

Starting Price Adjustments

Submission to the
Commerce Commission on
Starting Price Adjustments for Default
Price-Quality Paths

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1 Purpose

The Commerce Commission on 5 August 2010 released STARTING PRICE ADJUSTMENTS FOR DEFAULT PRICE-QUALITY PATHS DISCUSSION PAPER. This Discussion Paper, in paragraph 1.15, calls for submissions.

This present submission comments on features of the proposed methodology underlying the starting price adjustments, in particular:

- Capital Asset Pricing Model,
- Allowed cost of debt, and
- Measurement of the rate of return.

2 Opportunity Cost of Equity

The Default Price Path proposed by the Commerce Commission incorporates an allowed return on capital equal to the Weighted Average Cost of Capital (WACC). This WACC is the composite of the cost of debt, measured according to Commission procedures, and the cost of equity, measured according to the Commission's application of the Capital Asset Pricing Model (CAPM).

The Commission, in paragraph 4.8 of the Discussion Paper, states: "The WACC represents the minimum rate of return that is necessary to attract debt and equity capital to an investment." We focus now on the equity component of capital and evaluate the proposition that the CAPM measures the rate of return necessary to attract equity capital to invest in an electricity distribution business (EDB).

The minimum return needed to attract equity to invest in an EDB is the opportunity cost of equity to the EDB. This opportunity cost is the highest return that an EDB can reasonably expect to receive from other investment opportunities open to it. An EDB has economic incentive to invest equity in the distribution business only if the return on this investment is expected to match the opportunity cost of equity.

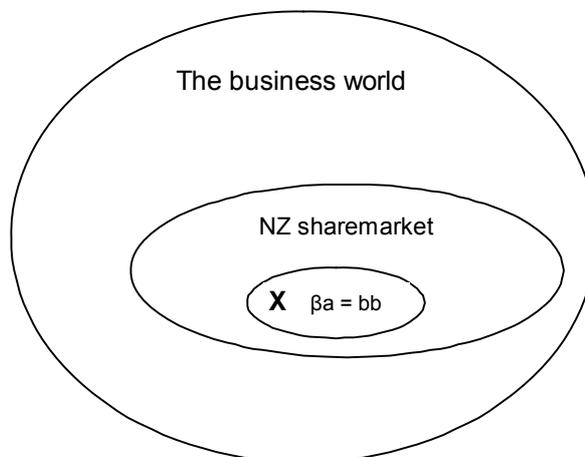
The central question, therefore, is: does the CAPM reasonably measure the opportunity cost of equity to an EDB?

3 Analysis of the Capital Asset Pricing Model

The CAPM views the cost of equity as the return expected in the New Zealand sharemarket on equity investments of the same assessed sharemarket risk as the EDB. The Commission's application of the CAPM appears to generate an estimated cost of equity of around 9%.

We now address the question of whether the CAPM provides a correct estimator of the opportunity cost of equity to an EDB in New Zealand.

A universe of investment opportunities is available to a business. This universe, denoted "The business world", is represented by the outer circle in the following diagram. The New Zealand sharemarket provides investment opportunities within "The business world"; these sharemarket investment opportunities are represented by the middle circle. Within the New Zealand sharemarket there are investment opportunities with a beta of β_a (β_a represents the numerical value of beta used by the Commission); these are represented by the innermost circle. The EDB, denoted by X, must be inside this innermost circle, consistent with the use of the CAPM.



It is now necessary to determine the relationship between these three sets. The innermost set, of listed businesses with a beta of β_b , is a proper subset of NZX listed businesses; this follows from observing that there are listed businesses with other betas. Investment in the New Zealand sharemarket is a proper subset of all investment opportunities open to an EDB; this follows from observing that many EDBs have actually made investments outside of the New Zealand sharemarket.

The opportunity cost of equity is the best expected return available to an EDB. EDBs have open to them any investment opportunity. Therefore, the opportunity cost of equity must be the best expected return in “The business world”. The CAPM restricts attention to a subset of NZX listed companies which in turn is a subset of “The business world”. Accordingly, the CAPM has too restricted a view of the opportunity cost of equity. As the CAPM does not correctly represent the opportunity set facing an EDB it does not provide the correct basis for estimating the opportunity cost of equity.

The conclusion is that the CAPM is not the correct tool for calculating the cost of equity to an EDB.

Indicative information on the return on equity can be calculated from the Annual Enterprise Surveys carried out by Statistics New Zealand. These Surveys are available in their present form for financial years 1999 through 2008. Our estimates of average rates of return on equity (ROEs) show:

- The average ROE for non-primary business for the decade is 10.2%,
- ROEs in different industries range to more than 20%.

EDBs have shown themselves ready to invest in different industries outside of the sharemarket and outside of electricity distribution. By restricting attention to a small subset of investment opportunities and excluding opportunities which appear to have a higher expected rate of return, the CAPM is likely to be downward biased – it is expected to underestimate the opportunity cost of equity.

4 Cost of debt

The other component of the cost of capital is the cost of debt to an EDB. The Commission proposes a particular approach to estimating the cost of debt within the allowed WACC. This particular approach: (1) assumes that debt is 40% of capital and (2) estimates the interest rate using a generic formula rather than using the actual rate.

The cost of debt to an EDB does not have to be estimated. The cost of debt is a fact – the business has an actual amount of debt and an actual interest cost of this debt. The Commission’s procedure disregards the actual cost of debt, introducing instead a hypothetical debt world. Accordingly, the Commission’s calculation of the cost of debt will be inherently different from the actual cost. This will introduce its own bias into calculating the cost of capital.

It is likely that the bias will work against the business. The proposal is to use a fixed leverage of 40%. Lines business debt is not shown in the Disclosure information required by the Commerce Commission so we cannot calculate the debt ratios of EDBs. Our impression, though, is that most electricity distribution businesses have a debt ratio lower than 40% and correspondingly an equity ratio greater than the 60% allowed for in the WACC formula. As debt is less expensive than equity, the proposed procedure is likely to introduce a downward bias in the calculation of WACC and so in the rate of return allowed for EDBs.

5 Measuring the rate of return

The proposed calculation of the actual rate of return of an EDB is given in paragraph 6.7 of the Discussion Paper as:

$$\text{ROI} = (\text{Regulatory Revenue} - \text{Total Transmission Costs} - \text{Total Operational Expenditure} - \text{Total Regulatory Depreciation} - \text{Tax} + \text{Revaluations}) / \text{Regulatory Investment Value}$$

ROI is the return on investment. This ROI is then compared to the WACC. If ROI exceeds the allowed WACC then subsequent price adjustments will be imposed to remove the excess return. In this way the intention is to drive pricing so that ROI becomes equal to the WACC.

The ROI calculated using the proposed formula will probably be greater than the rate of return on capital calculated according to standard commercial practice. This is because of Asset revaluations, which appear in the numerator of the ROI equation. These revaluations typically are not part of the rate of return used for commercial purposes, including for investment decision-making.

In this situation, the commercial rate of return will be less than the allowed rate of return. In turn, the allowed rate of return, WACC, is less than the opportunity cost of capital. Therefore, the commercial rate of return will be less than the opportunity cost of capital. This effect of the proposed measurement system is that EDBs will be earning less than their opportunity cost of capital. The Commission's intention of allowing the opportunity cost of capital will not be fulfilled.

6 Conclusion

The conclusions of this analysis of the proposed Starting Price Adjustment are:

- The Capital Asset Pricing Model is an incorrect tool for estimating the opportunity cost of equity; the CAPM will provide a downward biased estimate of this cost;
- The proposed method for calculating the cost of debt is likely to introduce an additional downward bias in the estimation of the opportunity cost of capital;
- The proposed formula for measuring the actual rate of return, ROI, will result in apparent rates of return that are likely to overestimate the rates of return relevant to the investment decision-making of EDBs;

- These three factors mean that the proposed pricing methodology will drive the return earned by EDBs on their investments in the distribution business systematically below their opportunity cost of capital.

The proposed price regulation system will not meet the Commission's own objective of allowing EDBs to earn their opportunity cost of capital. The prospect is for a return on capital that is below a commercially realistic level.

The consequence will be a positive disincentive to investment in the electricity distribution sector. This is a bad outcome of the regulatory process. In addition, it is in contradiction to the Government Policy Statement of 2006 which called for incentives to invest in infrastructure industries by allowing "regulated rates of return [that are] commercially realistic".