to the 9.63 or 8.89 percent formula value. That gives the deemed equity ratio that goes with the Board's formula, if the sample's business risk matches that of Union.

To assess accurately evidence on what deemed equity ratio corresponds to the Board's formula, an analyst needs to recognize and incorporate the interaction in public capital markets between the equity ratio and the required rate of return on equity, as Dr. Vilbert's evidence does. It is just as wrong to ignore the interaction between capital structure and the required rate of return on equity as it would be for a life insurance company to ignore the interaction between age and life expectancy. Moreover, just as the interaction between age and life expectancy can be quantified, so too can the interaction between capital structure and the required rate of return on equity. In particular, we lack an agreed theory of how to find "the" minimum-cost capital structure, in part *because* the empirical research is inconsistent with the view that there is a narrow range of optimal capital structures. Fortunately, that fact tells us a great deal about how the required rate of return on equity and the equity ratio interact.

This approach permits a quantitative, not merely a qualitative, approach to selection of a deemed capital structure. In this evidence, I show explicitly how the Board can test quantitatively the internal consistency of sample risk-return evidence and the deemed equity ratio, given the current formula value for the rate of return on equity. I apply this method to my own analysis of the deemed equity ratio.

Conclusions for Union: As noted above, my conclusions regarding Union's deemed equity ratio consider Dr. Carpenter's risk evidence and Dr. Vilbert's capital structure analyses for benchmark sample companies, as well as my own experience in risk-return analysis. In my opinion, the deemed equity ratio that is economically consistent with the evidence on the Company's business risk and a 9.63 percent return on equity is in the upper half of a range from 40 to 50 percent. The corresponding economically consistent deemed equity ratio at a 8.89 percent return on equity is in the upper half of a range from 46 to 56 percent.

How do I reach these conclusions? First, as noted, Dr. Carpenter concludes that Union's business risk has recently increased and that Union is more risky than Dr. Vilbert's LDC sample. In my judgment, the LDC sample using Canadian benchmarks provides the best available evidence for the current cost of capital of a pure play, low-risk rate-regulated business in Canada. Nonetheless, Dr. Vilbert has developed procedures to obtain much more reliable Canadian sample estimates than have been available in recent years. For this reason, the Canadian sample deserves some weight in my analysis despite the problems that Dr. Vilbert describes with the sample.

The risk-return evidence for a sample of companies cannot be interpreted precisely with the current state of the art. For that reason, Dr. Vilbert and I specify ranges of values for the deemed equity ratio, not a single point estimate. Based on Dr. Carpenter's evidence and my own experience, I believe Union's deemed equity ratio should be higher than those of Dr. Vilbert's samples, but it is difficult to say by precisely how much. At a 9.63 percent rate of return on equity, I therefore adopt the outside values of Dr. Vilbert's two samples as the relevant range for Union's deemed equity ratio, i.e., 40 to 50 percent.[5] However, based on Union's relative risk, I believe that the Board should allow a value in the upper

[5] As explained in Dr. Vilbert's evidence, the range is based in part on the achievable level of accuracy in cost of capital estimation with the current state of the art. See also my footnote 19, below.

intervenors, in his testimony confirmed that the regulator should give weight to the deemed equity ratios of comparable utilities.[21]

CCC submitted that the Board consistent with its own policy must examine the individual circumstances of Union and in particular, the business and financial risk faced by Union to determine whether a change in capital structure is required. CCC further submitted that the use of comparators may supplement, but cannot replace that analysis. CCC also disputed Mr. Fetter's opinion that a higher equity ratio would allow Union to withstand future unforeseen events. CCC argued that Mr. Fetter's opinion was hypothetical.

Intervenors and Board staff submitted that Union had provided no evidence that it has not been able to compete for capital on favourable terms with other utilities. Intervenors and Board staff submitted that throughout the IRM period which coincided with a severe global financial crisis, Union had maintained a high credit rating. Union has been able to attract capital on reasonable terms under its current capital structure. Intervenors and Board staff referred to an interrogatory response[22] where Union confirmed that an equity ratio of 40% would not lead to a higher credit rating or a lower cost of debt. This view was also stated in the Standard and Poor's report which notes that Union would not get a higher rating than Spectra, its parent. In Reply, Union submitted that DBRS in its report noted that Union had requested a 40% deemed equity ratio. Union submitted that in that report DBRS expected Union to manage its balance sheet in line with the new regulatory capital structure and maintain greater financial flexibility commensurate with the current rating category. Union argued that this meant that Union would fit more appropriately with the current rating if it had a 40% common equity.[23]

Dr. Booth in his testimony expressed the view that one major aspect of risk was whether a utility was able to earn its allowed return on equity. Dr. Booth noted that since 2000, Union's average over-earning was about 2%. Intervenors and Board staff in their submission noted that Union had over-earned by approximately $278.7 million from 2007 to 2012. Intervenors and Board staff submitted that Union had provided no evidence to demonstrate a change in its risk profile. In reply, Union submitted that there

[21] Oral Hearing Transcripts, EB-2011-0210, Volume 6 at p. 61.
[22] Exhibit J.E-1-1-2.
[23] Oral Hearing Transcripts, EB-2011-0210, Volume 16 at p. 102.

Exhibit No. <u>616</u>

2016 GCOC

Proceeding ID 20622

Utilities Undertaking 009

Undertaking Number: **009**

Transcript Reference: **Volume 5, Page 721 (Mr. Evanchuk to Dr. Villadsen)**

Undertaking:

To update the ATCO Gas portion of Figure 15 to take into account the 2015 Rule 5 filing results, and to do it for the generic Alberta utility and ATCO Pipelines; and to run this analysis using 2015 numbers for ATCO Gas and for the other utilities, as well as do it based on the current ROE as awarded of 8.3 percent.

Response:

An update to Figure 15, "Minimum Equity Percentage Required to Meet Credit Benchmark at Dr. Booth's and Dr. Cleary's Recommended ROEs", in Exhibit 20622-X0457, at hard copy page 73, PDF page 75 is provided below. This update relies on 2015 Rule 005 filing results to inform the inputs to the pro forma credit metric analysis. An Excel file with data supporting the figure is also being provided.

Consistent with Figure 15 in Dr. Villadsen's Rebuttal Evidence (Exhibit 20622-X0457), the minimum equity percentages in the first row reflect credit metrics calculated using Dr. Cleary's recommended allowed ROE for the generic Alberta utility of 7.0%. Likewise, the minimum equity percentages in the third and fifth rows reflect application of Dr. Booth's recommended ROE of 7.5% to credit metrics for ATCO Gas and ATCO Pipelines. Per the requested undertaking, the updated figure also reports (in the second, fourth, and sixth rows) the minimum equity percentages based on credit metrics calculated using allowed ROE of 8.3%.

Min. % Equity satisfying benchmarks suggested by:	**A.U.C.**	**Dr. Villadsen**
	[1]	[2]
Company		
Generic Alberta utility (at 7.0% ROE)	37%	49%
Generic Alberta utility (at 8.3% ROE)	35%	47%
ATCO Gas (at 7.5% ROE)	36%	46%
ATCO Gas (at 8.3% ROE)	33%	43%
ATCO Pipelines (at 7.5% ROE)	41%	54%
ATCO Pipelines (at 8.3% ROE)	39%	52%

Notes:
[1]: The minimum equity percentage required to meet the Commission's credit benchmarks of a 2.0x EBIT coverage, 3.0x FFO/Interest, and FFO/Debt of 11.1-14.3%.
[2]: The minimum equity percentage required to meet the credit benchmarks suggested by Dr. Villadsen of a 2.5x EBIT coverage, 3.5-4.5x FFO/Interest, and FFO/Debt of at least 15%.