MONTANA
DEPARTMENT OF
REVENUE

GOVERNOR GREG GIANFORTE
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TO: **Bwembya Chikolwa, Property Tax Manager**
Lumen Technologies, Inc.

FROM: **Doug Roehm, Unit Manager**
Centrally Assessed Property

DATE: **April 28, 2023**

SUBJECT: **Response to Comments on the 2023 Capitalization Rate Study, Medium and Small Telecommunications**

Dear Mr. Chikolwa:

The department would like to thank you for taking the time to review our study and for providing additional information for us to consider. We received your submission email on April 5, 2023, along with a Cost of Capital Study prepared by Kroll for Wireline Carriers (Small & Mid Cap) received via email on March 16, 2022.

The comments received are posted along with these responses on our website at: https://mtrevenue.gov/dor-publications/cap-rate-studies/

In summary, the comments primarily were to give some consideration to the build-up model and to consider the current spread between equity rates and debt rates when estimating the cost of equity and to consider an increase to the cost of debt based on Shenandoah Telecom lacking a debt rating and additional information in the provided Kroll cost of capital study.

Based on the comments and our analysis discussed below, we moved 10% weight from the Capital Asset Pricing Model to the Dividend Discount Model and utilized additional Bloomberg and Capital IQ cost of debt information from the Kroll study. This resulted in a cost of equity of 11.48% previously 11.45%, new cost of debt of 8.43% previously 7.50% and a corresponding Weighted Average Cost of Capital of 8.70% previously 8.30%.

A more detailed discussion on how we arrived at these conclusions follow.

Cost of Equity

Build-Up Method

The Build-up method is an alternative to the Capital Asset Pricing Model. It is still based on the same two major components of a risk-free rate and a risk premium. However, the build-up method breaks the risk premium into three subcomponents, a general equity risk premium, a small-company risk premium, and a company-specific risk premium or alternatively an industry risk premium.

The general formula for the Build-up method is:[1]

$K_e = R_f + RP_m + RP_s +$ or $- RP_c$

K_e = Expected return for the asset being valued
R_f = Rate of return available on a risk-free security as of the valuation date
RP_m = General expected equity risk premium (ERP) for the "market"
RP_s = Risk premium for small size
RP_c = Risk premium attributable to the specific company or to the industry

The primary concern we have with the build-up methods completed by Kroll are that they have not included a company specific risk or industry risk adjustment. Kroll has excluded the build-up methods that include an industry risk premium. For example, the two tables below compare the Build-up 1 as computed by Kroll to the build-up method 2 that would be produced using the same assumptions as the build-up 1 method and by selecting the industry, "GICS 5010 Telecommunications Services" with a corresponding industry risk premium of -2.76%.

Build-up 1							
Size Measure	**Ke**	**=**	**Rf**	**+**	**RPm+s**	**+**	**ERP Adj**
Market Value of Common Equity	14.06%	=	4.14%	+	9.51%	+	0.41%
Book Value of Equity	12.33%	=	4.14%	+	7.78%	+	0.41%
5-Year Average Net Income	12.16%	=	4.14%	+	7.61%	+	0.41%
Market Value of Invested Capital	12.36%	=	4.14%	+	7.81%	+	0.41%
Total Assets	11.65%	=	4.14%	+	7.10%	+	0.41%
5-Year Average EBITDA	11.89%	=	4.14%	+	7.34%	+	0.41%
Net Sales	12.84%	=	4.14%	+	8.29%	+	0.41%
Number of Employees	13.22%	=	4.14%	+	8.67%	+	0.41%
Average	12.56%		4.14%		8.01%		0.41%

[1] Cost of Capital, Pg. 178

Build-up 2

Size Measure	Ke	=	Rf	+	ERP	+	RPi	+	RPs
Market Value of Common Equity	10.57%	=	4.14%	+	6.00%	+	-2.76%	+	3.19%
Book Value of Equity	9.71%	=	4.14%	+	6.00%	+	-2.76%	+	2.33%
5-Year Average Net Income	9.63%	=	4.14%	+	6.00%	+	-2.76%	+	2.25%
Market Value of Invested Capital	9.44%	=	4.14%	+	6.00%	+	-2.76%	+	2.06%
Total Assets	9.26%	=	4.14%	+	6.00%	+	-2.76%	+	1.88%
5-Year Average EBITDA	9.49%	=	4.14%	+	6.00%	+	-2.76%	+	2.11%
Net Sales	9.94%	=	4.14%	+	6.00%	+	-2.76%	+	2.56%
Number of Employees	9.93%	=	4.14%	+	6.00%	+	-2.76%	+	2.55%
Average	9.75%		4.14%		6.00%		-2.76%		2.37%

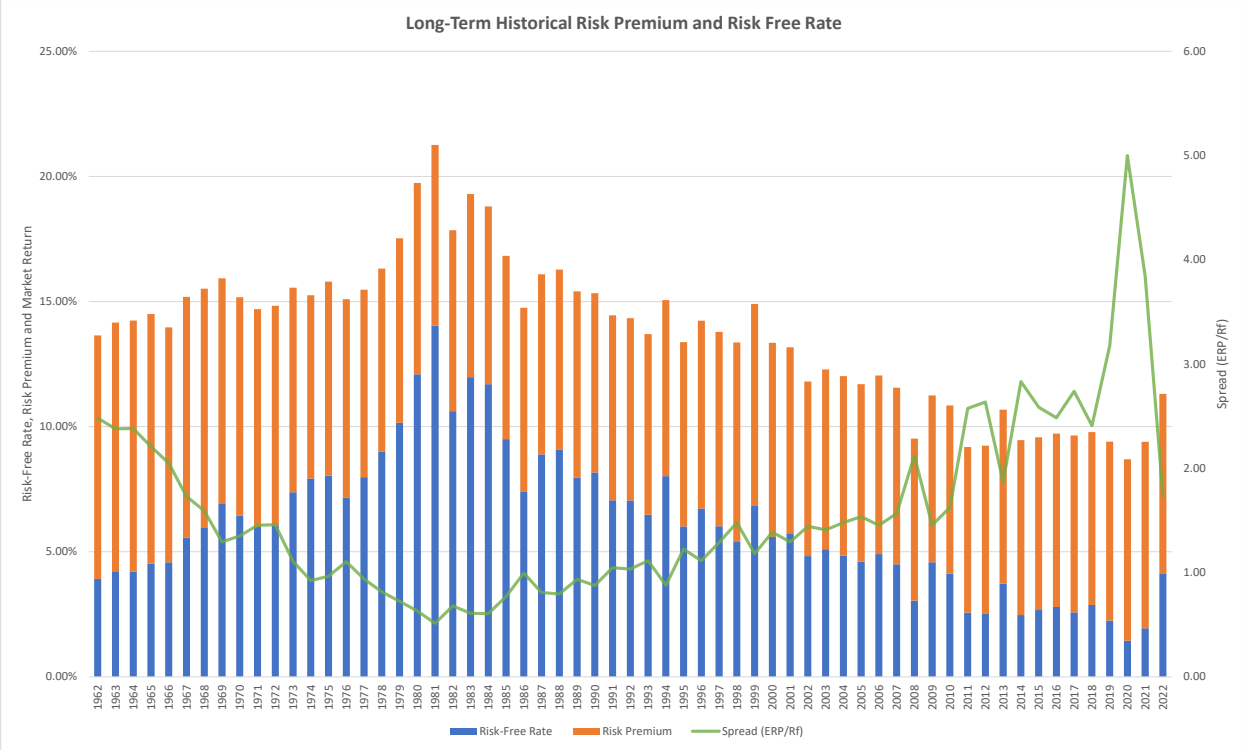
This demonstrates that the difference between the two of about 2.8% (12.56% vs 9.75%), is primarily attributable to the telecommunications industry having less risk than the general market.

It is our conclusion that when industry risk is properly addressed through an industry risk premium or a company specific risk premium the resulting rate is not materially different from the equity rate the department has concluded to. The other difference between the build-up method as computed by Kroll and the Capital Asset Pricing Model as computed by the department is the department does not include a size premium. The department has considered size through selection of the guideline companies not by adding additional risk premiums to the cost of equity.

Spread Between Debt and Equity Rates

We agree that the cost of equity should be higher than the cost of debt as an equity investor has greater risk than a debt holder. We also recognize that the spread between debt and equity has contracted this year compared to the prior year. However, the spread between debt and equity is not constant. One way to demonstrate this is to compare the equity risk premium vs the risk-free rate over time.

The chart below was developed from the long-term historical risk premium and risk-free rate data to show how the spread between the equity risk premium and the risk-free rate varies over time. The spread between the risk premium and risk-free rate is demonstrated by the green line and shows that the spread is not constant and primarily changes along with the risk-free rate.



The equity risk premium as well as the cost of equity compared to the cost of debt is not constant and varies over time.

Cost of Debt

It was requested we consider a higher cost of debt because no debt rating was available for Shenandoah Telecom, nor could a synthetic debt rating be computed due to lack of information. Additional industry debt rating commentary was provided from Standard and Poor's as well as additional market yield information from Bloomberg and Capital IQ.

The department did incorporate the additional yield information from Bloomberg and Capital IQ when concluding to a cost of debt in the final Capitalization Rate Study which indicated a greater cost of debt was warranted. The initial and revised cost of debt by rating are highlighted below:

Rating		Corporate Bond Yields			
Moody's	S&P	MTDOR	Bloomberg	Capital IQ	Avg YTM
Ba	BB	6.97%	7.44%	6.72%	7.04%
B	B	7.71%	8.83%	10.91%	9.15%
Caa	CCC	8.45%		12.42%	10.44%