

Calculating the Cost of Capital for LDCs in Ontario

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September 18, 2006

General Methodology

- Weighted average cost of capital (WACC)
 - Weighted average of cost of debt and return on equity (ROE)
 - Weights derived from capital structure
- Cost of debt
 - Risk-free rate + long-term debt premium plus risk premium
- ROE
 - Risk-free rate + equity risk premium
 - At least three tests for determining equity risk premium
 - Equity risk premium test – capital asset pricing model (CAPM)
 - Discounted cash flow test
 - Comparable earnings test

General Methodology

■ Key issues

- Capital structure
- Risk-free rate
- Debt premium
- Equity risk premium
- Updating

Proposed Methodology: Capital Structure

- While about eight years have passed since the last report prepared by Dr. Cannon for the OEB was published, the academic literature has still not reached a definite answer regarding the issue of the optimal debt equity ratio or its relevance
- Some authors suggest that the best way to choose this ratio is to mimic the average in the industry

Proposed Methodology: Capital Structure

- Debt should consist of short-term and long-term debt following the practices of the credit rating agencies
- We recommend that there be two groupings of LDCs for the purpose of establishing the maximum total debt to total debt plus equity proportions
 - For all LDCs with a rate base of less than \$300 million, excluding working capital allowances, the maximum debt-equity split should be 50%/50%
 - For all LDCs with a rate base in excess of \$300 million, the maximum debt-equity split should be 60%/40%.
- If a LDC chooses a debt level greater than these maximums, then the actual proportions should be used in determining the WACC for the LDC and the resulting revenue requirements

Proposed Methodology: Capital Structure

- For the LDCs with no third party short-term debt, we would limit the proportion of short-term debt in the capital structure to the same rate as the working capital allowance since short-term debt should be used to finance short-term assets, primarily working capital requirements
- If a LDC with third party, short-term debt chooses to hold a higher level (e.g., in excess of 15% of the total capital), then the actual proportion of short-term debt should be used in calculating its WACC

Proposed Methodology: Cost of Debt

- For those LDCs with outstanding third-party debt, both short-term and long-term, the cost of long-term debt should be set annually to equal the expected average interest rate on the long-term debt for the next year
 - The cost of short-term debt should be set equal to the expected average interest rate on the short-term debt for the next year.
- For the LDCs with a mix of third-party and associated party debt, the cost of debt for the entire outstanding debt should be set annually to equal the expected average interest rate for the next year on all third party long-term and short-term debt

Proposed Methodology: Cost of Debt

- For the LDCs with no debt or only associated party debt, the maximum allowable cost of long-term debt for the outstanding or deemed long-term debt should be set annually to equal the risk free rate plus the risk premium
- Short-term debt
 - Average of the interest rates on all third party financings (variable rate bank loans or commercial paper) by LDCs, other than those with assets in excess of \$1 billion
 - Average of the interest rates on 90-180 day commercial paper issued by a sample of companies with “A/BBB” credit ratings for their long-term debt

Proposed Methodology: Cost of Debt

- Risk premium for the LDCs with no long-term debt or only associated party long-term debt
 - Average spread between a sample of “A/BBB” rated corporate bonds of 5, 10 and 20 year maturities and the corresponding Government of Canada bonds – approximately 100 basis points

Proposed Methodology: Risk-free Rate

- There are several alternatives for the risk-free rate in Canada
 - One-year Government of Canada treasury bill rate;
 - Rate on a Government of Canada real interest rate bond plus the expected average rate of inflation over some future time period (one year to 10 years);
 - Medium to long-term Government of Canada bond yield; or
 - Average of 5, 10 and 15 year forward rates implicit in zero coupon curve
 - Our preference
 - Risk-free rate: 4.91%

Proposed Methodology: ROE

■ CAPM only

- In competitive markets, investors who hold a risky asset must be compensated for the risk they bear
- In the absence of compensation they would have no incentive to prefer risky assets over the risk free asset
- This compensation is presented in the form of additional expected rate of return over the risk free rate – the risk premium
- The risk of an asset is measured by its beta
- The risk premium of a public company can be estimated by regressing a firm's rate of return, implicit in market prices, on the rate of return of the market

Proposed Methodology: ROE

- Average (52 weeks) beta for the years 2004 and 2005 is 0.3572
 - Average (60 months) beta is 0.2033
- Market return for the S&P/TSX index is 8.09% and 10.06% based on the past 5 years and 10 years, respectively
- Market Risk Premium (MRP) varies between 3.18% and 5.15%
- The overall after-tax ROE when $D/E=1.5$ (debt comprise 60% of the capital structure, tax=36%), can vary between:
 - 7.14% and 8.52% based on the 52 week levered beta (0.701)
 - 6.18% and 6.96% based on the 60 month levered beta (0.398)

Proposed Methodology: ROE

■ Key Issues

- Sample of companies for estimating beta
- Time period for estimating market return

Why CAPM

- CAPM is used by other regulatory bodies (e.g., Australia, UK) to establish a risk premium for equity holders
- It is an objective market-based approach that relates to actual conditions in financial markets
- It has a strong theoretical foundation in the academic finance literature
- It is widely adopted in financial markets
- Major stock exchanges provide estimates for betas for all companies listed on the exchanges
- The CAPM is subject to fewer errors relative to the other two methods which require estimates of future cash flows and their likelihoods
- Implementing the CAPM is relatively simple and requires use of data that are readily available

Why CAPM

■ Comparable earnings test

- The comparable earnings test depends upon accounting data for net profits
- GAAP is not a science, and there are many accountants who claim that it is more of an art
- The wide scope available for interpreting and applying GAAP that makes net profit numbers as reported to shareholders a weak basis for comparing profitability both across companies and over time for the same company

Why CAPM

■ DCF test

- DCF largely ignores current market realities
 - Both McShane and Cannon have indicated that DCF-based ROE estimates show little if any correlation with interest rates, or for that matter with other key macro-economic variables
 - Expected growth rates implicit in the DCF calculations for regulated utilities are overly optimistic.
- Simple arithmetic suggests that the growth rates in utility earnings per share are unlikely to exceed the growth rates in nominal GDP

Proposed Methodology: Updating Mechanism

- There are two options for the annual updating of the ROE
- In option one, the risk premium would remain constant over the five-year period
 - The overall ROE would change in line with the annual changes in the risk free rate
 - The change in the risk free rate incorporated in the ROE should not change on a one-for-one basis with the actual change in the risk free rate
- In option two, both the risk free rate and the risk premium are re-calculated each year