

**Essential Services Commission
Final Decision – Gas Access Arrangement review 2008-12
Issues in relation to estimation of equity beta**

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28 March 2008**

Terms of reference

In relation to the estimation of equity beta, the Victorian Gas Distribution Businesses (Envestra, Multinet and SPAusNet) have requested SFG to review the Commission’s Final Decision and assess the validity and accuracy of the analysis performed and conclusions reached by the Commission and its consultants.

Context

In relation to a number of key issues, the Commission has dismissed or not properly applied the analysis in the SFG Reports because of:

- Error;
- Superficial analysis; and
- Misunderstanding the point.

Consequently, the matters raised stand as correct and must be considered properly.

Summary of findings

<i>Issue</i>	<i>ESC/ACG position</i>	<i>SFG response to error in ESC/ACG position</i>
Reliability and robustness of the empirical estimates that are relied on by the Commission.	<p>The Commission argues that low explanatory power of regression analysis and low variation in the explanatory variable are not problems in regression analysis – at least in the context of estimating equity beta.</p> <p>The Commission focuses on statistical confidence intervals from a very small number of companies (5) over a short period of time (5 years or less).</p>	<p>The Commission is not correct. These are standard means by which the statistical reliability of regression estimates are assessed.</p> <p>This is contrary to standard practice, which examines a range of statistical metrics and the economic reasonableness of the estimates and the required returns that are implied by them.</p>

<p>Lack of robustness of the empirical technique that is relied on by the Commission – when applied to other industries where a longer time series is available.</p>	<p>The Commission does not address this issue in the Final Decision.</p> <p>It is impossible to examine the historical performance of the empirical technique that the Commission relies upon in relation to energy distribution firms as a long time series of historical data does not exist for that industry.</p>	<p>This is a key issue that remains unaddressed by the Commission.</p> <p>The SFG Report shows that the technique that is relied upon by the Commission, when applied to other industries over time, produces equity beta estimates that vary wildly without explanation – other than that the technique produces statistically unreliable output. If the technique does not produce sensible estimates for other industries, it cannot be relied upon for energy distribution.</p>
<p>Effect of recent merger activity on empirical estimates of beta.</p>	<p>The Commission submits that the effects of this activity will be mitigated through the use of statistical outlier elimination criteria.</p>	<p>This is not true. Such activity has an effect on the entire industry over a prolonged period. The effect is more than stock price reactions for two firms on the day of a merger announcement. For this reason, an outlier elimination method will not correct the problem. In any event, the SFG Report demonstrates the general unreliability of the outlier elimination method that is relied on by the Commission.</p>
<p>Relative risk of equity and debt securities.</p>	<p>The Commission submits that stapled securities have the same systematic risk as ordinary shares.</p> <p>The Commission states that one cannot compare the returns on debt and equity securities as there are differences between them.</p>	<p>This is not, and cannot be, true.</p> <p>This is not a valid reason. The precise reason for the comparison is that debt and equity securities <i>are</i> different. A methodology for estimating cost of equity can be tested for economic reasonableness by comparing its results with the returns that are available on (less risky) debt securities.</p>
<p>Definition of risk.</p>	<p>In its Final Decision, the Commission refers several times to “systemic” risk.</p> <p>The Commission further states that bankruptcy risk is non-systemic.</p>	<p>There is no such thing as systemic risk.</p> <p>Presumably the Commission means “non-systematic.” If so, this claim is false. Bankruptcy is clearly more likely during a recession than an expansion, and is therefore systematic.</p>

<p>Statistical adjustments to improve beta estimates.</p>	<p>The Commission rejects the use of standard techniques that are employed by a number of leading data service providers. These techniques are rejected on the basis that the regulated businesses do not undertake diversification activities or change their capital structure.</p>	<p>The Commission's rejection of these accepted techniques is based on a false premise.</p> <p>The SFG Report on this issue specifically points out that correcting for diversification and capital structure changes is <i>not</i> the basis for the proposed adjustments. Rather the adjustments are proposed as a way of attenuating estimation error.</p>
<p>Comparison across similar businesses.</p>	<p>Wide variation in beta estimates across similar firms points towards a lack of reliability and robustness of estimates. The Commission ignores this point.</p>	<p>The SFG Report notes that ACG estimate re-gear equity betas for a number of comparable firms. This produces a number of estimates that are directly comparable – they are estimates of the same thing. Yet the individual estimates vary widely and only one of them is even within the range that the Commission/ACG considers to be reasonable.</p>
<p>Comparison across time.</p>	<p>Wide variation in beta estimates for the same firm across time points towards a lack of reliability and robustness of estimates. The Commission ignores this point.</p>	<p>The SFG Report notes that the empirical techniques used by ACG produce beta estimates for individual firms that vary widely over time, even though the operations of the firm (which determine its systematic risk) are unchanged.</p>