

Cost of Capital and Capital Structure

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What is a Capital Structure?

- Utilities use various sources of funding to finance rate base
 - Short Term Debt
 - Long Term Debt
 - Common Equity
 - Commons stock issuances
 - Retained earnings
 - Hybrid securities such as preferred stock
- Capital structure is the proportion of each source of funding used to support the utility's rate base

Why is Capital Structure Important?

- The Capital Structure is used to calculate Weighted Average Cost of Capital (WACC)
- $\text{NOI} = \text{Rate Base} * \text{WACC}$
- NOI can be one of the largest revenue requirements and often explains a large proportion of a utility's proposed rate increase
- While most analysis focuses on cost of equity, small changes in capital structure can have as large an impact on a utility's weighted cost of capital

Cost of Capital: Simple Capital Structure

Modest Equity Ratio (000's)

						Cost Rate		Weighted Cost
		<u>Amount</u>		<u>Percent</u>				<u>Cost</u>
Long-Term Debt		1,000,000		50.00%		5.00%		2.50%
Common Equity		<u>1,000,000</u>		<u>50.00%</u>		<u>10.00%</u>		<u>5.00%</u>
Total		\$2,000,000		100.00%				7.50%

Cost of Capital: Simple Capital Structure

High Equity Ratio (000's)

	<u>Amount</u>	<u>Percent</u>	<u>Cost Rate</u>	<u>Weighted Cost</u>
Long-Term Debt	500,000	25.00%	5.00%	1.25%
Common Equity	<u>1,500,000</u>	<u>75.00%</u>	<u>10.00%</u>	<u>7.50%</u>
Total	\$2,000,000	100.00%		8.75%

Weighted Cost of Capital: 7.5% vs. 8.75%

- If a utility has a rate base of \$2.0 billion, a 125 basis point difference in cost of capital leads to a difference in net operating income (NOI) of \$25.0 million. When NOI is then grossed up for state and federal income taxes, the higher weighted cost of capital would increase a utility's revenue requirements by almost \$40.0 million.
- If a utility had a capital structure that was 50% equity, a decrease in cost of equity of 250 basis points would decrease cost of capital by 125 basis points.

Regulatory Capital Structure

- What other items are typically included in a utility's capital structure?
 - Customer Deposits
 - Deferred Income Taxes
 - Prepaid Pension
 - Asset is a Reduction to Capital at zero cost
 - Liability is an Increase to Capital at zero cost
- Note depending on the jurisdiction some of these items may be included (excluded) in rate base instead of being included in the capital structure.

Capital Structure Issues

- Matching rate base and capital
- Influence on cost of equity and cost of debt
- Actual vs. pro-forma
- Hypothetical capital structure
- Book value vs. market value
- Inclusion of short-term debt
- Double leverage
- Matching cost of equity with proportion of equity

Matching rate base and capital

- While total capital and rate base will rarely be identical, the two figures should approximate each other.
- If rate base dramatically exceeds total capital, try to determine why. In this situation the utility is potentially earning a return without making an investment in plant.
- If total capital dramatically exceeds rate base, this also may raise red flags.

Matching rate base and capital (cont.)

- If a future test year is being used, it may be difficult to reconcile capital and ratebase
- CWIP (or other ratebase) trackers may cause capital and rate base to diverge.
- When ratebase does not equal total capital, the impact of adding an item as zero cost capital vs. a reduction of ratebase will be different.

Debt versus Equity – Right Balance

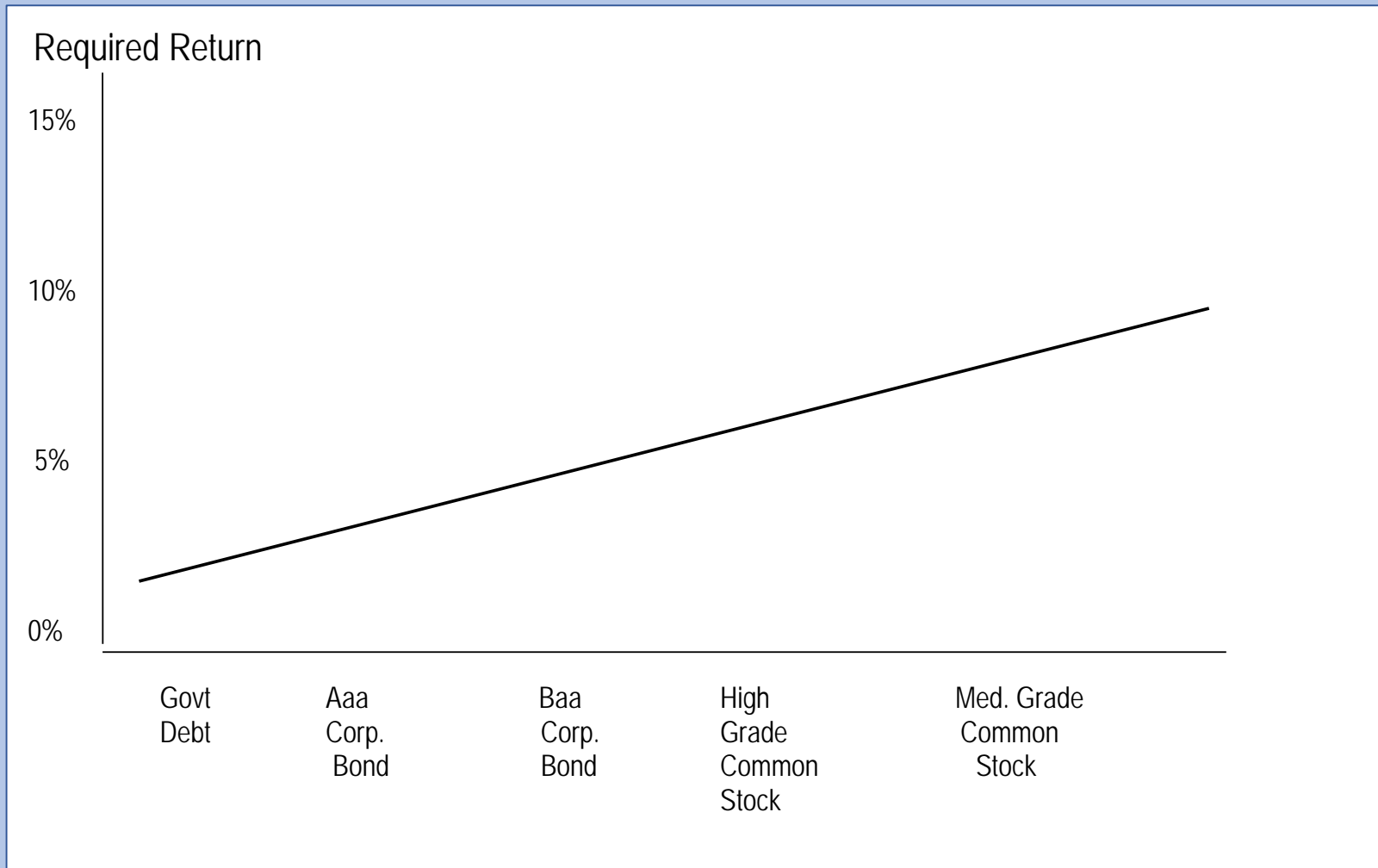
- **Debt vs. Equity:**

- Debt is generally cheaper because it ranks higher than equity in the event of bankruptcy
- Interest is also paid prior to dividend payments
- Interest expense is tax deductible, whereas dividend payments are not
- Generally interest expense on debt is fixed
- If debt is less expensive than equity, why use any equity to finance rate base?
 - Proportion of debt is limited
 - Utility's business risk is such that it cannot support debt
 - Increases financial risk to the point a utility could not issue anymore debt
 - Provides financing flexibility needed for a very capital intensive industry
 - Need a certain amount of equity to maintain credit ratings

Risk

- In financial terms risk can be defined as the uncertainty of return
- Sources of risk
 - Business risk
 - Financial risk
- An investment in the debt securities of a company is less risky than an investment in the same company's equity securities
- Company's total risk profile will determine its cost of debt and equity capital
- Important to note that debt and equity investors face different risks and therefore have conflicting financing objectives
- Measuring risk
 - Fixed Income Investments – Bond Ratings, NAIC Rating
 - Equity Investments - Beta

Risk and Return



Influence on Cost of Equity and Cost of Debt

- The ratio of common equity and long term debt influences both the cost of debt and the cost of equity.
- As the ratio (proportion) of equity increases both the cost of equity and the cost of debt decreases.
- However, because debt costs less than equity (especially after paying taxes on equity) these two forces will in part counteract each other.
- The key for a company is to find the sweet spot (ratio of debt and equity) that leads to the lowest weighted cost of capital.
- There is a huge amount of literature on where this is. It changes from industry to industry and company to company. While common for unregulated companies, utilities incentive to maximize revenues may conflict with the principle of reducing cost of capital.

Actual vs. Pro-Forma

- This may be dictated by your jurisdiction's statutes
- The case pre hearing conference order may define the timing of rate base and capital structure
- The timing of capital structure and rate base should be synchronized
- Timing is especially important if a utility is adding rate base that is financed with debt

Hypothetical Capital Structure

- Some jurisdictions require actual book capital structure
- Other jurisdictions may allow a hypothetical capital structure
 - Need to support proposed capital structure
 - Balanced approach
 - Be consistent with estimated cost of equity
 - Industry Average is a good starting point
 - Do not forget regulatory capital components

Market Value

- Equity is adjusted to reflect the market value of the firm
- Except in fair value jurisdictions this is usually not an issue
- Proposed market value of equity will typically exceed the book value of equity and subsequently increase estimated cost of capital
- Market value is hard to calculate, subject to assumptions and market value equity ratio is not reported by bond rating agencies

Short Term Debt

- Short term debt is typically less expensive than long term debt
- But short term debt should not be used to finance long term assets (Life of asset should match life of debt)
- How is Short Term Debt being used?
- Funding Capital Projects
- Funding Working Capital (if included in rate base)
- Statute may dictate whether short term debt is included in capital structure

Double Leverage

- Double leverage is:

A financial strategy whereby the parent raises debt but down streams the proceeds to its operating subsidiary, likely in the form of an equity investment. Therefore, the subsidiary's operations are financed by debt raised at the subsidiary level and by debt financed at the holding-company level. In this way, the subsidiary's equity is leveraged twice, once with the subsidiary debt and once with the holding-company debt.

Double Leverage (cont.)

- In a simple operating-company / holding-company structure, this practice results in a consolidated debt-to-capitalization ratio that is higher at the parent than at the subsidiary because of the additional debt at the parent.

“High Leverage at the Parent Company Often Hurts the Whole Family,” Moody’s, May 11, 2015 page 5.

Summary

- While often overlooked, changes in the capital structure can have a significant influence on rates
- Proportion of equity should not be excessive
- Make sure to recognize regulatory capital structure issues
- Timing of capital structure and rate base

Questions?

- Feel free to contact me if you have questions at 317-232-2777
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