2012

Bank	ANZ	CBA	NAB	WBC	BEN	BOQ	SUN	MQG
Market to Book ratio	1.54	2.12	1.25	1.52	0.77	0.68	0.77	0.81

Source: <http://www.investsmart.com.au> (15 February 2012)

How have Bank Shareholders Fared?

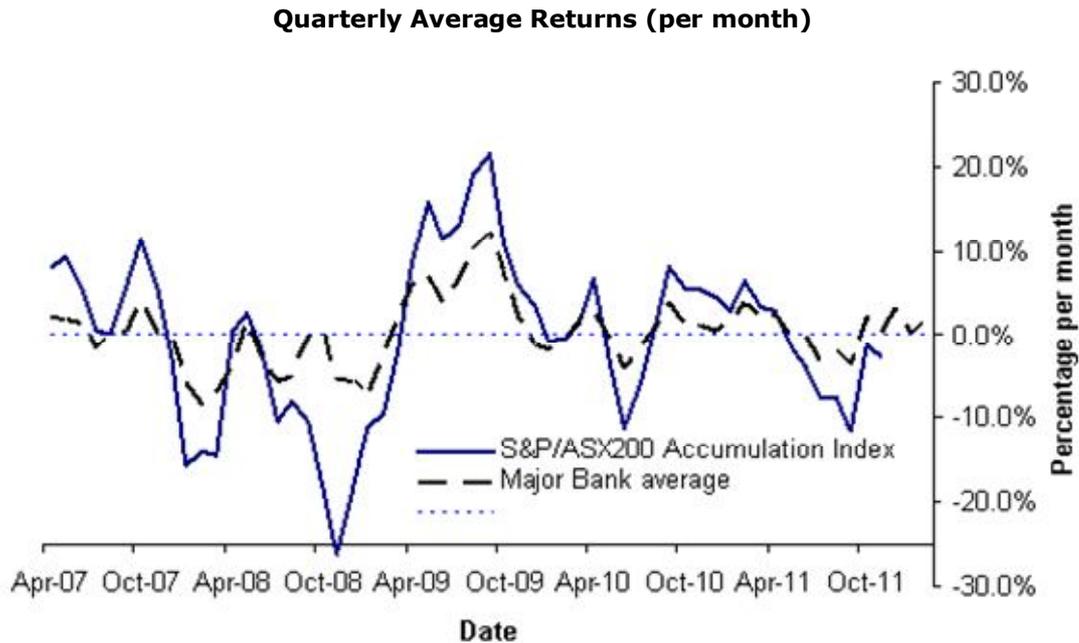
One way to determine whether bank shareholders have enjoyed excessive returns on their investments is to compare their returns to those on the stock market more generally. Figure 1 does that for the period since early 2007 using rolling quarterly rates of return (in order to smooth the graphs). The solid line is the return on the S&P/ASX 200 Accumulation Index (an index of returns on the top 200 stocks which incorporates both capital gains and dividends). The dashed line is the (equally weighted) average return on the four majors (again incorporating both capital gains and dividends).

Figure 1 suggests that returns to bank shareholders have, over the period since just before the start of the Global Financial Crisis, been relatively similar to those on the ASX 200.

⁴ For the last decade at least, market to book ratios of the four majors have been in the vicinity of 1.5 or higher, soaring in the stock market boom years prior to the GFC, before collapsing during the GFC to around their current levels.

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Figure 1: Bank and ASX 200 returns*



* The figure displays the average monthly rate of return over the preceding three months.

An alternative method of examining the returns to bank shareholders is to use the *market model*, relating monthly bank equity returns against returns on the market index (ASX 200). Results of such regressions (in which returns are measured in excess of a risk free interest rate proxy) are given in Table 2. There are two main features of those results. First, the regression intercept (α), which can be interpreted as measuring abnormal returns, is insignificantly different from zero in all cases. Second, the betas for all banks are around unity, which the Capital Asset Pricing Model (CAPM) implies that shareholder required returns would be approximately the same as the required return on the overall market.

Table 2: Market Model Results

	Alpha (α)	Beta (β)	R²
ANZ	0.002(0.29)	1.00(6.21)	0.41
CBA	0.008(1.14)	1.01(6.67)	0.44
NAB	0.0006 (0.09)	1.06 (7.1)	0.47
WBC	-0.0005(-0.07)	1.04(7.1)	0.47

This table gives results of estimating $r_{it} - r_{ft} = \alpha + \beta(r_{mt} - r_{ft})$ where r_{it} is the monthly return on stock i in month t , r_{mt} is the monthly return on the market (ASX200) in month t and r_{ft} is the return on a 30 day bank bill for that month. Figures in parentheses are t statistics for a test of the null hypothesis that the parameter is significantly different from zero. Monthly data from February 2007 till November 2011 is used.

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Required Shareholder Returns on Bank Equity and Accounting Returns

The required return is generally defined as that rate of return which compensates the investor for systematic (non-diversifiable) risk, and can be estimated using an asset pricing model such as the Capital Asset Pricing Model (CAPM). It is also often described as an *expected* rate of return, in the sense that market equilibrium requires that the share price adjusts until the expected future cash flows from the investment mean that the expected return equals the required return. (If the expected return was below the required return, investors would sell shares, pushing the price down and the expected return up).

Applying the CAPM is complicated by Australia's dividend imputation tax system, because a significant component of returns to shareholders takes the form of franked dividends. However, it is well established that the effect of this complication on the CAPM is primarily to require that shareholder returns be measured by "grossing up" the cash dividend component of returns for the value of attached franking credits. While there is much debate about the average value of franking credits, they are certainly fully valued by domestic investors such as superannuation funds. For simplicity and, I would argue, appropriately in this case, the following analysis will assume full valuation – although that will no doubt be challenged by some.

Using a theory such as the CAPM, it can be argued that investors in bank shares currently require a ball park rate of return (including franking credits) of around 11-12 per cent. This ball park estimate is based on a risk free rate of 5-6 per cent, a market risk premium of 6 per cent and a beta for bank stocks of around 1.

How does that match up with accounting rates of return on (book value) of equity such as the 19.2 per cent reported by CBA, or the 15 per cent rate more generally thought of as being achievable by the majors in the post-GFC world?

The average market/book ratio for the major banks is in the vicinity of 1.5, suggesting (as outlined above) that investors believe that banks can generate a higher return on the equity funds available to them to use than that required by shareholders. Does this mean that a 15 per cent accounting return on equity is consistent with the shareholder required rate of return on the market value of equity or around 10-11 per cent p.a.?

Quite possibly! However, the accounting return on equity is an after-company-tax rate of return, and the dividends provided to shareholders as part of their return include valuable imputation credits. The arithmetic is thus a bit messy. But it goes as follows and is set out in Table 3.

Suppose the book value of equity is \$100 and the market value is \$150. Suppose that the accounting return on equity is 15 per cent (ie profit after tax of \$15) of which 80 per cent is distributed as franked dividends giving a \$12 franked dividend which grosses up to a \$17.14 dividend before personal tax. To that must be added the effect of the \$3 retained earnings on the share price which can be expected to create a capital gain. Assuming that the retained earnings are fully reflected in the share price, there is a \$3 capital gain, giving a total grossed up shareholder return of \$20.14 which, on a market value of equity of \$150, is a fully grossed up, pre-investor tax, rate of return of 13 per cent. (Also shown for information is the after tax return for a superfund for which the full valuation of franking credits implied in the grossing up is realistic).

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Table 3: Relating accounting and shareholder returns – an example

	Company Perspective	Shareholder Perspective (pre investor level tax)
Equity (book value)	100	
Equity (market value)		150
Profit after tax	15	
Cash Dividend (80% of profit)	12	12
Imputed Income (franking credits)		5.14
Grossed up dividend income		17.14
Retained earnings	3	
Capital gain (= retained earnings)		3
Total grossed up income		20.14
Accounting rate of return (15/100)	15%	
Shareholder rate of return (20.14/150)		13%
Superfund		after tax return
Tax on capital gains (@10%)		0.3
Tax on dividends (including imputed income) (@15%)		2.57
Tax (franking) credit		5.14
After tax income		17.27
After tax rate of return		11.5%

This ball-park calculation suggest that a 15 per cent accounting return on (book value of) equity is at least, or more than, adequate to provide shareholders with their required rate of return of 10-11 per cent on the (higher) market value of equity. And for superfunds, the tax benefits from receiving franking credits mean that this is a very pleasant after-tax rate of return.

Thus a 15 per cent accounting return on equity (which excludes franking credits) looks easily sufficient to meet investor expectations and maintain share prices (although precise calculations are more complex – and this should certainly not be taken as investment advice!).⁵

Of course, the calculation is not quite this simple. Some part of earnings is paid out as franked dividends and franking credits have zero value for some (overseas) investors. While retained earnings increase the bank's capital base and should generate capital gains for the shareholders via an appreciation of the share price, there are many other influences upon share prices including expectations of future performance.

⁵ Share prices will also reflect investor expectations of future bank profitability.

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Approaching the question from another direction, the cash dividend yields of the major banks have been in the region of 6.5 to 8 per cent in recent years, with not much in the way of capital gains (and losses in some cases). Since a fully franked 8 per cent dividend grosses up to around 11 per cent, these numbers are roughly consistent with recent accounting returns being at least sufficient to meet shareholder required returns.

The Market/Book Value Problem and Competition

But even if the major banks were only just generating the returns that their shareholders demand, the question remains of why investors are willing to bid bank share prices up to a multiple (well) in excess of unity. As outlined earlier, this suggests that banks are able to earn abnormal returns on the financial resources (book value of equity) available to them.⁶ Why is it that the banks can achieve this?

One possible answer can be found from examining bank pricing practices and the nature of competition in banking/financial markets. Banks obviously price loans and other financial products to reflect both their operating costs and their cost of funds – one component of which is their cost of equity funds. Stated alternatively, pricing is done to try and achieve the target rate of return on equity. Thus, all of the majors will be pricing to achieve an accounting return on (book value of) equity of around 15 per cent or more. That type of return is thought to be required to keep shareholders satisfied with the resulting returns on the market value of their equity investment in the bank.

Major bank CEOs and management thus perceive themselves as engaged in fierce competition with other banks, because all are constrained in their pricing by similar 15 per cent (or higher) accounting return targets. Higher return targets imply (*ceteris paribus*) higher product prices which will see them undercut by the others and lose business (unless they are more efficient and have lower operating costs than their competitors). Pricing is constrained on the downside by the target accounting return – which is needed to keep share prices from falling.

But this self imposed constraint only applies to the four majors, because of their elevated market to book ratios. Any new competitor not suffering such a “handicap” and starting with a market to book ratio of unity, would be able to target an accounting return equal to that demanded by shareholders (of around 10 – 11 per cent on the ballpark calculations done earlier), and undercut the major bank prices. Indeed, for the non-majors, as shown in Table 1, their market to book ratios below unity should give them a competitive edge in this regard – other things constant.

Of course, other things undoubtedly are not constant. Smaller banks or new entrants may face higher deposit or debt funding costs (or higher required returns of shareholders). That may reflect market realities or perceptions of implicit government guarantees for banks which are “too big to fail”. Scale, such as the four majors have, may enable them to operate with lower operating costs. And potential economies of scope, due to the pervasiveness of the majors’ activities across the entire financial sector, may also bring operating cost or revenue benefits. The higher market to book ratios of the majors may thus reflect a franchise value built up over time which generates such operating cost advantages.

⁶ Or that they have highly profitable future investment opportunities available to them.

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The dilemma which policy makers must face is to ascertain why the majors have elevated market to book ratios.⁷ Is it because they have operational or funding cost advantages over other existing or potential competitors – such that lower return aspirations of the latter would be offset by lower operational efficiency and thus bring no net pricing benefits to customers?

If so then, with one caveat, the only rationale for policy intervention would seem to be if those cost advantages reflect distortions in the system - which suggests policy prescriptions directed towards removing such distortions. (Arguably, banning mortgage exit fees and policies aimed at making it easier for customers to switch banks fall into this category, as would be measures to remove any perceptions of implicit guarantees for large banks enabling them to achieve lower funding costs).

The caveat arises because we have reached the current situation because the evolution of operating/funding cost efficiencies over time was not fully reflected in lower customer prices via competition, but rather in higher stock market prices reflecting the resulting higher accounting profits. It might then be argued that “forcing” lower product prices or returns to shareholders (such as by special taxation) would rectify that historical lack of competition. However, it would be at the expense of driving down bank share prices and imposing substantial losses on current banks shareholders (who are not necessarily the ones who benefited from the historical experience).

An alternative explanation for the high market to book ratios may be that there are barriers to entry which enable banks to make excess returns on the book value of their equity (even in the absence of cost advantages) and support a higher stock market valuation. One such barriers to entry could arise from the wide scope of bank activities across the whole financial sector, and a consequent ability to temporarily cross-subsidize particular market segments and prevent new entrants (even those suffering no cost disadvantage in that particular activity) from profitable entry? While the banks will, no doubt argue that they have not engaged in such practices, for a potential entrant the possibility that they may do so, can be a sufficient deterrent.

Conclusion

The analysis of this paper suggests that profitability of the major Australian banks, which many have claimed to be excessive, may be marginally higher than required to provide bank shareholders with a fair, required, return on their shareholdings. Underpinning this conclusion is the fact that the market valuation of bank equity far exceeds its book value for the four majors, requiring product pricing to be based on target accounting profit rates which appear unreasonably high to the outside observer.

But that, by no means, is the end of the story. Why are market to book ratios for the major banks well in excess of unity – or is this a “normal” state of affairs in banking?⁸ Is it because

⁷ Market to book ratios in excess of unity for large banks is not a new phenomenon and higher ratios than current have persisted for significant periods of time in the past both in Australia and internationally.

⁸ Market to book ratios internationally for large banks have fallen to around unity in recent years, but were at much higher levels prior to the Global Financial Crisis (see Chart 3.10 in <http://www.bankofengland.co.uk/publications/fsr/2011/fsr29sec3.pdf>).

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barriers to entry prevent effective competition from others not suffering such a “handicap” and who would thus be able to price products off a lower target accounting rate of profit? Or is it because the majors have inherent competitive advantages which have emerged over time and become reflected in higher share prices rather than in lower product prices? If so, to what extent do those advantages reflect inherent efficiency advantages versus market distortions which policy actions might target? And why didn’t competitive forces lead to the alternative outcome of more of the efficiency gains being passed on to customers in the form of lower product prices rather than finding reflection in higher bank share prices?

While the analysis of this paper suggests that returns may be somewhat higher than consistent with fierce competition, the important message is that by focusing on accounting returns the debate may be looking in the wrong place. Instead, more attention should be paid to why market to book ratios for the major banks are (and have been for some time) at levels well in excess of unity.

This FRDP was prepared by Kevin Davis, Research Director at the Australian Centre for Financial Studies.

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