Q. WHAT IS YOUR RESPONSE TO MR. GORMAN'S CONCERN THAT THERE IS A "MISMATCH" BETWEEN THE EXPECTED MARKET RETURN, AND THE PROJECTED TREASURY YIELDS IN YOUR CAPM ANALYSIS?

A. Mr. Gorman argues there is an "error" in my calculations because the risk-free rate used to calculate the market risk premium is not the same risk-free rate used in my CAPM estimates based on the near-term projected Treasury yields.[218] That is, Mr. Gorman appears to argue that the risk-free rate used to calculate the Market Risk Premium should be the same as the risk-free rate term in the CAPM.[219]

Despite that concern, Mr. Gorman's CAPM analysis relies on an approach analogous to mine. As Mr. Gorman explains, his long-term historical Market Risk Premium estimate (6.00 percent) is the difference between the average market return (approximately 11.90 percent) and the total return of long-term Government bonds (approximately 5.90 percent).[220] But his CAPM estimate, which is presented in Exhibit MPG-21, assumes a risk-free rate component of 3.20 percent, not the 5.90 percent used in his Market Risk Premium calculation. Mr. Gorman's CAPM estimate therefore includes the same type of "mismatch" he claims is an "error" on my part. Had he chosen to use the 5.90 percent risk-free rate that underlies the 11.90 percent market return, Mr. Gorman's CAPM estimate would have been 270 basis points higher.[221]

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[218] Direct Testimony of Michael P. Gorman, at 81-82.

[219] That is, Mr. Gorman argues that in my analyses the term "r_f" should be the same number in the CAPM equation: $k_e = r_f + \beta(r_m - r_f)$.

[220] Direct Testimony of Michael P. Gorman, at 64.

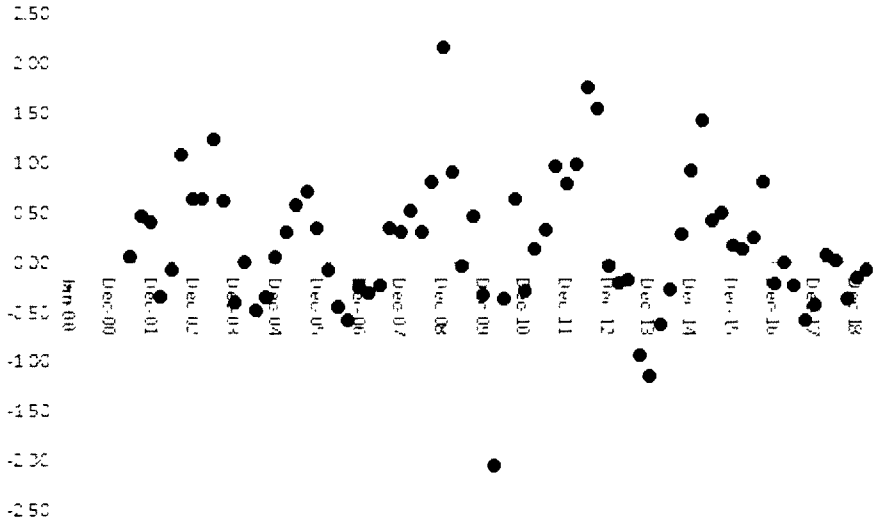
[221] 2.70% = 5.90% - 3.20%.

Q. AT PAGE 95 OF HIS DIRECT TESTIMONY, MR. GORMAN ARGUES YOUR CONSIDERATION OF PROJECTED TREASURY YIELDS IS "UNREASONABLE" BECAUSE YOU DO NOT CONSIDER "THE HIGHLY LIKELY OUTCOME THAT CURRENT OBSERVABLE INTEREST RATES WILL PREVAIL DURING THE PERIOD IN WHICH RATES DETERMINED IN THIS PROCEEDING WILL BE IN EFFECT." WHAT IS YOUR RESPONSE TO MR. GORMAN ON THAT POINT?

A. Mr. Gorman suggests the "accuracy of forecasted interest rates is problematic at best",[222] arguing that over the last several years, "current observable interest rates are just as likely to accurately predict future interest rates as are economists' projections."[223] Although Mr. Gorman suggests current yields are a "more accurate predictor" of future yields, he has not indicated what that level of accuracy might be, or how it supports his conclusion. As Figure 32 (below) demonstrates, using the same quarterly convention applied in Exhibit MPG-24 (that is, comparing forecasts five quarters in the future to the actual yields observed in those forecast quarters) shows actual yields were not accurate predictors of future yields. In fact, the forecast error generally was positive through 2015, indicating observed yields over-predicted actual yields.

[222] Direct Testimony of Michael P. Gorman, at 95.
[223] *Ibid.*

Figure 32: Forecast Error of Spot 30-Year Treasury Yields[224]



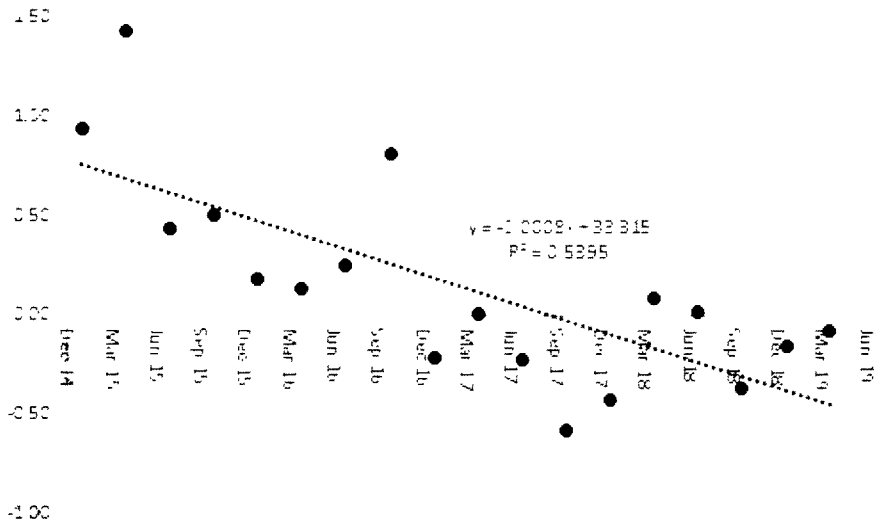
Those results make intuitive sense. During much of the review period interest rates were undergoing a secular decline; with the 2008/2009 recession, interest rates became the subject of Federal monetary policies specifically designed to keep them low. Because yields fell during that period, prior quarters were likely to over-estimate future quarters.

Although interest yields steadily declined between 2000 and 2015, as noted in my Direct Testimony, in December 2015 the Federal Reserved began its process of monetary policy normalization.[225] The effect of that change in policy is shown in Figure 33 (below), which limits the review period to the eighteen quarters from December 2014 through March 2019. As interest rates increased, spot Treasury yields under-projected future yields.

[224] Source: Bloomberg Professional.

[225] Direct Testimony of Robert B. Hevert, at 9.

Figure 33: Forecast Error of Spot 30-Year Treasury Yields Since December 2014[226]



To the extent interest rates increase going forward, Mr. Gorman's suggested approach of using spot yields as a measure of forecast yields will systematically under-estimate Treasury yields, and will systematically bias downward his model results.

Q. PLEASE SUMMARIZE MR. GORMAN'S CRITICISMS OF YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS.

A. Mr. Gorman's concern with my Bond Yield Plus Risk Premium analysis is my "contention" of a "simplistic inverse relationship" between the Equity Risk Premium and interest rates, which he suggests is not supported by academic research.[227] He argues the relevant factor explaining changes in the Equity Risk Premiums is the change to equity risk relative to debt risk, not changes in interest rates alone. Mr. Gorman further suggests the relationship between the Equity Risk

[226] Source: Bloomberg Professional.
[227] Direct Testimony of Michael P. Gorman, at 83.

Premium and interest rates is weaker in "the 2010 through January 2019 post-recession period".[228]

Q. WHAT IS YOUR RESPONSE TO MR. GORMAN'S POSITION ON THOSE POINTS?

A. Regarding the inverse relationship between the Equity Risk Premium and interest rates, several academic studies support my findings.[229] As to his analysis using my data over the 2010 to January 2019 period, Mr. Gorman argues that because the "R-squared" is only 42.48 percent, it suggests there is not a "strong relationship" between the two variables.[230] I disagree. The relevant question is whether the relationship is statistically significant. As shown in Figure 34, the T-statistics show that both the intercept and the 30-year Treasury yield (the independent variable) are statistically significant.[231]

Figure 34: Regression Coefficients for Bond Yield Plus Risk Premium Analysis, January 2010 – January 2019

	Coefficient	T-Statistic	P-Value	Standard Error
Intercept	-0.0094	-2.048	0.041	0.005
30-Year Treasury Yield	-0.0219	-16.306	0.000	0.001

[228] *Ibid.*, at 85.

[229] *See, e.g.*, Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance, Vol. 11, No. 1, 2001, at 11-12; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at 33-45; and Farris M. Maddox, Donna T. Pippert, and Rodney N. Sullivan, *An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry*, Financial Management, Autumn 1995, at 89-95.

[230] Direct Testimony of Michael P. Gorman, at 85.

[231] As noted earlier, a T-statistic higher than 2.00 (absolute value) indicates a statistically significant relationship at the 95.00 percent confidence level.

Q. DID YOU PERFORM ANY ADDITIONAL ANALYSES TO ADDRESS MR. GORMAN'S CONCERN REGARDING THE EFFECT OF EXPECTED MARKET VOLATILITY AND INTEREST RATE ENVIRONMENTS ON YOUR RESULTS?

A. Yes, I did. Although I continue to believe the Risk Premium is properly specified, I performed an additional analysis to specifically include the effect of equity market volatility and credit spreads (*see* Exhibit R-RBH-21). As with my original Bond Yield Plus Risk Premium analysis, I defined the Risk Premium as the dependent variable and the prevailing 30-year Treasury yield as an independent variable. I then included two additional explanatory variables: (1) the VIX (the Chicago Board Options Exchange's one-month volatility index, which is a common measure of volatility); and (2) the credit spread between the 30-year Treasury yield and the Moody's Baa Utility Index (as a measure of incremental risk).[232] In both instances, the statistically significant inverse relationship between Treasury yields and the Risk Premium remains, and the resulting ROE estimates are generally consistent with those of my original and updated Bond Yield Plus Risk Premium analysis.[233]

Lastly, applying Mr. Gorman's projected 3.20 percent 30-year Treasury yield to the alternative Bond Yield Plus Risk Premium Analysis discussed above produces an ROE estimate of 9.85 percent relative to Mr. Gorman's 9.25 percent recommendation (*see* Exhibit R-RBH-21).[234]

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[232] Mr. Gorman notes on page 40 of his testimony that his proxy group has an average Moody's credit rating of Baa1; Exhibit R-RBH-21.

[233] *See* Exhibit RBH-5, Exhibit R-RBH-5, and Exhibit R-RBH-21.

[234] Mr. Gorman assumes a 3.20 percent projected Treasury yield in his Risk Premium analysis; Direct Testimony of Michael P. Gorman, at 60.

Q. WHAT ARE MR. GORMAN'S CONCERNS REGARDING YOUR EXPECTED EARNINGS ANALYSIS?

A. In Mr. Gorman's view, the "approach does not measure the market required return…[r]ather, it measures the book accounting return."[235] As discussed in response to Dr. Woolridge, the Expected Earnings approach provides a direct measure of the expected opportunity cost of capital. Further, because the approach looks to the expected earnings of comparable risk companies, it is consistent with the *Hope* and *Bluefield* "comparable return" standard. In my view, Mr. Gorman's argument that the Expected Earnings approach "rejects"[236] the long-standing practice of setting authorized returns is without merit.

Lastly, Mr. Gorman suggests I use the Expected Earnings approach to "place"[237] my recommendation. As explained in my Direct Testimony, I used the approach to corroborate my recommended range.[238] Mr. Gorman's concerns are misplaced.

Q. PLEASE SUMMARIZE MR. GORMAN'S CONCERN WITH YOUR EVALUATION OF THE COMPANY'S CAPITAL EXPENDITURE PLAN.

A. Mr. Gorman argues CenterPoint Houston's capital expenditure forecasts are not "out of line" with the utility industry."[239] He points to his Exhibit MPG-2, noting that "the industry as a whole is expected to require access to the external capital markets due to producing less cash flow per share than capital spending per

[235] Direct Testimony of Michael P. Gorman, at 87.
[236] *Ibid.*, at 87-88.
[237] *Ibid.*, at 71.
[238] *See*, Direct Testimony of Robert B. Hevert, at 4.
[239] Direct Testimony of Michael P. Gorman, at 92.

share."[240] His analysis does not compare CenterPoint Houston to "the utility industry", or demonstrate it is consistent with the industry. As Exhibit R-RBH-22 demonstrates, the Company's planned capital expenditures (as a share of net plant) is the third highest in the proxy group.

Q. PLEASE SUMMARIZE MR. GORMAN'S TESTIMONY AS IT RELATES TO FLOTATION COSTS.

A. Mr. Gorman argues a flotation cost adjustment is unreasonable because it is "not based on the recovery of prudent and verifiable actual flotation costs incurred by CEHE."[241]

Q. WHAT IS YOUR RESPONSE TO MR. GORMAN REGARDING THE NEED TO RECOVER FLOTATION COSTS?

A. As explained in my Direct Testimony, flotation costs are not current expenses and are not reflected on the income statement. Rather they are part of the invested costs of the utility and are reflected on the balance sheet under "paid in capital."[242] Whether paid directly or via an underwriting discount, the cost results in net proceeds that are less than the gross proceeds. Because flotation costs permanently reduce the equity portion of the balance sheet, an adjustment must be made to the ROE to ensure that the authorized return enables investors to realize their required return.

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[240] *Ibid.*
[241] *Ibid.*, at 90.
[242] Direct Testimony of Robert B. Hevert, at 38.

I have provided an illustrative example of the effect of flotation costs on the ROE in Exhibit R-RBH-23.[243] As shown in that exhibit, due to the effect of flotation costs, an authorized return of 10.40 percent would be required to realize an ROE of 10.51 percent (*i.e.,* an 11-basis point flotation cost adjustment). If flotation costs are not recovered, the growth rate falls and the ROE decreases to 10.29 percent (*i.e.,* below the required return).[244]

Q. DO YOU AGREE WITH MR. GORMAN'S VIEW THAT BECAUSE STORM COSTS ARE REFLECTED IN CREDIT RATINGS AND COST RECOVERY HAS BEEN PROVIDED THROUGH SECURITIZATION THERE IS NO PARTICULAR RISK TO EQUITY INVESTORS?[245]

A. No, I do not. As discussed in my Direct Testimony, I appreciate that securitization reduces the delay in the recovery of storm restoration costs.[246] Still, shareholders absorb the capital carrying cost, and the inherent risk and credit strain during the securitization process which can take up to a year to complete. During that time, the Company must have access to the financial liquidity required to fund the recoverable costs. To the extent other liquidity needs arise, or the Company's access to credit markets becomes constrained, it may have to fund those needs with other, more expensive sources of funds. [247] As to Mr. Gorman's observation that the Company's credit rating is consistent with its peers, as discussed throughout my

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[243] This example is based on an analysis performed by Dr. Roger Morin. *See,* Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 330–332.

[244] Exhibit R-RBH-23 is provided for illustrative purposes only. I have not relied on the results of the analysis in determining my recommended ROE or range.

[245] Direct Testimony of Michael P. Gorman, at 91.

[246] *See*, Direct Testimony of Robert B. Hevert, at 46.

[247] *Ibid.*, at 48.

Rebuttal Testimony debt and equity risks are related, but not the same. Because equity investors are exposed to greater risk over longer periods than are debt investors, we cannot conclude the Company's storm risks are of no incremental consequence to its equity investors.

Q. WHAT IS YOUR RESPONSE TO MR. GORMAN'S VIEW THAT THE TCJA'S EFFECTS ARE REFLECTED IN THE COMPANY'S BOND RATINGS AND REFLECTED IN THE PROXY GROUP'S COST OF EQUITY RESULTS?[248]

A. As discussed in my response to Mr. Ordonez, the TCJA had a negative effect on utility valuations. At issue is how to reflect those effects in ROE recommendations. Although I appreciate it is difficult to assign a precise return increment to it, I also believe it is reasonable to consider the TCJA in determining where the ROE should fall within the range of results.

Q. DO YOU AGREE WITH MR. GORMAN'S VIEW THAT THE INCREASE IN SHORT-TERM INTEREST RATES DOES NOT AFFECT LONG-TERM INTEREST RATES?[249]

A. First, Mr. Gorman and I generally agree that the Federal Reserve's "normalization" process, in particular the unwinding of the $4 trillion of assets put on its balance sheet during Quantitative Easing represents a source of risk to investors. As to the question of whether changes in the overnight Federal Funds rate produces equivalent changes in long-term interest rates, I agree that market forces affect

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[248] Direct Testimony of Michael P. Gorman, at 92-93.

[249] *Ibid.*, at 96. Please note that although Mr. Gorman refers to projected interest rates as "Mr. Hevert's interest rate projections", the projections are provided by the same source on which Mr. Gorman relies for such projections, the *Blue Chip Financial Forecast*. See, Direct Testimony of Michael P. Gorman, at 62.

longer term rates, sometimes in ways beyond their effect on the overnight Federal Funds rate. As discussed in my response to Ms. Winker, among the factors that affect longer-term yields is perceived and realized market instability. To the extent long-term yields are driven down by near-term economic events, we should not conclude fundamental risks to investors, and the returns they require, also have decreased.

G. Mr. Gorman's Financial Integrity Analyses

Q. PLEASE BRIEFLY SUMMARIZE MR. GORMAN'S ASSESSMENT OF HIS RECOMMENDATION AS IT AFFECTS MEASURES OF CENTERPOINT HOUSTON'S FINANCIAL INTEGRITY.

A. Mr. Gorman evaluates the reasonableness of his ROE recommendation by calculating two *pro forma* ratios - Debt to EBITDA,[250] and FFO to Total Debt – to determine whether they would fall within S&P's guideline ranges for an investment grade rating.[251] In his Exhibit MPG-22, Mr. Gorman develops those ratios, based on CenterPoint Houston's retail cost of service, his recommended ROE of 9.25 percent, and his proposed capital structure of 60.00 percent long-term debt and 40.00 percent common equity. Based on his *pro forma* analysis, Mr. Gorman argues his recommended ROE and capital structure support CenterPoint Houston's investment grade bond rating.[252] An important consideration is that Mr. Gorman's analysis fundamentally assumes CenterPoint Houston actually will earn the entirety of its authorized ROE on a going-forward basis.

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[250] Earnings Before Interest, Taxes, Depreciation, and Amortization.
[251] *See,* Direct Testimony of Michael P. Gorman, at 69.
[252] *Ibid.,* at 70-71.

Q. DO YOU HAVE ANY GENERAL OBSERVATIONS REGARDING MR. GORMAN'S APPROACH TO ASSESSING HIS RECOMMENDATION BY REFERENCE TO *PRO FORMA* CREDIT METRICS?

A. Yes, I do. Before discussing Mr. Gorman's *pro forma* credit metrics, it is helpful to review rating agencies' perspectives (in particular, S&P) regarding their use of credit metrics in ratings determinations. On November 30, 2007, S&P released a statement announcing that electric, gas, and water utility ratings would be "categorized under the business/financial risk matrix used by the Corporate Ratings group."[253] S&P also provided matrices of business and financial risk, based on "Financial Risk Indicative Ratios": FFO/Debt; FFO/Interest; and Total Debt/Capital. In that announcement S&P noted:

> ... even after we assign a company business risk and financial risk, the committee does not arrive by rote at a rating based on the matrix. The matrix is a guide - - it is not intended to convey precision in the ratings process or reduce the decision to plotting intersections on a graph. Many small positives and negatives that affect credit quality can lead a committee to a different conclusion than what is indicated in the matrix.

On May 27, 2009 S&P expanded its matrix, and noted the relative significance of credit metrics to the rating process:

> The rating matrix indicative outcomes are what we typically observe - - but are not meant to be precise indications or guarantees of future rating opinions. Positive and negative nuances in our analysis may lead to a notch higher or lower than the outcomes indicated in the various cells of the matrix .... Still, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees.
>
> Moreover, our assessment of financial risk is not as simplistic as looking at a few ratios.[254]

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[253] Standard & Poor's Ratings Services, U.S. Utilities Ratings Analysis Now Portrayed In The S&P Corporate Ratings Matrix, Nov. 30, 2007 at 2-3.

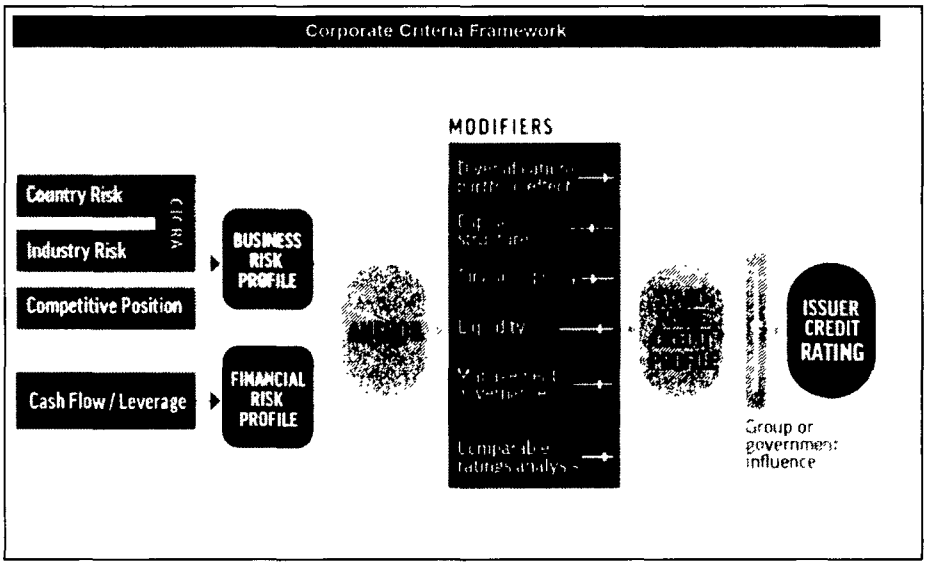
[254] Standard & Poor's Ratings Services, Criteria Methodology: Business Risk/Financial Risk Matrix Expanded, May 27, 2009.

Later, on September 18, 2012, S&P further expanded its matrix, confirming "[s]till, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees."[255] It is clear, therefore, that credit agencies review a broad assessment of business and financial risk, including factors that are based on both qualitative and quantitative measures, including discussions with management.

Q. ARE CREDIT RATINGS DETERMINED PRINCIPALLY BY THE TYPES OF *PRO FORMA* METRICS MR. GORMAN CALCULATES IN EXHIBIT MPG-22?

A. No, S&P's ratings process considers a range of both quantitative and qualitative data. As Figure 35 (below) demonstrates, Cash Flow/Leverage considerations are one element of a broad set of criteria.

Figure 35: Standard & Poor's Corporate Criteria Framework[256]



[255] Standard & Poor's Ratings Services, *Methodology: Business Risk/Financial Risk Matrix Expanded*, September 18, 2012.
[256] Standard & Poor's Ratings Services, *Corporate Methodology*, November 19, 2013 at 5.

Further, unlike Mr. Gorman's *pro forma* analysis, S&P's assessment does not look to a single period or assume static relationships among variables. Rather, S&P reviews credit ratios "on a time series basis with a clear forward-looking bias."[257] S&P explains that the time series length depends on a number of qualitative factors, but generally includes two years of historical data, and three years of projections. Further, the ratios depend on "base case" projections considering "current and near-term economic conditions, industry assumptions, and financial policies."[258] S&P also makes clear that the regulatory regime is one of the most important factors in its rating analyses:

> For a regulated utility company, the regulatory regime in which it operates will influence its performance in profound ways. As such, Standard & Poor's Ratings Services' regulatory advantage assessment - - which informs both our business and financial risk scores - - is one of the most important factors in our credit analysis of regulated utilities.[259]

Consequently, even if we assume credit determinations fundamentally are driven by two *pro forma* metrics, the actual assessment of those metrics is far more complex than Mr. Gorman's analysis suggests.

Q. DO YOU AGREE WITH THE PREMISE OF MR. GORMAN'S ANALYSIS AND CONCLUSIONS HE DRAWS FROM IT?

A. No, I do not. Simply maintaining an "investment grade" rating is an inappropriate standard. According to S&P, only two of 252 utilities currently have below investment grade long-term issuer ratings.[260] Because the Company must compete

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[257] *Ibid.*, at 33.
[258] *Ibid.*
[259] Standard & Poor's Ratings Services, *How Regulatory Advantage Scores Can Affect Ratings On Regulated Utilities*, April 23, 2015 at 2.
[260] S&P Global Ratings RatingsDirect, Issuer Ranking: North American Electric, Gas, And Water Regulated Utilities – Strongest to Weakest, January 29, 2018.

for capital within the utility sector in the first instance, and with companies beyond utilities in the second, the Company must have a strong financial profile. Such a profile enables the Company to acquire capital even during constrained markets.

Second, relying on *pro forma* credit metrics to assess the credit implications of any specific ROE or equity ratio is a partial analysis that may lead to incorrect conclusions. That concern arises not only because the credit rating process is complex, but also because a wide range of assumed ROEs and equity ratios produce *pro forma* metrics within the benchmark ranges for a given credit rating. As shown in Figure 36 (below, and Exhibit R-RBH-24), for example, Mr. Gorman's *pro forma* analysis suggests an ROE as low as 7.26 percent, and as high as 12.76 percent, would produce *pro forma* Debt to EBITDA in the "Significant" financial risk range and FFO to Total Debt ratios in the "Intermediate" financial risk range identified in his analysis.

That is, even if we assume an unreasonably low ROE in Mr. Gorman's analysis, the *pro forma* Debt to EBITDA ratios remain in the "Significant" financial risk range. Clearly, a return as low as 7.26 percent, which is 231 basis points below the average 2019 authorized return value of 9.57 percent cited by Mr. Gorman, is an unrealistic estimate of the Company's Cost of Equity[261], just as 12.76 percent is unreasonably high.

Figure 36 also demonstrates that at the Company's proposed capital structure, the *pro forma* analysis suggests an ROE as low as 3.51 percent, and as high as 7.18 percent, would produce Debt to EBITDA ratios that fall within the

[261] *See,* Direct Testimony of Michael P. Gorman, at 8, Figure 1; Exhibit MPG-16.

"Significant" range. Those results are a clear example of why S&P's assessment goes far beyond the review of two static, *pro forma* metrics.

Figure 36: Mr. Gorman's Financial Integrity Test Using Alternate Assumptions[262]

	Debt / EBITDA	FFO/ DEBT	
S&P Benchmark Ranges			
"Intermediate"	3.0x-4.0x	13%-23%	
"Significant"	4.0x-5.0x	9%-13%	
SCENARIO	**Debt / EBITDA**	**FFO/ DEBT**	**Implied Financial Risk Rating**
Mr. Gorman as Filed (9.25% ROE and 60.00% Long-Term Debt)	4.6x	16%	Significant/ Intermediate
7.26% ROE and 60.00% Long-Term Debt	5.0x	15%	Significant/ Intermediate
12.76% ROE and 60.00% Long-Term Debt	4.0x	18%	Significant/ Intermediate
3.51% ROE and 50.00% Long-Term Debt	5.0x	15%	Significant/ Intermediate
7.18% ROE and 50.00% Long-Term Debt	4.0x	19%	Significant/ Intermediate

VI. RESPONSE TO TCUC WITNESS WOOLRIDGE

Q. PLEASE BRIEFLY SUMMARIZE DR. WOOLRIDGE'S ROE ANALYSES AND RECOMMENDATIONS.

A. Dr. Woolridge argues the Company's Cost of Equity is within a range of 7.30 percent to 8.65 percent, but provides a specific recommendation of 9.00 percent giving weight to higher authorized ROEs for electric delivery companies nationally and to reflect the concept of gradualism.[263] Dr. Woolridge's recommendation is based on his Constant Growth DCF analysis and CAPM results.[264]

[262] Analysis based on Mr. Gorman's workpaper supporting Exhibit MPG-22, page 1 of 4 and 2 of 4. Exhibit R-RBH-24.
[263] Direct Testimony of Dr. J. Randall Woolridge, at 4.
[264] *Ibid.*, at 48.

Q. WHAT ARE THE SPECIFIC AREAS IN WHICH YOU DISAGREE WITH DR. WOOLRIDGE'S ANALYSES AND RECOMMENDATIONS?

A. There are several areas in which I disagree with Dr. Woolridge, including: (1) the overall reasonableness of Dr. Woolridge's ROE recommendation; (2) the composition and selection of the proxy group companies; (3) Dr. Woolridge's application of the Constant Growth DCF model; (4) Dr. Woolridge's application of the CAPM; (5) the reasonableness of the Bond Yield Plus Risk Premium analysis; (6) Dr. Woolridge's position that the Expected Earnings approach is not an accurate measure of investor expectations; (7) the relevance of Market-to-Book ("M/B") ratios in determining the ROE; (8) Dr. Woolridge's position that the Company is less risky than its peers; and (9) the relevance of flotation costs in determining the Company's Cost of Equity. I also disagree with Dr. Woolridge's presentation and interpretation of certain data relating to recently authorized returns as discussed above.

A. Recommended ROE

Q. IS DR. WOOLRIDGE'S 9.00 PERCENT ROE RECOMMENDATION CONSISTENT WITH RETURNS RECENTLY AUTHORIZED IN TEXAS?

A. No, it is not. The Commission most recently authorized an ROE of 9.65 percent for an electric utility in Docket No. 48401 on December 20, 2018. That is, the Commission's most recently authorized return is 65 basis points above Dr. Woolridge's recommendation, and 235 basis points above the low end of his range. Dr. Woolridge has provided no evidence to support the conclusion the Company is

so less risky than its peers that investors would require a return 65 to 235 basis points below those authorized for other electric utilities in Texas.[265]

Q. DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT IN RECENT YEARS, AUTHORIZED ROES FOR ELECTRIC DELIVERY COMPANIES HAVE BEEN 30-50 BASIS POINTS BELOW THOSE OF VERTICALLY INTEGRATED ELECTRIC UTILITIES?[266]

A. No, I do not. Based on my analysis, in 2018 the average authorized ROE for electric delivery companies was 9.48 percent, not 9.38 percent as Dr. Woolridge suggests.[267] Additionally, during the period 2016 through 2019, the median authorized ROE for distribution-only companies was 9.60 percent, only ten basis points below the median authorized ROE for vertically integrated utilities (9.70 percent).[268]

Q. IS THERE A DISCONNECT BETWEEN YOUR RECOMMENDED ROE OF 10.40 PERCENT AND YOUR ROE STUDIES?[269]

A. No, there is not. Dr. Woolridge states "the vast majority of [my] equity cost rate results point to a lower ROE" and the "the only results that point to a ROE as high as 10.4% are [my] CAPM results using *Value Line* betas and market risk premium."[270] As discussed in my Direct Testimony "[m]y analyses recognize that estimating the Cost of Equity is an empirical, but not entirely mathematical

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[265] For these same reasons, I also disagree with Dr. Woolridge's alternative ROE recommendation of 8.65 percent which reflects the high end of the range produced with his methods; Direct Testimony of Dr. J. Randall Woolridge, at 49.

[266] Direct Testimony of Dr. J. Randall Woolridge, at 14.

[267] *Ibid.*

[268] *See*, Exhibit R-RBH-31.

[269] Direct Testimony of Dr. J. Randall Woolridge, at 5 and 56.

[270] *Ibid.*, at 5. [clarification added; italics in original]

exercise; it relies on both quantitative and qualitative data and analyses, all of which are used to inform the judgment that inevitably must be applied."[271] My ROE recommendation considers the results of all of my analyses and does not reflect a single method.

Further, Dr. Woolridge is incorrect in stating that only my CAPM results point to an ROE as high as 10.40 percent. For example, in Exhibit RBH-1, my DCF method produces a range of ROE results from a low of 5.55 percent to a high of 15.78 percent. My recommended ROE of 10.40 percent fits squarely within this range. Exhibit RBH-6 also corroborates my recommended ROE. The Expected Earnings approach in Exhibit RBH-6 produces a range of results from a low of 6.50 percent to a high of 14.05 percent. Again, my recommended ROE of 10.40 percent fits squarely within this range.

B. Proxy Group Selection

Q. PLEASE DESCRIBE THE SCREENING CRITERIA BY WHICH DR. WOOLRIDGE DEVELOPED HIS PROXY GROUP.

A. Dr. Woolridge relied on six screening criteria to develop his proxy group of 28 companies:

1. Proxy companies must derive at least 50.00 percent of revenues from regulated electric operations;
2. Each company selected must be listed as a U.S. Electric Utility by Value Line;
3. Selected companies must have an investment grade corporate credit and bond rating;

[271] Direct Testimony of Robert B. Hevert, at 4. [clarification added]

4. Companies must have paid a cash dividend for the past six months with no cuts or omissions;
5. Each company must not be involved in an acquisition of another utility, or be the target of an acquisition; and
6. Proxy companies must have long-term EPS growth forecasts available from Yahoo!, Reuters, and/or Zacks.[272]

Q. DO YOU AGREE WITH DR. WOOLRIDGE'S SCREENING CRITERIA?

A. Not entirely. Although we do have certain criteria in common (for example, we both exclude companies that are party to a significant corporate transaction or that do not consistently pay dividends), as explained below, Dr. Woolridge's screens do not render a group of companies that is sufficiently comparable to the Company.

Q. WHAT IS YOUR CONCERN WITH DR. WOOLRIDGE'S USE OF REVENUE, RATHER THAN INCOME, AS A SCREENING CRITERION?

A. Measures of income are far more likely to be considered by the financial community in making credit assessments and investment decisions than are measures of revenue. From the perspective of credit markets, measures of financial strength and liquidity are focused on cash from operations, which is directly derivative of earnings, as opposed to revenue. As part of its rating methodology, for example, Moody's assigns a 40.00 percent weight to measures of financial strength and liquidity, of which 22.50 percent specifically relates to the ability to cover debt obligations with cash from operations.[273]

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[272] Direct Testimony of Dr. J. Randall Woolridge., at 14-15.

[273] *See, Rating Methodology, Regulated Electric and Gas Utilities*, Moody's Global Infrastructure Finance, August 2009, at 13.

Just as rating agencies focus on measures of cash from operations, equity analysts rely on measures of income in assessing equity valuation levels; common measures of relative value include the P/E ratio, and the ratio of Enterprise Value to EBITDA. Revenue, however, may be several steps removed from the earnings and cash flows that form the basis of equity valuations. Focusing on revenue may mislead the analyst into assuming a given operating unit is the primary driver of expected growth, when the majority of earnings and cash flows are derived from other business segments. Here, we are considering whether the underlying utility is the principal source of long-term growth, and as such, focusing on revenue may obscure important elements of the analysis.

C. Constant Growth DCF Model

Q. PLEASE SUMMARIZE YOUR CONCERNS WITH THE CONSTANT GROWTH DCF MODEL AND DR. WOOLRIDGE'S APPLICATION OF THE MODEL.

A. There are several practical concerns with Dr. Woolridge's application of the model, and his interpretation of its results. For example, Dr. Woolridge's approach includes a degree of subjectivity that prevents us from replicating the fundamental inputs that drive his results. Moreover, Dr. Woolridge's judgment is to give "primary weight"[274] to growth rate projections produced by equity analysts, despite his assertion that those analysts knowingly and persistently produce biased growth rate forecasts.

[274] Direct Testimony of Dr. J. Randall Woolridge, at 37-38.

Q. WHAT GROWTH RATES DID DR. WOOLRIDGE REVIEW IN HIS CONSTANT GROWTH DCF ANALYSIS?

A. Dr. Woolridge reviewed a number of growth rates, including historical and projected DPS, BVPS, and EPS growth rates as reported by Value Line; analysts' consensus EPS growth rate projections from Yahoo!, Reuters, and Zacks; and an estimate of "Sustainable Growth" derived from data provided by Value Line.[275] Dr. Woolridge states that in arriving at his growth rate projections for the proxy group he gave "primary weight" to projected EPS growth rates.[276]

Figure 37: Summary of Dr. Woolridge's Growth Rate Estimates[277]

	Dr. Woolridge's Proxy Group	CenterPoint Houston Proxy Group
Value Line Historical Growth Rates (DPS, BVPS, EPS)	4.70%	4.70%
Value Line Projected Growth Rates (DPS, BVPS, EPS)	5.20%	5.20%
Sustainable Growth	3.80%	3.60%
Analyst Projected EPS Growth Rates (excl. Value Line) – Mean/Median	5.20% / 5.00%	5.30% / 5.40%
Dr. Woolridge's Assumed DCF Growth Rate	5.10%	5.35%

Q. PLEASE SUMMARIZE DR. WOOLRIDGE'S REFERENCE TO A MARCH 2015 REPORT BY MOODY'S REGARDING THE EFFECT OF ROES ON UTILITIES' NEAR-TERM CREDIT PROFILES.

A. Dr. Woolridge points to the March 2015 Moody's report and concludes lower authorized ROEs are not impairing utilities' credit profiles and are not "deterring

[275] Exhibit JRW-7.
[276] Direct Testimony of Dr. J. Randall Woolridge, at 37-38.
[277] *Ibid.*; Exhibit JRW-7, at 6.

them from raising record amounts of capital."[278] He further argues the Moody's article "supports the prevailing/emerging belief that lower authorized ROEs are unlikely to hurt the financial integrity of utilities or their ability to attract capital."[279]

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?

A. The March 2015 Moody's article makes clear utilities' cash flow had benefited from increased deferred taxes, which themselves were due to bonus depreciation. In that report, Moody's noted the rise in deferred taxes eventually would reverse.[280] In January 2018, Moody's spoke to the effect of that reversal on utility credit profiles in the context of tax reform:

> Tax reform is credit negative for US regulated utilities because the lower 21% statutory tax rate reduces cash collected from customers, while the loss of bonus depreciation reduces tax deferrals, all else being equal. Moody's calculates that the recent changes in tax laws will dilute a utility's ratio of cash flow before changes in working capital to debt by approximately 150 - 250 basis points on average, depending to some degree on the size of the company's capital expenditure programs. From a leverage perspective, Moody's estimates that debt to total capitalization ratios will increase, based on the lower value of deferred tax liabilities.[281]

In June 2018, Moody's changed its outlook on the U.S. regulated sector to "negative" from "stable". Moody's explained that its change in outlook "...primarily reflects a degradation in key financial credit ratios, specifically the ratio of cash flow from operations to debt, funds from operations ("FFO") to debt

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[278] Direct Testimony of Dr. J. Randall Woolridge, at 51.

[279] *Ibid,* at 52.

[280] Moody's Investors Service, *Lower Authorized Returns Will Not Hurt Near-Term Credit Profiles*, March 10, 2015, at 4.

[281] Moody's Investors' Service, *Rating Action: Moody's changes outlooks on 25 US regulated utilities primarily impacted by tax reform*, January 19, 2018.

and retained cash flow to debt, as well as certain book leverage ratios."[282] The sector's outlook could remain "negative" if cash flow-based metrics continue to decline, or if there emerge signs of a more "contentious" regulatory environment (which, Moody's notes, is not fully reflected in lower authorized returns). Dr. Woolridge's reference to a 2015 article does not consider Moody's more recent position.

Q. DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT ANALYSTS' EARNINGS GROWTH PROJECTIONS ARE CONSISTENTLY BIASED?

A. No, I do not. Dr. Woolridge argues analysts' earnings growth estimates are "overly optimistic and upwardly biased", and suggests that relying on such estimates is a methodological error.[283] He further asserts that, due to that bias, "the DCF growth rate needs to be adjusted downward from the projected EPS growth rate."[284] Dr. Woolridge's position, however, is based on observations of the broad market; he has provided no evidence that any of the growth rates used in my (or his) DCF analyses are the result of a consistent and pervasive bias on the part of the analysts providing those projections. Notably, despite his view that they are biased, it was by "[g]iving primary weight to the projected EPS growth rate of Wall Street analysts" that Dr. Woolridge arrived at his assumed growth rates.[285]

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[282] Moody's Investors Service, *Announcement: Moody's changes the US regulated utility sector outlook to negative from stable,* June 18, 2018.
[283] Direct Testimony of Dr. J. Randall Woolridge, at 35.
[284] *Ibid.*
[285] *Ibid.*, at 38.

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?

A. There is no reason to believe the analyst growth rates used in my DCF analyses are biased. As a practical matter, the October 2003 Global Research Analyst Settlement required financial institutions to insulate investment banking from analysis, prohibited analysts from participating in "road shows," and required the settling financial institutions to fund independent third-party research.[286] I have reviewed the Letters of Acceptance, Waiver and Consent signed by financial institutions that were party to the Global Settlement, and found no reference to misconduct by analysts following the utility sector.

Moreover, pursuant to Regulation AC, which became effective in April 2003, analysts must certify that "...the views expressed in the report accurately reflect his or her personal views, and disclose whether or not the analyst received compensation or other payments in connection with his or her specific recommendations or views."[287] I further understand industry practice is to avoid conflicts of interest by ensuring that compensation is not directly or indirectly linked to the opinions contained in those reports. Dr. Woolridge has not explained why any of the analysts covering our respective proxy companies would bias their projections despite those certification requirements.

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[286] The 2002 Global Financial Settlement resolved an investigation by the U.S. Securities and Exchange Commission and the New York Attorney General's Office of a number of investment banks related to concerns about conflicts of interest that might influence the independence of investment research provided by equity analysts.

[287] Securities and Exchange Commission, 17 CFR PART 242 [Release Nos. 33-8193; 34-47384; File No. S7-30-02], RIN 3235-AI60 Regulation Analyst Certification.

Q. IS THE USE OF ANALYSTS' EARNINGS GROWTH PROJECTIONS IN THE DCF MODEL SUPPORTED BY FINANCIAL LITERATURE?

A. Yes, it is. Several published articles support the use of analysts' earnings growth projections in the DCF model. Dr. Robert Harris, for example, found financial analysts' earnings forecasts (referred to in the article as "FAF") to be appropriate in calculating the expected Market Risk Premium:[288]

> ... a growing body of knowledge shows that analysts' earnings forecasts are indeed reflected in stock prices. Such studies typically employ a consensus measure of FAF calculated as a simple average of forecasts by individual analysts.[289]

Dr. Harris further noted that:

> Given the demonstrated relationship of FAF to equity prices and the direct theoretical appeal of expectational data, it is no surprise that FAF have been used in conjunction with DCF models to estimate equity return requirements.[290]

Similarly, in *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts*, Harris and Marston presented "estimates of shareholder required rates of return and risk premia which are derived using forward-looking analysts' growth forecasts."[291] As Harris and Marston reported:

> ... in addition to fitting the theoretical requirement of being forward-looking, the utilization of analysts' forecasts in estimating return requirements provides reasonable empirical results that can be useful in practical applications.[292]

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[288] *See,* Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Financial Management, 1986, at 66.

[289] *Ibid.*, at 59. Emphasis added. As noted in my Direct Testimony, Zacks and First Call, the sources of earnings growth projections that Dr. Woolridge uses in addition to Value Line, are consensus forecasts.

[290] *Ibid.*, at 60.

[291] Robert S. Harris, Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, Summer 1992.

[292] *Ibid.*, at 63.

Here again, the finding was clear: Analysts' earnings forecasts are highly related to stock price valuations and are appropriate inputs to stock valuation and ROE estimation models.[293]

Q. DO YOU AGREE WITH DR. WOOLRIDGE'S POSITION THAT "THE DCF GROWTH RATE NEEDS TO BE ADJUSTED DOWNWARD FROM THE PROJECTED EPS GROWTH RATE TO REFLECT THE UPWARD BIAS"?[294]

A. No. If current stock prices (and therefore the dividend yield) already reflect analysts' bias, it is unclear why it is necessary to adjust the growth rate. And as noted earlier, although Dr. Woolridge asserts "...long-term EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and upwardly biased"[295] in general, he has not demonstrated that to be true for the electric companies in the proxy group. To that point, I reviewed quarterly earnings presentations of companies in the proxy group and found analysts' growth rate projections to be within, or even toward the lower end, of the long-term growth rate ranges provided by the companies' management teams (*see,* Figure 38, below). I therefore do not believe the earnings projections included in our respective analyses are likely to be systemically biased.

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[293] In *the Risk Premium Approach to Measuring a Utility's Cost of Equity*, published in Financial Management, Spring 1985, Brigham, Shome and Vinson noted that "evidence in the current literature indicates that (i) analysts' forecasts are superior to forecasts based solely on time series data; and (ii) investors do rely on analysts' forecasts."

[294] Direct Testimony of Dr. J. Randall Woolridge, at 35.

[295] *Ibid.*

Figure 38: Analysts' Earnings Growth Projections Relative to Management Presentations[296]

Company	Ticker	Zacks Earnings Growth	First Call Earnings Growth	Investor Presentation Earnings Growth Range
Ameren Corp.	AEE	6.20%	4.90%	6.00% - 8.00%
American Electric Power	AEP	5.60%	5.79%	5.00% - 7.00%
CMS Energy Corp.	CMS	6.40%	7.08%	6.00% - 8.00%
Duke Energy Corp.	DUK	4.80%	4.60%	4.00% - 6.00%
PNM Resources, Inc.	PNM	5.20%	5.70%	5.00% - 6.00%
Xcel Energy Inc.	XEL	5.70%	6.24%	5.00% - 7.00%

Q. DO YOU AGREE WITH DR. WOOLRIDGE THAT DIVIDEND AND BOOK VALUE GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH FOR THE CONSTANT GROWTH DCF MODEL?[297]

A. No. EPS growth is the fundamental driver of the ability to pay dividends. As noted in my Direct Testimony, to reduce growth to a single measure we assume a fixed payout ratio, and a constant growth rate for EPS, DPS, and BVPS.[298] As Exhibit R-RBH-25 illustrates, under the Constant Growth DCF model's strict assumptions, earnings, dividends, book value, and stock prices all grow at the same, constant rate in perpetuity.

Further, book value increases through the addition of retained earnings, or with the issuance of new equity. Both are derivative of earnings: retained earnings

[296] Source: Zacks, Yahoo! Finance, and individual company fourth quarter 2018 and first quarter 2019 presentations and investor presentations.
[297] Direct Testimony of Dr. J. Randall Woolridge, at 34.
[298] Direct Testimony of Robert B. Hevert, at 58.

increases with the amount of earnings not distributed as dividends; and the price at which new equity is issued is a function of the EPS and the then-current P/E ratio. Similarly, earnings are the fundamental driver of a company's ability to pay dividends.[299] Because earnings are the fundamental driver of dividends and book value growth, and given that the P/E ratio is a principal measure of relative value, we reasonably can conclude that investors are focused on earnings growth in forming their investing decisions.

Lastly, Value Line is the only service on which Dr. Woolridge relies that provides DPS, BVPS, or Sustainable Growth projections. To the extent earnings projections services such as Zacks and First Call represent consensus estimates, the results are less likely to be skewed in one direction or another as a result of an individual analyst.

Q. DO YOU AGREE WITH DR. WOOLRIDGE THAT HISTORICAL GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH FOR THE CONSTANT GROWTH DCF MODEL?[300]

A. No, I do not. As Dr. Woolridge acknowledges, the growth component of the Constant Growth DCF model is a forward-looking measure reflecting investors' expectations of future growth.[301] To the extent historical growth influences investors' expectations of future growth, it already will be reflected in analysts' consensus earnings estimates. Professors Carleton and Vander Weide found "overwhelming evidence that consensus analysts' forecast of future growth is

[299] *Ibid.*; and Jing Liu, Doron Nissim, and Jacob Thomas, *Is Cash Flow King in Valuations?*, Financial Analysts Journal, Volume 63, Number 2, 2007.
[300] Direct Testimony of Dr. J. Randall Woolridge, at 31-32.
[301] *Ibid.*, at 31.

superior to historically oriented growth measures in predicting the firm's stock price."[302] Consequently, historical growth rates are not appropriate for the Constant Growth DCF model.

Q. HAVE YOU CONDUCTED ANY ANALYSES TO DETERMINE WHICH MEASURES OF GROWTH ARE STATISTICALLY RELATED TO COMPANY STOCK VALUATION LEVELS?

A. Yes, I have. As discussed in response to Ms. Winker, I conducted my analysis based on the methodological approach used by Professors Carleton and Vander Weide, who compared the predictive capability of historical growth estimates and analysts' forecasts on the valuation levels of sixty-five utility companies.[303]

Q. WHAT DID THOSE ANALYSES REVEAL?

A. As shown in Exhibit R-RBH-12, the only growth rate that was statistically significant and positively related to the P/E ratio was projected Earnings Per Share, which indicates that projected earnings is the proper measure of growth in the Constant Growth DCF Model.

D. Capital Asset Pricing Model

Q. PLEASE BRIEFLY DESCRIBE DR. WOOLRIDGE'S CAPM ANALYSIS AND RESULTS.

A. Dr. Woolridge's CAPM analysis produces an estimated Cost of Equity of 7.30 percent for both his and my proxy groups.[304] I strongly disagree an estimate that low is a reasonable measure of the Company's Cost of Equity. As discussed below,

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[302] Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management (Spring 1988).
[303] *Ibid.*
[304] Direct Testimony of Dr. J. Randall Woolridge, at 48.

Dr. Woolridge's unduly low CAPM estimate principally falls from his estimated Market Risk Premium.

Dr. Woolridge combines a risk-free rate of 4.00 percent and an MRP of 5.50 percent to the average Beta coefficient of his and my proxy groups (0.60[305]). In estimating his MRP, Dr. Woolridge reviews a series of studies that calculate the MRP using different methodologies; he also considers the results of his "Building Blocks" approach. Based on that review, Dr. Woolridge argues the MRP ranges from 4.00 percent to 6.00 percent and, within that range, 5.50 percent is reasonable.[306]

Q. DOES DR. WOOLRIDGE EXPRESS ANY CONCERNS REGARDING YOUR CAPM ANALYSIS?

A. Dr. Woolridge's principal disagreements with my CAPM analysis include: (1) the Market Risk Premium component of the model; and (2) the use of adjusted Beta coefficients in conjunction with an MRP based on three-to-five-year EPS growth rates.

Q. PLEASE BRIEFLY SUMMARIZE DR. WOOLRIDGE'S CONCERNS REGARDING YOUR USE OF EXPECTED MARKET RETURNS.

A. Regarding the use of expected market returns, Dr. Woolridge states that the result is "excessive."[307] Dr. Woolridge also points to the long-term EPS growth rates for the S&P 500 based on the data from Bloomberg and Value Line, respectively, and notes that they "are inconsistent with both historic and projected economic and

[305] Dr. Woolridge's and my proxy group have the same average Beta coefficient value.
[306] Direct Testimony of Dr. J. Randall Woolridge, at 47.
[307] *Ibid.*, at 60.

earnings growth in the U.S".[308] To support his position that the expected market return included in the CAPM analysis is overstated, Dr. Woolridge references MRPs provided in academic studies, assumed by investment banks and management consulting firms, and found in surveys of financial professionals.[309]

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THOSE POINTS?

A. Dr. Woolridge refers to two surveys of financial professionals in support of his MRP and in defense of his critique that my estimates are excessive; the Duke Chief Financial Officer ("Duke CFO") survey and the Philadelphia Federal Reserve Survey of Professional Forecasters.[310] Looking to the Federal Bank of Philadelphia's First Quarter 2019 survey, only 16 of 38 participants responded to the question regarding the expected return for the S&P 500 over the next ten years, and 21 of 38 responded to the question regarding expected return on ten-year Treasury bonds.[311]

Even if all 38 economists provided expected market returns and Treasury yields, Dr. Woolridge gives economists' interest rate projections little weight, going so far as to note that in a Bloomberg survey, "100% of the economists were wrong."[312] Yet, Dr. Woolridge gives economists' forecasts of market returns and GDP considerable weight in supporting his expected Market Risk Premium. It is unclear why Dr. Woolridge finds economists' estimates appropriate for his analyses, but improper for mine.

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[308] *Ibid.*, at 62.
[309] *Ibid.*, at 54.
[310] *Ibid.*, at 42-43.
[311] *See*, Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, First Quarter of 2019 at 19.
[312] Direct Testimony of Dr. J. Randall Woolridge, at 11. [emphasis included]

As for the Duke CFO survey, Dr. Woolridge's 9.00 percent ROE recommendation, which applies to a company that is less risky than the overall market,[313] is 253 basis points above the expected market return suggested by the survey results. If the survey were a reasonable method of determining the expected market return, Dr. Woolridge's ROE recommendation would be no higher than 6.21 percent.[314] Lastly, over time the survey results have rather significantly underestimated actual market performance (*see,* Figure 39, below).

Figure 39: S&P 500 Market Return: Accuracy of Survey Estimates[315]

	Actual	Survey Estimate
2018	-4.38%	6.57%
2017	21.83%	5.00%
2016	11.96%	4.32%
2015	1.38%	6.07%
2014	13.69%	5.00%
2013	32.39%	3.40%
2012	16.00%	4.00%
2011	2.11%	5.30%
2010	15.06%	6.28%
Average	12.23%	5.10%

The Duke CFO Survey authors also have noted a distinction between the expected market return on one hand, and the "hurdle rate" on the other. In the Third Quarter 2017 survey, the authors reported an average hurdle rate, which is the return required for capital investments, of 13.50 percent. The authors further reported the average Weighted Average Cost of Capital, which includes the cost of debt, was

[313] Dr. Woolridge agrees that Beta coefficients for our proxy companies are less than 1.0.

[314] 6.47 percent equals the expected annual average market return over the next 10 years suggested by the Duke CFO survey. Duke/CFO Magazine Global Business Outlook survey – U.S., Second Quarter 2019, at 33.

[315] Source: Duff & Phelps, 2019 SBBI Yearbook Appendix A-1; http://www.cfosurvey.org (One-year return estimates as of fourth quarter of the previous year).

9.20 percent even though the expected market return was 6.50 percent.[316] In my view, Dr. Woolridge's reference to a 3.15 percent[317] expected Market Risk Premium estimate based on the Duke CFO Survey should be given little weight.

Q. DO YOU AGREE WITH DR. WOOLRIDGE'S REFERENCE TO STUDIES THAT REPORT MRP ESTIMATES BASED ON EXPECTED GEOMETRIC RETURNS?

A. No, I do not. The MRP should reflect the expected arithmetic average return. The important distinction between the arithmetic and geometric averages is that the arithmetic mean assumes that each periodic return is an independent observation and, therefore, incorporates uncertainty into the calculation of the long-term average. The geometric mean, on the other hand, is a backward-looking calculation that equates a beginning value to an ending value. Although geometric averages provide a standardized basis of review of historical performance across investments or investment managers, they do not reflect forward-looking uncertainty. That is why investors and researchers commonly use the arithmetic mean when estimating the risk premium over historical periods to estimate the Cost of Equity. As Morningstar notes:

> The arithmetic average equity risk premium can be demonstrated to be the most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of the stock market returns and riskless rates is the relevant number.[318]

[316] Duke/CFO Magazine Global Business Outlook survey – U.S., Third Quarter 2017.
[317] Direct Testimony of Dr. J. Randall Woolridge, at 45.
[318] Morningstar, Inc., 2013 Ibbotson SBBI Valuation Yearbook, at 56.

Lastly, investment risk, or volatility, typically is measured based on the standard deviation. The standard deviation, in turn, is a function of the arithmetic mean, not the geometric mean. In that regard, the Beta coefficients applied in CAPM analyses are a function of the standard deviation of returns.[319]

Q. TURNING TO DR. WOOLRIDGE'S POSITION THAT THE EPS GROWTH RATES USED TO DEVELOP YOUR ESTIMATED MARKET RETURN ARE TOO HIGH,[320] DID YOU CONSIDER WHERE YOUR ESTIMATE FALLS WITHIN THE RANGE OF HISTORICAL OBSERVATIONS?

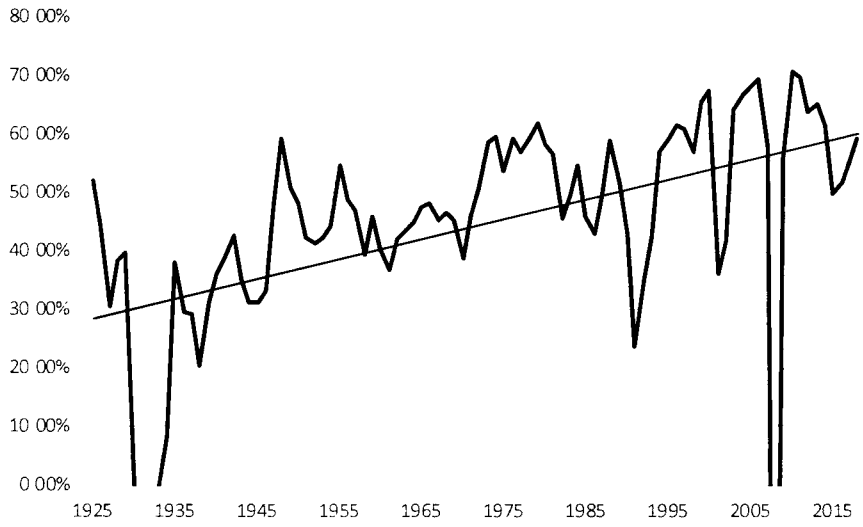
A. Yes. I gathered the annual capital appreciation return on Large Company Stocks reported by Morningstar for the years 1926 through 2018, produced a histogram of those observations (*see* Figure 28, above), and calculated the probability that a given capital appreciation return estimate would be observed. The results of that analysis demonstrate that capital appreciation rates of 11.55 percent to 15.00 percent and higher actually occurred quite often,[321] representing approximately the 52nd and 64th percentiles, respectively.

As to Dr. Woolridge's analysis of the S&P 500 EPS and GDP growth rates (in his Table 6), his conclusion that net income of the S&P 500 would grow to approximately equal that of GDP[322] is substantially driven by his unduly low GDP growth rate. Under the Sustainable Growth model, if the retention ratio is higher

[319] Direct Testimony of Robert B. Hevert, at 66.
[320] Direct Testimony of Dr. J. Randall Woolridge, at 61.
[321] Under the Constant Growth DCF model's assumptions, the growth rate equals the rate of capital appreciation.
[322] Direct Testimony of Dr. J. Randall Woolridge, at 68.

now than it historically has been, there would be reason to believe that expected growth rates would be higher than historical growth rates. To determine whether that has been the case, I calculated the annual retention ratio from 1926 to 2018 using earnings and dividends data published by Dr. Robert J. Shiller. As shown in Figure 40 (below), that data indicates the S&P 500 earnings retention has trended upward over time and is currently well above its historical average. Consequently, the Sustainable Growth model included in Dr. Woolridge's DCF analysis suggests that the future growth of the S&P 500 could outpace its historical growth.

Figure 40: S&P 500 Annual Earnings Retention Ratio, 1926 – 2018[323]



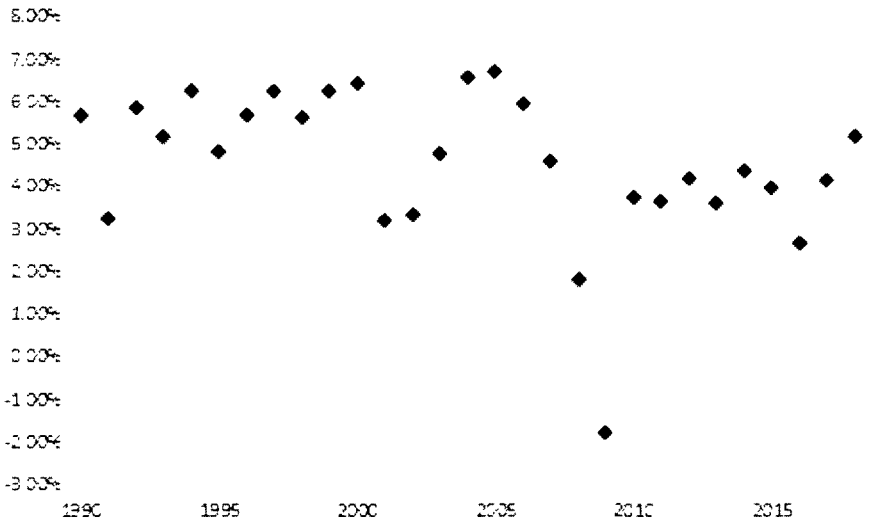
Lastly, although Dr. Woolridge is concerned with the expected market return based on Value Line estimates, two of the four CAPM results derived from that measure fall outside my recommended range.

[323] Source: http://www.econ.yale.edu/~shiller/data.htm.

Q. WHAT IS THE BASIS OF DR. WOOLRIDGE'S CONCERN WITH YOUR MRP AS IT RELATES TO HISTORICAL NOMINAL GDP GROWTH RATES?

A. Dr. Woolridge argues "nominal GDP growth in recent decades has slowed and that a figure in the range of 4.0% to 5.0% is more appropriate today for the U.S. economy"[324] To support his position, Dr. Woolridge reviews average nominal GDP growth over periods of ten to 50 years. As shown on Figure 41 (below), however, since 1990 (*i.e.*, in "recent decades") the annual nominal growth rate in GDP has remained relatively stable, but for the period 2008 to 2012, which includes the recent recession. Over that time, annual nominal GDP growth rates greater than 5.00 percent (the high end of Dr. Woolridge's suggested range) occurred in 13 of 29 years.

Figure 41: Annual Nominal GDP Growth Rates[325]



[324] Direct Testimony of Dr. J. Randall Woolridge, at 64.

[325] Source: Bureau of Economic Analysis, April 25, 2019 update.

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S REFERENCE TO GDP FORECASTS PROVIDED BY THE *SURVEY OF PROFESSIONAL FORECASTERS*, THE ENERGY INFORMATION ADMINISTRATION, THE CONGRESSIONAL BUDGET OFFICE ("CBO"), AND MCKINSEY?[326]

A. First, Dr. Woolridge has not demonstrated that investors rely on the surveys cited in his testimony. Second, as Dr. Woolridge points out, the *Survey of Professional Forecasters* relates to the years 2019 to 2029; given Dr. Woolridge's concern with my growth rates over the coming period of three-to-five years, his use of the *Survey of Professional Forecasters* does not address that issue. As to the CBO and EIA forecast, those projections cover only 15 to 25 years of a perpetual period, and are not consensus forecasts. In addition, because the EIA's GDP growth forecast is an input to its annual energy projections, the assumptions and methods underlying its GDP forecast are for that specific purpose.

The CBO provides updates regarding its forecasting record. In that context, the CBO noted that comparisons to other forecasts are not always apt, at least in part because they may be based on different assumptions and used for different purposes.[327] The CBO also observes that it is required to assume that future fiscal policy generally will reflect current law, so that it may provide a benchmark against

[326] Direct Testimony of J. Randall Woolridge, at 64.

[327] *See*, *CBO's Economic Forecasting Record: 2017 Update*, October 2017, at 4–5.

which proposed changes in law may be assessed.[328] The CBO goes on to explain that "because forecasters make different assumptions about future fiscal policy, it is difficult to compare the quality of forecasts without considering the role of expected changes in laws."[329] The CBO also notes that among its two-year forecasts (since the early 1980s), the forecast error for "real output growth" and inflation (measured by the Consumer Price Index) has been 1.30 percentage points and 0.90 percentage points, respectively.[330]

As to the accuracy of the EIA's GDP forecast, the agency reviews its projections in its *Annual Energy Outlook ("AEO") Retrospective Review*. In the *AEO Retrospective Review*, the EIA notes: "[t]he projections in the AEO are not statements of what will happen but of what may happen given assumptions in the underlying National Energy Modeling System (NEMS)."[331] As EIA makes clear, the Reference case assumes current laws and regulations are unchanged throughout the projection period.[332] The agency's projections therefore are based on the economic environment at the time of the forecast. As shown in Table 3 of the *AEO Retrospective Review*, the EIA compares its past real GDP growth projections to actual real GDP growth. In its 1994 forecast of GDP growth – a time during which

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[328] *Ibid.*, at 8. "CBO is required by statute to assume that future fiscal policy will generally reflect the provisions in current law, an approach that derives from the agency's responsibility to provide a benchmark for lawmakers as they consider proposed changes in law. When the Administration prepares its forecasts, however, it assumes that the fiscal policy in the President's proposed budget will be adopted. Forecast errors may be driven by those different assumptions, especially when forecasts are made while policymakers are considering major changes to current fiscal policy."

[329] *Ibid.*, at 4–5.

[330] *Ibid.*, at 9. Root mean square error.

[331] U.S. Energy Information Administration, *Annual Energy Outlook Retrospective Review. Evaluation of AEO2018 and Prior Reference Case Projections,* December 2018, at 1. Clarification added.

[332] U.S. Energy Information Administration, *Annual Energy Outlook 2019 with Projections to 2050,* January 2019, at 5.

the U.S. was coming out of a recession – the agency generally underestimated GDP growth. During the stronger economic times of the 2000s, the agency generally overestimated GDP growth into the future.[333] The agency's 2019 to 2050 reference case is based on the current economic environment of below average GDP growth, inflation, and interest rates.[334]

Q. HOW DOES THE HISTORICAL RELATIONSHIP BETWEEN INTEREST RATES AND RISK PREMIUMS COMPARE TO YOUR MRP ESTIMATES?

A. As discussed in my Direct Testimony, research has shown the Equity Risk Premium is inversely related to the level of interest rates.[335] I therefore considered whether there is a similar inverse relationship between interest rates and the Market Risk Premium. To do so, I gathered the monthly market return and long-term (income only) return on government bonds as reported by Duff & Phelps. For each month, the interest rate was subtracted from the market return to arrive at the annualized Market Risk Premium.[336]

With that data, I performed two regression analyses. The first was a simple linear regression in which the dependent variable was the Market Risk Premium, and the independent variable was the income-only return on long-term government bonds. That analysis showed that the Market Risk Premium has been negatively

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[333] U.S. Energy Information Administration, *Annual Energy Outlook Retrospective Review: Evaluation of 2014 and Prior Reference Case Projections,* March 2015, Table 3, at 7-8.

[334] U.S. Energy Information Administration, *Annual Energy Outlook 2019 with Projections to 2050,* January 2019, at Table 20.

[335] Direct Testimony of Robert B. Hevert, at 70.

[336] Source: Duff & Phelps, 2019 SBBI, Appendix A-1, Appendix A-7. I calculated returns on a monthly basis because annual returns likely mask the variation in data and may not provide as reliable results as the more granular monthly calculations.

related to interest rates, with a high level of statistical significance. To determine whether a portion of that relationship was simply a matter of time (that is, whether it simply was a trend) a second analysis that included time (as measured by the monthly date) as an additional explanatory variable was undertaken. In that case, interest rates again were negative and significant, but the trend variable was insignificant. The results of both analyses are provided in Exhibit R-RBH-26.[337] As Exhibit R-RBH-26 indicates, the results based on the Value Line Beta coefficients applied to the Empirical CAPM ("ECAPM") (discussed below) generally support the low end of my recommended range.

Q. PLEASE SUMMARIZE DR. WOOLRIDGE'S POSITION THAT IT IS INCORRECT TO USE VALUE LINE'S ADJUSTED BETA COEFFICIENTS TOGETHER WITH THREE-TO-FIVE YEAR EPS GROWTH RATE FORECASTS.

A. Before discussing Dr. Woolridge's specific concern, it is important to understand Value Line's Beta coefficient adjustment, and its reason for that adjustment. Beta coefficients are measured using an Ordinary Least Squares regression, in which the dependent variable is the return of the subject security, and the independent variable is the return on the market as measured by a given index (Value Line, for example, uses the New York Stock Exchange Index). The Beta coefficient is represented by the slope term of the regression estimates; that term is the same as Equation [7] in my Direct Testimony. Intuitively, the Beta coefficient measures the change in the subject company's returns relative to the change in the market return.

[337] I recognize that the R-squared for the regression analyses are low, even though the regression equation, and the regression coefficients are highly statistically significant.

The resulting Beta coefficient is considered "raw", or unadjusted. Blume studied the stability of Beta coefficients over time, and found that "[n]o economic variable including the beta coefficient is constant over time."[338] Consistent with that finding, Blume observed a tendency of raw Beta coefficients to change gradually over time. Blume then proposed a correction for this tendency, also known as "regression bias", which is inherent in the calculation of all Beta coefficients. Based on Blume's results, a typical adjustment to Beta coefficients is given by the following formula:

$$\beta_{adjusted} = .35 + .67\,\beta_{unadjusted} \quad [4]$$

Many commercial providers of Beta coefficients, including Value Line, provide adjusted Beta coefficients.[339] Given the commercial use and longstanding acceptance of adjusted Beta coefficients, it is my view that they are the proper measure of systematic risk in the CAPM.

Dr. Woolridge suggests an error in my CAPM analyses is "that [I] computed a MRP based on three-to-five year EPS growth rates in conjunction with adjusted betas."[340] He argues the principal "error" is that utility Beta coefficients do not have a tendency to regress to the market mean of 1.0 over three-to-five year periods.[341] Based on that observation, Dr. Woolridge argues the use of Value Line's three-to-five year EPS growth rates in conjunction with adjusted Beta coefficients, is incorrect.

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[338] Marshall E. Blume, *On the Assessment of Risk*, The Journal of Finance, Vol. XXVI, No. 1, March 1971.
[339] *See*, http://www.valueline.com/Tools/Educational_Articles/Stocks/Using_Beta.aspx
[340] Direct Testimony of Dr. J. Randall Woolridge, at 72.
[341] *Ibid.*

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?

A. I disagree. In my view, the period over which we might expect utility Beta coefficients to drift toward the market mean should not dictate the method by which we select the MRP. For example, among the sources of MRP estimates included in Dr. Woolridge's Exhibit JRW-8 is Dr. Damodoran's "Implied from FCF to Equity Model." Dr. Damodoran's model is based on cash flow projections over the coming five years,[342] similar to the three-to-five year projections provided by Value Line. Again, it is not clear why Dr. Woolridge would be concerned with the horizon of Value Line's projections, but unconcerned with Dr. Damodoran's.

Q. REGARDING THE SPECIFIC ISSUE OF UTILITY BETA COEFFICIENTS REVERTING TO THE MARKET MEAN, HAVE YOU REVIEWED THE CHANGE IN THE PROXY COMPANIES' BETA COEFFICIENTS OVER TIME?

A. Yes, I have. As discussed in my Direct Testimony, Beta coefficients reflect two components: (1) the relative volatility of returns, and (2) the correlation in returns between the subject company and the overall market.[343] Looking at those individual measures, since 2012 the correlation between Dr. Woolridge's proxy group and the S&P 500 has declined (Figure 42), whereas the relative volatility has increased (Figure 43).

[342] *See*, http://pages.stern.nyu.edu/~adamodar/

[343] Direct Testimony of Robert B. Hevert, at 35.

Figure 42: Rolling 30-Day Average Correlation Between Dr. Woolridge's Proxy Group and the S&P 500[344]

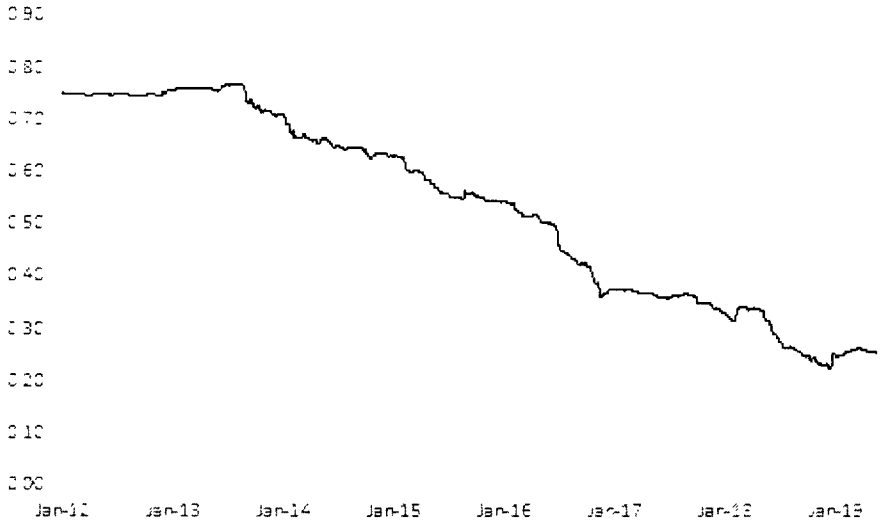
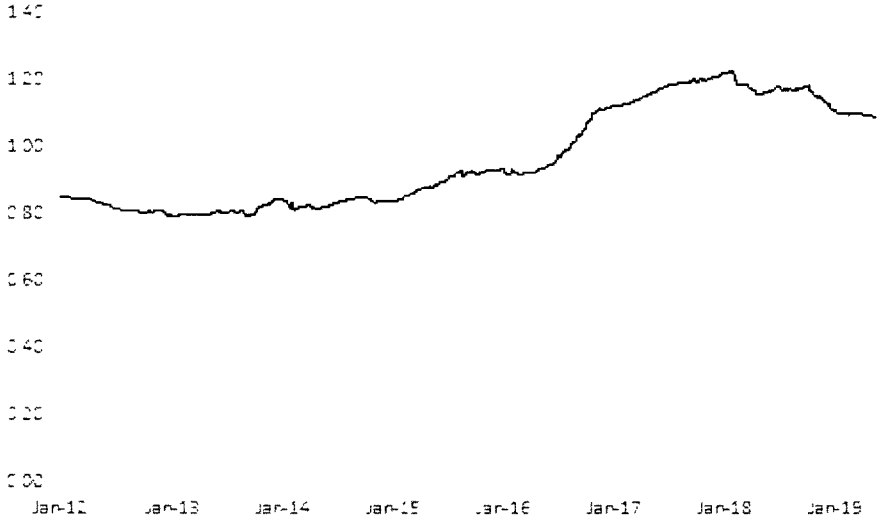


Figure 43: Rolling 30-Day Average Relative Risk Between Dr. Woolridge's Proxy Group and the S&P 500[345]



[344] Source: Bloomberg Professional Services.
[345] Source: Bloomberg Professional Services.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM THAT DATA?

A. As noted earlier, beginning in 2012 the Federal Reserve began its third round of Quantitative Easing, which was meant to put downward pressure on long-term interest rates. The effect of that policy may have been to encourage investors, at times, to "reach for yield" by investing in dividend-paying sectors, such as utilities. When macroeconomic conditions evolved such that interest rates began to increase, or other growth-based sectors appeared more appealing, investors would rotate out of the utility sectors. As discussed in my Direct Testimony,[346] because utilities faced downward credit pressure due to the TCJA, and because utilities could not benefit from the TCJA in ways other sectors could, they became relatively less attractive. In summary, since 2012, federal policies have affected trading decisions in ways that have caused the utility sector's correlation with the overall market to fall.

At the same time, the volatility in utility returns increased relative to the overall market. The question is whether current Beta coefficients, even though adjusted, reasonably reflect expected returns. As discussed below, published research has found low-Beta coefficient companies (such as utilities) have tended to earn returns greater than those predicted by the CAPM. Given the decline in correlations discussed above, that may be an even more acute concern in the current market.

[346] Direct Testimony of Robert B. Hevert, at 18.

Q. IN YOUR VIEW, DO THOSE FACTORS EXPLAIN THE DIFFERENCE IN BETA COEFFICIENTS PROVIDED BY BLOOMBERG AND VALUE LINE?

A. Yes, they do. As explained in my Direct Testimony, Bloomberg's default method is to calculate Beta coefficients over two years (as opposed to Value Line's five-year convention).[347] Because correlations have steadily fallen over the past two years, the relation in correlations shown in Figure 42, therefore, will have a particularly meaningful effect on the Bloomberg Beta coefficients. As discussed, earlier, however, the fall in correlations may largely be related to federal and monetary policy initiatives that are not likely to persist over the long-term. That being the case, an important question is whether the change in Beta coefficients reasonably represents the long-term investor expectations.

Q. WITH THOSE POINTS IN MIND, IS THERE A METHOD THAT MAY BE APPLIED TO ADDRESS THE CHANGE IN BETA COEFFICIENTS?

A. Yes. One method of doing so is to apply the Empirical form of the CAPM (referred to as the "ECAPM"), which adjusts for CAPM's tendency to under-estimate returns for companies that (like utilities) have Beta coefficients less than the market mean of 1.00, and over-estimate returns for relatively high-Beta coefficient stocks.[348] Fama and French succinctly describe the empirical issue addressed by the ECAPM when they note that "[t]he returns on the low beta portfolios are too high, and the returns on the high beta portfolios are too low."[349] Similarly, Dr. Roger Morin

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[347] *Ibid.*, at 69. *See*, also, Exhibit RBH-3.

[348] Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 175 - 176.

[349] Eugene F. Fama and Kenneth R. French, *The Capital Asset Pricing Model: Theory and Evidence*, Journal of Economic Perspectives, Vol. 18, No. 3, Summer 2004, at 33.

observes that "[w]ith few exceptions, the empirical studies agree that ... low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted."[350] As Dr. Morin also explains, the ECAPM "makes use" of those findings, and estimates the Cost of Equity based on the following equation:[351]

$$k_e = R_f + \alpha + \beta(MRP - \alpha) \quad [5]$$

where α, or "alpha", is an adjustment to the risk/return line, and "MRP" is the Market Risk Premium (defined above). Summarizing empirical evidence regarding the range of estimates for alpha, Dr. Morin explains that the model "reduces to the following more pragmatic form:"[352]

$$k_e = R_f + 0.25(R_m - R_f) + 0.75\beta(R_m - R_f) \quad [6]$$

where:

k_e = the investor-required ROE;

R_f = the risk-free rate of return;

β = the adjusted Beta coefficient of an individual security; and

R_m = the required return on the market.

The relationship between expected returns from the CAPM and ECAPM can be seen in Figure 44, below. Figure 44, which reflects Dr. Woolridge's risk-free rate and MRP, illustrates the extent to which the CAPM under-states the expected return

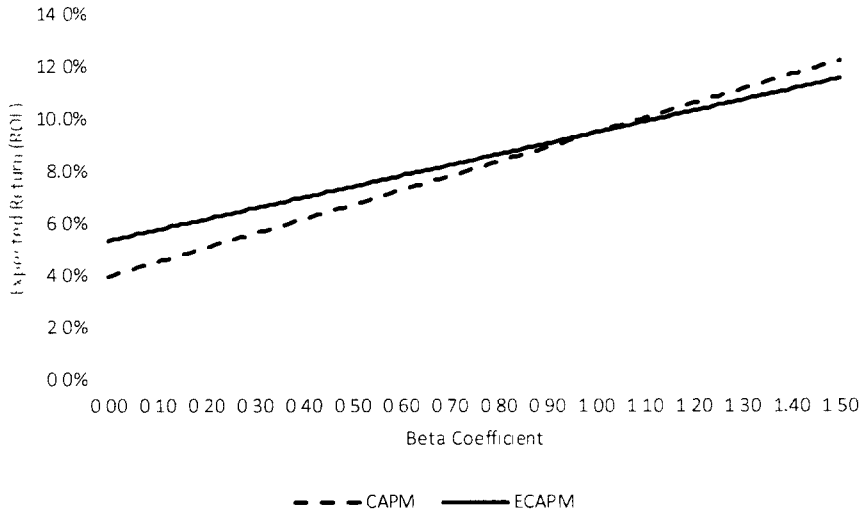
[350] Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 175.

[351] *Ibid.*, at 189.

[352] *Ibid.*, at 190. Equations [5] and [6] tend to produce similar results when "alpha" is in the range of 1.00 percent to 2.00 percent. *See*, Exhibit R-RBH-27. As Dr. Morin explains, alpha coefficients in that range are highly consistent with those identified in prior published research.

relative to the ECAPM when Beta coefficients – whether adjusted or unadjusted – are less than 1.00.

Figure 44: CAPM and ECAPM Expected Returns[353]



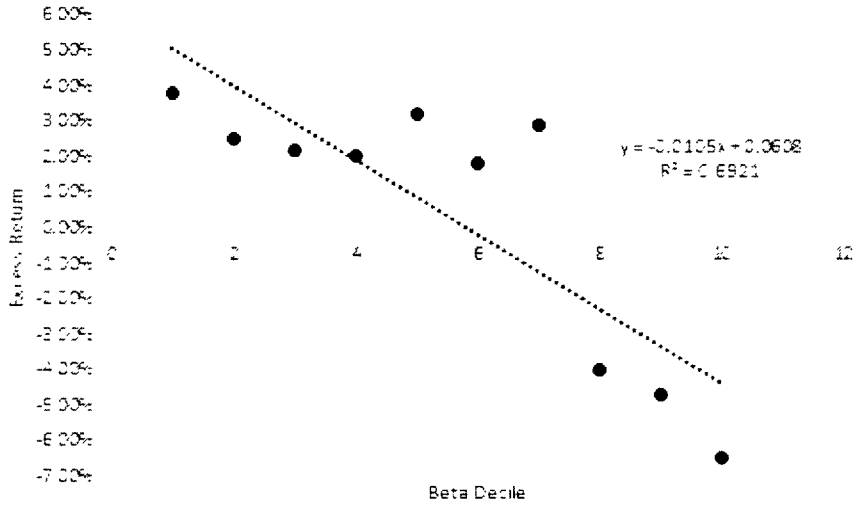
Q. HAVE YOU UNDERTAKEN ANY INDEPENDENT ANALYSES TO DETERMINE WHETHER THERE IS A RELATIONSHIP BETWEEN BETA COEFFICIENTS AND EXCESS RETURNS PRODUCED BY THE CAPM AND ECAPM?

A. Yes, I performed an analysis of excess returns produced by the CAPM, by Beta coefficient decile, over the ten years ended 2018. The analysis compared the observed returns of the companies in the S&P 500 Index to expected returns based on the CAPM. Observed returns were calculated as the total return for each company from the first day of a given year to the end of that year. The expected

[353] Exhibit R-RBH-27. Source: Direct Testimony of Dr. Randall Woolridge, at 48; Exhibit JRW-8, page 1. The finding that the ECAPM is not an adjustment to the Beta coefficient also is clear in Equation [5] ($k_e = R_f + \alpha + \beta(MRP - \alpha)$), in which the alpha coefficient increases the intercept (the expected return when the Beta coefficient equals zero), and reduces the Market Risk Premium. Please note that the use of Dr. Woolridge's CAPM estimates in Figure 44 is for illustrative purposes only.

return for each company was calculated using the CAPM as applied to the following annual data: (1) a risk-free rate equal to the average 30-year Treasury yield for that year; (2) an adjusted Beta coefficient as of the beginning of the year using Bloomberg's standard calculation method (two years of weekly return data, using the S&P 500 Index as the comparison benchmark); and (3) a market return equal to the S&P 500 Index total return for that year. The companies were grouped into deciles each year based on their Beta coefficients, and the median excess return (or return deficiency) was calculated for each decile group. Excess returns were calculated as the observed return less the return implied by the CAPM. Figure 45 (below) summarizes those results.

Figure 45: Excess Returns Under CAPM[354]

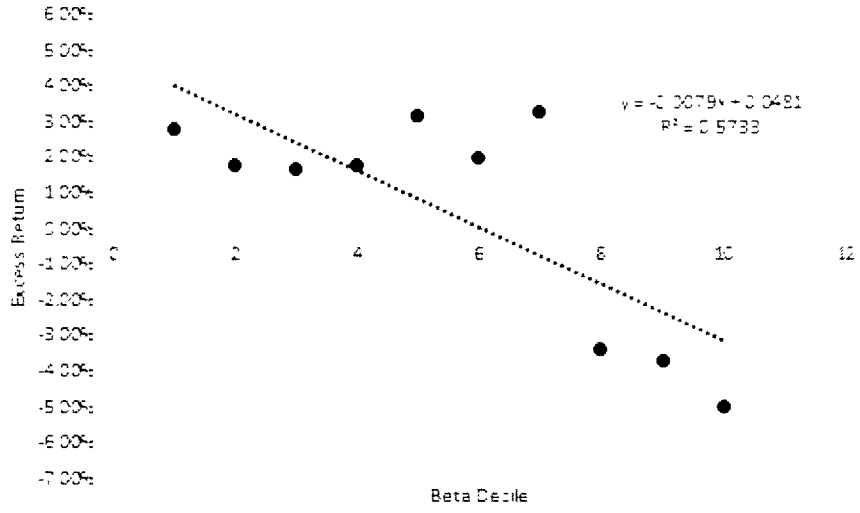


As Figure 45 demonstrates, the relationship between Excess Return and Beta coefficient deciles is strong, with deciles explaining approximately 69.00 percent of the Excess Return. Using the same data and calculating the Excess

[354] Source: Bloomberg Professional Services.

Return by reference to the ECAPM (as defined by Equation [6], above), produces the same downward sloping relationship, but not to the same degree (see Figure 46, below).

Figure 46: Excess Returns Under ECAPM[355]



There are two principal observations to be drawn from the data presented in Figures 45 and 46. First, under the ECAPM the slope coefficient falls somewhat (relative to the CAPM), suggesting a flatter relationship between Beta coefficient deciles and the excess return. The flatter slope moves closer to the point at which the excess return is zero across all deciles. Second, the excess return values are somewhat moderated under the ECAPM; the high excess returns are lower than under the CAPM, and the low excess returns are higher. Again, that finding suggests the ECAPM mitigates, but does not solve the issue of the CAPM underestimating returns for low-Beta coefficient firms.

[355] Source: Bloomberg Professional Services.

In summary, Figures 45 and 46 support the position that the CAPM tends to underestimate returns for low-Beta coefficient firms, and the ECAPM moderates that effect to some extent, but it does not appear to eliminate it. Because the ECAPM mitigates the drift in Beta coefficients (which Dr. Woolridge addresses in his discussion of adjusted Beta coefficients), I believe it is a reasonable method, and have included results based on the ECAPM in my updated analyses.[356]

E. Bond Yield Plus Risk Premium Analysis

Q. PLEASE SUMMARIZE DR. WOOLRIDGE'S RESPONSE TO YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS.

A. Dr. Woolridge believes the Risk Premium derived from the analysis is "inflated" and "is a gauge of *commission* behavior and not *investor* behavior."[357] Dr. Woolridge further notes that the Risk Premium approach and results reflect "other utility- and rate case-specific information in setting ROEs"[358] and points to what he views as a potential discrepancy between settled and litigated cases.[359] Dr. Woolridge also suggests the analysis overstates the actual ROE because the estimated risk premium is based on historical Treasury yields, whereas the model is applied to current and expected yields.[360]

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[356] Exhibit R-RBH-4.
[357] Direct Testimony of Dr. J. Randall Woolridge, at 75 [emphasis included].
[358] *Ibid.*
[359] *Ibid.*
[360] *Ibid.*, at 74-75.

Q. PLEASE SUMMARIZE DR. WOOLRIDGE'S POSITION REGARDING THE BASE YIELDS USED IN YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS.

A. Dr. Woolridge argues that the use of a long-term projected rate of 4.05 percent must not be accurate because, if it were, investors would not be buying Treasury bonds at their current yield of about 2.75 percent.[361]

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THAT POINT?

A. Dr. Woolridge's criticism of the use of projected yields is misplaced. In his CAPM analysis, Dr. Woolridge relies on a 4.00 percent risk-free rate,[362] about 108 basis points above the current 30-day average risk-free rate. Still, Dr. Woolridge argues investors give such projections no weight in their decision to purchase bonds at current yields. I disagree. The Cost of Equity is fundamentally forward-looking, and the use of expected Treasury (such as the 4.00 percent Dr. Woolridge uses) is consistent with that principle.

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S POSITION THAT THE RISK PREMIUM ANALYSIS IS A STUDY OF UTILITY COMMISSION BEHAVIOR RATHER THAN INVESTOR BEHAVIOR?

A. Those cases, and their associated decisions, reflect the same type of market-based analyses at issue in this proceeding. As noted earlier, because authorized returns are publicly available (the proxy companies disclose authorized returns, by

[361] *Ibid.*, at 74.
[362] *Ibid.*, at 40.

jurisdiction, in their 2018 SEC Form 10-Ks),[363] it therefore is reasonable to conclude that data is reflected, at least to some degree, in investors' return expectations and requirements. From that perspective, ROE recommendations that are far removed from prevailing levels, such as Dr. Woolridge's, should be reconciled by reference to differences in risk. I do not believe Dr. Woolridge's recommendation reasonably does so.

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S POSITION THAT YOUR ANALYSIS APPLIES AN HISTORICAL RISK PREMIUM TO PROJECTED RATES AND, AS SUCH, OVERSTATES THE COST OF EQUITY?[364]

A. I applied both historical and projected interest rates to the regression coefficients developed in the Risk Premium analysis, not to an average historical risk premium. As discussed in my Direct Testimony, the regression coefficients specifically recognize that as interest rates decrease, the Equity Risk Premium increases.[365] A consequence of that relationship is that interest rates and the Cost of Equity generally move in the same direction, although not on a one-to-one basis. As projected interest rates increase, the Cost of Equity also increases, but not to the same degree. Dr. Woolridge's concern that I applied projected interest rates to an historical risk premium is misplaced, in that (1) the analysis does not rely on an historical risk premium; and (2) because the estimated risk premium does not

[363] *See, for example*, American Electric Power Company, Inc., SEC Form 10-K for the year ended December 31, 2018, at 4; ALLETE Inc., SEC Form 10-K for the year ended December 31, 2018, at 15-16; Duke Energy Corporation, SEC Form 10-K for the year ended December 31, 2018, at 16; WEC Energy Group, Inc., SEC Form 10-K for the year ended December 31, 2018, at 134–136.

[364] Direct Testimony of Dr. J. Randall Woolridge, at 74-75.

[365] Direct Testimony of Robert B. Hevert, at 70.

increase in lock step with interest rates, the resulting ROE estimate does not overstate the Cost of Equity.

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S POSITION THAT YOUR RISK PREMIUM ANALYSIS MUST TAKE INTO CONSIDERATION THE SPECIFIC ASPECTS OF THIS PROCEEDING RELATIVE TO ALL OTHERS?[366]

A. There is no disagreement that every case has its unique set of issues and circumstances. Reviewing over 1,590 cases over many economic cycles and using that data to develop the relationship between the Equity Risk Premium and interest rates mitigates that concern.

Q. IS IT A CONCERN, AS DR. WOOLRIDGE ARGUES, TO INCLUDE BOTH FULLY LITIGATED AND SETTLED RATE CASES IN YOUR RISK PREMIUM ANALYSIS?[367]

A. No, it is not. Of the 1,592 rate cases in the Risk Premium analysis, 1,148 were fully litigated and 444 were settled. More recently (from January 2015 through May 17, 2019), 66 cases were fully litigated and 83 were settled. Over the same period, the difference in average authorized returns between the two, however, was approximately 14 basis points. Further, the same inverse relationship between interest rates and the Equity Risk Premium is present, whether the analysis includes fully litigated rate cases, settled rate cases, or both.[368] I therefore disagree with Dr. Woolridge's concern.

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[366] Direct Testimony of Dr. J. Randall Woolridge, at 75.
[367] *Ibid.*
[368] Exhibit R-RBH-28.

F. Expected Earnings Analysis

Q. PLEASE SUMMARIZE DR. WOOLRIDGE'S CONCERNS WITH YOUR EXPECTED EARNINGS ANALYSIS.

A. Dr. Woolridge argues the Expected Earnings approach is inappropriate because: (1) it is accounting based and does not measure market based investor return requirements; (2) book equity does not change with investor return requirements as do market prices; (3) there is a negative relationship between the Return on Common Equity, and Common Equity ratios; (4) the approach is circular; and (5) the data partially reflect earnings of non-regulated operations.[369]

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE?

A. Although I agree economic and financial factors, and the market-based models that depend on them are important, I do not agree those factors invalidate the Expected Earnings approach. As discussed in my Direct Testimony, no single method best captures investor expectations at all times and under all conditions. Market-based models necessarily require us to draw inferences from market data based on the assumptions and construction of methods such as the DCF and CAPM approaches. The simplicity of the Expected Earnings approach is a benefit, not a detriment.

Further, utility rates are set based on the book value of equity. The Expected Earnings approach provides a direct measure of the book-based return comparable-risk utilities are expected to earn. In that sense, it is a direct measure of the expected opportunity cost of equity capital, a principle Dr. Woolridge acknowledged at page 22 of his Direct Testimony. Equally important, because it looks to the earnings

[369] Direct Testimony of Dr. J. Randall Woolridge, at 76-79.

expected of comparable-risk companies, the approach is consistent with the *Hope* and *Bluefield* "comparable return" standard. The approach therefore provides a direct measure of investors' opportunity costs, without the need for assumptions regarding investor behavior. As Dr. Morin notes, the method "is easily understood, and is firmly anchored in regulatory tradition," concluding that "because the investment base for ratemaking purposes is expressed in book value terms, a rate of return on book value, as is the case with [Expected] Earnings, is highly meaningful."[370] Lastly, the Expected Earnings method recently was addressed by the FERC.[371]

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE'S CLAIM THAT THERE IS A STRONG NEGATIVE RELATIONSHIP BETWEEN EXPECTED EARNINGS BASED ROE ESTIMATES AND COMMON EQUITY RATIOS?

A. Applying a linear relationship to Dr. Woolridge's Figure 9 results in an R-Squared of approximately 27.54 percent, indicating about 72.46 percent of the relationship between common equity ratios and Expected Earnings estimates is based on other variables. That alone calls into question Dr. Woolridge's position that any ROE result derived from my Expected Earnings approach should be adjusted based on the Company's common equity ratio.

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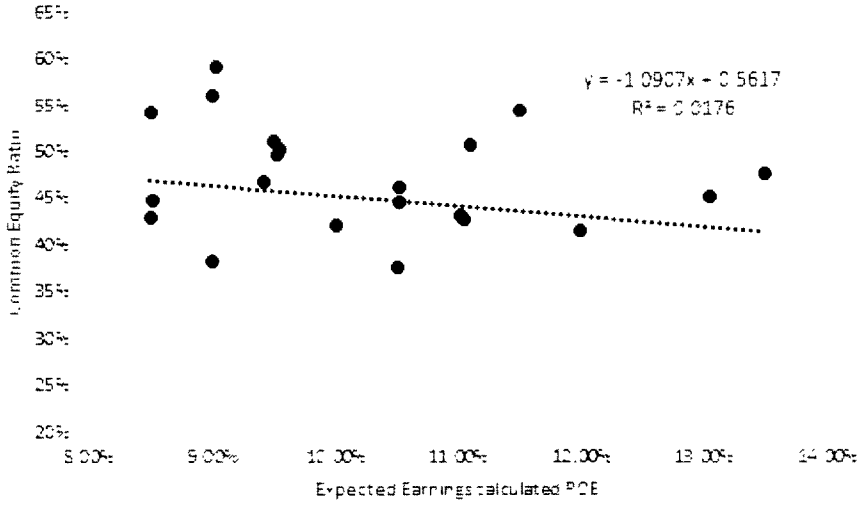
[370] Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006 at 392. 395. [clarification added].

[371] The methods recently considered by FERC include: (1) the Two-Step DCF model; (2) the Risk Premium model; (3) the CAPM; and (4) the Expected Earnings approach. *See* Docket No. EL11-66-001, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,030 (October 16, 2018) at P 32; Docket No. EL14-12-003, *et al.*, *Order Directing Briefs*, 165 FERC ¶ 61,118 (November 15, 2018) at PP 34.

Further, the relationship Dr. Woolridge suggests is skewed by two data points. Because both data points lie outside of two standard deviations from their respective Expected Earnings' ROE estimate and common equity ratio peer group averages, it is important to understand their effects. Removing those two points reduces the R-squared to less than 2.00 percent (see Figure 47, below). The remaining 22 variables in Dr. Woolridge's analysis therefore provide no meaningful indication of any relationship, and any consideration of a correlation between the Expected Earnings ROE estimate and common equity ratios is misplaced.

Figure 47: Dr. Woolridge's Figure 9 Adjusted for Outliers



G. Market-To-Book Ratios and the Cost of Equity

Q. PLEASE BRIEFLY SUMMARIZE DR. WOOLRIDGE'S POSITION REGARDING THE RELATIONSHIP BETWEEN M/B RATIOS AND THE COST OF EQUITY.

A. Dr. Woolridge suggests M/B ratios greater than one[372] indicate the subject company's earned Return on Equity exceeds its Cost of Equity.[373] To support his position, Dr. Woolridge provides a regression analysis reflecting the relationship between the Return on Equity and M/B ratios for electric utilities. Because the R-Squared is 63.00 percent, Dr. Woolridge concludes there is a "strong positive relationship" between M/B ratios and the ROE for utilities.[374]

Q. WHAT IS YOUR RESPONSE TO DR. WOOLRIDGE ON THOSE POINTS?

A. The M/B ratio equals the market value (or stock price) per share, divided by the total common equity (or the book value) per share. Book value per share is an accounting construct that reflects historical costs. In contrast, market value per share (*i.e.,* the stock price) is forward-looking, and a function of many variables, including, but not limited to, expected earnings and cash flow growth, expected payout ratios, measures of "earnings quality," the regulatory climate, the equity ratio, expected capital expenditures, and the earned return on common equity.[375] As Dr. Morin states, it is rarely the case in cost of service-based regulation that M/B ratios equal 1.00, which further complicates the Constant Growth DCF method:

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[372] M/B ratios in excess of unity simply means that the firm is worth more as a going concern than the book value of its assets.

[373] Direct Testimony of Dr. J. Randall Woolridge, at 7, 55, and 75.

[374] *Ibid.,* at 24 and Exhibit JRW-4.

[375] *See*, Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 366. Please note, Dr. Morin cites several academic articles that address the various factors that affect the M/B ratio for utilities.

> The third and perhaps most important reason for caution and skepticism is that application of the DCF model produces estimates of common equity cost that are consistent with investors' expected return only when stock price and book value are reasonably similar, that is, when the M/B is close to unity. As shown below, application of the standard DCF model to utility stocks understates the investor's expected return when the market-to-book (M/B) ratio of a given stock exceeds unity. This was particularly relevant in the capital market environment of the 1990s and 2000s whose utility stocks are trading at M/B ratios well above unity and have been for nearly two decades. The converse is also true, that is, the DCF model overstates the investor's return when the stock's M/B ratio is less than unity. The reason for the distortion is that the DCF market return is applied to a book value rate base by the regulator, that is, a utility's earnings are limited to earnings on a book value rate base.[376]

As Dr. Morin notes, in the context of rate setting, the M/B ratio often is discussed relative to the Constant Growth DCF model. Under certain restrictive assumptions, that model can be rewritten to express the M/B ratio as follows:[377]

$$\frac{M}{B} = \frac{ROE - g}{k - g} \quad [7]$$

where ROE is the return on book equity, k is the risk-adjusted discount rate, and g is the long-term growth rate in dividends per share. Rearranging Equation [7] produces the familiar Gordon Growth model:

$$P = \frac{D}{k\text{-}g} \quad [8]$$

and the Constant Growth DCF model:

$$P = \frac{D}{P} + g \quad [9]$$

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[376] *Ibid.*, at 434.

[377] B. Branch, A. Sharma, C. Chawla, and F. Tu, *An Updated Model of Price-to-Book*, Journal of Applied Finance, No. 1 (2014).

Dr. Woolridge's assumed relationship between the accounting Return on Equity and the Cost of Equity simply falls from the Constant Growth DCF model; one cannot be assumed without the other. Any inferences drawn from relationships among M/B, ROE, and *k* from Equation [7] therefore rely on the explicit acceptance of all assumptions underlying the Constant Growth DCF model, including a constant dividend growth rate in perpetuity, and the constancy of the DCF result. Equally important, Equation [9] only can be drawn from the Constant Growth DCF model if we assume: (1) a constant dividend payout ratio in perpetuity; (2) no stock issuances or repurchases; and (3) that the firm is in a steady state, in which the book equity growth rate equals the dividend growth rate, in perpetuity. Taken together, those assumptions are quite restrictive, and call into question the definitive linkage between M/B, ROE, and *k* that Dr. Woolridge assumes.

Further, because the Constant Growth DCF model traditionally used in rate regulation assumes an M/B of unity, it would understate investors' required return rate when market value exceeds book value. It would do so because investors evaluate and receive their returns on the market value of a utility's equity, whereas regulators authorize returns on book common equity. Consequently, the market-based DCF model will result in a total annual dollar return on book common equity equal to the total annual dollar return expected by investors only when market and book values are equal, a rare and unlikely situation.

Q. WHAT WOULD BE THE RESULT IF REGULATORY COMMISSIONS DID FORCE M/B RATIOS TOWARD UNITY?

A. Looking to Dr. Woolridge's Electric Proxy Group, the average capital loss for equity investors would be about 50.25 percent.[378] That loss would not just affect investors, it also would substantially diminish the ability of utilities to attract external capital. To summarize, if regulatory commissions were to set rates with an eye toward moving the M/B ratio toward unity, that practice may well impede the ability to attract the capital required to support its operations, especially in markets during which the M/B ratio for the overall market is significantly greater than 100.00 percent.

Q. ARE YOU AWARE OF ANY PUBLISHED RESEARCH THAT ADDRESSES THE ISSUE OF M/B RATIOS IN THE CONTEXT OF THE CONSTANT GROWTH DCF MODEL?

A. Yes. As noted above, if we accept all assumptions that underlie the Constant Growth DCF model, Equation [7] suggests that if M/B exceeds unity, then ROE exceeds *k*. Branch *et al.* point out that M/B is generally greater than or equal to one because the value of the firm as a going concern (price per share) generally exceeds the liquidation value (book value per share) and "...firms having going concern values greater than their liquidation values (most firms) and firms having finite prices (all firms) should have ROE > R> G."[379] Taken from that perspective M/B

[378] Based on Dr. Woolridge's proxy group average M/B ratio of 201.00. (201.00-100)/201.00 = 50.25 percent. Exhibit JRW-2, page 1.

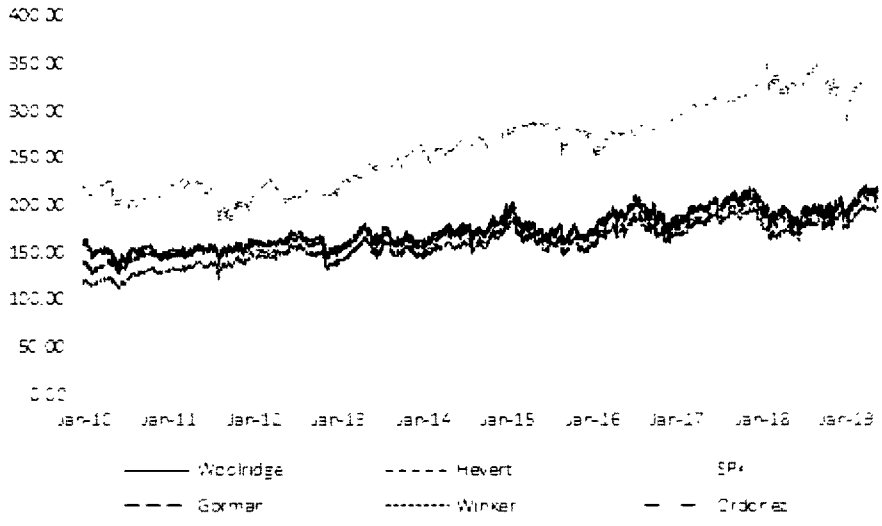
[379] Branch et al. (2014), at 78. [clarification added] Here, R = the Cost of Equity, and G = growth.

ratios in excess of unity should not be surprising: if the liquidation value exceeds the market value, the company would be liquidated.

Q. HAVE UTILITY M/B RATIOS GENERALLY EXCEEDED 1.00?

A. Yes, they have. Figure 48 (below) demonstrates that since 2010, Dr. Woolridge's, Mr. Gorman's, Ms. Winker's, and Mr. Ordonez's proxy groups' M/B ratio have exceeded 1.00, and generally have moved with the S&P 500 Index M/B ratio. If Dr. Woolridge is of the view that M/B ratios greater than 1.00 reflect earned returns greater than the Cost of Equity, it follows that utility commissions have long been incorrect in their ROE determinations.

Figure 48: Comparison Groups, S&P 500 Market/Book Ratios (2010 – 2019)[380]



Although the broad market represents a cross section of risk and return profiles, of which the utility sector is just one, the observed variation in market-level M/B ratios speaks to the time-varying influence of general macroeconomic

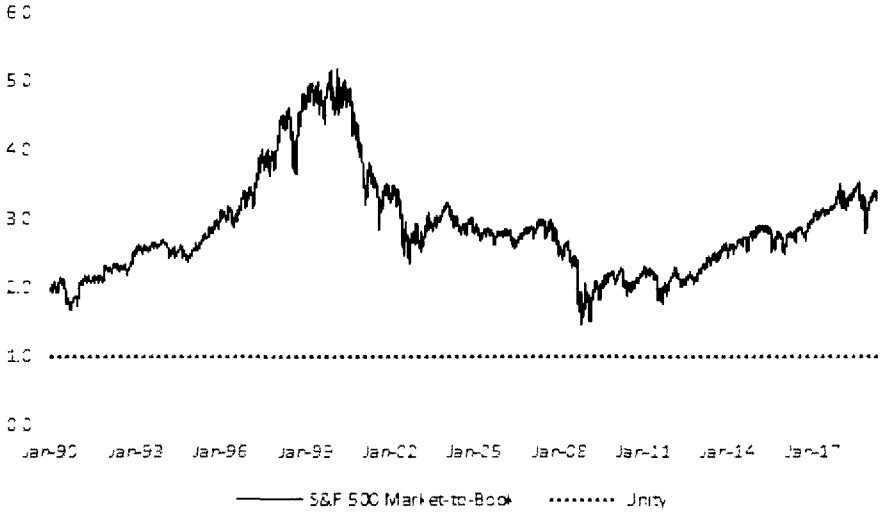
[380] Source: S&P Global Market Intelligence, Bloomberg Professional.

factors, not to any failure of regulation. The relationship between both Dr. Woolridge's, Mr. Gorman's, Ms. Winker's, and Mr. Ordonez's proxy group M/B ratios, and the S&P 500 M/B ratio, is positive and statistically significant. That is the case even when we control for serial correlation.[381] We therefore reasonably can conclude that broad macroeconomic and capital market factors affect both utilities and non-regulated entities.

Q. HAVE M/B VALUES GENERALLY EXCEEDED 1.00 FOR THE BROAD EQUITY MARKET?

A. Yes, they have. As Figure 49 (below) demonstrates, since 1990 the average M/B ratio for the S&P 500 Index has been 2.88; it has never reached unity.

Figure 49: S&P 500 M/B Ratio Over Time[382]



If, over many years and across many companies, investors felt the returns they expected had so significantly exceeded the returns they required, they would adjust

[381] Using the Prais-Winsten routine.
[382] Source: Bloomberg Professional Services.

their requirements. In Dr. Woolridge's construct, the disequilibrium between expected and required returns would dissipate, and take with it the disequilibrium between market and book values. But that has not occurred.

Q. ARE YOU AWARE OF LITERATURE THAT HAS FOCUSED ON THE M/B RATIOS OF REGULATED UTILITIES?

A. Yes. Literature focusing on utilities has long concluded that regulation may not necessarily result in M/B ratios approaching unity. As noted by Phillips in 1993:

> Many question the assumption that market price should equal book value, believing that 'the earnings of utilities should be sufficiently high to achieve market-to-book ratios which are consistent with those prevailing for stocks of unregulated companies.'[383]

In 1988 Bonbright stated:

> In the first place, commissions cannot forecast, except within wide limits, the effect their rate orders will have on the market prices of the stocks of the companies they regulate. In the second place, whatever the initial market prices may be, they are sure to change not only with the changing prospects for earnings, but with the changing outlook of an inherently volatile stock market. In short, market prices are beyond the control, though not beyond the influence, of rate regulation. Moreover, even if a commission did possess the power of control, any attempt to exercise it ... would result in harmful, uneconomic shifts in public utility rate levels.[384]

And in 1972 Stewart Myers came to the following conclusion:

> In short, a straightforward application of the cost of capital to a book value rate base does not automatically imply that the market and book values will be equal. This is an obvious but important point. If straightforward approaches did imply equality of market and book values, then there would be no need

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[383] Charles F. Phillips, The Regulation of Public Utilities – Theory and Practice (Public Utility Reports, Inc., 1993) at 395.

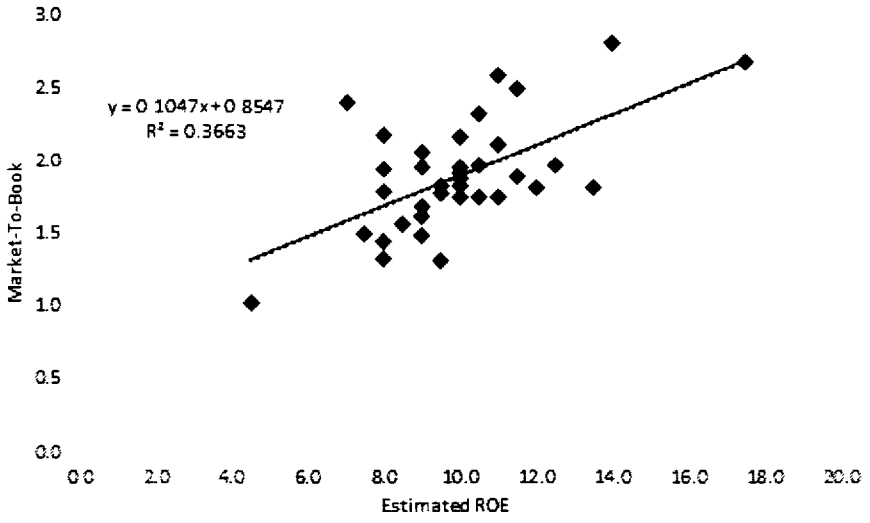
[384] James C. Bonbright, Albert L. Danielsen and David R. Kamerschen, Principles of Public Utility Rates (Public Utilities Reports, Inc., 1988), at 334.

to estimate the cost of capital. It would suffice to lower (raise) allowed earnings whenever markets were above (below) book.[385]

Q. HAVE YOU REVIEWED THE ROE AND M/B RATIO DATA PROVIDED IN EXHIBIT JRW-4?

A. Yes. Although the earned Return on Equity may be one factor explaining M/B ratios, it is not the only factor. I have updated the chart contained in Exhibit JRW-4, including the regression coefficients, based on the methodology data described by Dr. Woolridge,[386] using recent data from Value Line in Figure 50 (below).

Figure 50: Update of Exhibit JRW-4, With Regression Coefficients[387]



Based on an update of Dr. Woolridge's data, an M/B ratio of 1.00 is associated with an ROE of 1.40 percent,[388] a condition that is highly improbable.

[385] Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*, The Bell Journal of Economics and Management Science, Vol. 3, No. 1 (Spring 1972), at 58-97.
[386] Direct Testimony of Dr. J. Randall Woolridge, at 24; Exhibit JRW-4.
[387] Source: Value Line, downloaded June 10, 2019.
[388] 1.00 = 0.85 + (10.47 x 0.014).

Dr. Woolridge's data, therefore, do not support the theory that ROEs greater than 1.00 indicate the subject company's return exceeds investors' required returns.

Q. HAVE YOU ANALYZED WHETHER THE ACTUAL EARNED RETURN ON EQUITY EXPLAINS THE M/B RATIOS FOR DR. WOOLRIDGE'S PROXY GROUP?

A. Yes, I have. Using data provided by S&P Global Market Intelligence, I performed a regression analysis in which the M/B ratio was the dependent variable, and the Return on Average Common Equity ("ROACE") for 2018 was the explanatory variable. As shown in Exhibit R-RBH-29, the R-squared was approximately 31.00 percent. An R-squared of 31.00 percent means that factors other than ROACE explain up to 69.00 percent of M/B ratios in the proxy group.[389] Those results support the position that although the earned Return on Equity is a factor that explains M/B ratios, it is not the only factor. In any case, the regression equation indicates that an M/B ratio of 1.00 (that is, 100.00 percent) is associated with a Return on Common Equity of approximately -25.28 percent; an M/B ratio of 1.10 relates to an ROACE of approximately -25.26 percent. Because those estimates are nonsensical, I do not agree that M/B ratios greater than 1.00 demonstrate earnings in excess of investors' requirements.

Q. DO YOU HAVE ANY OTHER POINTS REGARDING THE QUESTION OF M/B RATIOS AND THEIR RELATIONSHIP TO THE COST OF EQUITY?

A. Yes. As a practical matter, M/B ratios tend to be used as measures of relative, rather than absolute value. That is, investors often use M/B ratios to value an

[389] 0.69 = (1 – 0.31).

individual company based on the average M/B ratio of its peers. Such "market comparable" approaches to valuation are useful because no one financial model is accepted as the true measure of value at all times and under all conditions. That finding further supports the regulatory practice of considering multiple methods.

H. Relative Risk

Q. DO YOU BELIEVE THAT CREDIT RATINGS ARE AN APPROPRIATE MEASURE TO DETERMINE THE EQUITY RISK OF THE COMPANY RELATIVE TO THE PROXY GROUP?

A. Although over the long-term, credit ratings (and therefore credit spreads) may be directionally related to the Cost of Equity, a change in one is not a direct measure of a change in the other. Debt and equity are entirely different securities with different risk/return characteristics, different lives, and different investors. Debt investors have a contractual, senior claim on cash flows not available to equity investors and as such, equity investors bear the residual risk of ownership. Moreover, debt investors' exposure to business and financial risk is finite (due to the finite life of debt) whereas equity investors are exposed to residual risk in perpetuity. Consequently, any inferences drawn from differences in credit ratings regarding the Company's Cost of Equity should be drawn with caution.

A visible measure of the distinction of the risks to which debt and equity investors are exposed is the difference in their respective Beta coefficients. Although I disagree with his conclusions, Dr. Woolridge recommends an average Beta coefficient of 0.60 for his proxy group.[390] Duff & Phelps notes that as of

[390] Exhibit JRW-8, at 1.

December 2017, Beta coefficients for A-rated debt was 0.04,[391] far below the equity Beta coefficient assumed by Dr. Woolridge. In fact, a debt Beta coefficient of 0.73 is associated with Caa rated debt, which is considered below investment grade.[392] Those differences are a clear indication that the risks assumed by debt investors are far different than those assumed by equity investors.

Q. DOES THE DATA PROVIDED BY DR. WOOLRIDGE INDICATE A RELATIONSHIP BETWEEN COST OF EQUITY ESTIMATES AND CREDIT RATINGS?

A. No, they do not. Using the growth rates and dividend yields reported by Dr. Woolridge, I produced Constant Growth DCF results for each of the comparison companies.[393] Those results do not support Dr. Woolridge's conclusion. For example, Pinnacle West Capital Corp. is rated A-, and Portland General Electric Company is rated BBB+, two credit "notches" apart. Yet, based on Dr. Woolridge's data, their DCF results are 8.21 percent and 8.16 percent, respectively, only 5 basis points apart. On the other hand, MGE Energy, Inc. and NextEra Energy, Inc. are rated AA- and A-, respectively, one credit notch apart, but their DCF results differ by 428 basis points. We cannot say, based on Dr. Woolridge's primary method, that there is a definitive relationship between credit rating notches and Cost of Equity estimates.

[391] Duff & Phelps 2018 Cost of Capital, at Exhibit 5.7 Chapter 5, page 18.
[392] *Ibid.*
[393] Exhibit R-RBH-30.

Q. DID YOU PERFORM ANY ANALYSES TO DETERMINE WHETHER DR. WOOLRIDGE'S DATA SUPPORTS THE ASSUMPTION THAT THERE IS A QUANTIFIABLE DIFFERENCE IN THE COST OF EQUITY FOR COMPANIES WITH DIFFERENT BOND CREDIT RATINGS?

A. Yes. Using the same Constant Growth DCF results for each of Dr. Woolridge's comparison companies discussed above, I applied "credit scores" to Dr. Woolridge's comparison companies by converting the S&P bond ratings reported in his Direct Testimony to a numerical value. If there is a quantifiable relationship between the proxy companies' credit ratings and Cost of Equity, there should be a positive, statistically significant relationship between the credit score and the DCF results. That is, as credit quality deteriorates (resulting in a higher score), the Cost of Equity should increase. Therefore, I performed a regression analysis in which the dependent variable was the DCF result and the explanatory variable was the credit score. As shown in Exhibit R-RBH-30, the regression analysis showed no significant statistical relationship between the two. In fact, the highest R-squared of the regressions was only 0.00034, which indicates that credit ratings accounted for, at most, 0.034 percent of the change in the DCF-estimated Cost of Equity.[394]

[394] I also considered the relationship between DCF results and credit ratings using Spearman's Rank Correlation Coefficient, which is a non-parametric measure of the correlation between two series. The Spearman Rank Correlation Coefficient between DCF results and credit ratings was approximately -0.0705, which is statistically insignificant at the 95.00 percent level.

Q. DID DR. WOOLRIDGE STATE THE COMPANY'S OTHER UNIQUE RISK FACTORS CAN BE ATTRIBUTED TO THE COMPANY'S CREDIT RATING?[395]

A. Yes, Dr. Woolridge believes the credit rating process reflects the unique risk factors I described in my Direct Testimony including: (1) customer concentration; (2) geographic and weather risk; (3) regulatory mechanisms and capital spending; and (4) historical cash flow from operations. I do not disagree with Dr. Woolridge that the rating agencies may analyze those specific factors in assigning a rating. However, I disagree with Dr. Woolridge's position that the Company's credit rating is directly related to the Company's Cost of Equity as I described above.

I. Flotation Costs

Q. DID DR. WOOLRIDGE ADDRESS THE ISSUE OF FLOTATION COSTS IN HIS DIRECT TESTIMONY?

A. Yes, Dr. Woolridge devotes several pages of his testimony discussing various reasons why he believes such an adjustment is not necessary.[396] Dr. Woolridge does not account for flotation costs, reasoning that flotation costs for stock issuances are not out-of-pocket costs and, even if they were, current market conditions suggest that a *reduction* to the Cost of Equity is required to account for flotation costs.[397]

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[395] Direct Testimony of Dr. J. Randall Woolridge, at 79.
[396] *Ibid.*, 79-81.
[397] *Ibid.*, at 81.

Q. PLEASE RESPOND TO DR. WOOLRIDGE IN THAT REGARD.

A. I disagree with Dr. Woolridge's position that flotation costs for stock issuances are different than issuance costs associated with long-term debt. Companies pay the same types of fees (both direct and indirect) regardless of whether they are issuing equity or debt. As to Dr. Woolridge's observation that underwriter fees are not "out-of-pocket" expenses,[398] I view that to be a distinction without a meaningful difference. Whether paid directly or via an underwriting discount, the cost results in net proceeds that are less than the gross proceeds.

I also disagree with Dr. Woolridge's position that flotation costs could represent a *reduction* in Cost of Equity. Flotation costs are true and necessary costs to the issuer, and represent funds that otherwise would be invested in long-lived assets. As explained in my Direct Testimony, to the extent flotation costs are not recovered, the issuing company is denied a portion of the opportunity to earn its expected (or required) return.[399]

VII. RESPONSE TO WALMART WITNESS CHRISS

Q. PLEASE SUMMARIZE MR. CHRISS' TESTIMONY REGARDING THE COMPANY'S ROE.

A. Mr. Chriss opposes the Company's proposed ROE based on his review of authorized ROEs since 2016, nationwide and within Texas.[400] He recommends the Commission "closely examine" the Company's proposed ROE "in light of (1) the customer impact of the resulting revenue requirement increase; (2) recent rate case

[398] *Ibid.*, at 80.
[399] Direct Testimony of Robert B. Hevert at 39.
[400] *See* Direct Testimony of Steve W. Chriss, at 8-9, 10-13.

ROEs approved by the Commission; and (3) recent rate case ROEs approved by commissions nationwide."[401] Mr. Chriss did not undertake an independent, market-based analysis of the Company's Cost of Equity.

Q. ARE THERE OTHER DISTINCTIONS THAT ARE IMPORTANT TO CONSIDER WHEN REVIEWING AUTHORIZED RETURNS?

A. Yes, there are. As noted in my Direct Testimony, utility credit ratings and outlooks depend substantially on the extent to which rating agencies view the regulatory environment credit supportive, or not. I noted, for example, that Moody's finds the regulatory environment to be so important that 50.00 percent of the factors that weigh in its ratings determination are determined by the nature of regulation.[402] Given the Company's need to access external capital and the weight rating agencies place on the nature of the regulatory environment, I believe it is important to consider the extent to which the jurisdictions that recently have authorized ROEs for electric utilities are viewed as having constructive regulatory environments.

Q. HAVE YOU REVIEWED AND UPDATED THE INFORMATION CONTAINED IN MR. CHRISS' EXHIBIT SWC-3?

A. Yes. As shown in Figure 51 (below; *see also,* Exhibit R-RBH-31), I analyzed the authorized ROE for electric utilities based on the jurisdiction's ranking by RRA. RRA, which is the source of Mr. Chriss' data, provides an assessment of the extent to which regulatory jurisdictions are constructive from investors' perspectives, or

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[401] *Ibid.*, at 13.

[402] *See* Direct Testimony of Robert B. Hevert, at 60-61.

not. As RRA explains, less constructive environments are associated with higher levels of risk:

> RRA maintains three principal rating categories, Above Average, Average, and Below Average, with Above Average indicating a relatively more constructive, lower-risk regulatory environment from an investor viewpoint, and Below Average indicating a less constructive, higher-risk regulatory climate from an investor viewpoint, Within the three principal rating categories, the numbers 1, 2, and 3 indicate relative position. The designation 1 indicates a stronger (more constructive) rating; 2, a mid range rating; and, 3, a weaker (less constructive) rating. We endeavor to maintain an approximately equal number of ratings above the average and below the average.[403]

Texas currently is ranked "Average/3", which falls approximately in the bottom-third of the 53 jurisdictions ranked by RRA.

Across the 119 cases for which RRA reports an authorized ROE since 2016, there was a 39-basis point difference between the median return for jurisdictions ranked in the top third of all jurisdictions and jurisdictions ranked in the bottom third of all jurisdictions (the higher-ranked jurisdictions providing the higher authorized returns, *see* Figure 51, below). As Figure 51 indicates, authorized ROEs for electric utilities in jurisdictions rated in the top third of all jurisdictions range from 8.80 percent to 10.55 percent, with an average of 9.81 percent, and a median of 9.90 percent.

[403] Source: Regulatory Research Associates, accessed June 16, 2019.

Figure 51: Average Authorized ROE by RRA Ranking[404]

Authorized ROE (%) All Electric Utilities			
RRA Ranking	Top Third	Middle Third	Bottom Third
Mean	9.81	9.51	9.59
Median	9.90	9.50	9.52
Maximum	10.55	10.00	11.95
Minimum	8.80	8.75	9.10

My recommended range, 10.00 percent to 10.75 percent, is consistent with the returns authorized in more constructive jurisdictions.

Q. DO YOU AGREE WITH MR. CHRISS' REFERENCE TO THE 9.38 PERCENT AVERAGE AUTHORIZED ROE FOR DISTRIBUTION-ONLY[405] UTILITIES?

A. No, I do not. Although Mr. Chriss correctly excludes the results for Illinois formula rate plans on a yearly basis (*see* Exhibit SWC-3), his reported 9.38 percent authorized ROE for distribution-only electric utilities does not account for those instances. Removing cases under the Illinois Formula Rate Plans results in mean and median authorized ROE of 9.50 percent and 9.60 percent.[406]

[404] Source: Regulatory Research Associates. "Top Third" includes Above Average/1,2,3 and Average/1; "Middle Third" includes Average/2; "Bottom Third" includes Average/3 and Below Average/1,2,3. The "Top Third" and "Bottom Third" groups each include 19 (of the 53 total) jurisdictions. The "Middle Third" group includes 15 jurisdictions. *See*, also Exhibit R-RBH-31. Excludes limited issue riders and Illinois formula rate proceedings.

[405] Direct Testimony of Steve W. Chriss, at 11.

[406] Source: Regulatory Research Associates. Please note, of the 39 distribution-only cases since 2016, 23 have occurred in jurisdictions ranked Average/3 and below.

Q. HAS MR. CHRISS CONSIDERED THE EFFECT OF HIS RECOMMENDATION ON THE COMPANY'S FINANCIAL PROFILE?

A. No, he has not. The financial community carefully monitors utility companies' financial conditions, both current and expected as well as the regulatory environment in which those companies operate. Here, Mr. Chriss suggests the Commission should reduce the Company's ROE by some unspecified amount without the benefit of market-based, comparative analyses to support that recommendation. The consequence of doing so would indicate an increased degree of regulatory risk.

VIII. CAPITAL STRUCTURE AND OVERALL RATE OF RETURN

Q. WHAT IS THE COMPANY'S PROPOSED CAPITAL STRUCTURE?

A. The Company requests a capital structure comprised of 50.00 common equity and 50.00 percent long-term debt as proposed by Company Witness Mr. McRae.

Q. HAVE YOU COMPARED THE COMPANY'S PROPOSED CAPITAL STRUCTURE TO YOUR PROXY GROUP RESULTS?

A. Yes, Exhibit R-RBH-7 indicates an average common equity ratio of 53.25 percent over the eight quarters ended December 31, 2018 (for the operating companies held within the proxy group). The Company's proposed common equity ratio of 50.00 percent is 325 basis points below that average. Although containing somewhat more debt than the proxy group, I continue to believe the Company's proposal is consistent with industry practice, and reasonable in this proceeding.

Q. HAVE YOU EVALUATED THE IMPLICATIONS OF OPPOSING WITNESSES' CAPITAL STRUCTURE AND ROE RECOMMENDATIONS FOR THE COMPANY'S *PRO FORMA* REVENUE REQUIREMENT AND NET INCOME?

A. Yes, Figure 52 (below) summarizes the various capital structure and ROE recommendations, and the effects of each on the Company's *pro forma* Revenue Requirement, Net Income, and interest coverage ratio. Whereas the effect on the *pro forma* Revenue Requirement ranges from -3.73 percent to -5.75 percent, the *pro forma* effect on the Company's Net Income is considerably greater, ranging from -19.94 percent to -30.77 percent. The large reduction to Net Income considerably affects the Company's interest coverage ratio, reducing the ratio well below the average 4.14x average discussed earlier. On balance, I believe the various capital structure and ROE proposals suggest disproportionately negative effects for the Company's financial profile.

Figure 52: Summary Effect of Capital Structure and ROE Proposals

	Company	Staff	OPUC	TIEC	TCUC
Return on Equity	10.40%	9.45%	9.15%	9.25%	9.00%
Common Equity Ratio	50.00%	40.00%	45.50%	40.00%	40.00%
Revenue Requirement ($ in MM)	$2,282.2	$2,165.7	$2,197.1	$2,159.1	$2,150.9
% Change	---	-5.11%	-3.73%	-5.39%	-5.75%
Net Income ($ in MM)	$337.1	$245.0	$269.9	$239.9	$233.3
% Change	---	-27.31%	-19.94%	-28.85%	-30.77%
Interest Coverage (EBIT / Int.)	4.01x	2.82x	3.21x	2.78x	2.73x
% Change	---	-29.58%	-19.92%	-30.54%	-31.75%

IX. CONCLUSION AND RECOMMENDATION

Q. WHAT IS YOUR OVERALL CONCLUSION REGARDING THE COMPANY'S COST OF EQUITY?

A. Based on the analyses discussed throughout my Rebuttal Testimony, I find the reasonable range of ROE estimates is from 10.00 percent to 10.75 percent, and within that range, 10.40 percent is a reasonable and appropriate estimate of CenterPoint Houston's Cost of Equity. The results of the updated DCF, CAPM, and Bond Yield Plus Risk Premium analyses, along with the ECAPM results and my analyses of capital market data, authorized returns in other regulatory jurisdictions, and assessments of rating agency concerns and criteria support the reasonableness of my range of ROE estimates and my recommendation. My updated results are provided in Figure 53, below.

Figure 53: Summary of Updated Analytical Results

Discounted Cash Flow	Mean Low	Mean	Mean High
30-day Constant Growth DCF	7.95%	8.71%	9.53%
90-day Constant Growth DCF	8.03%	8.79%	9.61%
180-day Constant Growth DCF	8.14%	8.90%	9.73%
CAPM Results		**Bloomberg Derived Market Risk Premium**	**Value Line Derived Market Risk Premium**
Average Bloomberg Beta Coefficient			
Current 30-Year Treasury (2.92%)		8.10%	8.85%
Near Term Projected 30-Year Treasury (3.08%)		8.27%	9.01%
Average Value Line Beta Coefficient			
Current 30-Year Treasury (2.92%)		9.14%	10.03%
Near Term Projected 30-Year Treasury (3.08%)		9.31%	10.20%
Empirical CAPM Results		**Bloomberg Derived Market Risk Premium**	**Value Line Derived Market Risk Premium**
Average Bloomberg Beta Coefficient			
Current 30-Year Treasury (2.92%)		9.43%	10.37%
Near Term Projected 30-Year Treasury (3.08%)		9.60%	10.54%
Average Value Line Beta Coefficient			
Current 30-Year Treasury (2.92%)		10.21%	11.26%
Near Term Projected 30-Year Treasury (3.08%)		10.38%	11.43%
	Low	**Mid**	**High**
Bond Yield Risk Premium	9.91%	9.93%	10.17%
		Mean	**Median**
Expected Earnings		10.17%	10.04%

Q. DOES YOUR RECOMMENDATION REFLECT THE COMPANY'S RELIABILITY AND QUALITY OF SERVICE?

A. Yes, it does. I understand CenterPoint Witness Ms. Julienne Sugarek discusses the Company's service quality and reliability, in part by responding to City of Houston Witness Norwood, and H-E-B Witness Presses. I further understand that in her

testimony, Ms. Sugarek explains CenterPoint Houston's focus on building and maintaining reliable transmission and distribution systems, and consistently meeting or exceeding the Commission's reliability standards, which is challenging given the Company's geographic position on the Gulf Coast. Ms. Sugarek explains that despite those challenges, CenterPoint Houston ranks as the most reliable utility in Texas. Lastly, I understand that Ms. Sugarek agrees with Mr. Norwood's conclusion that the Company consistently seeks to provide high quality, reliable service, and disagrees with Mr. Presses' view that the Company's ROE should be limited due to a failure to reliably serve customers.

In my experience, utility commissions often have discretion to recognize superior, or inferior performance through the authorized Return on Equity. Although I am not an attorney, I appreciate that the Public Utilities Regulatory Act ("PURA") Section 36.052 speaks to the factors the Commission shall consider in setting the authorized return, including:

1. The efforts and achievements of the utility in conserving resources;
2. The quality of the utility's services;
3. The efficiency of the utility's operations; and
4. The quality of the utility's management.

As Ms. Sugarek explains, the quality of CenterPoint Houston's services is quite high. Based on a plain reading of PURA Section 36.052, it is my view that the Commission may increase the authorized ROE above my 10.40 percent recommendation in recognition of that service quality. At the very least, my recommendation is further supported by the quality of the Company's performance,

and the Commission's ability to recognize that performance in setting the authorized ROE.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

COMMONWEALTH OF MASSACHUSETTS §
§
COUNTY OF WORCESTER §

AFFIDAVIT OF ROBERT B. HEVERT

BEFORE ME, the undersigned authority, on this day personally appeared Robert B. Hevert who having been placed under oath by me did depose as follows:

1. "My name is Robert B. Hevert. I am of sound mind and capable of making this affidavit. The facts stated herein are true and correct based upon my personal knowledge.

2. I have prepared the foregoing Rebuttal Testimony and the information contained in this document is true and correct to the best of my knowledge."

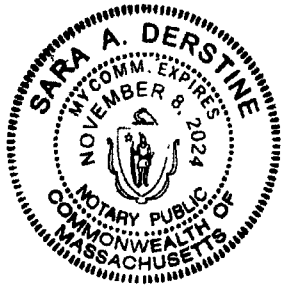
Further affiant sayeth not.

Robert B. Hevert

SUBSCRIBED AND SWORN TO BEFORE ME on this 13th day of June, 2019.

Notary Public in and for the Commonwealth of Massachusetts

My commission expires: 11/8/2024



Exhibits R-RBH-1 through R-RBH-31 are voluminous
and will be provided electronically.