

**Response to observations critical of the
Research Paper**

FURTHER CAPITAL MARKETS EVIDENCE IN
RELATION TO THE
MARKET RISK PREMIUM AND
EQUITY BETA VALUES

by

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for

Electricity Consumers Coalition of South Australia

April 2004

Introduction

In December 2003, Headberry and Lim¹ prepared a paper addressing a view that the market risk premium and equity beta used by regulators in the energy industries was too high.

The approach taken was to examine the profits earned by businesses in the competitive sector, relating the reported financial return on assets to the awarded weighted average cost of capital and the profits on shareholder equity to the risk free rate plus market risk premium used by regulators. To ensure that the observed results were correct (the sanity check), the paper then compared the observed outcomes to returns earned on the stock market (as observed by the ASX accumulation index) and to the returns on assets earned in the property sector.

The conclusions of the paper were that there is considerable concern that the historical values used by regulators for market risk premium and equity beta are too high, which supports the views of some regulators that the values they use are on the “high end” of an acceptable range.

The paper has been submitted to a number of regulators, including the ACCC, the Essential Services Commission of SA and the NSW Independent Pricing & Regulatory Tribunal. Arising from their review and the review of others, a number of observations have been made that should be addressed by the authors.

The following observations regarding the research paper have come from a variety of sources, such as during the recent ACCC forum (2 April 2004) on elements of the Statement of Regulatory Principles, a presentation made by ETSA Utilities (supported by NERA) made to the South Australian Government’s Energy Consumer Council (7 April 2004) and in a number of private discussions between the authors and other Interested Parties, including regulators, industry consultants and representatives of regulated businesses.

¹ Further Capital Markets Evidence in Relation to the Market Risk Premium and Equity Beta Values used by regulators for regulated business in the National Electricity Market, prepared for Electricity Consumers Coalition of South Australia by Headberry Partners Pty Ltd and Bob Lim & Co Pty Ltd. December 2003.

As a number of the comments came from multiple sources it has been decided it is inappropriate to allocate each observation to a single source.

Observation 1

The Research paper listed a number of major discontinuities that had impacted the investment market over the period for assessing the value of MRP, but these should not impact on the MRP used.

Dr K Davis² has observed that in addition to these, another major change has been the relatively recent advent of very large amounts of cash which have been aggregated in superannuation funds. As these funds are placed under management to maximise the return they earn, this large influx of available cash for investment must have an impact on investment returns as the competition for seeking avenues for placing the funds increases. It would seem that increasing competition for investments would have a depressing effect on the returns that are earned. Anecdotal evidence is that on average funds managers have been getting returns less than the benchmark.

It is accepted that in competing for specific investments this may have been the short term effect of increasing share values. But there are two market responses that negatively impact on this scenario.

1. The first is the “market correction” that has typified an over-heated chase for investment. These have occurred regularly, with the most recent being the correction of 2002.
2. The second is that profits do not move with the share market, they relate to the business and the business cycle. As the share market rises, dividends fall, providing an offset to any capital growth.

Never before in Australian financial history has so much cash been available for investment in listed companies. This has been a particular influence over the past decade only as the impact of the superannuation guarantee levy has taken effect. Thus, as the increased competition has

² These comments were made by Dr Davis at the ACCC forum on elements of the Statement of Regulatory Principles (2 April 2004)

occurred to get access to what is effectively a limited investment market, the expectation must be that lower returns will eventuate. This was the upshot of the response to the Essential Services Commission of Victoria by Mercer Consulting who opined that the expectation of an equity market premium in the near term future should be about 3%.

Thus, the changing market and the increasing sheer volume of funds seeking an investment must implicitly have, and continue to be having, a depressing effect on the returns investment will be able to achieve.

Observation 2

The Research is flawed because it compares EBIT/assets (earnings before interest and tax) to WACC (weighted average cost of capital). EBIT is calculated as an “after depreciation” amount, and therefore by including the impact of depreciation in the earnings amount, it decreases the resultant calculated ratio for return on assets (RoA).

The regulatory building block approach to setting the annual revenue is undertaken by adding together a return on assets and capex, a return of assets, an allowance for opex, an allowance for taxes payable and the value of franking credits.

The cash return on assets and capex is calculated by the multiplication of the asset value and the WACC.

Return of capital is calculated by the combining of inflation on the assets employed and regulatory depreciation. This calculation is usually referred to as “economic depreciation”. Thus an allowance for the impact of depreciation is added to the revenue stream after the use of WACC.

Depreciation is referred to in accounting parlance as a “non-cash item” as no cash transaction is involved. It is effectively an allowance made in the accounts for the return over the life of the asset of the capital used to acquire assets. If depreciation is added to the allowable revenue after the calculation of the “WACC*assets” calculation, the clear implication is that WACC effectively has

included for the impact of depreciation, as depreciation is then added back into the allowable revenue. If “WACC*assets” calculation was assumed not to include for the impact of depreciation, (ie was an equivalent to EBITD – earnings before interest, tax and depreciation) then the subsequent addition of a “return of assets” would constitute a doubling of the depreciation allowance in the revenue calculation.

Thus, WACC and EBIT/assets are equivalent as both recognize that depreciation has been included in the comparison. If EBITD was used for comparison it would have to be compared to the sum of the two building block elements of return of assets plus return on assets.

The comparison in the Research between WACC and EBIT/assets is therefore valid and consistent.

Observation 3

It has been stated that market risk premium and reported financial returns are not related – that to use one to demonstrate comparison with the other, is inappropriate and incorrect.

The WACC assessed by the regulator is applied to the regulatory assessment of the businesses asset value to generate a cash return on the assets employed. If the business performs exactly as anticipated (spending only the approved amount on opex, allocating only the approved amount for depreciation, etc) and values its assets on the same basis as used by the regulator, then the reported return on assets at the end of each financial period will be the cash the regulator originally granted divided by the asset value used by the regulator. Thus, WACC and the resultant RoA for the regulated business should be identical.

It is accepted that the market risk premium is developed from the indication of returns the ASX accumulation index provides (which is the sum of the declared dividend plus the change in the share value) but the outcome of the of the WACC calculation must result in the same financial outcome that the business would earn in each financial period.

The paper has not concentrated on attempting to demonstrate that WACC and RoA are directly related. It has attempted to show that the outcomes of the application of the WACC can, and should be, compared to the observed outcomes in the competitive market.

As the development of the WACC is essentially subjective and based on a number of assessed inputs, benchmarking is a tool available that regulators must use to assess the correctness of their subjective analysis. The paper provides the regulator with such a tool.

The verification of the benchmarking approach by comparing the observed outputs of the primary research assessments to the ASX accumulation index and to the property market, adds confidence that the benchmark approach proposed can be used.

Observation 4

The MRP is based on including the dividend and the capital growth (ie the accumulation index). Accounting profit ignores the capital gain that a share receives over time.

The declared dividend by a company is usually less than the declared accounting profit. This is identified in the corporate accounts by the declaration of an element of the profits being retained (“retained profits”) for use by the company for its future growth. The retention of part of the profits and the amount retained provides one reason for investors to increase the value of each share (the capital return). The use in the paper of the EBIT includes for the total profitability, not just that element returned to shareholders as a dividend. Thus, implicitly the use of EBIT by the paper does include for a significant proportion of company share capital growth.

Accounting practices require that a capital gain from revaluing assets must be taken as profit. Because of this practice the change in share value of a corporation implicitly must include any increase in asset value. Therefore, the MRP derived from share growth axiomatically includes for an increase in asset revaluation. Regulatory practice permits the asset value to increase (using replacement cost for asset value does this automatically) and then applies an MRP derived from

the inclusion of asset revaluation. Implicitly this approach permits a double counting of that element of the share growth which results from asset revaluation.

The observation that the MRP derived from dividend and share growth and an equivalent premium identified from using accounting standards are totally unrelated is not as legitimate a comment as is implied by the critics of the paper.

Observation 5

Investors predominantly use the returns based on dividend and share growth as the basis of investment decisions, and pay less heed to accounting returns.

This observation is not supported by basic investment strategies. Investment advisors consistently refer to their “in-depth analysis” of the company at which the investment is targeted. To imply that the accounting returns are not a significant element of such analysis is puerile and is not supported by those who actually do provide funds for investment.³

Further, the paper’s approach is directly supported by the common use of EBIT related to the value of an investment – that is, the accepted purchase price multiple which is used as a benchmark by investors to assess the reasonableness of an investment.

Observation 6

The period of the assessment used in the Research is too short, will perhaps lead to perverse outcomes and introduces statistical errors.

At a superficial level this would appear not to be an unreasonable observation. However, ten year periods, observed over time, have consistently included one or two significant business cycles and this is typified by the movement of the ASX indices over a similar ten year timeframe.

³ One of the authors of the Research report was actively involved in investment decisions of large amounts of third party funds for over 12 years.

Further, the approach by investors to benchmark an investment as a multiple of EBIT usually does not accept a multiple of more than 12-14 for secure investments, and even lower multiples for more risky ventures. Thus, a window of review of a time period much longer than 10 years to assess the return of an investment is not supported by actual investment benchmarks.

However, to put the appropriateness of the ten year period used into perspective, it particularly reflects a timeframe during which there has been some major structural changes, including the massive tariff reductions and the advent of the massive increase in superannuation funds requiring to be invested.

There is a consistently held view that the MRP needs to reflect a forward looking view of the returns to be garnered in the coming regulatory period. Using historical data to provide a forward looking input is essentially contradictory. It is therefore appropriate to use a shorter backward looking assessment as this is more likely to reflect the near future. The paper is based on the view that 10 years is likely to cover at least one business cycle and is therefore more representative of the near future than using data based on a longer backward view of business.

Observation 7

The reports (specifically the NERA⁴ and Mercer⁵ reports) referred to in Section 2 of the Research paper have been taken out of context, are unreliable or use differing bases.

1. The NERA report is stated as being primarily focused on taxation impacts. This may be so, but regardless, the outcomes and the surrounding statements are either correct (as is assumed by the paper) or are incorrect and therefore cast doubt on the conclusions drawn and ultimately on the recommendations NERA provides.
2. The Mercer report was specifically designed to advise the ESCoV of Mercer views of what a forward looking ERP is expected to be. Mercer provided its views on this topic. NERA is a part of the Mercer group and therefore it is reasonable to expect Mercer views to have a

⁴ International comparison of utilities' regulated post tax rates of return in North America, the UK, and Australia, a report prepared by NERA, March 2001

⁵ Letter to ESCoV from Mercer Investment Consulting, July 2002.

- similar standing and acceptance to those views expressed by NERA. To comment that the Mercer work is unreliable is not a sound criticism.
3. That comparisons made with regard to the overseas regulatory decisions, need to recognize differences in risk free rates, inflation, taxation and gearing, is accepted. However, the results from overseas decisions are not the core focus of the paper – they were listed as identifying that there are concerns that Australian regulators are awarding WACC's that are too high. The focus of the paper is to compare the Australian regulatory decisions with the Australian equity markets and Australian property markets.

Observation 8

The Productivity Commission argues that current rates are below prudent levels and should include a truncation premium for asymmetric risks⁶.

The Productivity Commission has made these statements based on “conceptual considerations”⁷ as there is no evidence to support the contention that investment has been constrained by the WACC's awarded by regulators. In fact, that investment in electricity networks has continued unabated (often exceeding regulated allowances⁸) and that every network service provider has sought regulatory approval for very large capex programs does not support the contention that investment is being constrained.

Countering the Productivity Commission view is the view of the Reserve Bank Governor, Mr. I Macfarlane, who has stated that⁹

“It seems to me that the community has not yet come to terms with the fact that nominal rates of return on financial and real assets are likely to be much lower over the coming decade or so than over the previous two decades”. This quote leads the paper.

⁶ For example as stated in the PC draft report on its Review of the Gas Access Regime, December 2003

⁷ *ibid*, page 108

⁸ See, for example, TransGrid's recent application for its revenue cap

⁹ “Economic Opportunities and Risks over the Coming Decades” by I.J. Macfarlane, Governor, RBA, 13 November 2003)

The comment attributed to the Productivity Commission effectively assumes that asymmetric truncation is unique to electricity (and gas) networks. In fact such truncation also applies in the competitive arena where there is perhaps even more potential to truncate competitive upsides.

Observation 9

The Research quotes Prof R Officer as advising the MRP is 3.5%, but this information is inconsistent with other Officer findings.

The Essential Services Commission of SA includes in its Discussion Paper of August 2003 on "Return on Assets", a table 5.3 on page 34, that the historical MRP calculated for the period 1970-2001 is 3.37%, with a standard deviation of 24.38%. Following through the references provided, this MRP calculation is ultimately attributed to Prof R Officer.

The fact that a criticism of the paper is that this number calculated by Officer is inconsistent with other work attributed to him is not an issue for the research undertaken in the paper.

Observation 10

The paper confuses equity beta with asset beta, and that equity betas are influenced by gearing. If a market gearing of 60% is assumed, then the equivalent equity beta is 1.6, not 1.0 as assumed.

The paper does not confuse equity beta with asset beta. It is accepted that there is an inter-relationship between equity beta and asset beta through the level of gearing and the value for debt beta used. Thus, equity beta is related to the risk assessed for an enterprise.

The criticism is predicated on the implied observation that the gearing of "the market" as a whole is less than 60%. The paper found that in the sample of companies, shareholder equity was 23% of assets. This is well below the 40% assumed by regulators for regulated businesses. On this basis the equity beta for regulated businesses with 40% equity would be lower, not higher than the market average.

Observation 11

The paper points out that the regulators have not examined the companies which comprise the Infrastructure and Utilities Index. Finance theory asserts that betas of sectors are more statistically robust than for individual companies.

The observation attempts to be misleading. It is agreed that averaging through an index is statistically more robust.

What the paper points out is that in selecting an index for comparison to electricity network businesses, care must be taken in ensuring there is like with like. Analysis of the Utilities Index to identify the companies which comprise the Index demonstrates that the index includes many businesses which are totally dissimilar to electricity network businesses, and is therefore an inappropriate index to use.

Observation 12

Comparisons between electricity network businesses to property investment are weak, as the risk profiles are different. Reference to the equity beta indices for the different asset classes highlights this.

It is accepted that electricity network businesses have a risk profile which is unique, but such an observation applies to all investment classes. What the paper does do, is to identify an asset class which compares closely to that of electricity network businesses. The paper lists a number of similarities between the two and also highlights a number of dis-similarities.

The observation also refers to the fact that property trusts have an equity beta of 0.366¹⁰ and then states this proves the error in the comparison. This misses the point of the argument. If there are significant similarities between electricity network businesses and property, then this would indicate that the equity betas of the two should be closer together.

¹⁰ Source: Australian Graduate School of Management centre for research in finance; risk measurement service

Observation 13

It is more appropriate to apply MRP to a DORC (depreciated optimized replacement cost) valuation than a DAC (depreciated actual cost) valuation as DORC is a better proxy for the market value of an asset.

The paper identified that the indicators used by investors relate more to the DAC value and to EBIT than to share value. In fact, after assessing the fundamental accounting figures an investor (or advisor) compares the “fair” share value with the market price for a share. Then the decision (or recommendation) to buy, sell or hold is made based on the relation between the assessed share value and the listed share value. Thus, for an investment decision, it is the fundamental accounting figures which ultimately are used for the investment decision. This assessment then results in a share price movement.

As companies listed on the stock exchange are required to deliver their accounts following the Australian Accounting Rules, then the market as a whole fundamentally relies on the accounting data. Accounting data is based on assessing assets valued on actual cost less depreciation, with the change from any revaluations taken to the profit and loss account.

Conclusion

Despite these criticisms of the paper, further examination supports the view that the paper’s approach is consistent with providing a reasonable benchmark for regulators to use for comparison purposes.