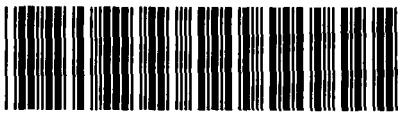

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PUC DOCKET NO. 49494

PUBLIC UTILITY COMMISSION OF TEXAS

APPLICATION OF

AEP TEXAS INC.

FOR AUTHORITY TO CHANGE RATES

REBUTTAL TESTIMONY

AND EXHIBITS

OF

ROBERT B. HEVERT

ON BEHALF OF

AEP TEXAS, INC.

AUGUST 2019

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DIRECT TESTIMONY AND EXHIBITS OF ROBERT B. HEVERT

I.INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND OCCUPATION.

A. My name is Robert B. Hevert. I am a Partner at ScottMadden, Inc. ("ScottMadden"). My business address is 1900 West Park Drive, Suite 250, Westborough, Massachusetts 01581.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this rebuttal testimony ("Rebuttal Testimony") before the Public Utility Commission of Texas ("Commission") on behalf of AEP Texas, Inc. ("AEP Texas" or the "Company"), a wholly owned subsidiary of American Electric Power Company, Inc. ("American Electric Power").

Q. ARE YOU THE SAME ROBERT B. HEVERT WHO PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my Rebuttal Testimony is to respond to the Direct Testimony of the following witnesses (collectively, "Opposing Witnesses") as their testimonies relate to the Company's Return on Equity ("ROE") and capital structure:

- Ms. Nancy Palma, who testifies on behalf of Commission Staff ("Staff");
- Ms. Anjuli Winker, who testifies on behalf of the Office of Public Utility Counsel ("OPUC");
- Mr. Michael P. Gorman, who testifies on behalf of Texas Industrial Energy Consumers ("TIEC");

- Mr. Richard A. Baudino, who testifies on behalf of the Cities Served by AEP Texas ("Cities");
- Mr. Steve W. Chriss, who testifies on behalf of Walmart Inc.; and
- Mr. Cory J. Allen, who testifies on behalf of South Texas Electric Cooperative ("STEC").

Q. HAVE YOU UPDATED THE ANALYSES CONTAINED IN YOUR DIRECT TESTIMONY?

A. Yes. I have updated the Constant Growth Discounted Cash Flow ("DCF") model, Capital Asset Pricing Model ("CAPM"), Empirical CAPM ("ECAPM"), Bond Yield Risk Premium, and Expected Earnings analyses based on data through June 28, 2019. Additionally, as a result of the June 3, 2019 announcement of the acquisition of El Paso Electric Company by J.P Morgan Investment Management, Inc., I have removed El Paso Electric Company from my proxy group. Lastly, I have removed Black Hills Corporation, as it no longer meets my regulated electric operating income screening criterion. I refer to this as my Updated Proxy Group. None of these changes have caused me to change my recommendation.

Q. PLEASE PROVIDE A SUMMARY OVERVIEW OF THE RECOMMENDATIONS CONTAINED IN YOUR REBUTTAL TESTIMONY.

A. It is important to keep in mind that no one financial model is more reliable than others at all times and under all market conditions. At times, certain models' assumptions become incompatible with market conditions, and their results do not make practical sense. Consequently, we cannot always take model results as given, and assume their results are reasonable measures of the Cost of Equity. Rather, we should apply reasoned judgment in vetting model assumptions, and in assessing the reasonableness of their results. That judgment may lead to the conclusion that the emphasis applied to a particular method in a prior proceeding or under different market conditions is not appropriate in the current instance.

Regarding the Company's Cost of Equity, none of the analyses provided or positions taken by the Opposing Witnesses have caused me to revise my recommended range (10.00 percent to 10.75 percent), or my specific recommendation (10.50 percent). For example, certain of the Opposing Witnesses support their recommendations by reference to authorized ROEs, suggesting those returns have trended downward over time. If we consider individual cases over a relevant timeframe (rather than annual averages over long periods), there is no downward trend.

As to the Company's capital structure, certain of the Opposing Witnesses recommend capitalization ratios that include more leverage (that is, contain more debt) than those in place at utility operating companies. As discussed later in my Rebuttal Testimony, the capital structure ratios in place at electric utility operating companies continue to support the Company's proposed capital structure of 45.00 percent Common Equity, and 55.00 percent Long-Term Debt.[1]

Q. PLEASE NOW PROVIDE AN OVERVIEW OF YOUR RESPONSE TO THE ROE RECOMMENDATIONS MADE BY THE OPPOSING WITNESSES.

A. In this proceeding, certain of the Opposing Witnesses give considerable weight to the DCF method, even though it produces ROE estimates 295 basis points (and more) below the returns authorized for other electric utilities.[2] For example, Mr. Gorman's 9.00 percent recommendation gives 50.00 percent weight to his 9.20 percent DCF result; Mr. Baudino relies primarily on his 9.20 percent DCF result.[3] Ms. Winker and Ms. Palma also develop their recommendations by reference to their DCF results.

[1] See Exhibit RBH-8R.

[2] For example, the low end of Ms. Winker's DCF range is 6.73 percent, which is 295 basis points below the 9 68 percent average ROE authorized for electric utilities since 2014 (excludes limited-issue riders and Illinois formula rate proceedings) *See,* Direct Testimony of Anjuli Winker, at 27.

[3] Direct Testimony of Michael P. Gorman, at 63; Direct Testimony of Richard A. Baudino, at 3.

Table 1: Summary of ROE Recommendations

WITNESS	ROE RANGE		ROE RECOMMENDATION
	LOW	HIGH	
Ms. Palma (Staff)	8 46%	9 66%	9.35%
Ms. Winker (OPUC)	8.90%	9.10%	9.00%
Mr. Gorman (TIEC)	8.80%	9.20%	9.00%
Mr. Baudino (Cities)	-	-	9 20%
Mr. Hevert (AEP Texas)	10.00%	10.75%	10.50%

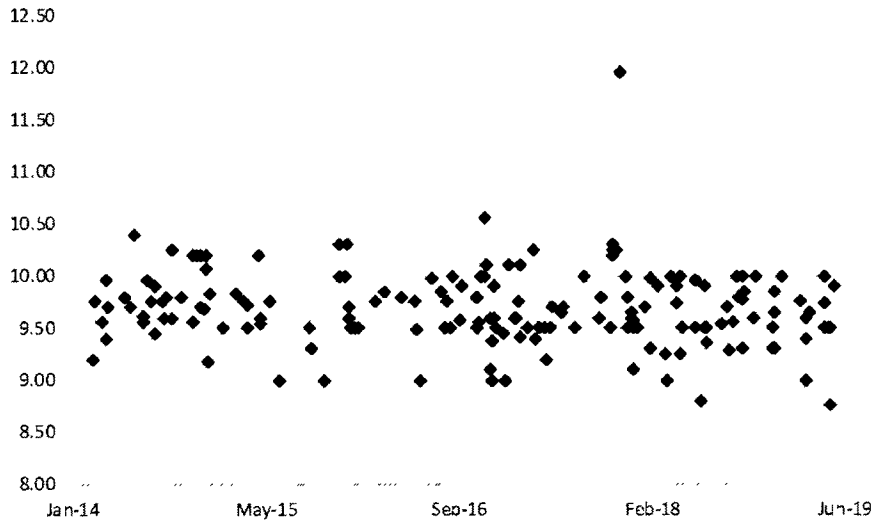
Table 1 (above) summarizes the Opposing Witnesses' ROE recommendations. Because the Opposing Witnesses give considerable weight to their DCF-based results, it is not surprising that their recommendations fall well below currently authorized returns. As discussed in my Direct Testimony, since 2014 the Constant Growth DCF model has produced ROE estimates notably below the returns then authorized by regulatory commissions.[4]

Given their common dependence on the DCF method, it also is not surprising that the Opposing Witnesses' recommendations generally fall within a narrow range. But the fact that their recommendations are similar does not mean their approaches and conclusions are reasonable. Even the highest of their recommendations (Ms. Palma's 9.35 percent) is 33 basis points below the average return for electric utilities since 2014 (*see* Chart 1, below). Ms. Palma's 8.46 percent calculated DCF result (which represents 25.00 percent of the basis of her 9.35 percent recommendation) is below any authorized ROE for electric utilities since 2014.[5]

[4] See, Direct Testimony of Robert B. Hevert, at 4-5 (Bates page 459-460), Chart 1.

[5] Source: Regulatory Research Associates ("RRA"). Authorized ROEs from January 2014 through June 2019. Excludes limited-issue riders and Illinois formula rate plans

Chart 1: Authorized ROEs (2014 – 2019)[6]



Q. IS THE PRINCIPAL USE OF A SINGLE METHOD COMMON IN FINANCIAL THEORY AND PRACTICE?

A. No, it is not. As Dr. Roger Morin notes:

> Each methodology requires the exercise of considerable judgment on the reasonableness of the assumptions underlying the methodology and on the reasonableness of the proxies used to validate the theory. The inability of the DCF model to account for changes in relative market valuation, discussed below, is a vivid example of the potential shortcomings of the DCF model when applied to a given company. Similarly, the inability of the CAPM to account for variables that affect security returns other than beta tarnishes its use.

> No one individual method provides the necessary level of precision for determining a fair return, but each method provides useful evidence to facilitate the exercise of an informed judgment. Reliance on any single method or preset formula is inappropriate when dealing with investor expectations because of possible measurement difficulties and vagaries in individual companies' market data.[7]

Professor Eugene Brigham recommends the CAPM, DCF, and Bond Yield Plus Risk Premium approaches:

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[6] Source: RRA. Authorized ROEs from January 2014 through June 2019. Excludes limited-issue riders and Illinois formula rate plans.

[7] Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc , 2006, at 428.

> Three methods typically are used: (1) the Capital Asset Pricing Model (CAPM), (2) the discounted cash flow (DCF) method, and (3) the bond-yield-plus-risk-premium approach. These methods are not mutually exclusive – no method dominates the others, and all are subject to error when used in practice. Therefore, when faced with the task of estimating a company's cost of equity, we generally use all three methods and then choose among them on the basis of our confidence in the data used for each in the specific case at hand.[8]

Similarly, Dr. Morin (quoting, in part, Professor Stewart Myers), stated:

> Use more than one model when you can. Because estimating the opportunity cost of capital is difficult, only a fool throws away useful information. That means you should not use any one model or measure mechanically and exclusively. Beta is helpful as one tool in a kit, to be used in parallel with DCF models or other techniques for interpreting capital market data.
>
> ***
>
> While it is certainly appropriate to use the DCF methodology to estimate the cost of equity, there is no proof that the DCF produces a more accurate estimate of the cost of equity than other methodologies. Sole reliance on the DCF model ignores the capital market evidence and financial theory formalized in the CAPM and other risk premium methods. The DCF model is one of many tools to be employed in conjunction with other methods to estimate the cost of equity. It is not a superior methodology that supplants other financial theory and market evidence. The broad usage of the DCF methodology in regulatory proceedings in contrast to its virtual disappearance in academic textbooks does not make it superior to other methods. The same is true of the Risk Premium and CAPM methodologies.[9]

Q. HAVE OTHER REGULATORY COMMISSIONS RECOGNIZED THE IMPORTANCE OF CONSIDERING MULTIPLE METHODS IN SETTING AUTHORIZED ROES?

A. Yes. As noted in my Direct Testimony, Hawaii, Maryland, Massachusetts, North Carolina, South Carolina, as well as the Federal Energy Regulatory Commission ("FERC") have concluded that the use of multiple methods is reasonable and appropriate.[10]

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[8] *Ibid.*, at 430 – 431, citing Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed., 1994, at 341.

[9] Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 430–431.

[10] Direct Testimony of Robert B. Hevert, at 5-7, 12.

Q. IS IT YOUR VIEW THAT THE DCF MODEL SHOULD BE GIVEN NO WEIGHT IN DETERMINING THE COMPANY'S COST OF EQUITY?

A. No, it is not. It is my view, however, that we should carefully consider the range of results all models produce. As discussed later in my Rebuttal Testimony, doing so fully supports my ROE range and recommendation.

Q. HOW IS THE REMAINDER OF YOUR REBUTTAL TESTIMONY ORGANIZED?

A. The balance of my Rebuttal Testimony is organized as follows:

Section III – responds to Staff Witness Ms. Palma;

Section IV – responds to OPUC Witness Ms. Winker;

Section V – responds to TIEC Witness Mr. Gorman;

Section VI – responds to Cities Witness Mr. Baudino;

Section VII – responds to Walmart Witness Mr. Chriss;

Section VIII – responds to STEC Witness Mr. Allen; and

Section IX – summarizes my updated results and provides my overall conclusion.

III. REPONSE TO STAFF WITNESS PALMA

Q. PLEASE SUMMARIZE STAFF'S ROE RECOMMENDATION.

A. Ms. Palma recommends an ROE range of 8.46 percent to 9.66 percent, with a point estimate of 9.35 percent.[11] The low end of Ms. Palma's range (8.46 percent) equals the average of her Constant Growth and Multi-Stage DCF results, and the high end is determined by her Risk Premium analysis.[12] Although she performs a Capital Asset Pricing Model analysis, which produces an ROE estimate of 6.20 percent, Ms. Palma gives that result no weight.[13]

[11] Direct Testimony of Ms. Palma at 29.

[12] *Ibid.* at 28-29.

[13] *Ibid.* at 25, 28. Since Ms. Palma did not rely on the results of her CAPM analysis, I do not address her application of that model.

Q. PLEASE BRIEFLY SUMMARIZE YOUR RESPONSE TO MS. PALMA ON THOSE ISSUES.

A. As a general matter, I strongly disagree that estimates of 8.46 percent should be given any weight in determining the Company's ROE. As noted earlier, the average authorized return for electric utilities since 2014 has been about 9.68 percent;[14] the low end of Ms. Palma's range falls 122 basis points below that level. Regarding her Risk Premium analysis, I agree with Ms. Palma that the Equity Risk Premium is inversely related to interest rates.[15] Nonetheless, because Ms. Palma's analysis does not consider forward-looking interest rates, her Risk Premium-based ROE estimate is lower than it reasonably should be, thereby lowering the upper end of her recommended range.

Because Ms. Palma's ROE range and point estimate depend on her DCF and Risk Premium models, my response focuses on: (1) the method by which Ms. Palma determined her ROE range and recommendation; (2) her application of the Multi-Stage DCF method; and (3) her Risk Premium analysis. Lastly, I review Ms. Palma's recommended capital structure of 60.00 percent long-term debt relative to the capital structures in place at operating utility companies.

A. Determination of the ROE Range and Recommendation

Q. PLEASE BRIEFLY DESCRIBE THE METHOD BY WHICH MS. PALMA ESTABLISHED HER ROE RANGE AND POINT ESTIMATE.

A. As Ms. Palma points out, her recommendation "lies at the midpoint of the upper half of the range of [her] recommended range".[16] In effect, Ms. Palma's ROE recommendation gives approximately 75.00 percent weight to her Risk Premium results (9.66 percent), and approximately 25.00 percent weight to the approximate average of her two DCF results (8.46 percent; *see*, Table 2, below).

[14] Source RRA. Excludes Limited Issue Riders and Illinois Formula Rate proceedings. Exhibit RBH-8R.

[15] *See*, Direct Testimony of Nancy Palma, at 25. *See*, Direct Testimony of Robert B. Hevert, at 68 (Bates page 523).

[16] Direct Testimony of Nancy Palma, at 29. [Clarification added.]

Table 2: Summary of Ms. Palma's ROE Results[17]

Method	Point Estimate	Range
Single-Stage DCF	8 61%	5.94% - 11.57%
Multi-Stage DCF	8 31%	7.36% - 10.10%
Risk Premium	9.66%	NA
Overall Recommendation	9.35%	8.46% - 9 66%

Q. WHAT ARE YOUR SPECIFIC CONCERNS WITH THAT WEIGHTING CONVENTION?

A. My first concern is that a considerable portion of Ms. Palma's ROE recommendation (25.00 percent) is based on ROE estimates far below the returns authorized for electric utilities.[18] Second, Ms. Palma's Risk Premium analysis is not forward-looking. As explained below, simply adjusting the model to reflect forward-looking estimates of corporate bond yields increases her Risk Premium estimate from 9.66 percent to 10.20 percent. Keeping the same 75.00 percent and 25.00 percent weights, that one reasonable change would increase Ms. Palma's calculated ROE estimate to 9.77 percent.[19]

B. Multi-Stage DCF Model

Q. PLEASE PROVIDE A SUMMARY DESCRIPTION OF MS. PALMA'S CONSTANT GROWTH AND MULTI-STAGE DCF MODELS.

A. Ms. Palma uses both the Constant Growth and Multi-Stage DCF models. Whereas the Constant Growth DCF model assumes constant dividend growth in perpetuity, the Multi-Stage form calculates the Internal Rate of Return ("IRR") that sets the current stock price equal to the present value of projected dividends.[20] The fundamental difference between Ms. Palma's Constant Growth and Multi-Stage DCF models is that the former assumes a constant growth rate in perpetuity, whereas the latter allows for a change from the first

[17] *Ibid.*, at 28. Please note, 9.36% = (0.25 x 8.46%) + (0.75 x 9.66%), which Ms Palma ultimately rounded down to 9.35.

[18] *See* Chart 1 above. Excludes Limited Issue Rate Rider cases and Illinois Formula Rate proceedings Ms. Palma relies on RRA for the data used in her Risk Premium analysis.

[19] 9.77%= (75.00% x 10.20%) + (25.00% x 8.46%).

[20] The Internal Rate of Return is the resulting Cost of Equity estimate.

stage growth (years one through five) to a long-term growth rate (years six through perpetuity).[21]

As with her Constant Growth DCF model, the first stage of Ms. Palma's Multi-Stage DCF model relies on analyst earnings growth rate projections from Zacks and Value Line. The second, or "terminal," stage assumes long-term growth measured by expected growth in nominal Gross Domestic Product ("GDP").[22]

Q. ARE THERE SPECIFIC AREAS IN WHICH YOU DISAGREE WITH MS. PALMA'S MULTI-STAGE DCF MODEL ASSUMPTIONS?

A. Yes, I disagree with Ms. Palma's assumptions that quarterly dividends are received at year-end.

Q. HOW DOES MS. PALMA'S ASSUMPTION REGARDING THE TIMING OF DIVIDEND PAYMENTS AFFECT HER MULTI-STAGE DCF RESULTS?

A. Ms. Palma's model assumes all quarterly dividends are received at year-end. Fundamental to the DCF method, however, is the principle that cash flow has time value.[23] Because utility dividends are paid on a quarterly basis, assuming all dividends are received at year end (rather than during the course of the year) defers the timing of those cash flows and reduces the DCF estimate. A reasonable method of reflecting the timing of quarterly dividend payments is to assume cash flows are received at the mid-point each year (*i.e.*, the "mid-year convention"). As Duff & Phelps notes:

> Common practice in business valuation is to assume that the net cash flows are received on average continuously throughout the year (approximately

[21] Ms. Palma's Multi-Stage DCF analyses project dividends for a 150-year period, which is generally consistent with a perpetual dividend assumption. *See*, Direct Testimony of Nancy Palma, at 18-19.

[22] *See*, Direct Testimony of Nancy Palma, at 20-21.

[23] For example, The Chartered Financial Analyst ("CFA") Institute's program curriculum notes. "Money has time value in that individuals value a given amount of money more highly the earlier it is received. Therefore, a smaller amount of money now may be equivalent in value to a larger amount received at a future date. The time value of money as a topic of investment mathematics deals with equivalence relationships between cash flows with different dates. Mastery of time value of money concepts and techniques is essential for investment analysts." 2011 CFA Curriculum Level I, Volume 1 at 255-256

equivalent to receiving the net cash flows in the middle of the year), in which case the present value factor is generally based on a mid-year convention (e.g., (1+k)0.5).[24]

Q. WOULD MS. PALMA'S MULTI-STAGE DCF RESULTS BE DIFFERENT IF SHE APPLIED THE MID-YEAR CONVENTION?

A. Yes. Exhibit RBH-9R, which replicates Ms. Palma's Attachment NP-6, demonstrates her model assumes year-end cash flows. As Exhibit RBH-9R also demonstrates, simply changing the dividend timing to reflect the mid-year convention increases the mean and median results by approximately 13 basis points (from 8.31 percent to 8.44 percent and from 8.23 percent to 8.36 percent, respectively). Even with that change, however, Ms. Palma's model produces results too low to be reasonable estimates of the Company's Cost of Equity.

C. Risk Premium Model

Q. DO YOU HAVE ANY OBSERVATIONS REGARDING MS. PALMA'S 9.66 PERCENT RISK PREMIUM-BASEED ESTIMATE?

A. Yes, I do. First, Ms. Palma recognizes there is a statistically significant inverse relationship between the Equity Risk Premium and interest rates, and that the Cost of Equity is forward-looking.[25] That being the case, Ms. Palma's Risk Premium analysis also should consider projected bond yields.[26] *Blue Chip Financial Forecasts*, which provides consensus estimates from over 50 business economists, projects Baa corporate bond yields to rise from their current 4.72 percent level to a long-term consensus level of 5.70 percent.[27] Assuming that 5.70 percent Baa corporate bond yield, Ms. Palma's Risk Premium analysis

[24] Duff & Phelps, 2016 Valuation Handbook, Guide to Cost of Capital at 1-4.

[25] *See*, Direct Testimony of Nancy Palma, at 21, 23, 25.

[26] *Blue Chip* does not provide projections for utility bond yields; however, as noted in my response to Ms. Winker, there is no material difference in corporate and utility Baa bond yields.

[27] Blue Chip Financial Forecast, Vol. 38, No. 6, June 1, 2019, at 14.

would produce an ROE estimate of 10.20 percent,[28] consistent with my Risk Premium results (see Exhibit RBH-5 and Exhibit RBH-5R) and within my recommended range. Applying the revised DCF model results (8.53 percent)[29] with the revised Risk Premium results (10.20 percent) produces a weighted average of 9.78 percent.[30]

D. Ms. Palma's Proposed Capital Structure

Q. WHAT DOES MS. PALMA PROPOSE FOR THE COMPANY'S CAPITAL STRUCTURE?

A. Ms. Palma proposes a capital structure including 60.00 percent Long-Term Debt, and 40.00 percent Common Equity. Ms. Palma bases that recommendation largely on the Commission's ruling in Docket No. 22344.[31]

Q. DO YOU AGREE WITH MS. PALMA'S PROPOSED CAPITAL STRUCTURE?

A. No, I do not. Company Witness Renee Hawkins discusses several Company-specific concerns regarding Ms. Palma's proposal. In addition to those points, Ms. Palma's proposed 40.00 percent Common Equity ratio is significantly below those in place at other utility operating companies. As Exhibit RBH-7R demonstrates, the average Common Equity ratio over the eight quarters ended March 31, 2019 was 53.64 percent for the proxy group operating companies. Ms. Palma's proposal is 1,364 basis points (13.64 percentage points) below that average.

Utilities are capital intensive enterprises that must finance long-lived assets regardless of capital market conditions. Although no utility is a perfect substitute for another, they tend to have common financing objectives, and face common financing constraints. A common financing practice therefore is to align the average life (or duration)

[28] 5.70% + (-0.4392) x (5.70% - 8.46%) + 3.29% = 10.20%. See Attachment NP-7 for Ms. Palma's Risk Premium method.

[29] Average of Ms. Palma's Constant Growth DCF average value of 8.61% and revised Multi-Stage DCF average value of 8.44% described above.

[30] 9.78% = (25.00% x 8.53%) + (75.00% x 10.20%).

[31] Direct Testimony of Nancy Palma, at 39.

of the securities in the capital structure with the average lives (or duration) of the assets being financed. As discussed in my response to Ms. Winker, utility equity generally has a relatively long duration. That being the case, it is important to have a meaningful proportion of equity in the capital structure. Ms. Palma's recommendation runs counter to actual practice and if adopted, would frustrate the fundamental "duration-matching" objective.

Q. WHAT IS MS. PALMA'S CONCERN REGARDING A COMPARISON OF CAPITAL STRUCTURES THAT INCLUDES VERTCIALLY INTEGRATED UTILITIES?

A. Ms. Palma asserts it is "inappropriate to compare AEP to [vertically integrated utilities], and, furthermore, to reference their authorized capital structures in order to justify AEP Texas' requested capital structure".[32] She argues it is improper to do so because "AEP Texas is a "wires-only" TDU that is neither vertically-integrated nor involved in the purchase or sale of electricity." [33]

Q. IS THERE A MEANINGFUL DIFFERENCE IN THE AUTHORIZED EQUITY RATIO BETWEEN VERTICALLY INTEGRATED AND "WIRES ONLY" ELECTRIC UTILITIES?

A. No, there is not. As shown in Table 3 below, the average current authorized equity ratio for the distribution-only operating companies in Ms. Palma's proxy group was 50.56 percent, slightly higher than the average current authorized equity ratio for the vertically integrated operating companies (50.14 percent). The average current authorized equity ratio for all electric utilities (including Texas transmission rate cases) was 50.18 percent. I also calculated the average current authorized equity ratio excluding jurisdictions that include non-investor supplied capital in the capital structure (specifically Arkansas, Florida, Indiana, and Michigan). In each instance, I also calculated the standard deviation and found the average common equity ratios to be within one standard deviation of the

[32] Direct Testimony of Nancy Palma, at 38-39.

[33] Direct Testimony of Nancy Palma, at 38-39.

others. We therefore cannot say there is a meaningful difference in the authorized equity ratio for electric distribution utilities on the one hand, and vertically integrated electric utilities on the other.

Table 3: Average Current Authorized Common Equity Ratios for Ms. Palma's Proxy Group[34]

	Common Equity Ratio	Common Equity Ratio (Excluding AR, FL, IN, MI)
All electric utilities	50.18%	51.36%
Distribution only	50.56%	50.56%
Vertically Integrated	50.14%	52.15%
Standard Deviation – All	4.04%	2.25%

IV. RESPONSE TO OPUC WITNESS WINKER

Q. PLEASE SUMMARIZE MS. WINKER'S ROE AND CAPITAL STRUCTURE RECOMMENDATIONS.

A. Ms. Winker recommends an ROE of 9.00 percent, within a range of 8.90 percent to 9.10 percent based on her Constant Growth DCF and Bond Yield Plus Risk Premium model results.[35] Although she performs a CAPM analysis, which produces an ROE estimate of 8.49 percent, Ms. Winker gives that result no weight.[36] As to her proxy group, Ms. Winker adopts my original proxy group, but excludes El Paso Electric Company.[37] Table 4 below summarizes Ms. Winker's analytical results. Lastly, Ms. Winker recommends a capital structure consisting of 60.00 percent long-term debt and 40.00 percent common equity.[38]

[34] Source. S&P Global Market Intelligence.

[35] Direct Testimony of Anjuli Winker, at 4, 37.

[36] *Ibid* at 36-37.

[37] *Ibid.* at 17. Although Ms. Winker states the only difference between her and my proxy group presented in my Direct Testimony, is her exclusion of El Paso Electric Company, her exhibits AW-1 and AW-4 show that she also excluded NextEra Energy Inc. Ms. Winker does not explain her reasoning for excluding NextEra Energy Inc

[38] *Ibid.* at 41.

Table 4: Summary of Ms. Winker's Analytical Results[39]

Method	Range
Constant Growth DCF	6.73% - 9.57%
Bond Yield Plus Risk Premium	8.94% - 9.04%

Although Ms. Winker discusses her 6.73 percent DCF result, it is unclear how much weight she gives that estimate in arriving at her 9.00 percent ROE recommendation. For example, if we assume Ms. Winker gave the 6.73 percent estimate no consideration, and equally weighted her two Bond Yield Plus Risk Premium estimates with the 9.57 percent DCF estimate given the remainder, her high DCF estimate would receive only 1.72 percent weight.[40] To the extent Ms. Winker gave the 6.73 percent estimate any consideration, it would require additional weight to be given the high DCF estimate. For example, giving 10.00 percent weight to the low DCF estimate would require about 40.00 percent weight to the high DCF estimate.[41]

Put differently, if Ms. Winker gave no weight to her 6.73 percent ROE estimate, she gave little weight to the far more reasonable 9.57 percent result. But if she gave any weight to the 6.73 percent estimate, Ms. Winker provided no basis to assume it is a sufficiently reasonable ROE estimate that it should be given any consideration in determining the Company's ROE.

As to the overall reasonableness of her recommendation, Ms. Winker argues "capital costs will remain at low levels due to the FOMC's plan to put a hold on interest rate increases over the next few years" and assumes "an ROE of 9.00% is reasonable and will allow AEP Texas to maintain its financial integrity and continue to attract capital on reasonable terms."[42]

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[39] *Ibid* at 37.

[40] (1.72% x 9.57%) + (49.14% x 8.94%) + (49.14% x 9.04%) = 9.00%.

[41] (10.00% x 6.73%) + (40.00% x 9.57%) + (25.00% x 8.94%) + (25.00% x 9.04%) = 9.00%. If the weight given the low DCF result reached 25 00%, the weights given the Bond Yield Plus Risk Premium estimates would be negative

[42] Direct Testimony of Anjuli Winker, at 37-38

Q. PLEASE NOW SUMMARIZE THE SPECIFIC AREAS IN WHICH YOU DISAGREE WITH MS. WINKER'S ROE ANALYSES AND CONCLUSIONS.

A. The principal areas in which I disagree with Ms. Winker's analyses and conclusions include: (1) the interpretation of current capital market conditions and their effect on the Cost of Equity; (2) the growth rate assumptions contained in her DCF analysis; (3) her Bond Yield Plus Risk Premium approach; (4) the inputs to the CAPM method; and (5) her proposed capital structure. I discuss those issues in turn, below.

A. Effect of Capital Markets Conditions on the Cost of Equity

Q. PLEASE BRIEFLY DESCRIBE THE METHODS AND CONSIDERATIONS BY WHICH MS. WINKER ESTABLISHED HER ROE.

A. Ms. Winker states her ROE recommendation relies on her DCF and Risk Premium analyses and reflects "current market conditions, including the conclusion that capital costs will remain at low levels."[43] Ms. Winker argues utility stocks have performed well, due in large measure to the decline in interest rates. She observes that after the recent increases in the Federal Funds rate, interest rates remained relatively low, and concludes trade tensions and steady dividend payouts have made utility stocks more attractive.[44]

Q. DID MS. WINKER ADDRESS THE ISSUE OF EQUITY MARKET VOLATILITY IN HER ASSESSMENT OF MARKET CONDITIONS?

A. Yes, briefly. Ms. Winker suggests the volatility brought about by trade disputes with China, together with central bank policies outside the U.S. "has led investors to view utility bonds as attractive investments."[45] She did not, however, discuss the relationship between market volatility and interest rates, or the implications of that relationship for determining the Company's Cost of Equity. As discussed below, it is important to understand whether abrupt, significant changes in Treasury yields are due to fundamental changes in economic factors and investor risk preferences, or whether they are event-driven outcomes, reflecting increasing levels of near-term risk aversion. As discussed in more detail below, that

[43] *Ibid.*, at 37.

[44] *Ibid.*, at 5

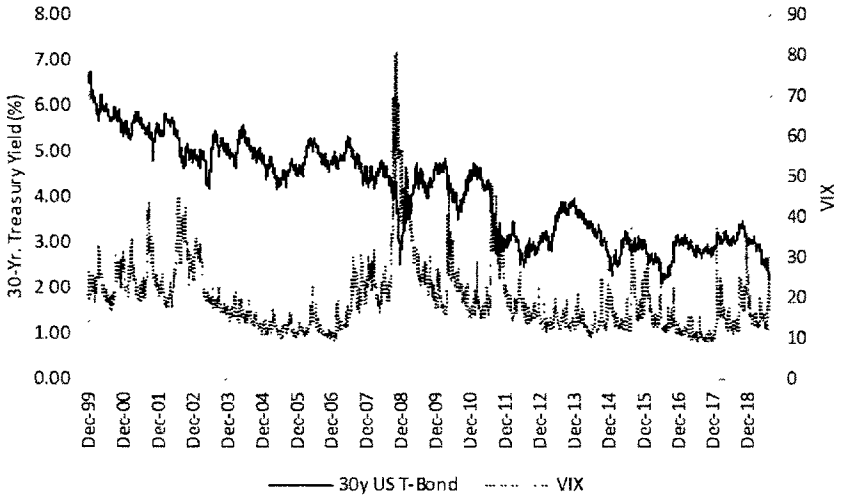
[45] *Ibid.*, at 13.

distinction is important, given the assumptions underlying certain of the models used to estimate the Cost of Equity.

Q. IS THERE A RELATIONSHIP BETWEEN EQUITY MARKET VOLATILITY AND INTEREST RATES?

A. Yes, there is. Significant and abrupt increases in volatility often are associated with declines in Treasury yields. That relationship makes intuitive sense; as investors see increasing risk, their objectives may shift from growth to capital preservation (that is, avoiding a capital loss). A means of doing so is to re-allocate capital to the relative safety of Treasury securities, in a "flight to safety". Because Treasury yields are inversely related to Treasury prices, as investors bid up the prices of bonds, they bid down the yields, such that decreases in the 30-year Treasury yield are coincident with abrupt increases in volatility, as measured by the VIX.

Chart 2: 30-Year Treasury Yields vs. VIX[46]



[46] Source: S&P Global Market Intelligence, YahooFinance As Cboe Global Markets ("Cboe") explains, "[v]olatility measures the frequency and magnitude of price movements, both up and down, that a financial instrument experiences over a certain period of time. The more dramatic the price swings in that instrument, the higher the level of volatility. Volatility can be measured using actual historical price changes (realized volatility) or it can be a measure of expected future volatility that is implied by option prices. The VIX Index is a measure of expected future volatility." *See*, http://www.cboe.com/vix.

In those instances, the reduction in yields does not reflect a reduction in required returns. Rather, it reflects an increase in risk aversion and, therefore, an increase in required equity returns.

Q. IS MARKET VOLATILITY EXPECTED TO INCREASE FROM ITS CURRENT LEVELS?

A. Yes, it is. One means of assessing market expectations regarding the future level of volatility is to review Cboe's "Term Structure of Volatility." As Cboe points out:

> The implied volatility term structure observed in SPX options markets is analogous to the term structure of interest rates observed in fixed income markets. Similar to the calculation of forward rates of interest, it is possible to observe the option market's expectation of future market volatility through use of the SPX implied volatility term structure.[47]

Cboe's term structure data is upward sloping, indicating market expectations of increasing volatility. The expected VIX value in December 2020 is about 19.95, suggesting investors see a reversion to long-term average volatility over the coming months.[48]

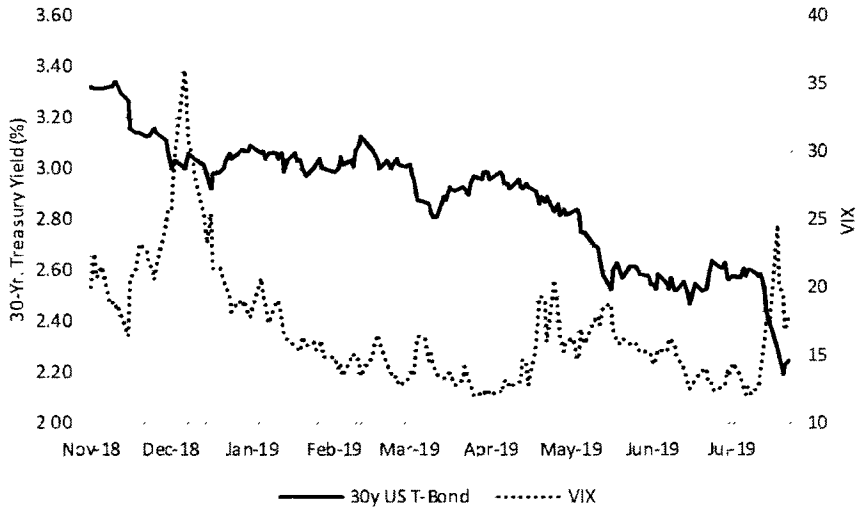
Q. HAVE RECENT DECLINES IN TREASURY YIELDS BEEN ASSOCIATED WITH INCREASES IN MARKET VOLATILITY?

A. Yes, they have. Since November 2018, the periods during which Treasury yields fell coincided with increases in the VIX (see Chart 3, below).

[47] Source: http://www.cboe.com/trading-tools/strategy-planning-tools/term-structure-data.

[48] Source. http://www.cboe.com/trading-tools/strategy-planning-tools/term-structure-data, accessed August 5, 2019.

Chart 3: 30-Year Treasury Yields vs. VIX (11/18 – 8/19)[49]



As Ms. Winker notes, recent trade disputes have been a cause of that volatility, and the coincident fall in Treasury yields. At issue is whether such events are long-lasting fundamental factors, or relatively short-term dislocations.

Q. WHY IS THAT DISTINCTION IMPORTANT?

A. It is important because models such as the DCF method assume current market conditions will remain constant in perpetuity. As explained in my Direct Testimony, the DCF model is given by the equation $k = \frac{D(1+g)}{P_0} + g$, which is derived from the longer-form present value formula $P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_\infty}{(1+k)^\infty}$.[50] The Constant Growth DCF model therefore fundamentally assumes investors use the present value structure to find the "intrinsic value" of common stock. Consequently, the DCF approach will not produce accurate estimates of the market-required ROE if the market price diverges from the present value-based estimate of intrinsic value. Differences between market prices and intrinsic valuations may arise when investors take short-term trading positions to hedge risk (*e.g.*, a

[49] Source: S&P Global Market Intelligence, YahooFinance.

[50] Direct Testimony of Robert B. Hevert, at 53 (Bates Page 508). Ms. Winker provides essentially the same equations at page 46 of her Direct Testimony.

"flight to safety"), as temporary position to increase current income (*i.e.*, a "reach for yield"), or to speculate based on recent trading patterns (*e.g.*, momentum trades).

The implications of market prices diverging from DCF-based estimates of intrinsic value was studied in an article published in the Journal of Applied Finance. That article, which focused on back-tests of the Constant Growth DCF model, found that even under "ideal" circumstances:

> ... it is difficult to obtain good intrinsic value estimates in models stretching over lengthy periods of time. Shorter horizon models based on five or fewer years show more promise. Any model based on dividend streams of ten years or more, whether as a teaching tool or in practice, should be used with caution since they are likely to produce low-quality estimates. [51]

In short, the DCF model used to estimate the Cost of Equity is derived from a present value model that assumes constancy in perpetuity. That assumed constancy goes beyond factors generally within management control (*e.g.*, payout ratios) to market-based factors including dividend yields, and Price/Earnings valuation multiples. Those factors, however, have not been constant. For example, continuous movements in stock prices related to volatile market conditions, together with "sticky" dividend policies, create continuous changes in dividend yields, contrary to the DCF model's assumptions.

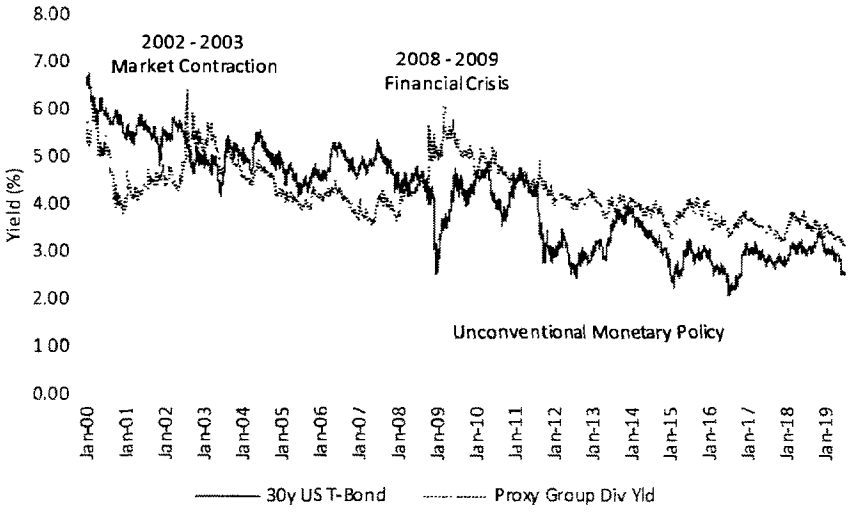
Q. HAVE UTILITY DIVIDEND YIELDS TYPICALLY FOLLOWED LONG-TERM TREASURY YIELDS?

A. Although they have been directionally related over time, the fundamental relationship between Treasury yields and utility dividend yields changed after the 2008/2009 financial crisis. From 2000 through 2008, Treasury yields generally exceeded dividend yields; the exception was the 2002-2003 market contraction. Then, as in 2008-2009, investors sought the safety of Treasury securities, accepting lower yields in exchange for a greater likelihood of capital preservation. Once the market contraction ended (in latter half of 2003), the

[51] *See* P. McLemore, G. Woodward, and T. Zwirlein, *Back-tests of the Dividend Discount Model using Time-varying Cost of Equity*, Journal of Applied Finance, No. 2, 2015, at 19.

relationship was restored, and Treasury yields again exceeded dividend yields (see Chart 4, below).

Chart 4: Utility Dividend Yields and 30-Year Treasury Yields[52]



During the 2008/2009 financial crisis, Treasury bond prices increased (yields decreased), and utility stock prices decreased (yields increased) such that the prior relationship inverted. As the Federal Reserve implemented and maintained "unconventional" monetary policies (*i.e.*, Quantitative Easing) in reaction to the financial crisis, the inverted relationship between Treasury yields and utility dividend yields persisted.

Even though the "yield spread"[53] became inverted after the financial crisis, it has not been static. That is, as Treasury yields fell in response to central bank policies and economic events, dividend yields did not fall to the same degree. Rather, the yield spread widened (see Chart 4, above). That data suggests that, although utility prices are sensitive to long-term Treasury yields, the relationship is not unbounded.

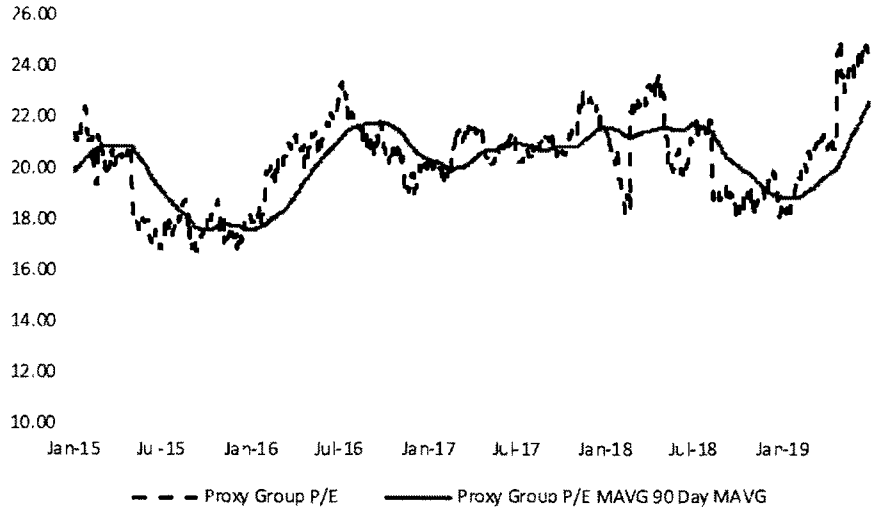
[52] Source S&P Global Market Intelligence.

[53] Defined here as dividend yields less Treasury yields

Q. IS THE RELATIONSHIP BETWEEN VALUATION LEVELS AND INTEREST RATES ALSO SEEN IN UTILITY PRICE/EARNINGS RATIOS?

A. Yes, it is. Looking to the period following the Federal Reserve's Quantitative Easing policy, the proxy group P/E ratio has varied, often reverting toward a longer-term level once it largely breached its 90-day moving average.

Chart 5: Proxy Group Average Price/Earnings Ratio[54]



That data supports the conclusion discussed earlier, that utility stock prices are sensitive to changes in interest rates, but only to a degree. The "reach for yield" that sometimes occurs when interest rates fall has a limit - investors will not accept the incremental risk of capital losses when utility valuation levels become "stretched". That also may be the case when investors see volatility and interest as near-term dislocations, rather than as fundamental changes in the capital market environment, or investor risk tolerances.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR ANALYSES OF THE CURRENT CAPITAL MARKET ENVIRONMENT, AND HOW DO THOSE CONCLUSIONS AFFECT YOUR ROE RECOMMENDATION?

A. Because certain models used to estimate the Cost of Equity require long-term assumptions, it is important to understand whether those assumptions hold. The current market

[54] Calculated as an index. Source: S&P Global Market Intelligence.

environment is one in which recent changes in interest rates have been associated with events, more so than changes in fundamental economic conditions. Even if that were not the case, utility valuations have a limit, even when investors look to them for an alternate source of income in a declining interest rate environment. On balance, it remains important to consider changes in market conditions and how model results are affected by them.

Q. MS. WINKER ARGUES HER 9.00 PERCENT ROE RECOMMENDATION IS REASONABLE "DUE TO THE FOMC'S PLAN TO PUT A HOLD ON INTEREST RATE INCREASES OVER THE NEXT FEW YEARS."[55] WHAT IS YOUR RESPONSE TO MS. WINKER ON THAT POINT?

A. Although the FOMC recently reduced the overnight Federal Funds rate by a quarter percentage point, it noted that in determining the timing and size of future rate adjustments, "the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments."[56] As to the longer-term, the FOMC's June 2019 Projection Materials (the most recent available) suggest an increase in the Federal Funds rate over the "longer-run".[57] I do not read that statement as saying the FOMC has determined it would hold down the overnight rate "over the next few years."

Q. AT PAGE 12 OF HER DIRECT TESTIMONY, MS. WINKER SUGGESTS AN INVERTED YIELD CURVE (IN WHICH SHORT-TERM RATES EXCEED

[55] Direct Testimony of Anjuli Winker, at 37-38.

[56] *Federal Reserve Press Release*, July 31, 2019.

[57] *Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy*, June 2019. The projection materials explain that "[t]The longer-run projections, which are shown on the far right side of the charts, are the rates of growth, unemployment, and inflation to which a policymaker expects the economy to converge over time—maybe in five or six years—in the absence of further shocks and under appropriate monetary policy."

LONG-TERM RATES) MAY "LEAD TO A RECESSION". DO YOU HAVE ANY OBSERVATIONS REGARDING THOSE POINTS?

A. Yes. First, if Ms. Winker's position is that an inverted yield curve may cause a recession, the issue of causality is not settled. As the Federal Reserve Bank of Chicago (the "Chicago Fed") observed, the analyses discussed in its recent research on the topic "do not imply that a yield-curve inversion causes a recession." The Chicago Fed further explained that, "[r]ather, it could be that the slope itself fluctuates to reflect changing expectations about the economy, and these expectations are useful predictors of economic downturns."[58] In any event, of the 873 trading days since 2016, there have been only 33 during which the yield curve was inverted.[59]

Lastly, the yield curve's ability to predict inflation has come under question since the Federal Reserve implemented its policy of Quantitative Easing. A May 2019 article in Barron's, for example, observed that by taking Treasury and mortgage-backed securities off the private market, the Federal Reserve "may be depressing the term premium and tilting the yield curve negatively."[60] In that case, a yield curve inversion may not be due to the macroeconomic factors that otherwise would suggest an impending recession.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE CURRENT LEVEL OF INTEREST RATES, AND THEIR IMPLICATIONS FOR THE COMPANY'S COST OF EQUITY?

A. Although I understand interest rates recently have fallen, I do not believe the Company's Cost of Equity likewise has declined. To conclude it did, we would have to assume the decline in yields is due to a fundamental change in the long-term economic outlook, and that utility valuations closely follow those yield declines regardless of their cause. For the reasons discussed above, I do not believe that is the case.

[58] Chicago Fed Letter, *Why does the yield-curve slope predict recessions?*, Essays on Issues, 2018 Number 404, at 5.

[59] Based on the difference between the ten-year Treasury Bond yield, and the three-month Treasury Bill rate. Source: Federal Reserve Schedule H.15

[60] Randall W. Forsyth, *An Inverted Yield Curve Is Usually Scary. Not this Time*. Barron's, May 31, 2019.

Lastly, in her Schedule AW-3, Ms. Winker provides the average authorized ROE in 2016 for electric utilities as 9.60 percent. It was in 2016 that the 30-year Treasury yield reached its cyclical low of 2.11 percent; the low through June 2019 has been 2.52 percent.[61] It also was in 2016 that the five and ten-year inflation-indexed Treasury yields fell to negative levels, and the three-month Treasury Bill rate did not exceed 0.55 percent. As Table 5 (below) indicates, those measures currently are considerably above their 2016 levels. On that basis alone, Ms. Winker's 9.00 percent ROE recommendation should be seen as unduly low.

Table 5: Treasury Security Yields (%), 2016 and 2019[62]

		Three-Month Treasury Bill Yield	Five-Year Treasury Bond Yield	Five-Year Treasury Bond Yield, Inflation-Indexed	Ten-Year Treasury Bond Yield	Ten-Year Treasury Bond Yield, Inflation-Indexed	30-Year Treasury Bond Yield
2016	Max	0.55	2.10	0.42	2.60	0.74	3.19
2016	Min	0.18	0.94	-0.46	1.37	-0.06	2.11
	Range	0.37	1 16	0.88	1.23	0.80	1.08
2019	Max	2.49	2.62	1 00	2.79	0.97	3.13
2019	Mm	2.11	1.73	0.16	2.00	0.27	2 52
	Pange	0.38	0.89	0.84	0.79	0.70	0.61

Q. MS. WINKER ALSO ARGUES BECAUSE THEY ARE REGULATED, "U.S. UTILITIES PROVIDE INVESTORS THE OPPORTUNITY TO EARN AN ADDITIONAL YIELD ON TOP OF LONG-TERM U.S. TREASURY BONDS, WITHOUT HAVING TO INCREASE THE LEVEL OF INVESTMENT RISK LIKE OTHER NON-REGULATED CORPORATE PEERS.[FOOTNOTE OMITTED]"[63] WHAT IS YOUR RESPONSE TO MS. WINKER ON THAT POINT?

A. Ms. Winker appears to argue that utility debt investors receive a credit spread over the return available on U.S. Treasury securities without taking on the additional risks facing non-regulated entities. As to whether utility debt yields include a credit spread, I agree. If Ms. Winker's point is that because utilities are regulated, utility debt yields are lower than equivalently rated corporate debt yields, I disagree. As Table 6 demonstrates, from January

[61] I recognize that as of August 7, 2019, the 30-year Treasury yield fell to 2.20%. Source: Yahoo! Finance.

[62] Source: Federal Reserve Schedule H.15. 2019 data is through June 28th.

[63] Direct Testimony of Anjuli Winker, at 13.

2000 through June 2019 there has been virtually no difference between the two (in both cases, the average difference is less than the standard deviation).

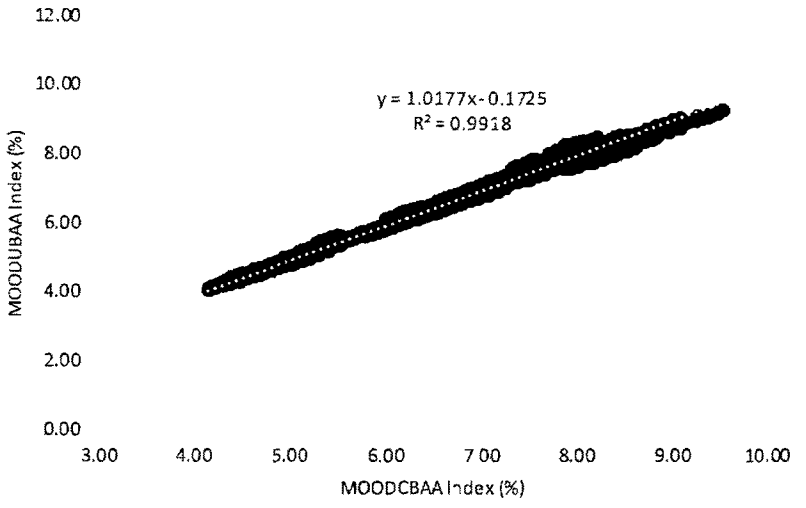
Table 6: Moody's Utility vs. Corporate Credit Spreads[64]

	Moody's Baa Spread (%, Utility – Corporate)	Moody's A Spread (%, Utility – Corporate)
Average	-0 0643	0.0191
Std. Dev	0.1178	0.0955

Taking a slightly different perspective, I reviewed the Moody's Utility and Corporate Baa Index yields and reviewed the historical relationship between the two (*see*, Chart 6, below). There, corporate yields explained about 99.00 percent of the change in utility yields, and the slope coefficient was about 1.00. Those two statistics indicate that over time, utility and corporate bond yields are highly related, and essentially move in in a one-to-one fashion. If debt investors saw utility debt as less risky than equivalently rated corporate debt, that would not be the case; the degree of explanatory value would be lower, and the slope coefficient would be less than 1.00 (indicating that changes in utility yields are less than changes in corporate bond yields).

[64] Source: Bloomberg Professional.

Chart 6: Moody's Baa Utility vs. Corporate Baa Debt Yields[65]



Q. WHAT CONCLUSIONS DO YOU DRAW FROM THE DATA DISCUSSED ABOVE?

A. The regulated nature of utilities does not cause debt investors to require yields lower than those on equivalently rated corporate debt. From that, we reasonably can conclude investors do not see utilities as less risky than their similarly rated, non-regulated counterparts.

B. Constant Growth DCF Model

Q. PLEASE SUMMARIZE THE RESULTS OF MS. WINKER'S CONSTANT GROWTH DCF ANALYSIS.

A. Ms. Winker's DCF-based ROE recommendation ranges from 6.73 percent to 9.57 percent, based on dividend yields of 3.34 percent and 3.51 percent and the range of growth rates discussed below.[66] As discussed earlier, those results suggest Ms. Winker believes

[65] Source: Bloomberg Professional.

[66] Direct Testimony of Anjuli Winker, at 27.

estimates as low as 6.73 percent are reasonable, and should be given some weight in setting the Company's ROE.[67]

Q. WHAT GROWTH RATES DID MS. WINKER INCLUDE IN HER DCF CALCULATIONS?

A. Ms. Winker considered the "Sustainable Retained Earnings Growth" rate (that is, the "B x R" form of the "Sustainable Growth" model), which is calculated as the retention ratio ("B") multiplied by the earned return on book equity ("R"),[68] along with the following growth rates, all of which are provided by Value Line: (1) five- and ten-year historical growth rates in earnings, dividends, and book value; and (2) five-year projected growth in earnings, dividends, and book value.[69]

Q. PLEASE SUMMARIZE YOUR CONCERNS WITH MS. WINKER'S USE OF THE SUSTAINABLE GROWTH MODEL.

A. First, the model's underlying premise is that future earnings will increase as the retention ratio increases. That is, because future growth is modeled as "B x R" (where B is the retention ratio, and R is the earned return on book equity), the model assumes growth will increase as B increases. There are several reasons, however, why that may not be the case. Management decisions to conserve cash for capital investments, to manage the dividend payout to minimize future dividend reductions, or to signal future earnings prospects can and do influence dividend payout (and therefore earnings retention) decisions in the near-term. Consequently, it is appropriate to determine whether the data relied upon by Ms. Winker supports the assumption that higher earnings retention ratios necessarily are associated with higher future earnings growth rates.

[67] As noted earlier, recently authorized ROEs have been in the range of 295 basis points above 6.73%. I also note that in her Direct Testimony at 36-37, Ms. Winker rejected her 8.49% CAPM-based estimate, citing it as only a qualitative check on her analyses.

[68] *See,* Direct Testimony of Anjuli Winker, at 23.

[69] *Ibid.*, at 27.

Q. DID YOU UNDERTAKE ANY ANALYSES TO TEST THAT ASSUMPTION?

A. Yes, I did. Ms. Winker relied on Value Line data to calculate DCF results for the 20 companies in her proxy group. Value Line provides historical and projected information regarding both earnings and dividends per share ("DPS"). For each company with a consistent history of dividend payments, I calculated (in each year of the historical period) the dividend payout ratio, the retention ratio, and the subsequent five-year average earnings growth rate. I then performed a regression analysis in which the dependent variable was the five-year earnings growth rate, and the explanatory variable was the earnings retention ratio. The purpose of that analysis was to determine whether the data on which Ms. Winker relies supports the assumption that higher retention ratios necessarily produce higher earnings growth rates.

Q. WHAT DID THAT ANALYSIS REVEAL?

A. As shown in Table 7 below (*see also,* Exhibit RBH-10R), there was a statistically significant negative relationship between the five-year average earnings growth rate and the earnings retention ratio. That is, based on Ms. Winker's data, earnings growth decreased as the retention ratio increased. Those findings clearly call into question Ms. Winker's substantial reliance on the Sustainable Growth method.

Table 7: Regression Results - Retention Ratio / Earnings Growth[70]

	Coefficient	Standard Error	t-Statistic
Intercept	0.168	0 018	9.523
Retention Ratio	-0.237	0.027	-8.647

[70] *See also,* Exhibit RBH-10R.

Q. DOES PUBLISHED RESEARCH SUPPORT YOUR FINDINGS?

A. Yes. Two articles in Financial Analysts Journal addressed the theory that high dividend payouts (*i.e.*, low retention ratios) are associated with low future earnings growth.[71] Both articles cite a 2003 study by Arnott and Asness,[72] who found that over 130 years, future earnings growth was associated with high, rather than low, payout ratios.[73] All three studies support my finding that over time, the relationship between retention ratios and future earnings growth has been negative. Given the strong statistical results of my analyses, and the corroborating research discussed above, I continue to disagree with Ms. Winker's substantial reliance on the "B x R" approach.

Q. ARE VALUE LINE'S PROJECTIONS FOR THE PROXY COMPANIES' GROWTH IN EARNINGS PER SHARE ("EPS") CONSISTENT WITH THE SUSTAINABLE GROWTH ESTIMATE?

A. No, they are not. As shown in Exhibit RBH-11R, I calculated the Sustainable Growth rate using Value Line's projected financial metrics for each company in Ms. Winker's proxy group for the years 2020 and 2022-2024. I then compared those estimates to Value Line's expected earnings growth for each company. As shown in Exhibit RBH-11R, Value Line frequently expects actual earnings growth to exceed the growth rate indicated by the Sustainable Growth formula. Consequently, the assumption that the Sustainable Growth estimate accurately reflects future growth may be too limiting.

Q. ASIDE FROM THOSE CONCERNS, DO YOU AGREE WITH MS. WINKER'S SPECIFICATION OF THE SUSTAINABLE GROWTH RATE?

A. No, I do not. The full form of the model assumes growth is a function of expected earnings, and the extent to which earnings are retained and invested in the enterprise. Ms. Winker

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[71] Ping Zhou, William Ruland, *Dividend Payout and Future Earnings Growth*, Financial Analysts Journal, Vol. 62, No. 3, 2006. See also Owain ap Gwilym, James Seaton, Karina Suddason, Stephen Thomas, *International Evidence on the Payout Ratio, Earnings, Dividends and Returns*, Financial Analysts Journal, Vol. 62, No. 1, 2006.

[72] Robert Arnott, Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*, Financial Analysts Journal, Vol 59, No. 1, January/February 2003.

[73] Because the payout ratio is the inverse of the retention ratio, the authors found future earnings growth is negatively related to the retention ratio.

relies on the model's simplest form, which defines growth as a function of internally generated earnings.

Although I disagree with its use in this proceeding, if Ms. Winker is going to consider a form of Sustainable Growth, she should use the "BR + SV" form of the model, which reflects growth both from internally generated funds (i.e., the "BR" term) and from issuances of equity (i.e., the "SV" term). As noted above, the first term is the product of the retention ratio (i.e., "B", or the portion of net income not paid in dividends) and the expected ROE (i.e., "R"), which represents the portion of net income that is "plowed back" into the company as a means of funding growth. The "SV" term is represented as

$$\left(\frac{m}{b} - 1\right) x \text{ Common Shares Growth Rate} \quad [1]$$

where $\frac{m}{b}$ is the Market/Book ratio. In that form, the "SV" term reflects an element of growth as the product of: (1) the growth in shares outstanding, and (2) that portion of the Market/Book ratio that exceeds unity.

Q. DO YOU AGREE WITH MS. WINKER THAT HISTORICAL GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH FOR THE CONSTANT GROWTH DCF MODEL?[74]

A. No, I do not. As Ms. Winker acknowledges, the growth component of the Constant Growth DCF model is a forward-looking measure reflecting investors' expectations of future growth.[75] 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 superior to historically oriented growth measures in predicting the firm's stock price."[76] Consequently, historical growth rates are not appropriate for the Constant Growth DCF model.

[74] Direct Testimony of Anjuli Winker, at 25.

[75] *Ibid.*

[76] Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management (Spring 1988).

Q. DO YOU AGREE WITH MS. WINKER THAT DIVIDEND AND BOOK VALUE GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH IN THE CONSTANT GROWTH DCF MODEL?[77]

A. No. As noted in my Direct Testimony, and in my response to Mr. Baudino, 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.

Simply, earnings are the fundamental driver of both book value and dividend growth. As noted earlier, book value increases with the amount of earnings not distributed as dividends (that is, retained earnings), and the price at which new equity is issued is a function of the EPS and the then-current Price/Earnings ("P/E") ratio. Similarly, the ability to pay dividends depends fundamentally on expected earnings.[78] Because dividend policy contemplates additional factors, including the disproportionately negative effect on prices resulting from dividend cuts, as opposed to dividend increases,[79] in the short-run dividend growth may be disconnected from earnings growth. In the long run, however, dividends cannot be increased without earnings growth.

Lastly, because investors often assess stock values on the basis of P/E ratios, it is important to consider whether the growth rates used in the DCF model are related to those valuations.

Q. DO BOOK VALUE, DIVIDEND, OR SUSTAINABLE GROWTH RATES EXPLAIN ELECTRIC UTILITY P/E RATIOS BETTER THAN EARNINGS GROWTH RATES?

A. No, they do not. Although Ms. Winker argues that "investors place more significance on the past financial results of electric utilities than other sectors of the economy,"[80] she provides no evidence to support that claim. To assess Ms. Winker's position, I performed a regression analysis of growth rates and utility P/E ratios and found earnings growth to be

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[77] Direct Testimony of Anjuli Winker, at 25-26.

[78] Jing Liu, Doron Nissim, and Jacob Thomas, *Is Cash Flow King in Valuations?*, Financial Analysts Journal, Volume 63, Number 2, 2007.

[79] Servaes and Tufano, *Corporate Dividend Policy: The Theory and Practice of Corporate Dividend and Share Repurchase Policy* Deutsche Bank, February 2006

[80] Direct Testimony of Anjuli Winker, at 25.

the only growth rate with a statistically strong and theoretically sound ability to explain changes in utility valuations.

Q. PLEASE DESCRIBE THAT ANALYSIS AND ITS RESULTS.

A. My analyses are based on the approach developed by Professors Carleton and Vander Weide, who performed a comparison of the predictive capability of historical growth estimates and analysts' consensus forecasts of five-year earnings growth for the stock prices of sixty-five utility companies.[81] I structured the analysis to determine whether investors use earnings, dividend, book value, or Sustainable Growth rates when valuing electric utility stocks. In particular, my analyses examine the statistical relationship between the P/E ratios of my electric proxy companies and the projected EPS, projected DPS, and BVPS reported by Value Line, or the "B x R" Sustainable Growth rate calculated using Value Line data. To determine which, if any, of those growth rates are statistically related to electric utility stock valuations, I performed a series of regression analyses in which the projected growth rates were explanatory variables and the P/E ratio was the dependent variable. The results of those analyses are presented in Exhibit RBH-12R.

In the first set of analyses I considered each growth rate separately (*i.e.*, I performed four separate regressions with P/E as the dependent variable and projected EPS, DPS, BVPS, and Sustainable Growth, respectively, as the independent variable). To ensure those individual analyses did not bias my results, I also performed a single regression analysis that included all four variables as potential explanatory variables. I then reviewed the T and F-Statistics to determine whether the variables and equations were statistically significant.[82]

[81] Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988 at 81 Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of this updated study are consistent with Vander Weide and Carlton's original conclusions

[82] In general, a T-Statistic of 2.00 or greater indicates that the variable is likely to be different than zero, or "statistically significant" (at the 95.00% confidence level, *i.e.*, a p-value less than 0.05). The F-Statistic is used to determine whether the model as a whole has statistically significant predictive capability.

Q. WHAT DID YOUR ANALYSES REVEAL?

A. As shown in Exhibit RBH-12R, the results demonstrate that the only positive, statistically significant growth rate was the projected EPS growth. That is, neither DPS or BVPS growth rates, nor Sustainable Growth were directly related to valuation levels. Consequently, projected EPS growth rates are the appropriate measure of growth for the purpose of the DCF models.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE USE OF BOOK VALUE GROWTH, DIVIDEND GROWTH AND SUSTAINABLE GROWTH IN THE CONSTANT GROWTH DCF MODEL?

A. The analyses described above demonstrate that Ms. Winker's position (*i.e.*, that Sustainable Growth rates are more appropriate than earnings growth in the DCF formulation) is not supported by data from Value Line, a source on which she relies in this proceeding. Because projected EPS growth is the only variable that has any explanatory value, projected earnings growth should be the only variable used in the DCF analyses. As also noted above, the theoretical basis of Ms. Winker's "B x R" model does not apply to her data. Further, my analysis demonstrates that neither DPS or BVPS growth rates, nor Sustainable Growth were directly related to valuation levels.

Lastly (and as discussed earlier), Ms. Winker's Sustainable Growth rate estimates produce average DCF estimates in the range of 6.73 percent to 6.90 percent.[83] Regardless of any fundamental differences I may have with her approach, ROE estimates that low have little, if any meaning in determining the Company's Cost of Equity.

C. Bond Yield Plus Risk Premium Model

Q. MS. WINKER ASSERTS YOU ADJUST THE RISK PREMIUM IN YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS UPWARD TO ACCOUNT FOR THE

[83] *See,* Exhibit Exhibit RBH-13R, *See also,* Direct Testimony of Anjuli Winker at 27, Schedule AW-1 at 1-2.

RELATIONSHIP BETWEEN RISK PREMIA AND 30-YEAR TREASURY BOND YIELDS.[84] IS THAT ASSERTION CORRECT?

A. No, it is not. Ms. Winker argues I first calculated the average difference between Treasury bond yields and Equity Risk Premia, then "adjusted" the result through my regression analysis. Ms. Winker appears to misunderstand my analysis, and her assertion that I adjust my risk premium is incorrect. Although the average Equity Risk Premium is provided in Exhibit RBH-5 of my Direct Testimony, it is never used as a basis for my ROE recommendation. Rather, my Equity Risk Premium estimate is based on a regression analysis, which continues to show a statistically significant inverse relationship between the Equity Risk Premium and Treasury bond yields. Applying an average Equity Risk Premium to the current Treasury bond yield, as Ms. Winker does in her Bond Yield Plus Risk Premium analysis, ignores that inverse relationship.

Q. DOES MS. WINKER PERFORM A BOND YIELD PLUS RISK PREMIUM APPROACH?

A. Yes, she does. Using data from the years 2000 to March 2019, Ms. Winker performs a Risk Premium analysis using Moody's Investors Service ("Moody's") Average Public Utility Bond Yields rather than the 30-Year Treasury Yield I applied in my analysis.[85] As noted above, however, Ms. Winker applies her historical average risk premium of 4.67 percent to the current yield on BBB utility bonds and the average 2019 Moody's utility bond yield. Her Bond Yield Plus Risk Premium results range from 8.94 percent to 9.04 percent.[86]

Q. WHAT ARE YOUR CONCERNS WITH MS. WINKER'S BOND YIELD PLUS RISK PREMIUM ANALYSIS?

A. I disagree with Ms. Winker's shortened data set, and with her application of the historical average risk premium.

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[84] Direct Testimony of Anjuli Winker, at 33.

[85] Direct Testimony of Anjuli Winker, at 31-32; Schedule AW-3.

[86] *Ibid.*, at 32.

Q. WHAT IS YOUR CONCERN WITH MS. WINKER'S SHORTENED DATA SET?

A. Ms. Winker argues that "[t]he shorter time period more effectively captures the trend in authorized ROEs and captures two recessions and two periods of economic growth. The shorter time period, therefore, better reflects current investor expectations and market conditions, than going back approximately four decades."[87] I disagree. Ms. Winker has not shown her shortened data set to provide more robust results, or has she demonstrated that the relationship between Treasury yields and the Equity Risk Premium prior to 2000 is inconsistent with the structure of her model. By ignoring data covering several capital market and macroeconomic cycles, Ms. Winker's analysis unnecessarily makes the model less robust.

Q. DO YOU AGREE WITH MS. WINKER'S ASSUMPTION THAT IT IS APPROPRIATE TO RELY ON AN HISTORICAL AVERAGE EQUITY RISK PREMIUM OF 4.67 PERCENT?

A. No, I do not. If Ms. Winker believes it is appropriate to apply the historical average Equity Risk Premium, she also should apply the historical average utility bond yield of 5.62 percent, which would produce an ROE estimate of 10.29 percent.[88] As discussed in my Direct Testimony, academic research and observable market data support the long-held principle that the Equity Risk Premium varies inversely with changes in interest rates.[89] By applying an average Equity Risk Premium calculated over a period during which interest rates were higher than their current levels, Ms. Winker has underestimated the Cost of Equity, even though she acknowledges that "risk premiums can fluctuate over time".[90] By applying a static, historical average Equity Risk Premium, Ms. Winker disregards that important principle.

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[87] *Ibid.*, at 31.

[88] *See*, Exhibit RBH-14R.

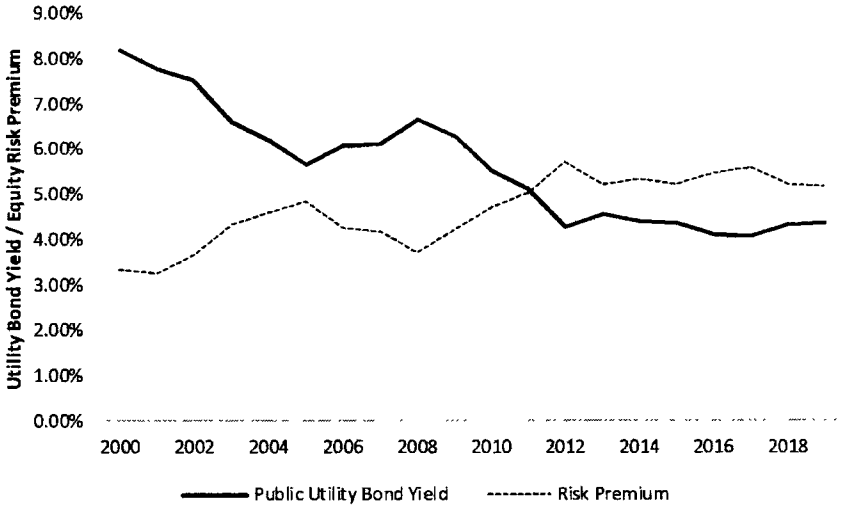
[89] Direct Testimony of Robert B. Hevert, at 67 (Bates page 522).

[90] Direct Testimony of Anjuli Winker, at 34.

Q. DOES THE DATA USED IN MS. WINKER'S BOND YIELD PLUS RISK PREMIUM ANALYSIS SUPPORT THE FINDING THAT THERE IS AN INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND THE EQUITY RISK PREMIUM?

A. Yes, it does. As shown in Chart 7 below, recreating Ms. Winker's Bond Yield Plus Risk Premium analysis clearly captures the observable, inverse relationship between interest rates and the Equity Risk Premium. The correlation between the two is approximately negative 97.00 percent, indicating they move nearly in lockstep, but in opposite directions.

Chart 7: Ms. Winker's Utility Bond Yields and Electric ROE Risk Premium[91]



Q. HAVE YOU COMPARED THE RELATIVE ACCURACY OF RELYING ON AN AVERAGE EQUITY RISK PREMIUM (AS MS. WINKER DOES), AND THE BOND YIELD PLUS RISK PREMIUM ANALYSIS PROVIDED IN YOUR DIRECT TESTIMONY?

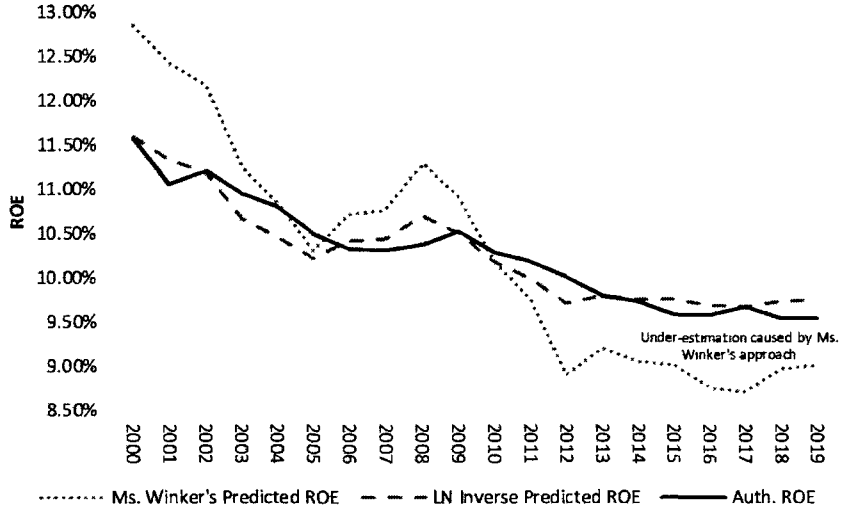
A. Yes, I have. I first calculated the ROE implied by Ms. Winker's 4.67 percent average historical risk premium during her 2000 to 2019 analysis period and calculated the error between the implied ROE and the observed average ROE. I then calculated the implied (calculated) ROE assuming Ms. Winker's analysis is adjusted to reflect the log normal

[91] *Ibid.*, Schedule AW-3; Exhibit RBH-14R.

relationship discussed in my Direct Testimony,[92] again calculating the error between the actual and predicted observations.

As shown in Exhibit RBH-15R, Ms. Winker's Bond Yield Plus Risk Premium method produces results as much as 139 basis points removed from the observed ROE. Adjusting Ms. Winker's approach to reflect the inverse relationship between bond yields and the risk premium reduces the largest error to 34 basis points. Chart 8 below (*see* also Exhibit RBH-15R) demonstrates that applying the Bond Yield Plus Risk Premium model adjusted for the inverse relationship produces more accurate estimates of observed average authorized ROEs. Ms. Winker's static Risk Premium method, in contrast, produces significant errors, particularly in relatively low (or high) interest rate environments. In fact, the mean absolute error under Ms. Winker's approach is more than four times larger than the rate of error under my approach.[93]

Chart 8: Accuracy of Risk Premium ROE Estimates



[92] Direct Testimony of Robert B. Hevert, at 67-68 (Bates pages 522-523).

[93] *See*, Exhibit RBH-15R. The Mean Absolute Error measures the average absolute difference between the actual observation and the predicted observation.

Q. WHAT WOULD BE THE EFFECT OF MODIFYING MS. WINKER'S BOND YIELD PLUS RISK PREMIUM ANALYSIS TO TAKE INTO ACCOUNT THE INVERSE RELATIONSHIP DESCRIBED ABOVE?

A. As shown in Exhibit RBH-14R, using the coefficients from a semi-log regression would produce ROE results of 9.73 percent and 9.75 percent.

D. Capital Asset Pricing Model

Q. AS A PRELIMINARY MATTER, DO YOU AGREE WITH MS. WINKER'S CONCLUSION THAT HER CAPM RESULTS ARE TOO LOW TO BE A REASONABLE ESTIMATE OF THE COMPANY'S COST OF EQUITY?

A. Yes, 8.49 percent is far too low to be a reasonable estimate of the Company's Cost of Equity. As explained below, Ms. Winker's CAPM estimates are the result of her unduly low Market Risk Premium ("MRP"), and her risk-free rate estimate. I note that although Ms. Winker discarded her 8.49 percent CAPM estimate, as explained earlier, her 8.46 DCF-based recommendation accounts for approximately 25.00 percent of her 9.35 percent ROE recommendation.

Q. WHAT IS YOUR CONCERN WITH MS. WINKER'S MARKET RISK PREMIUM ESTIMATE?

A. Ms. Winker relies on the long-term arithmetic average difference between the returns on common stocks and long-term Government bills, as provided in Duff & Phelps' 2018 Valuation Handbook.[94] As Duff & Phelps notes, the long-term return on Large Company Stocks was 12.10 percent, and the total return on long-term Government bills was 3.40 percent; the approximate difference between the two (8.70 percent) is the MRP on which Ms. Winker relies. I have two concerns with that approach: Ms. Winker's calculation relies on the total return on long-term Government bills, and her approach does not consider that the MRP changes with the level of interest rates.

[94] *See*, Direct Testimony of Anjuli Winker, at 36.

Q. TURNING FIRST TO MS. WINKER'S USE OF THE TOTAL RETURN ON LONG-TERM GOVERNMENT BILLS, WHY DO YOU DISAGREE WITH THAT APPROACH?

A. As a preliminary matter, the appropriate return for the risk-free rate that should be applied in the MRP calculation is the income return, not the total return. As Duff & Phelps points out, the total return on a security is composed of three components: (1) the income return; (2) capital gains (or capital losses, if the value of the security falls); and (3) reinvestment return. The income return is generally defined as the coupon, or interest rate on the security, which does not change over the life of the security. In contrast, the value of the security rises or falls as interest rates change, resulting in uncertain capital gains. As such, the income return is the only "riskless" component of the total return.[95] Consequently, it is the income-only portion of the return (as opposed to the total return), that should be used in calculating the Market Risk Premium.

That aside, as noted by Morningstar, the maturity of the risk-free security should approximate the life of the underlying investment:

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[96]

That view is supported by Pratt and Grabowski, who recommend a similar approach to selecting the risk-free rate, noting that "[i]n theory, when determining the risk-free rate and the matching ERP you should be matching the risk-free security and the ERP with the period in which the investment cash flows are expected."[97]

Put somewhat differently, equity investors commit capital to an asset (common stock) that will produce cash flows over an indefinite period. In determining inputs for the

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[95] Duff & Phelps, 2019 SBBI Yearbook, at 10-22.

[96] Morningstar, Inc , 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 44.

[97] Shannon Pratt and Roger Gabrowski, Cost of Capital: Applications and Examples, 3rd Ed. (Hoboken, NJ: John Wiley & Sons, Inc., 2008), at 92. "ERP" is the Equity Risk Premium.

CAPM approach, the best practice is to select the term (or maturity) that best matches the life of the investment being valued. The longest maturity risk-free asset available is the 30-year Treasury, so it is the best instrument to use as the risk-free rate in the CAPM.

Q. DOES MS. WINKER'S CONSTANT GROWTH DCF MODEL RECOGNIZE THE PERPETUAL NATURE OF EQUITY?

A. Yes, it does. The Gordon model, which is the basis of the Constant Growth DCF model, assumes cash flows in perpetuity. If the model's underlying assumptions hold, there is no difference between holding the stock and collecting dividends in perpetuity, or selling the stock at the end of a given holding period. The terminal value, therefore, represents the perpetual claim on cash flows at the terminal period (the end of the holding period). If the holding period is five years, the only way the DCF result can remain constant (or reasonable) is if the stock is sold at the prevailing market price, as defined by the Gordon Model. If equity was not perpetual, the shares would hold no value at the end of the holding period and the ROE estimates would be implausibly low. It is the perpetual nature of equity that defines its duration and informs the appropriate tenor of the risk-free rate in the CAPM.

Q. HAVE YOU CALCULATED THE EQUITY DURATION FOR MS. WINKER'S PROXY GROUP?

A. Yes, I have. Using the stock price, dividend, and growth rate data contained in Schedule AW-1, I calculated the average Equity Duration for each of Ms. Winker's proxy companies. Those results, which are provided in Exhibit RBH-16R, indicate the average Equity Duration is approximately 31 years, demonstrating again that the 30-year Treasury yield is the appropriate measure of the risk-free rate.

Q. WHAT IS YOUR RESPONSE THAT MS. WINKER'S MRP DOES NOT ACCOUNT FOR CHANGES WITH THE LEVEL OF INTEREST RATES?

A. As discussed in my response to Mr. Gorman, academic research has found that the Market Risk Premium is inversely related to Government bond yields. That is, as interest rates fall, the Market Risk Premium increases. Unlike Ms. Winker's position, financial

researchers have found the Market Risk Premium to be time-varying, and a function of economic parameters including interest rates.[98]

Q. PLEASE DESCRIBE MS. WINKER'S CLAIM THAT YOUR CAPM RESULTS ARE EXCESSIVE.

A. In footnote 57 of page 36 of her Direct Testimony, Ms. Winker argues my "CAPM results are significantly higher due to [my] use of higher market risk premiums of 10.61% and 13.72%".[99]

Q. DO YOU AGREE WITH MS. WINKER'S ARGUMENT?

A. No, I do not. As explained in my response to Mr. Gorman, given the historical variability in market returns, I do not agree the expected market returns used in my analyses are beyond the bounds of historical experience.

E. Capital Structure

Q. WHAT DOES MS. WINKER PROPOSE FOR THE COMPANY'S CAPITAL STRUCTURE?

A. Ms. Winker proposes a capital structure reflecting 60.00 percent long-term debt and 40.00 percent common equity. Ms. Winker argues "AEP Texas's requested 55/45 debt-to-equity ratio capital structure is weighted more heavily in higher cost common equity than is necessary to attract financial capital, and therefore, the capital structure will unjustly inflate the company's revenue requirement and rates charged to customers."[100]

[98] As explained in my Direct Testimony at 67-68, there is a similar negative relationship between interest rates and the Equity Risk Premium.

[99] [Clarification added].

[100] Direct Testimony of Anjuli Winker, at 41.

Q. DO YOU AGREE WITH MS. WINKER'S PROPOSED CAPITAL STRUCTURE?

A. No. As discussed in my response to Ms. Palma, Ms. Winker's proposed 40.00 percent common equity ratio relative to industry practice, it is significantly below the average common equity ratio in place at other utility operating companies. Exhibit RBH-7R demonstrates the average common equity ratio over the eight quarters ended March 31, 2019 was 53.64 percent for the Updated Proxy Group operating companies. Ms. Winker's proposal is 1,364 basis points (13.64 percentage points) below the proxy group operating companies' average.

Q. HAVE YOU PERFORMED OTHER ANALYSES OF MS. WINKER'S PROPOSED CAPITAL STRUCTURE?

A. Yes. Although Ms. Winker argues "AEP Texas will continue to be able to attract financial capital on reasonable terms using [her] recommended capital structure",[101] she has provided no analyses to support her position. First, although Ms. Winker assumes her *pro forma* EBIT coverage ratio is a reliable measure of creditworthiness, neither Moody's nor S&P uses that ratio in their credit assessments. Nor do they give significant weight to non-cash flow-based interest coverage ratios (*i.e.*, ratios with interest as a denominator) in general.[102]

To that point, 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."[103] 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 that:

> ...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

[101] *Ibid.* [Clarification added].

[102] Moody's assigns 7.50 percent weight to interest coverage ratios; *see* Moody's Investor Service, *Rating Methodology: Regulated Electric and Gas Utilities*, December 23, 2013, at 24. S&P's does not include interest-based metrics in the core credit ratios, although FFO/cash interest and EBITDA/interest are used as supplementary ratios, *see*, Standard and Poor's, *Corporate Methodology* November 2013

[103] 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.

> 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 once again 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 of 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. [104]

Later, on September 18, 2012, S&P further expanded its matrix, confirming that "[s]till, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees."[105]

Laslty, credit metrics are not relied on in a rote fashion, nor are individual metrics reviewed in isolation, to the exclusion of other information. Rather, those reviews encompass broad assessments of business and financial risk, including factors that often are based on qualitative, not quantitative, discussions with management.

Q. THOSE POINTS ASIDE, IS MS. WINKER'S ANALYSIS A RELIABLE INDICATOR OF CREDITWORTHINESS?

A. No, it is not. As Table 8 (below) indicates, the average pre-tax interest coverage ratio (EBIT/Interest) over the five years ended 2018 for the operating companies in Ms. Winker's and my proxy groups were 4.14 and 4.22, respectively.

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

[105] Standard & Poor's Ratings Services, *Methodology: Business Risk/Financial Risk Matrix Expanded,* September 18, 2012, at 4

Table 8: Average EBIT/Interest Coverage Ratio[106]

	2018	2017	2016	2015	2014	Average
Ms. Winker's Proxy Group	3.90 x	4.25 x	4.29 x	4.12 x	4 14 x	4.14 x
Mr. Hevert's Updated Proxy Group	4.00 x	4.28 x	4.38 x	4 21 x	4 22 x	4.22 x

One method of assessing the implications of Ms. Winker's recommendation is to calculate the pre-tax interest coverage ratio implied by it, and compare that ratio to the Company's proposal, and to the range of ratios observed across her proxy group. As a point of reference, under the Company's proposed capital structure and ROE, its implied pre-tax interest coverage ratio is about 3.54 times (*see* Table 9, below), which falls in the 34th percentile of observed ratios among the operating utilities in Ms. Winker's proxy group over the five years ended 2018. Ms. Winker's proposed capital structure (combined with the Company's proposed 10.50 percent ROE) reduces the implied interest coverage ratio from 3.54x to 3.07x, which falls in the bottom 20th percentile of her proxy group's observed ratios. Reducing the ROE to 9.00 percent brings the coverage ratio down to 3.02x, placing it in the bottom 19th percentile.

Table 9: Implied EBIT/Interest Coverage Ratios

	Company Proposal	Ms. Winker's Proposed Capital Structure and 10.50% ROE	Ms. Winker's Proposed Capital Structure and 9.00% ROE
Debt Ratio	55.00%	60 00%	60.00%
Debt Cost Rate	4.28%	4.28%	4 28%
Weighted Debt Cost	2.35%	2.57%	2.57%
Equity Ratio	45.00%	40.00%	45.50%
Equity Cost Rate	10 50%	10 50%	9 00%
Tax Rate	21 00%	21.00%	21.00%
Pre-Tax Equity Cost	13 29%	13.29%	11.39%
Weighted Pre-Tax Equity Cost	5.98%	5 32%	5.18%
EBIT Coverage	3.54 x	3.07 x	3.02 x

[106] Source: SNL Financial

To summarize, Ms. Winker's ROE and capital structure recommendations would diminish the Company's EBIT coverage ratio well below its current level, and considerably below those of her proxy companies. In my view, those findings do not support Ms. Winker's conclusion that her recommended ROE and capital structure will support the Company's ability to "maintain its financial integrity".[107]

V. RESPONSE TO TIEC WITNESS GORMAN

Q. PLEASE SUMMARIZE MR. GORMAN'S RECOMMENDATION REGARDING THE COMPANY'S COST OF EQUITY.

A. Mr. Gorman recommends an ROE of 9.00 percent, within a range of 8.80 to 9.20 percent.[108] Mr. Gorman establishes his recommended ROE by reference to: (1) his constant growth DCF model using both consensus analyst growth rates and a Sustainable Growth rate (with median and average results ranging from 8.23 percent to 9.15 percent);[109] (2) his Multi-Stage DCF method (with median and mean results of 7.64 percent and 8.01 percent, respectively);[110] (3) his Risk Premium study (ranging from 8.80 percent to 9.20 percent);[111] and (4) his CAPM analyses (ranging from 7.00 percent to 8.54 percent).[112] Mr. Gorman's 9.00 percent recommendation represents the midpoint of his range; the low end is set by taking the approximate midpoint of his CAPM estimate (8.50 percent) and Risk Premium estimate (9.00 percent), and the high end set by reference to his DCF-based estimate (9.20 percent).[113]

[107] Direct Testimony of Anjuli Winker, at 5.

[108] Direct Testimony of Michael P. Gorman, at 5.

[109] *Ibid.*, at 50.

[110] *Ibid.*

[111] *Ibid.*, at 56.

[112] *Ibid.*, at 62-63.

[113] *Ibid.*, at 63.

Q. WHAT ARE THE PRINCIPAL ANALYTICAL AREAS IN WHICH YOU DISAGREE WITH MR. GORMAN?

A. The principal areas in which I disagree with Mr. Gorman include: (1) the effect of market conditions and utility risk profiles on the Company's Cost of Equity; (2) the application of the Constant Growth DCF model, and interpretation of its results; (3) the application of the Multi-Stage DCF model; (4) the Market Risk Premium component of his CAPM analysis, in particular the expected market return from which the Market Risk Premium is calculated; (5) the assumptions and methods underlying Mr. Gorman's Risk Premium analyses; (6) the relevance of the ECAPM analysis; (7) the appropriateness of the Expected Earnings approach; and (8) Mr. Gorman's assessment of the Company's relative risk.

A. Market Conditions and Utility Risk Profiles

Q. WHAT IS YOUR RESPONSE TO MR. GORMAN'S OBSERVATION THAT UTILITIES REPRESENT A "LOW RISK"[114] INVESTMENT?

A. If Mr. Gorman's point is that utilities are less risky than the broad market, I agree. The fact that utilities tend to have Beta coefficients less than 1.00 shows that to be the case. At the same time, the average Beta coefficient for Mr. Gorman's proxy group is 0.70,[115] suggesting a meaningful degree of risk. For example, in 2008, when the market lost about 40.00 percent of its value, the SNL Electric Company index lost about 27.00 percent of its value.[116] In fact, from September through December 2008, when the overall market lost about 28.00 percent of its value, the correlation between the SNL Electric Company Index and the S&P 500 averaged approximately 80.00 percent.[117] That is, when the capital markets became increasingly distressed, much like the overall market utility valuations also decreased, although not to the same extent.

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[114] *Ibid.*, at 96.

[115] Source: Exhibit MPG-18, *Ibid.*, at 59.

[116] Source: S&P Global Market Intelligence.

[117] Source: S&P Global Market Intelligence. Based on daily returns. Correlations calculated over rolling three-month periods.

Q. MR. GORMAN REFERS TO SEVERAL RECENT REPORTS BY S&P, MOODY'S, AND FITCH, CONCLUDING THAT THE CURRENT RATING OUTLOOK FOR REGULATED UTILITIES IS STABLE.[118] DO YOU HAVE A RESPONSE TO MR. GORMAN ON THAT POINT?

A. Yes. I recognize that Mr. Gorman referred to certain of the rating agency reports that discuss the implications of tax reform on the utility sector, concluding they suggest the utility sector is stable. In actuality, those reports discuss the uncertainties surrounding the implications of tax reform.[119]

Q. WHAT ARE SOME OF THE POTENTIAL IMPLICATIONS OF RATING AGENCY COMMENTS REGARDING UTILITY CAPITAL EXPENDITURES?

A. Mr. Gorman's Figure 3 demonstrates utility capital investment has "increased considerably" and is expected to "remain high" in the 2019-2021 forecast period relative to the prior ten-year historical period.[120] All three rating agencies observed the negative effects of the TCJA on utilities' cash flow and the potential consequences for their credit profiles.[121] It therefore is clear that efficient access to external capital at reasonable rates will be important to fund capital expenditures, as Mr. Gorman observes.[122] It also is clear that the markets in which that capital will be raised reflect greater volatility than those experienced even over the past two years.[123]

[118] Direct Testimony of Michael P Gorman, at 13-15.

[119] *Ibid.*, at 13-14.

[120] Direct Testimony of Michael P Gorman., at 11.

[121] *Ibid.*, at 13-14. *See also, Moody's Investors Service* Outlook: "2019 outlook shifts to negative due to weaker cash flows, continued high leverage", Jun. 18, 2018 and Fitch Ratings: "Tax Reform Creates Near-term Credit Pressure for U S. Utilities," Jan. 24, 2018.

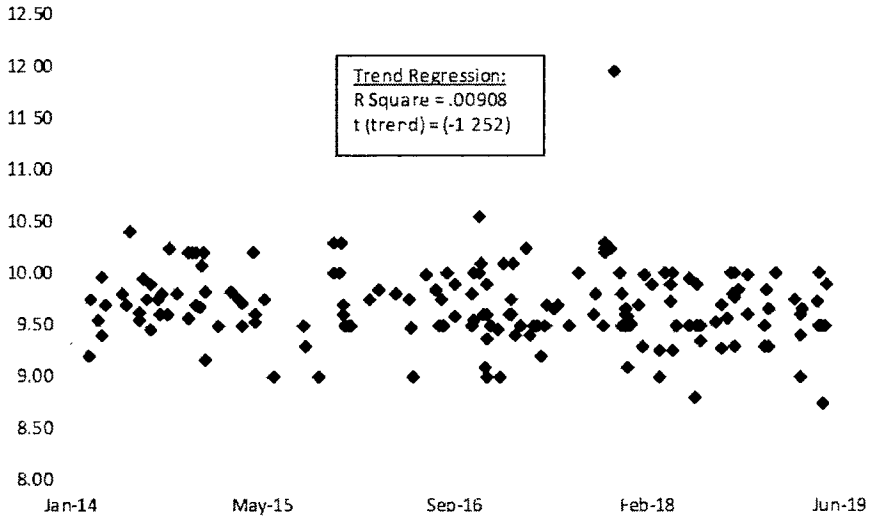
[122] Direct Testimony of Michael P. Gorman, at 95.

[123] The median value of the VIX, which measures expected market volatility over the coming 30 days, was 10.85 in 2017, and 15.82 in 2019, indicating a significant increase in volatility. By December 2020, the VIX is expected to increase to 19.95. Source: cboe.com, accessed August 5, 2019.

Q. DO YOU HAVE ANY OBSERVATIONS REGARDING THE ANNUAL AVERAGE AUTHORIZED RETURNS DISCUSSED ON PAGES 6-7 OF MR. GORMAN'S DIRECT TESTIMONY?

A. Yes, I do. Average annual data obscures variation in returns and does not address the number of cases or the jurisdictions issuing orders within a given year. For example, one year may have fewer cases decided, and a relatively large portion of those cases decided by a single jurisdiction. As shown in Chart 9, below, if all authorized ROEs are charted, rather than annual averages, there is no meaningful trend since 2014. Rather, time explains less than one percent of the change in ROEs, and the trend variable is statistically insignificant.

Chart 9: Electric Authorized Returns (2014-2019)[124]



From a slightly different perspective, the recent fluctuations around the annual average authorized return data are well within the standard deviation of authorized ROEs, as shown in Table 10, below.

[124] Source: Regulatory Research Associates. Excludes limited issue rate riders and ROEs authorized as part of the Illinois formula rate proceedings.

Table 10: Mean and Standard Deviation of Authorized Returns (2014-2019)[125]

Year	Average	Standard Deviation
2014	9.78%	0.30
2015	9.64%	0.38
2016	9.66%	0.35
2017	9.74%	0.48
2018	9.61%	0.31
2019	9.55%	0.35

From that perspective as well, there is no reason to conclude authorized returns have fallen since 2014.

B. Constant Growth DCF Model

Q. AS A PRELIMINARY MATTER, DOES MR. GORMAN GIVE HIS CONSTANT GROWTH DCF RESULTS ANY WEIGHT IN ARRIVING AT HIS 9.00 PERCENT ROE RECOMMENDATION?

A. Yes. As noted earlier, Mr. Gorman's 9.00 percent recommendation represents the approximate midpoint of his 8.80 percent to 9.20 percent recommended range. The lower bound of Mr. Gorman's range (8.80 percent) is based on his CAPM and Risk Premium results, and the upper bound (9.20 percent) is based on his DCF results.[126] To arrive at his DCF-based recommendation, Mr. Gorman gives primary weight to his Constant Growth DCF model results based on analysts' growth rate projections (8.96 percent to 9.15 percent), although he "also considers the results of [his] other DCF models."[127]

[125] Source: Regulatory Research Associates. Excludes limited issue rate riders and ROEs authorized as part of the Illinois formula rate proceedings.

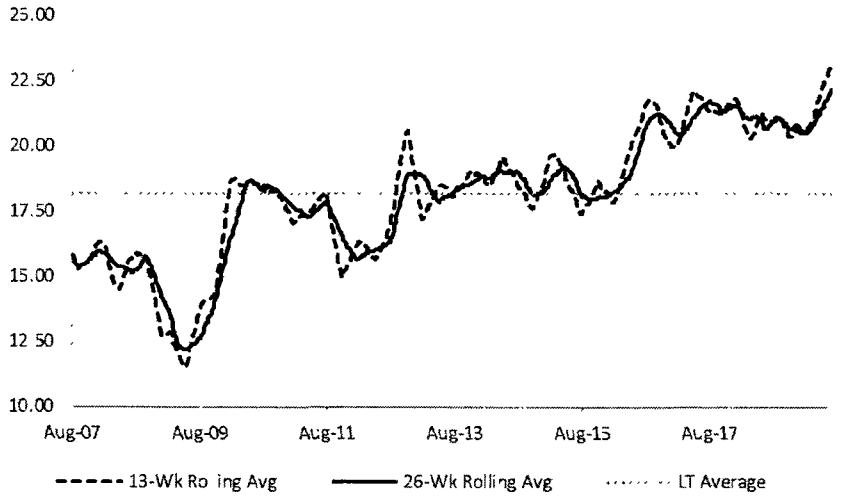
[126] Direct Testimony of Michael P Gorman, at 63.

[127] *Ibid.*, at 50. Clarification added.

Q. DO YOU HAVE ANY CONCERNS WITH THE CONSTANT GROWTH DCF MODEL IN GENERAL AND THE WEIGHT MR. GORMAN APPLIES TO THOSE RESULTS IN PARTICULAR?

A. Yes, I do. As discussed in my Direct Testimony[128] and in my response to Ms. Winker, the Constant Growth DCF model is based on several underlying assumptions including the constancy of dividend yields and Price/Earnings ratios. Those conditions currently do not hold (*see* Chart 10, below).

Chart 10: Mr. Gorman's Proxy Group Rolling Average P/E Ratio[129]



In short, I disagree with Mr. Gorman's conclusions and continue to believe less weight should be given to the Constant Growth DCF model under current market conditions.

[128] Direct Testimony of Robert B. Hevert, at 53 (Bates page 508).

[129] Source: S&P Global Market Intelligence. Rolling 13-week and 26-week average.

C. Multi-Stage DCF Model

Q. DO YOU AGREE WITH MR. GORMAN'S APPLICATION OF THE MULTI-STAGE DCF MODEL?

A. No, I do not. Mr. Gorman's Multi-Stage DCF model contains several assumptions that produce unreasonably low ROE estimates. In particular, Mr. Gorman's model assumes a perpetual growth rate beginning in the 11th year of his model (that is, beginning in calendar year 2029) based on a GDP growth rate projection that actually ends in 2030.[130] In addition, Mr. Gorman assumes all dividends are received at year-end, rather than over the course of the year.

Q. HOW DOES MR. GORMAN'S ASSUMPTION AS TO THE TIMING OF DIVIDEND PAYMENTS UNREASONABLY DECREASE HIS MULTI-STAGE DCF MODEL RESULTS?

A. Mr. Gorman notes that quarterly dividends in his Constant Growth DCF model were "annualized (multiplied by 4)."[131] Because Mr. Gorman's proxy companies pay dividends on a quarterly basis, assuming (as Mr. Gorman has done) that the entire dividend is paid at the end of that year essentially defers the timing of the quarterly cash flows (that is, the quarterly dividends) until year-end, even though they are paid throughout the year. A reasonable method of reflecting the timing of quarterly dividend payments is to assume cash flows are received in the middle of each year (*i.e.*, the "mid-year convention"). As Duff & Phelps notes:

> Common practice in business valuation is to assume that the net cash flows are received on average continuously throughout the year (approximately equivalent to receiving the net cash flows in the middle of the year), in which case the present value factor is generally based on a mid-year convention (e.g., (1+k)0.5).[132]

[130] *See* Direct Testimony of Michael P Gorman, at 47, 49 and Exhibit MPG-12; *see also* and Blue Chip Financial Forecasts, June 1, 2019, at 14.

[131] Direct Testimony of Michael P. Gorman, at 38. Mr. Gorman applies the same annualized dividend in his Multi-Stage DCF model

[132] Duff & Phelps, 2016 Valuation Handbook, Guide to Cost of Capital at 1-4.

Q. WOULD MR. GORMAN'S MULTI-STAGE DCF RESULTS BE DIFFERENT IF HE APPLIED THE MID-YEAR CONVENTION?

A. Yes. Exhibit RBH-17R, which replicates Mr. Gorman's Exhibit MPG-12, demonstrates that his model assumes year-end cash flows. As Exhibit RBH-17R also demonstrates, simply changing the dividend timing to reflect the mid-year convention increases the mean results by approximately six basis points (from 8.01 percent to 8.18 percent). Even with that change, Mr. Gorman's model produces results too low to be reasonable estimates of the Company's Cost of Equity.

Q. PLEASE FURTHER EXPLAIN YOUR CONCERN WITH THE LONG-TERM GROWTH RATE IN MR. GORMAN'S MULTI-STAGE DCF MODEL.

A. The long-term growth rate represents the expected rate of growth, in perpetuity, as of the beginning of the third, or terminal, stage. It is an important parameter, accounting for more than 70.00 percent of the model's results.[133] Mr. Gorman's assumed terminal growth rates is not consistent with his model's structure, nor is it consistent with measures of growth noted elsewhere in his testimony.

Q. TURNING TO YOUR SECOND POINT, HOW DOES MR. GORMAN'S ASSUMED 4.10 PERCENT GDP GROWTH RATE CONFLICT WITH OTHER ASPECTS OF HIS ANALYSES?

A. In his Table 10, Mr. Gorman presents the results of his various analyses, including his 8.50 percent CAPM estimate. That estimate relies, in part, on a Market Risk Premium of 8.20 percent, which is based on an expected market return of 10.98 percent.[134] As shown in Exhibit RBH-2R, the current expected market dividend yield is approximately 2.14 percent, suggesting an expected growth rate of about 8.84 percent (10.98 percent – 2.14 percent). At pages 44-45 of his testimony, Mr. Gorman compares utility earnings growth rates to his expected GDP growth rate, concluding one should correlate to the other. If that

[133] *See* Exhibit RBH-17R.

[134] Exhibit MPG-19; Direct Testimony of Michael P. Gorman, at 60.

is the case, Mr. Gorman's CAPM analysis assumes economic growth could be as high as 8.84 percent, well in excess of the 4.10 percent growth rate he uses in his Multi-Stage DCF.

Q. HAVE YOU CONSIDERED HOW MR. GORMAN'S MULTI-STAGE DCF RESULTS WOULD CHANGE IF IT INCLUDED A TERMINAL GROWTH RATE IN THE RANGE OF 8.84 PERCENT?

A. Yes. Rather than assume 8.84 percent, I solved for the terminal growth rate a producing mean ROE estimate of about 9.57 percent, consistent with the 2019 average authorized ROE provided in Mr. Gorman's Exhibit MPG-15. I then considered that terminal growth rate relative to the 8.84 percent growth rate associated with Mr. Gorman's expected market return. As Exhibit RBH-17R demonstrates, using Mr. Gorman's Multi-Stage DCF model (including the mid-year convention), a terminal growth rate of 5.83 percent produces a mean ROE estimates of 9.57 percent. That growth rate (5.83 percent) falls below the midpoint of the 4.10 percent and 8.84 percent growth rates assumed in Mr. Gorman's other analyses (that midpoint being 6.47 percent). It also falls below the long-term average nominal GDP growth rate of 6.34 percent reported by the Bureau of Economic Analysis. Assuming the 6.47 percent midpoint as the terminal growth rate produces an average ROE estimate of about 10.09 percent, well above Mr. Gorman's 9.00 percent recommendation.

Q. MR. GORMAN SUGGESTS THAT WHEN COMPARING THE LONG-TERM CAPITAL APPRECIATION RATE AND GDP GROWTH RATE, IT IS THE GEOMETRIC AVERAGE (RATHER THAN THE ARITHMETIC AVERAGE) THAT SHOULD BE APPLIED.[135] WHAT IS YOUR RESPONSE TO MR. GORMAN ON THAT POINT?

A. Mr. Gorman's position appears to be that because his assessment compares the two over long periods, the geometric average is appropriate. As Mr. Gorman notes, the geometric average equates a beginning value to an ending value, suggesting no uncertainty in moving from one to the other. Although he did not say as much, his argument is akin to comparing the performance of alternative investments, or investment advisors, over time; the

[135] Direct Testimony of Michael P. Gorman, at 46.

geometric average may be used for that purpose. Another widely used method of performance comparison, the Sharpe Ratio, measures the subject security's excess return (return over the risk-free rate) relative to the standard deviation of its returns.[136] The standard deviation is a function of the arithmetic average. The analytical issue is that the terminal growth rate in the DCF model is not certain, and it is the arithmetic mean, not the geometric mean, that reflects uncertainty.

In a variant of his CAPM analysis, Mr. Gorman calculates the real, long-term arithmetic average market return, to which he adds an estimate of inflation.[137] That approach assumes long-term growth (in the form of capital appreciation) is uncertain. Reflecting uncertainty in arithmetic means therefore is not foreign to Mr. Gorman's analyses.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM THOSE ANALYSES?

A. Adjusting Mr. Gorman's Multi-Stage DCF model to reflect growth rates associated with other aspects of his analyses produces ROE estimates consistent with returns authorized in other jurisdictions, and within my recommended range.

Q. LASTLY, MR. GORMAN CRITICIZES YOUR DECISION TO NOT PERFORM A MULTI-STAGE DCF ANALYSIS IN THIS PROCEEDING.[138] WHAT IS YOUR RESPONSE?

A. As noted in my response to TIEC 5-19, the multi-stage model did not provide additional information relative to the analyses I performed, as the results were within the range of my Constant Growth DCF results. Although Mr. Gorman's position is that his Multi-Stage DCF model is "appropriate"[139] in this proceeding, his average and median Multi-Stage DCF results of 8.01 percent and 7.64 percent are well below his DCF recommendation of 9.20 percent and his overall recommended range of 8.80 percent to 9.20 percent. It is clear

[136] *See*, http://www.morningstar.com/InvGlossary/sharpe_ratio.aspx

[137] Direct Testimony of Michael P Gorman, at 60.

[138] *Ibid.*, at 73.

[139] *Ibid.*

Mr. Gorman does not see his Multi-Stage DCF results as relevant in determining the Company's ROE.

D. Capital Asset Pricing Model

Q. PLEASE BRIEFLY SUMMARIZE MR. GORMAN'S CAPM ANALYSIS AND RESULTS.

A. Mr. Gorman's two CAPM estimates (7.00 percent and 8.54 percent) reflect two measures of principally historical Market Risk Premium estimates, *Blue Chip Financial Forecasts*' projected 30-year Treasury yield of 2.80 percent as the risk-free rate and an average Beta coefficient of 0.70 as reported by Value Line.[140] Based on his assessment of risk premiums in the current market, Mr. Gorman relies on the high end 8.54 percent CAPM.[141] Mr. Gorman's analyses assume Market Risk Premium estimates of 8.20 percent (based on the long-term historical arithmetic average real market return from 1926 through 2018 as reported by Duff & Phelps, adjusted for current inflation forecasts) and 6.00 percent (based on the historical difference between the average return on the S&P 500 and the average total return on long-term government bonds).[142] Combining those Market Risk Premium estimates with his projected long-term risk-free rate, Mr. Gorman develops expected market returns in the range of 8.80 percent to 10.98 percent.[143]

Q. TURNING FIRST TO THE EXPECTED TOTAL MARKET RETURN, DO YOU AGREE WITH MR. GORMAN'S 8.80 PERCENT AND 10.98 PERCENT ESTIMATES?

A. No, I do not. As a practical matter, Mr. Gorman's 8.80 percent expected total market return estimate, which is approximately 310 basis points below the long-term average market return, falls outside the range of average returns during the period 1976-2018 using 50-

[140] *Ibid.*, at 62-63 and Exhibit MPG-19.

[141] *Ibid.*

[142] *Ibid.*, at 60 and Exhibit MPG-19.

[143] *Ibid.*, Mr. Gorman's low Market Risk Premium of 6.00 percent plus his projected risk-free rate of 2 80 percent equals an estimated market return of 8 80 percent.

year annual averages; his higher 10.98 percent estimate falls in the 13th percentile of the average return over the last fifty years.[144] A helpful perspective on the historical market return is the rolling 50-year average annual market return. As Mr. Gorman points out, from 1926 through 2018 the arithmetic average market return was 11.90 percent.[145] Over time, the rolling fifty-year mean return has been quite consistent, in the range of approximately 12.00 percent.[146] Taken from that perspective, Mr. Gorman's 8.80 percent expected market return is well below the long-term market experience and, therefore, is not reasonable.

Q. DO YOU AGREE WITH MR. GORMAN'S USE OF THE HISTORICAL AVERAGE MARKET RISK PREMIUM?

A. No, I do not. The Market Risk Premium represents the additional return required by equity investors to assume the risks of owning the "market portfolio" of equity relative to long-term Treasury securities. As with other elements of Cost of Equity analyses, the Market Risk Premium is meant to be a forward-looking parameter. Relying on a Market Risk Premium calculated using historical returns may produce results that are inconsistent with investor sentiment and current conditions in capital markets. The fundamental analytical issue in applying the CAPM is to ensure that all three components of the model (*i.e.*, the risk-free rate, Beta, and the Market Risk Premium) are consistent with market conditions and investor expectations. As, Morningstar observes:

> It is important to note that the expected equity risk premium, as it is used in discount rates and cost of capital analysis, is a forward-looking concept. That is, the equity risk premium that is used in the discount rate should be reflective of what investors think the risk premium will be going forward.[147]

Longstanding financial research has shown the Market Risk Premium to vary over time and with market conditions. French, Schwert, and Stambaugh, for example, found

[144] Rolling average basis.

[145] Direct Testimony of Michael P Gorman, at 60

[146] Source: Duff & Phelps 2019 SBBI Yearbook, Appendix A-1

[147] Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 53.

the Market Risk Premium to be positively related to predictable market volatility.[148] Using forward-looking measures of the expected market return, Harris and Marston found "...strong evidence...that market risk premia change over time and, as a result, use of a constant historical average risk premium is not likely to mirror changes in investor return requirements."[149] Among their findings is that the Market Risk Premium is inversely related to Government bond yields. That is, as interest rates fall, the Market Risk Premium increases. Financial researchers therefore have found the Market Risk Premium to be time-varying, and a function of economic parameters including interest rates.[150]

E. Risk Premium Method

Q. PLEASE BRIEFLY DESCRIBE MR. GORMAN'S RISK PREMIUM ANALYSES.

A. Mr. Gorman defines the "Risk Premium" as the difference between average annual authorized equity returns for electric utilities and a measure of long-term interest rates each year from 1986 through 2019.[151] Mr. Gorman's first approach calculates the annual risk premium by reference to the 30-year Treasury yield, and his second approach considers the average A-rated utility bond yield.[152] In each case, Mr. Gorman establishes his risk premium estimate by reference to five-year and ten-year rolling averages. The lower and upper bounds of Mr. Gorman's Risk Premium range are defined by the lowest and highest rolling average, respectively, regardless of the year in which those observations occurred.[153]

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[148] Kenneth R. French, G. William Schwert, Robert F. Stambaugh, *Expected Stock Returns and Volatility*, Journal of Financial Economics 19 (1987), at 27.

[149] *See,* Robert S Harris, Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts,* Financial Management, Summer 1992, at 69.

[150] As explained in my Direct Testimony at 67-68 (Bates page 522-523), there is a similar negative relationship between interest rates and the Equity Risk Premium.

[151] Direct Testimony of Michael P Gorman, at 50-51.

[152] *Ibid.*, at 50-51, Exhibit MPG-14 and MPG-15.

[153] *Ibid.*, at 51-52, Exhibit MPG-14 and MPG-15.

Regarding the period over which he gathers and analyzes his data, Mr. Gorman argues his 34-year horizon is "appropriate"[154] for developing an Equity Risk Premium estimate. On page 53 of his Direct Testimony, Mr. Gorman further states "it is reasonable to assume that averages of annual achieved returns over long time periods will generally converge on the investors' expected returns" and concludes his risk premium study is based on "investor expectations, not actual investment returns, and, thus, need not encompass a very long historical time period."[155] Based on those assumptions, Mr. Gorman calculates a range of risk premium estimates of 4.25 percent to 6.73 percent using his Treasury bond analysis, and 2.88 percent to 5.57 percent using his A-rated utility bond analysis.[156]

Combined with a 2.80 percent projected Treasury yield, a 4.21 percent A-rated utility bond yield estimate, and a 4.43 percent Baa-rated utility bond yield estimate, Mr. Gorman's Risk Premium analysis produces results ranging from 7.05 percent to 10.00 percent.[157] To calculate his Risk Premium-based ROE recommended range, Mr. Gorman gives 70.00 percent weight to the high end of his risk premium estimates and 30.00 percent to the low end. The 8.80 percent low end of his Risk Premium-based range reflects his weighted risk premium estimates using the projected Treasury bond yield of 2.80 percent.[158] Applying the same 70.00 percent and 30.00 percent weighting to his high and low Baa-rated utility bond yield estimates, respectively, Mr. Gorman produces the upper bound of his range of 9.20 percent.[159] Mr. Gorman then concludes that the midpoint of his range (9.00 percent) is the appropriate Risk Premium-based ROE estimate.[160]

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[154] *Ibid.*, at 52.

[155] *Ibid.*, at 53.

[156] Exhibit MPG-14 and MPG-15.

[157] 4.21% + 2.88% = 7.09%; 4.21% + 5.57% = 9.78%; 4.43% + 2.88% = 7.33%; 4.43% + 5.57% = 10.00%; 2.80% + 4.25% = 7 05%; 2.80% + 6.73% = 9.53%.

[158] Direct Testimony of Michael P. Gorman, at 56. 8.80% = (0.30 x 7.05%) + (0.70 x 9.53%)

[159] *Ibid.* 9 20% = (0.30 x 7.33%) + (0.70 x 10.00%).

[160] *Ibid.*

Q. DO YOU HAVE ANY GENERAL OBSERVATIONS REGARDING MR. GORMAN'S RISK PREMIUM ESTIMATES AND HOW THEY WEIGH IN HIS OVERALL ROE RECOMMENDATION?

A. Yes, I do. In assessing his DCF analyses, Mr. Gorman relied on his highest results, effectively discarding several other results ranging from 7.64 percent to 8.58 percent.[161] In a similar fashion, Mr. Gorman relied on his high end CAPM result, discarding a 7.00 percent estimate.[162] In his Risk Premium analysis, however, Mr. Gorman retained risk premiums that produced ROE estimates below the DCF and CAPM estimates he discarded. Despite their low levels, Mr. Gorman gave those risk premium estimates (producing ROE results of 7.05 percent, 7.09 percent, and 7.33 percent) weights of 30.00 percent in aggregate. Mr. Gorman does not explain why he would exclude DCF results of 8.58 percent and lower, but include Risk Premium results of 7.05 percent, 7.09 percent, and 7.33 percent.

Q. WHAT ARE YOUR SPECIFIC CONCERNS WITH MR. GORMAN'S RISK PREMIUM ANALYSIS?

A. I have three concerns with his analysis: (1) Mr. Gorman's method understates the required risk premium in the current market because it fails to reasonably reflect the inverse relationship between the Equity Risk Premium and interest rates (whether measured by Treasury or utility bond yields); (2) the low end of Mr. Gorman's Risk Premium results is far lower than authorized ROEs, calling into question its usefulness in determining the Company's; and (3) Mr. Gorman suggests a Market/Book ("M/B") ratio of 1.00 is a relevant benchmark for assessing authorized ROEs.[163]

[161] *Ibid.*, at 50

[162] *Ibid.*, at 62-63.

[163] *Ibid.*, at 51.

Q. TURNING FIRST TO THE ISSUE OF M/B RATIOS, DO YOU AGREE WITH MR. GORMAN THAT M/B RATIOS SHOULD BE USED TO ASSESS THE REASONABLENESS OF ROE RECOMMENDATIONS?

A. No. Although Mr. Gorman frames his discussions in the context of authorized returns "sufficient to support market prices that at least exceeded book value,"[164] he does not suggest whether the M/B ratio should exceed some level or even explain the relationship between authorized returns and M/B ratios.

Regarding their fundamental relationship, book value per share is an accounting construct that reflects historical costs, whereas 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," regulatory climate, equity ratio, expected capital expenditures, and earned return on common equity. It therefore follows that the Market/Book ratio likewise is a function of factors beyond the historical or expected earned Return on Average Common Equity.

Lastly, any inferences drawn regarding the relationship between market and book values rely on the explicit acceptance of the Constant Growth DCF model, including its underlying assumptions.[165] Investors, however, use multiple methods in establishing their return requirements (as does Mr. Gorman). That is one reason the Market/Book ratio typically is used as a measure or relative valuation (when comparing one stock to another) rather than a measure of absolute valuation. Investors do this because there is no single, universally accepted method. Consequently, I do not believe Market/Book ratios should be used to assess the adequacy of authorized returns.

[164] *Ibid.*

[165] Under its strict assumptions, the Constant Growth DCF model can be rewritten as:

(M/B) = (ROACE-g)/(k-g), where ROACE = Return on Average Common Equity, g = growth, and k = the Cost of Equity. Under that structure, when ROACE = k, M/B = 1.00.

Q. WHAT WOULD BE THE RESULT IF REGULATORY COMMISSIONS USED MARKET/BOOK RATIOS TO SET A UTILITY'S ROE?

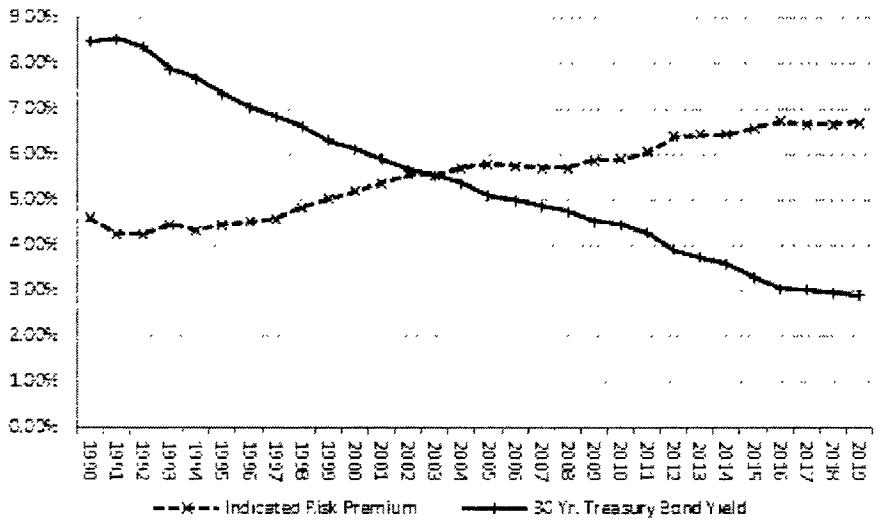
A. Looking to Mr. Gorman's comparison group, the average capital loss for equity investors would be more than 60.00 percent.[166] That loss would not just affect investors, but would also substantially diminish the ability of utilities to attract external capital. Quite simply, if regulatory commissions were to set rates based on Market/Book ratios, that practice likely would impede the ability of a utility to attract the capital required to support its operations, especially in markets during which the Market/Book ratio for the overall market is significantly greater than 100.00 percent.

Q. WHAT DID YOUR REVIEW OF MR. GORMAN'S RISK PREMIUM ANALYSES INDICATE?

A. Because Mr. Gorman did not reasonably reflect the inverse relationship between interest rates and the Equity Risk Premium, his Risk Premium ROE estimates are biased downward. Considering first the Treasury yield-based analysis, I plotted the yields and Risk Premia over the 1986 to 2019 period included in Mr. Gorman's analysis. Chart 11 (below) clearly indicates the inverse relationship between interest rates and the Equity Risk Premium, based on Mr. Gorman's data.

[166] Based on Mr. Gorman's proxy group average M/B ratio of 2.51. (2.51 -1.0) / 2.51 = 60.16%. M/B ratios from Exhibit MPG-9, at 2.

Chart 11: Mr. Gorman's Treasury Yield-Based Risk Premium Data[167]



There are several other points made clear in Chart 11. First, the low end of Mr. Gorman's Risk Premium range, 4.25 percent, was observed in the five-year period ending 1991. There is little question that Risk Premium estimates associated with economic environments 28 years ago have little to do with the current market environment. For example, prior to 2002, Treasury yields exceeded the Risk Premium (on a five-year average basis). As Chart 11 (*see also* Exhibit RBH-18R) demonstrates, since then the opposite has been true – the Risk Premium has consistently exceeded Treasury yields.

The high end of Mr. Gorman's range, 6.73 percent, occurred more recently; as Exhibit MPG-14 indicates, from 2015 through March 2019, his Equity Risk Premium estimate averaged approximately 6.73 percent over the more recent period from 2015 through March 2019.[168] Adding that 6.73 percent Equity Risk Premium to Mr. Gorman's projected Treasury yield of 2 80 percent produces an ROE estimate of 9.53 percent.

[167] Exhibit MPG-14; based on five-year rolling average *See also*, Exhibit RBH-18R.

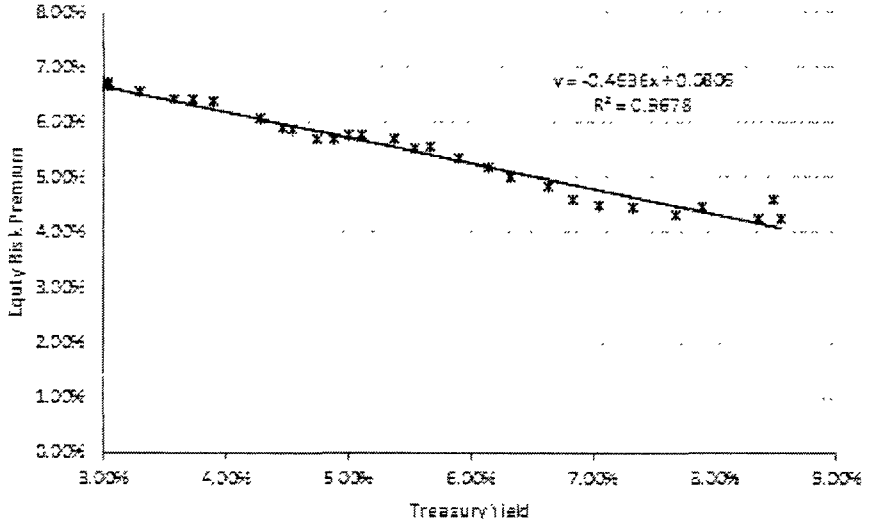
[168] Based on Indicated Risk Premium.

Q. HAS THE RISK PREMIUM INCREASED AS TREASURY YIELDS DECREASED?

A. Yes, the relationship between the five-year average Equity Risk Premium and Treasury yields is very clear. A simple linear regression demonstrates the two are highly related, with a Coefficient of Determination (R-Square) of approximately 96.78 percent (*see* Chart 12, below).[169]

Chart 12: Treasury Yield vs. Equity Risk Premium

(Five-Year Rolling Average)[170]



Turning back to Mr. Gorman's data, a simple linear regression using annual (rather than the rolling-average data) demonstrates that for every 100-basis point decrease in Treasury yields, the Equity Risk Premium increases by approximately 44 basis points (*see* Exhibit RBH-19R).[171] Similarly, the Equity Risk Premium increases approximately 45

[169] Those findings are supported in academic studies. For example, Dr. Roger Morin notes that: "... [p]ublished studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carleton, Chambers, and Lakonishok (1983), Morin (2005), and McShane (2005), and others demonstrate that, beginning in 1980, risk premiums varied inversely with the level of interest rates - rising when rates fell and declining when interest rates rose." Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc. 2006 at 128. [Clarification added].

[170] *See* Exhibit RBH-19R. Source: Exhibit MPG-14.

[171] Serial correlation is not present at the 1.00% significance level.

basis points for every 100-basis point decrease in utility bond yields. Those results are consistent with those reported by Maddox, Pippert, and Sullivan, who determined that the Risk Premium would increase by 37 basis points for every 100-basis point change in the 30-year Treasury yield.[172]

Lastly, contrary to Mr. Gorman's position, accounting for additional factors, such as credit spreads (taken from Mr. Gorman's exhibits), does not meaningfully change the sign, statistical significance, or magnitude of the slope coefficient.[173]

Q. WHAT ARE YOUR CONCLUSIONS REGARDING MR. GORMAN'S RISK PREMIUM ANALYSIS?

A. Although he argues more variables are at play, Mr. Gorman's data strongly supports the finding that the Equity Risk Premium is inversely related to interest rates. Taking that finding into account leads to ROE estimates of approximately 9.60 percent, 65 basis points higher than his 9.00 percent recommendation.[174]

F. Response to Mr. Gorman's Criticisms of Company Analyses

Q. PLEASE SUMMARIZE MR. GORMAN'S CRITICISMS OF YOUR COST OF EQUITY ANALYSES.

A. Mr. Gorman argues my estimated ROE is overstated and should be rejected because (1) my Constant Growth DCF results are based growth rates he considers unsustainably high; (2) my CAPM results assume Market Risk Premia estimates he also believes are too high; (3) my ECAPM is based on a flawed method; and (4) my Bond Yield Plus Risk Premium is based on an Equity Risk Premium that, again, he finds too high.[175] Mr. Gorman further argues the Expected Earnings approach is not appropriate,[176] and believes the Company's business risks are captured in its credit rating, and that a flotation cost adjustment is not

[172] *See*, 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, Vol. 24, No. 3, Autumn 1995 at 93.

[173] *See* Exhibit RBH-19R.

[174] *See*, for example Exhibit RBH-18R, which presents a range of results from 9.56 percent to 9.71 percent.

[175] Direct Testimony of Michael P. Gorman, at 69.

[176] *Ibid.*, at 69.

appropriate.[177] Lastly, Mr. Gorman disagrees with my assessment of the Constant Growth DCF model results.[178]

Q. DOES MR. GORMAN HAVE ANY CONCERNS WITH YOUR PROXY GROUP?

A. Yes. Although Mr. Gorman adopts the proxy group used in my Direct Testimony,[179] he excludes of Avangrid, Inc. ("Avangrid") because its ultimate parent, Iberdrola, S.A. ("Iberdrola"), owns "approximately 83%" of the company.[180]

Q. DO YOU AGREE WITH MR. GORMAN'S EXCLUSION OF AVANGRID FROM THE PROXY GROUP?

A. No, I do not. Avangrid meets my all of my screening criteria. Standard & Poor's and Moody's Investors Service maintain Issuer Credit ratings of BBB+ and Baa1, respectively, for Avangrid, consistent with the other company's in Mr. Gorman's proxy group.[181] Moreover, Avangrid's risk measures, as reported by Value Line, are comparable to the companies in my and Mr. Gorman's proxy groups.[182]

Avangrid is a publicly traded company[183] with two business segments: (1) Avangrid Networks, which represents the U.S. regulated electric and natural gas utility operations that serve 3.20 million customers in New York and New England; and (2) Avangrid Renewables, which owns and operates renewable electricity capacity across 21 states.[184] The regulated utility operations of Avangrid Networks account for 82.00 percent

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[177] *Ibid*, at 92-94.

[178] *Ibid.*, at 74-76.

[179] Direct Testimony of Robert B. Hevert, at 19 (Bates page 474).

[180] Direct Testimony of Michael P. Gorman, at 34.

[181] *Ibid.*, at 36; Exhibit MPG-5.

[182] Source: Value Line Investment Survey as March 15, 2019.

[183] Avangrid is the merged company of Iberdrola USA (formerly Energy East Corporation) and UIL Holdings Corporation. Energy East Corporation and UIL were publicly traded companies on the New York Stock Exchange. *See*, Avangrid, Inc. SEC Form 10-K for the Year Ended December 31, 2018, at 7.

[184] Direct Testimony of Michael P Gorman, at 7, 11.

of Avangrid's 2018 operating revenues, and more than 80.00 percent of its net income.[185] Consequently, Avangrid's regulated operations represent a vast majority of total company operations. Although Iberdrola owns "approximately 83%" of the outstanding common stock, Avangrid's stock price reflects the risks associated with Avangrid's operations, not Iberdrola's. On balance, I continue to believe Avangrid should be included in the proxy group.

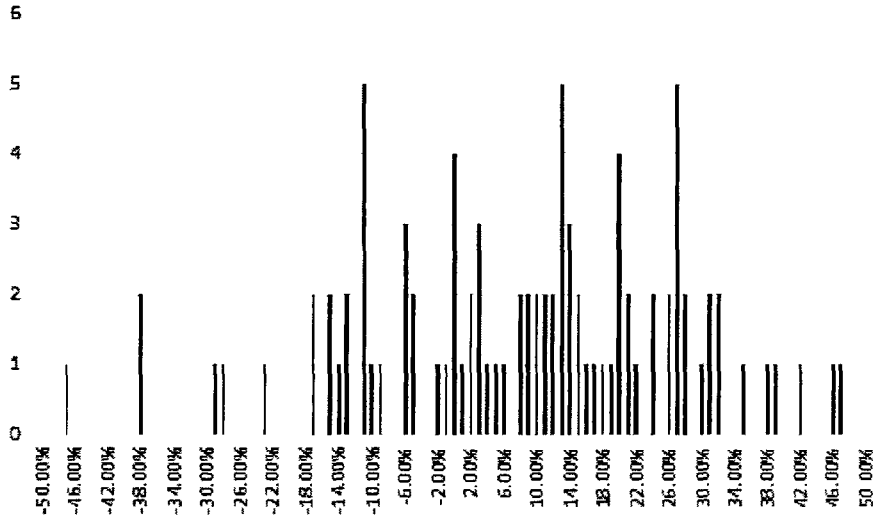
Q. ARE THE GROWTH RATES USED IN YOUR CONSTANT GROWTH DCF ANALYSIS "UNSUSTAINABLY HIGH"?

A. No, they are not. A capital appreciation rate of 5.53 percent (*i.e.*, the average growth rate in the Constant Growth DCF analysis in my Direct Testimony) and higher has occurred quite often (*see* Chart 13 below).[186] That is, Chart 13 provides the frequency with which historical observations have been in certain ranges. The growth rates Mr. Gorman asserts are "unsustainably high" by historical standards represent approximately the 43rd percentile of the actual capital appreciation rates observed from 1926 to 2018.

[185] *Ibid.*, at 59

[186] Under the Constant Growth DCF model's assumptions, the growth rate equals the rate of capital appreciation.

Chart 13: Frequency Distribution of Capital Appreciation Returns, 1926-2018[187]



Q. PLEASE NOW SUMMARIZE MR. GORMAN'S REVIEW OF THE DCF MODEL COMPONENTS.

A. Mr. Gorman argues utility dividend yields are reasonable by reference to utility bond yields, and his assumed growth rates are sensible relative to historical dividend growth, and expected GDP growth rates. He reasons that together, the Constant Growth DCF model components are economically logical,[188] and its results are reliable.[189] In particular, Mr. Gorman suggests because the current spread between A-rated utility bonds and utility dividend yields is comparable to the historical average, the current level of dividend yields is reasonable.[190] Mr. Gorman also compares dividend growth projections to the average dividend growth over the last thirteen years, and earnings growth projections to current GDP growth projections, and concludes the assumed DCF growth rate is robust and competitive.[191]

[187] Duff & Phelps, 2019 SBBI Yearbook, at A-3.

[188] Direct Testimony of Michael P. Gorman, at 75.

[189] *Ibid.*

[190] *Ibid.*, at 75-76.

[191] *Ibid.*, at 76.

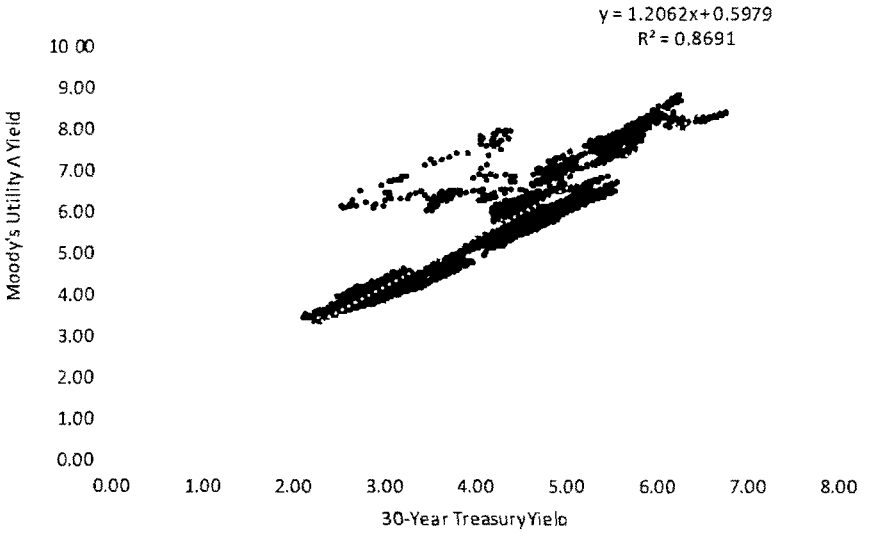
Q. WHAT IS YOUR RESPONSE TO MR. GORMAN ON THOSE POINTS?

A. As to his assessment of dividend yields relative to utility bond yields, I do not agree we can conclude the two are nearly identical. For example, if we look to Mr. Gorman's proxy group and compare its long-term (since 2000) average yield to the average yield on the Moody's Utility A Index, the yield spread has been about 129 basis points; the current (30-day) average is 66 basis points, a difference of 63 basis points. The standard deviation, however, has been 103 basis points. Consequently, it is difficult to draw any meaningful conclusions regarding the long-term relationship between the two.

Even if the current difference between utility bond and dividend yields was definitively comparable to its long-term average, that does not mean the DCF model necessarily produces reasonable and reliable results. The difficulty in drawing conclusions based on the relationship between the two arises from the fact that debt and equity are fundamentally different securities, exposed to fundamentally different risks, acquired by investors with fundamentally different risk tolerances and return objectives. The challenge in comparing the two also is made clear in Charts 14 and 15, below, which provide the relationship between 30-year Treasury yields and the Moody's Utility A Index (Chart 14), and Mr. Gorman's proxy group average dividend yield (Chart 15).

As Chart 14 demonstrates, there is a strong, positive relationship between the Moody's Utility A yield and the 30-year Treasury yield (the R-Squared is about 87.00 percent). The outlying observations represent periods of credit spread expansions, typically observed during market dislocations.

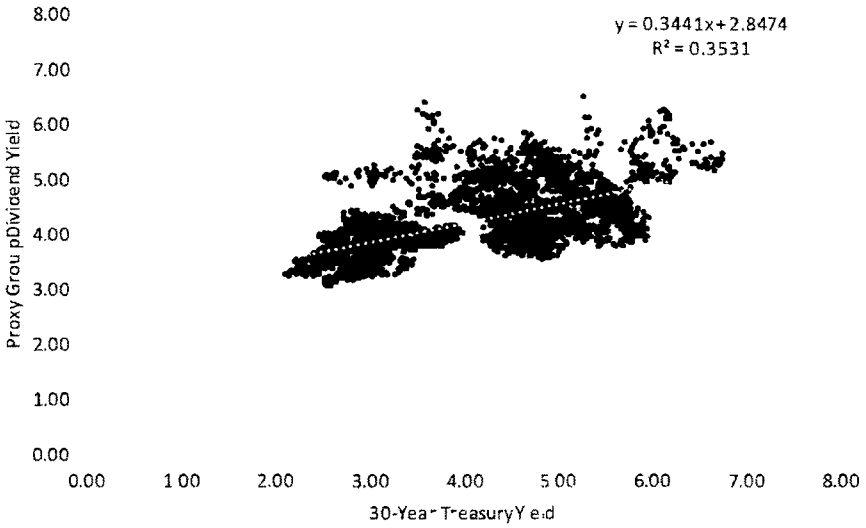
Chart 14: 30-Year Treasury Yield vs. Moody's Utility A Index Yield (2000 – 2019)[192]



The relationship between long-term Treasury yields and Mr. Gorman's proxy group dividend yield is not as robust. Whereas Treasury yields explain about 87.00 percent of the variation in the Moody's A bond yields, they explain only about 35.00 percent of the change in dividend yields. Consequently, at any given point we have less confidence in the ability of Treasury yields to explain dividend yields than in their ability to explain bond yields.

[192] Source: S&P Global Market Intelligence.

Chart 15: 30-Year Treasury Yield vs. Proxy Group Dividend Yield (2000 – 2019)[193]



That lower degree of explanatory value makes sense – equity investments are exposed to far more risks than are debt investments, and the relationship between dividend yields and interest rates may be more complex than the relationship between interest rates and bond yields. As discussed in my response to Ms. Winker, for example, low Treasury yields may be associated with increased market volatility, such that investors rotate away from equity investments (including utilities) to the relative safety of Treasury securities. In that case, dividend yields increase as Treasury yields decrease. The same may be true for debt yields, but not to the same degree. Again, debt and equity are fundamentally different securities that may react to changing interest rates in fundamentally different ways.

In summary, given the fundamental differences between the two, I do not agree that a simple comparison of bond yields to dividend yields supports the position that the DCF model currently renders reliable estimates of the Company's Cost of Equity.

Regarding Mr. Gorman's comparison of expected and historical dividend growth rates, the relevant issue is whether investors rely on either in pricing utility stocks. As explained in my response to Ms. Winker, dividend growth rates have not been statistically related to utility stock valuation levels. That finding is important because (as also discussed

[193] Source: S&P Global Market Intelligence.

in my response to Ms. Winker), the DCF method is based on the fundamental present value formula, assuming the current market price is an accurate measure of long-term intrinsic value. If dividend growth rates have no meaningful ability to explain market valuations, they should not be relied on to conclude the DCF model currently provides economically logical and reliable results.

Q. PLEASE SUMMARIZE MR. GORMAN'S CONCERNS WITH YOUR CAPM ANALYSIS.

A. Mr. Gorman's concerns lie primarily with my Market Risk Premium estimates.[194] In particular, Mr. Gorman argues the expected market returns applied in my analysis are "inflated."[195] Mr. Gorman further argues there is a "mismatch" between my calculation of the expected market return and the projected Treasury yields used in my CAPM analyses.[196]

Q. WHAT IS YOUR RESPONSE TO MR. GORMAN?

A. I disagree. The market return estimates presented in my Direct Testimony, which Mr. Gorman asserts are "inflated,"[197] represent the approximately 50th and 57th percentile of actual returns observed from 1926 to 2018. Moreover, because market returns historically have been volatile, my market return estimates are statistically indistinguishable from the long-term arithmetic average market data on which Mr. Gorman relies.[198]

[194] Direct Testimony of Michael P. Gorman, at 72.

[195] *Ibid.*, at 79.

[196] *Ibid.*, at 77.

[197] *Ibid.*, at 77.

[198] Source: Duff & Phelps, 2098 SBBI Yearbook Appendix A-1. Even if we were to look at the standard error, my estimates are within two standard errors of the long-term average.

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.[199] 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 equation.[200]

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).[201] But his CAPM estimate, which is presented in Exhibit MPG-19, assumes a risk-free rate component of 2.80 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 310 basis points higher.[202]

Q. PLEASE SUMMARIZE MR. GORMAN'S CONCERNS WITH YOUR ECAPM ANALYSIS.

A. Mr. Gorman's primary concern with my ECAPM analysis is the use of adjusted Beta coefficients published by Value Line and Bloomberg estimates.[203] As explained in my response to Mr. Baudino, the use of adjusted Beta coefficients in the ECAPM is entirely

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[199] Direct Testimony of Michael P. Gorman, at 79-80.

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

[201] Direct Testimony of Michael P Gorman, at 60.

[202] 3.10% = 5.90% - 2 80%.

[203] Direct Testimony of Michael P. Gorman, at 81.

consistent with academic research. Because the ECAPM and adjusted Beta coefficients address two different aspects of security pricing it is entirely appropriate to apply both.

Q. AT PAGE 97 OF HIS DIRECT TESTIMONY, MR. GORMAN ARGUES YOUR CONSIDERATION OF PROJECTED TREASURY YIELDS[204] 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?

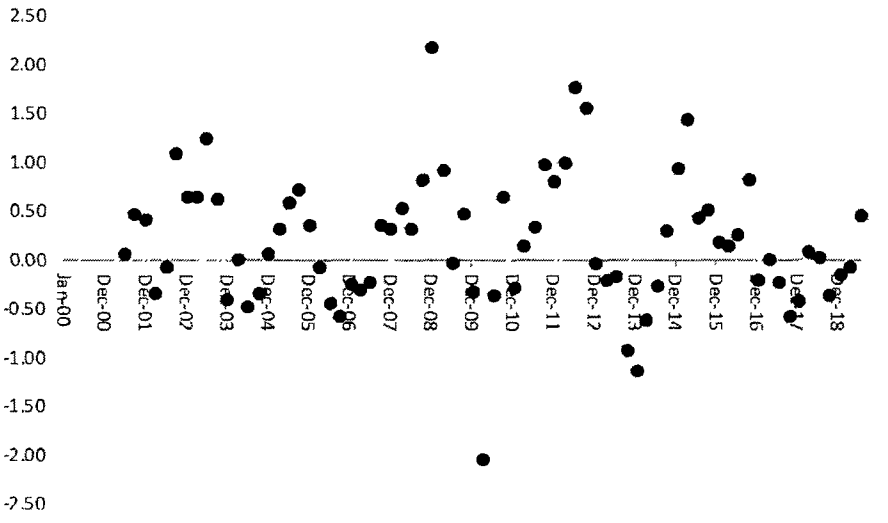
A. Mr. Gorman suggests the "accuracy of forecasted interest rates is problematic at best",[205] arguing that over the last several years, "current observable interest rates have been an more accurate predictor of future interest rates than economists' consensus projections."[206] Although Mr. Gorman 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 Chart 16 (below) demonstrates, using the same quarterly convention applied in Exhibit MPG-23 (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.

[204] 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.

[205] Direct Testimony of Michael P. Gorman, at 98

[206] *Ibid.*

Chart 16: Forecast Error of Spot 30-Year Treasury Yields[207]



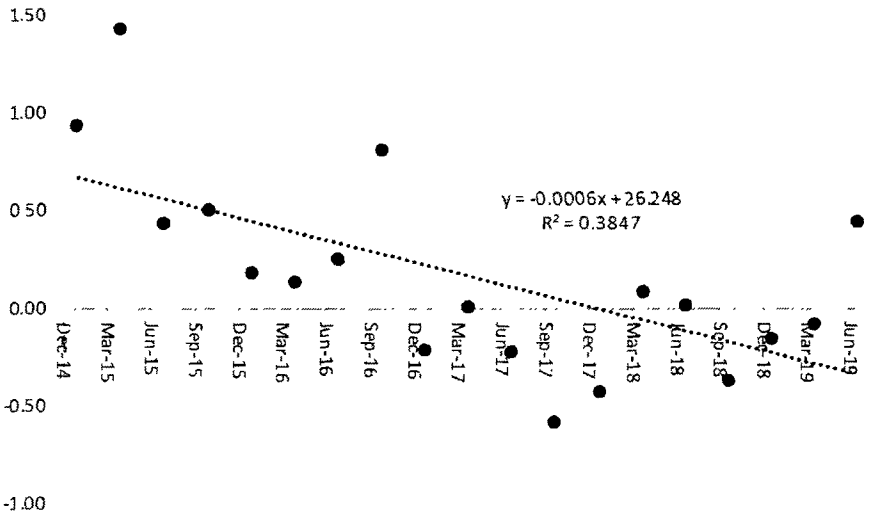
Those results make intuitive sense. During much of the review period interest rates experienced a secular decline; with the 2008/2009 recession, interest rates became the subject of Federal monetary policies specifically designed to keep them low. Because yields fell during that period, prior quarters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

Although interest yields steadily declined between 2000 and 2015, in December 2015 the Federal Reserved began its process of monetary policy normalization.[208] The effect of that change in policy is shown in Chart 17 (below), which limits the review period to the eighteen quarters from December 2014 through June 2019. As interest rates increased, spot Treasury yields under-projected future yields.

[207] Source. Bloomberg Professional.

[208] Direct Testimony of Robert B. Hevert, at 41-42 (Bates pages 496-497)

Chart 17: Forecast Error of Spot 30-Year Treasury Yields Since December 2014[209]



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 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.[210] 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 Premium and interest rates is weaker in "the 2010 through March 2019 post-recession period".[211]

[209] Source: Bloomberg Professional.

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

[211] *Ibid.*, at 88.

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.[212] As to his analysis using my data over the 2010 to March 2019 period, Mr. Gorman argues that because the "R-squared" is only 42.32 percent, it suggests there is not a "strong relationship" between the two variables.[213] I disagree. The relevant question is whether the relationship is statistically significant. As shown in Table 11, the T-statistics show that both the intercept and the 30-year Treasury yield (the independent variable) are statistically significant.[214]

Table 11: Regression Coefficients for Bond Yield Plus Risk Premium Analysis, January 2010 – March 2019

	Coefficient	T-Statistic	P-Value	Standard Error
Intercept	-0 009	-2.039	0.042	0 005
30-Year Treasury Yield	-0.022	-16.342	0.000	0.001

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 RBH-21R). 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-

[212] *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.

[213] Direct Testimony of Michael P. Gorman, at 88.

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

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).[215] In both instances, the statistically significant inverse relationship between Treasury yields and the Equity Risk Premium remains, and the resulting ROE estimates are generally consistent with those of my original and updated Bond Yield Plus Risk Premium analysis.[216]

Lastly, applying Mr. Gorman's projected 2.80 percent 30-year Treasury yield to the alternative Bond Yield Plus Risk Premium Analysis discussed above produces an ROE estimate of 9.79 percent relative to Mr. Gorman's 9.00 percent recommendation (*see* Exhibit RBH-21R).[217]

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."[218] As discussed in response to Mr. Baudino, the Expected Earnings approach provides a direct measure of the expected opportunity cost of book equity. 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"[219] the long-standing practice of setting authorized returns is without merit.

[215] Mr. Gorman notes on page 36 of his testimony that his proxy group has an average Moody's credit rating of Baa1, Exhibit RBH-21R.

[216] *See* Exhibit RBH-5 and Exhibit RBH-5R

[217] Mr. Gorman assumes a 2.80 percent projected Treasury yield in his Risk Premium analysis; Direct Testimony of Michael P. Gorman, at 56.

[218] Direct Testimony of Michael P. Gorman, at 90.

[219] *Ibid*, at 91.

Lastly, Mr. Gorman suggests I use the Expected Earnings approach to "place"[220] my recommendation. As explained in my Direct Testimony, I used the approach to corroborate my recommended range.[221] Again, Mr. Gorman's concerns are misplaced.

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 AEP Texas."[222]

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."[223] 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.

I have provided an illustrative example of the effect of flotation costs on the ROE in Exhibit RBH-22R.[224] As shown in that exhibit, due to the effect of flotation costs, an authorized return of 10.62 percent would be required to realize an ROE of 10.50 percent (*i.e.*, a 12-basis point flotation cost adjustment). If flotation costs are not recovered, the growth rate falls and the ROE decreases to 10.38 percent (*i.e.*, below the required return).[225]

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[220] *Ibid.*, at 68-69.

[221] *See*, Direct Testimony of Robert B. Hevert, at 3 (Bates page 458).

[222] Direct Testimony of Michael P. Gorman, at 93.

[223] Direct Testimony of Robert B. Hevert, at 27 (Bates page 482).

[224] 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.

[225] Exhibit RBH-22R is provided for illustrative purposes only. I have not relied on the results of the analysis in determining my recommended ROE or range.

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

A. Mr. Gorman argues AEP Texas' capital expenditure forecasts are not "out of line" with the utility industry."[226] 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 share."[227] His analysis does not compare AEP Texas to "the utility industry", or demonstrate it is consistent with the industry. As Exhibit RBH-9 demonstrates, the Company's planned capital expenditures (as a share of net plant) is the third highest in the proxy group.

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?[228]

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.[229] 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.[230] As to Mr. Gorman's observation that the Company's credit rating is consistent with its peers, as discussed throughout my 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

[226] Direct Testimony of Michael P Gorman, at 95.

[227] *Ibid.*

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

[229] *See*, Direct Testimony of Robert B. Hevert, at 34 (Bates page 489).

[230] *Ibid* , at 35 (Bates page 490).

investors, we cannot conclude the Company's storm risks are of no incremental consequence to its equity investors.

G. Mr. Gorman's Financial Integrity Analyses

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

A. Mr. Gorman evaluates the reasonableness of his ROE recommendation by calculating two *pro forma* ratios - Debt to EBITDA,[231] and FFO to Total Debt – to determine whether they would fall within S&P's guideline ranges for an investment grade rating.[232] In his Exhibit MPG-20, Mr. Gorman develops those ratios, based on AEP Texas' retail cost of service, his recommended ROE of 9.00 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 AEP Texas' investment grade bond rating.[233] An important consideration is that Mr. Gorman's analysis fundamentally assumes AEP Texas actually will earn the entirety of its authorized ROE on a going-forward basis.

Q. ARE CREDIT RATINGS DETERMINED PRINCIPALLY BY THE TYPES OF *PRO FORMA* METRICS MR. GORMAN CALCULATES IN EXHIBIT MPG-20?

A. No, S&P's ratings process considers a range of both quantitative and qualitative data. Cash Flow/Leverage considerations are one element of a broad set of criteria.[234] 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."[235] S&P explains that the time series length

[231] Earnings Before Interest, Taxes, Depreciation, and Amortization.

[232] *See*, Direct Testimony of Michael P. Gorman, at 65.

[233] *Ibid.*, at 66-67

[234] Standard & Poor's Ratings Services, *Corporate Methodology*, November 19, 2013 at 5

[235] Direct Testimony of Michael P Gorman, at 33.

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."[236] 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.[237] Because the Company must compete 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.

[236] *Ibid.*

[237] S&P Global Ratings RatingsDirect, Issuer Ranking: North American Electric, Gas, And Water Regulated Utilities – Strongest to Weakest, January 29, 2018.

VI. RESPONSE TO CITIES WITNESS BAUDINO

Q. PLEASE SUMMARIZE MR. BAUDINO'S ROE ANALYSES AND ROE RECOMMENDATION IN THIS PROCEEDING.

A. Mr. Baudino recommends an ROE of 9.20 percent, which is based on the results of his Constant Growth DCF analyses applied to a proxy group of 22 companies used in my Direct Testimony, excluding El Paso Electric Company.[238] Mr. Baudino also performs two CAPM analyses, which he uses in support of his DCF results and his recommended ROE.[239]

Q. WHAT ARE THE PRINCIPAL AREAS IN WHICH YOU DISAGREE WITH MR. BAUDINO'S ROE ANALYSES?

A. The principal areas in which I disagree with Mr. Baudino include: (1) his reliance on the Constant Growth DCF model to determine the Company's Cost of Equity; (2) the growth rates applied in the Constant Growth DCF model; (3) the risk-free rate and Market Risk Premium used in the CAPM; (4) the relevance of the ECAPM analysis; (5) whether the Bond Yield Plus Risk Premium analysis provides reasonable estimates of the Company's Cost of Equity; (6) the reasonableness of the Expected Earnings analysis; (7) our respective assessments of the Company's level of business and financial risk; and (8) our interpretations of current capital market conditions and their effect on the Company's Cost of Equity.

[238] Direct Testimony of Richard A. Baudino, at 3, 20.

[239] *Ibid.*, at 3

Q. AS A PRELIMINARY MATTER, MR. BAUDINO NOTES YOUR ROE RECOMMENDATION IGNORES YOUR DCF RESULTS AND SUGGESTS YOUR ROE RANGE SHOULD BE REJECTED BY THE COMMISSION AS UNSUPPORTED BY YOUR ANALYSES.[240] WHAT IS YOUR RESPONSE?

A. As noted in my Direct Testimony and throughout my Rebuttal Testimony, all models are subject to limiting assumptions and no single model is more reliable than all others under all market conditions.[241] As also noted in my Direct Testimony, it is my view that the Constant Growth DCF model is subject to several assumptions that likely are not consistent with current market conditions, and therefore should be given less weight in the current capital market. To that point, authorized returns consistently have exceeded Constant Growth DCF estimates.[242] Further, as discussed in my Direct Testimony, other regulatory commissions and the FERC have found it appropriate to place less weight on the DCF model results.[243] As to Mr. Baudino's argument that I reject the results of my DCF analysis, he rejects two out of his three approaches, relying exclusively on his Constant Growth DCF model results. Lastly, although Mr. Baudino argues that relying on the high DCF results is inappropriate, his 9.20 percent recommendation is based on his high DCF result.[244]

A. Application of the Constant Growth DCF Model

Q. PLEASE BRIEFLY DESCRIBE MR. BAUDINO'S CONSTANT GROWTH DCF ANALYSIS AND RESULTS.

A. Mr. Baudino calculates an average dividend yield of 3.17 percent by dividing each proxy company's annualized dividend by its monthly stock price for the six-month period ending June 2019,[245] noting that the average dividend yield for the proxy group ranged from 3.35

[240] *Ibid.*, at 37-43

[241] Direct Testimony of Robert B Hevert, at 11, 20 (Bates page 466, 475).

[242] *See* Direct Testimony of Robert B. Hevert, at 5, Chart 1 (Bates page 460).

[243] Direct Testimony of Robert B. Hevert, at 6-8 (Bates pages 461-463).

[244] Direct Testimony of Richard A. Baudino, at 32.

[245] *Ibid.*, at 21

percent to 3.03 percent during the six-month period.[246] For the expected growth rate, Mr. Baudino relies on Earnings Per Share growth rate projections from Value Line, Zacks, and First Call, as well as Dividend Per Share growth rate projections from Value Line.[247] Mr. Baudino then calculates his DCF results based on the mean and median growth rate of the four sources noted above, producing eight ROE estimates, which range from 8.70 percent to 9.26 percent.[248]

Mr. Baudino refers to the DCF results produced using mean growth rates as "Method 1", and DCF results produced using median growth rates as "Method 2". The mean DCF results of his Methods 1 and 2 were 8.85 percent and 8.97 percent, respectively.[249]

Q. DO YOU AGREE WITH MR. BAUDINO THAT DIVIDEND GROWTH RATES ARE APPROPRIATE MEASURES OF EXPECTED GROWTH FOR THE CONSTANT GROWTH DCF MODEL?

A. No, I do not. As discussed in my Direct Testimony, academic literature supports the use of earnings growth rates in the DCF model.[250] Earnings 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 Earnings Per Share, Dividend Per Share, and Book Value Per Share.[251] Exhibit RBH-24R illustrates that under the strict assumptions of the Constant Growth DCF model, earnings, dividends, book value, and stock prices all grow at the same, constant rate in perpetuity. Because earnings are the fundamental driver of dividends, and knowing investors tend to value common equity on the basis of Price/Earnings ratios, the Cost of Equity is a function of the expected growth in earnings, not dividends. Lastly, as discussed in my response to Ms.

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[246] *Ibid.*

[247] *Ibid.* at 22-23.

[248] *Ibid.* at 23-24 , Schedule RB-2, page 2.

[249] *Ibid.*, at 24, Schedule RB-2, page 2.

[250] *See* Direct Testimony of Robert B. Hevert, at 54-56 (Bates pages 509-511).

[251] *Ibid.*, at 54-55 (Bates pages 509-510).

Winker, earnings growth rate projections are the only growth rates that are statistically related to the Price/Earnings ratio.

B. DCF Model Assumptions

Q. PLEASE BRIEFLY DESCRIBE MR. BAUDINO'S CONCERNS WITH YOUR ARGUMENTS REGARDING THE ASSUMPTIONS OF THE DCF MODEL.

A. Mr. Baudino argues the industry's current P/E ratio's departure from its long-term average is not a valid concern.[252]

Q. WHAT IS YOUR RESPONSE TO MR. BAUDINO'S CONCERN WITH YOUR ASSUMPTION REGARDING P/E RATIOS?

A. Mr. Baudino observes current stock prices reflect investors' required ROE.[253] As explained in my response to Ms. Winker, the DCF model will not produce accurate estimates of the market-required ROE if the market price diverges from intrinsic value as defined by the present value formula.

As also discussed in my response to Ms. Winker, recently elevated utility valuations likely arose from the "reach for yield" that sometimes occurs during periods of low Treasury yields. During those periods, some investors would turn to dividend-paying sectors, such as utilities, as an alternative source of income (that is, for the dividend yield).[254] Then, when interest rates increased, investors rotated out of the utility sector, causing prices to fall. Because the Constant Growth DCF model assumes a constant P/E ratio in perpetuity, during in periods of elevated P/E ratios, it will underestimate the required return. I do not believe we should place significant weight on the Constant Growth DCF model's results when the assumptions underlying that model are plainly inconsistent with market expectations.

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[252] Direct Testimony of Richard A. Baudino, at 40-41.

[253] *Ibid*, at 41.

[254] The relationship between utility prices and utility dividend yields is given in Equation [5], page 53 (Bates page 508) of my Direct Testimony.

Q. HAVE THERE BEEN RECENT PERIODS WHEN UTILITY VALUATION LEVELS WERE HIGH RELATIVE TO BOTH THEIR LONG-TERM AVERAGE AND THE MARKET?

A. Yes. For example, between July and December 2016, the S&P Electric Utility Index lost approximately 9.00 percent of its value. At the same time, the S&P 500 increased by approximately 7.00 percent, indicating that the utility sector under-performed the market by about 16.00 percent. Also during that time, the 30-year Treasury yield increased by as much as approximately 95 basis points (an increase of approximately 44.00 percent). More recently, between January and March 2018, the S&P Electric Utility Index lost approximately 7.00 percent of its value while the S&P 500 increased by approximately 2.00 percent, an under-performance of about 9.00 percent as the 30-year Treasury yield increased by nearly 40 basis points. The point simply is that as interest rates increased, utility valuations fell. Capital Asset Pricing Model.

Q. PLEASE SUMMARIZE MR. BAUDINO'S CAPM ANALYSES.

A. Mr. Baudino CAPM analyses include two Market Risk Premium measures. His first set relies on the forecasted total market return as determined using Value Line projections, and six-month averages of five and 30-year Treasury security yields (*i.e.*, 2.29 percent and 2.90 percent, respectively).[255] He assumes an expected growth rate for the market of 9.50 percent, using the average of the book value and earnings growth forecasts (8.00 percent and 11.00 percent, respectively) for all companies covered by Value Line. Mr. Baudino combines that average growth rate with Value Line's average expected dividend yield of 1.04 percent for the same group of companies, producing an estimated market return of 10.59 percent. Mr. Baudino averages that estimate with Value Line's projected annual total return of 13.00 percent to arrive at his final expected market return of 11.79 percent.[256]

Mr. Baudino's two Market Risk Premium measures represent the difference between (1) his calculated expected market total return, and (2) the average yield over the

[255] Schedule RB-3.

[256] Direct Testimony of Richard A. Baudino, at 27-28. Schedule RB-3.

past six months on five- and 30-year Treasury securities. Mr. Baudino arrives at his CAPM results using the average Value Line Beta coefficient of 0.59 for his proxy companies.[257]

Mr. Baudino's second set of CAPM analyses calculate two arithmetic mean long-term annual returns on stocks, and long-term annual income returns on long-term government bonds, producing two historical measures of the Market Risk Premium.[258] Additionally, he also considers an adjusted historical Market Risk Premium calculated by Dr. Roger Ibbotson and Dr. Peng Chen, and reported by Duff & Phelps.[259] Mr. Baudino uses those two Market Risk Premium measures in combination with the current five and 30-year Treasury bond yield and the average Value Line Beta coefficient to calculate two additional CAPM results. Although Mr. Baudino advises the Commission to consider only his DCF results in establishing the Company's ROE, he does report CAPM results ranging from 7.86 percent to 8.11 percent for his forward-looking return analysis and 6.49 percent to 6.94 percent for his historical returns analysis.[260]

Q. DO YOU AGREE WITH MR. BAUDINO'S APPLICATION OF THE CAPM AND HIS INTERPRETATION OF ITS RESULTS?

A. No. There are two areas in which I disagree with Mr. Baudino: (1) the term of the Treasury security used as the risk-free rate component of the model; and (2) the calculation of the Market Risk Premium.

Q. TURNING FIRST TO THE RISK-FREE RATE COMPONENT, WHY DO YOU DISAGREE WITH MR. BAUDINO'S USE OF FIVE-YEAR TREASURY SECURITY AS THE MEASURE OF THE RISK-FREE RATE?

A. As a preliminary matter, I do not disagree with Mr. Baudino's use of the 30-year Treasury bond as the risk-free rate. As discussed in my response to Ms. Winker, the tenor of the risk-free rate used in the CAPM should match the life (or duration) of the underlying

[257] *Ibid.*, at Schedule RB-3.

[258] *Ibid.*, at 28-29. Schedule RB-4.

[259] *Ibid.*, at 29. Schedule RB-4.

[260] Direct Testimony of Richard A. Baudino, at 30.

investment. Like Ms. Winker's proxy group (*see* Exhibit RBH-16R), the average Equity Duration of the companies in Mr. Baudino's proxy group is more than 33 years.[261] Given that relatively long Equity Duration, and knowing that utility assets are comparatively long-lived, I continue to believe that it is appropriate to use the long-term (*i.e.*, 30-year) Treasury yield as the measure of the risk-free rate.

Q. WHAT IS YOUR RESPONSE TO MR. BAUDINO'S SUGGESTION THAT "THE RISK-FREE RATE SHOULD HAVE NO INTEREST RATE RISK"?[262]

A. I disagree. If Mr. Baudino is concerned with interest rate risk *per se*, he should focus exclusively on short-term Treasury Bills as the risk-free security, even though they may be less "stable" than longer-dated Treasury bonds.[263] Adopting such short-term securities, of course, would further decrease his already-low CAPM estimates. In any case, the perpetual nature of equity argues for the longest-term Treasury security, the 30-year Treasury Bond, to measure the risk-free rate.

Q. WHAT CONCERNS DO YOU HAVE WITH MR. BAUDINO'S *EX-ANTE* MARKET RISK PREMIUM CALCULATIONS?

A. Mr. Baudino calculates the expected market return using an average of earnings growth projections (11.00 percent) and book value growth projections (8.00 percent). As noted above, academic research indicates investors rely on estimates of earnings growth in arriving at their investment decisions. In that regard, Mr. Baudino did not include book value growth projections in his proxy group DCF analysis, nor has he explained why it is reasonable to include those growth rates in his Market Risk Premium analysis but not his proxy company DCF analyses. Excluding book value growth estimates from Mr. Baudino's market return calculation would increase his Market Risk Premium estimate by approximately 75 basis points.[264]

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[261] *See*, Exhibit RBH-25R.

[262] Direct Testimony of Richard A. Baudino, at 45.

[263] *Ibid.*, at 30.

[264] [(1.04% x (1+(0.5*11.00)) + 13.00%)] / 2 = 12.55%. ((12.55% - 2.90%) – (11.79% - 2.90%)) = 0.75% (differences due to rounding).

Q. DO YOU AGREE WITH MR. BAUDINO'S USE OF HISTORICAL ESTIMATES OF THE MARKET RISK PREMIUM?

A. No, I do not. For the reasons discussed in my response to Ms. Winker and Mr. Gorman, the Market Risk Premium is meant to be a forward-looking parameter. A Market Risk Premium calculated using historical market returns does not necessarily reflect investors' expectations or, for that matter, the relationship between market risk and returns. The relevant analytical issue in applying the CAPM is to ensure that all three components of the model (*i.e.*, the risk-free rate, Beta, and the Market Risk Premium) are consistent with market conditions and investor expectations. Therefore, *ex-ante* CAPM analyses are the more appropriate method to estimate AEP Texas' Cost of Equity. Lastly, as discussed in my response to Mr. Gorman, if Mr. Baudino chooses to rely on historical data, he should consider the inverse relationship between the Market Risk Premium and interest rates.

Q. PLEASE BRIEFLY SUMMARIZE MR. BAUDINO'S COMMENTS REGARDING YOUR EX-ANTE CAPM ANALYSES.

A. Mr. Baudino disagrees with my *ex-ante* Market Risk Premium, arguing that the market return estimates "are extraordinarily high."[265] Mr. Baudino further suggests the forecasted Treasury bond yields applied in my CAPM analyses are "speculative at best" and may "never come to pass."[266]

Q. DO YOU AGREE WITH MR. BAUDINO'S CONCERNS IN THAT REGARD?

A. No, I do not. As discussed in my response to Mr. Gorman, my estimates of the Market Risk Premium are consistent with historical experience.[267] Regarding the use of projected interest rates, it is important to remember that, as Mr. Baudino states, the "[r]eturn on equity analysis is a forward-looking process."[268] In that regard, I have considered forward-

[265] Direct Testimony of Richard A. Baudino, at 46

[266] *Ibid.*, at 44.

[267] *See* Exhibit RBH-20R.

[268] Direct Testimony of Richard A. Baudino, at 22.

looking estimates of the risk-free rate. Because my analyses are predicated on market expectations, the expected increase in Treasury yields (as reflected in consensus projections) is a measurable and relevant data point.

C. Empirical Capital Asset Pricing Model

Q. PLEASE SUMMARIZE MR. BAUDINO'S POSITION REGARDING THE EMPIRICAL CAPITAL ASSET PRICING MODEL?

A. Mr. Baudino argues that the ECAPM suggests Beta coefficients published by Value Line and Bloomberg are "incorrect and that investors should not rely on them".[269]

Q. IS MR. BAUDINO CORRECT?

A. No, he is not. The ECAPM reflects published research finding companies with lower Beta coefficients tend to have higher returns than those predicted by the CAPM, and those with higher Beta coefficients tend to have lower returns than expected.[270] Beta coefficient adjustments such as those used by Value Line on the other hand, address the tendency of "raw" Beta coefficients to regress toward the market mean of 1.00 over time. The two are different issues and are addressed with different methods.

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."[271] Similarly, Dr. Roger Morin 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

[269] Direct Testimony of Richard A Baudino, at 47.

[270] Direct Testimony of Robert B. Hevert, at 24 (Bates page 479). *See also*, Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 175-176.

[271] 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.

predicted."[272] As Dr. Morin also explains, the ECAPM "makes use" of those findings, and estimates the Cost of Equity based on the following equation:[273]

$$k_e = R_f + \alpha + \beta(MRP - \alpha) \quad [2]$$

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"[274] used in my Direct Testimony:

$$k_e = R_f + 0.25(R_m - R_f) + 0.75\beta(R_m - R_f) \quad [3]$$

where:

k_e = the investor-required ROE;

R_f = the risk-free rate of return;

β = 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 Chart 18, below. That chart, which reflects Mr. Baudino's risk-free rate and MRP, illustrates the extent to which the CAPM under-states the expected return relative to the ECAPM when Beta coefficients, whether adjusted or unadjusted, are less than 1.00.

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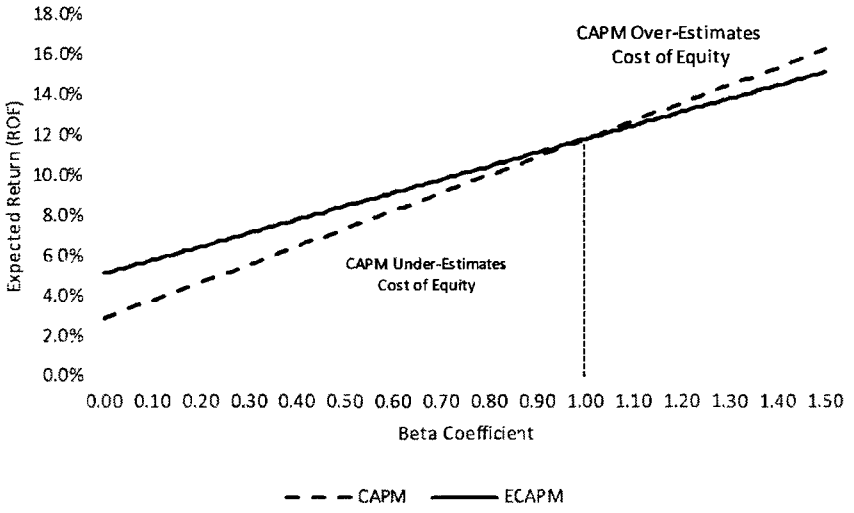
[272] Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc , 2006, at 175.

[273] *Ibid* , at 189.

[274] *Ibid* , at 190. Equations [2] and [3] tend to produce similar results when "alpha" is in the range of 1 00 percent to 2 00 percent *See* Exhibit RBH-26R. As Dr. Morin explains, alpha coefficients in that range are highly consistent with those identified in prior published research.

Chart 18: CAPM and ECAPM Expected Returns[275]



The ECAPM is an adjustment to the risk/return line which, as noted in Chart 18 above, is flatter than the CAPM assumes. That adjustment is required even with the use of adjusted Beta coefficients, such as those provide by Value Line. As Dr. Morin observes:

> Fundamentally, the ECAPM is not an adjustment, increase or decrease, in beta. This is obvious from the fact that the expected return on high beta securities is actually lower than that produced by the CAPM estimate. The ECAPM is a formal recognition that the observed risk-return tradeoff is flatter than predicted by the CAPM based on myriad empirical evidence. *The ECAPM and the use of adjusted betas comprised two separate features of asset pricing...Both adjustments are necessary.*[276]

Q. PLEASE EXPLAIN WHY VALUE LINE ADJUSTS ITS BETA COEFFICIENTS.

A. Value Line's adjustment is based on the research of Marshall Blume, who found that "[n]o economic variable including the beta coefficient is constant over time."[277] Consistent with that finding, Blume observed a tendency of raw Beta coefficients to change gradually over time:

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[275] *See* Exhibit RBH-26R. The finding that the ECAPM is not an adjustment to the Beta coefficient also is clear in Equation [2] ($k_e = R_f + \alpha + \beta(MRP - \alpha)$), in which the alpha coefficient increases the intercept (the expected return when the Beta coefficient equals zero), and reduces the Market Risk Premium

[276] Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 191 [*emphasis added*].

[277] Marshall E. Blume, *On the Assessment of Risk*, The Journal of Finance, Vol. XXVI, No. 1, March 1971.

> ...there is obviously some tendency for the estimated values of the risk parameter [beta] to change gradually over time. This tendency is most pronounced in the lowest risk portfolios, for which the estimated risk in the second period is invariably higher than that estimated in the first period. There is some tendency for the high risk portfolios to have lower estimated risk coefficients in the second period than in those estimated in the first. Therefore, the estimated values of the risk coefficients in one period are biased assessments of the future values, and furthermore the values of the risk coefficients as measured by the estimates of β_1 tend to regress towards the means with this tendency stronger for the lower risk portfolios than the higher risk portfolios. (emphasis added)

Blume proposed a correction for that "regression bias" to provide more accurate assessments of risk and, therefore, the Cost of Equity:

> For individual securities as well as portfolios of two or more securities, the assessments adjusted for the historical rate of regression are more accurate than the unadjusted or naïve assessments. Thus, an improvement in the accuracy of one's assessments of risk can be obtained by adjusting for the historical rate of regression even though the rate of regression over time is not strictly stationary.[278]

Based on Blume's results, Value Line adjusts its "raw" Beta coefficients according to the following formula:

$$\beta_{adjusted} = .35 + (.67 \times \beta_{raw}) \quad [4]$$

Q. MR. BAUDINO ALSO ARGUES YOU HAVE NOT PROVIDED ANY EVIDENCE THAT INVESTORS USE THE "ALPHA" FACTOR ASSUMED IN YOUR ECAPM ANALYSIS.[279] HAVE YOU UNDERTAKEN ANY INDEPENDENT ANALYSES TO ADDRESS THAT ISSUE?

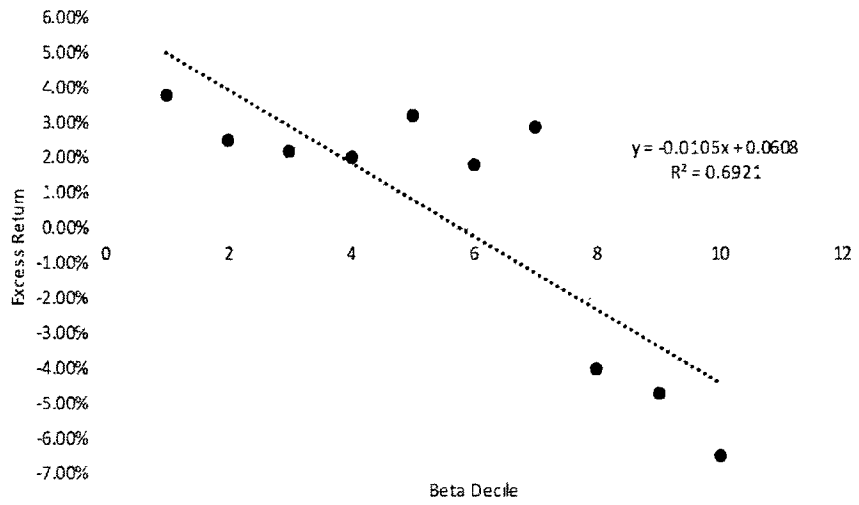
A. Yes. I first performed an analysis of excess returns produced by the CAPM, by Beta coefficient decile, over the ten years ended 2018. The analysis compared the observed returns of the companies in the S&P 500 Index to expected returns based on the CAPM. Observed returns were calculated as the total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

[278] *Ibid.*

[279] Direct Testimony of Richard Baudino, at 47.

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 methodology (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. Chart 19 (below) summarizes those results.

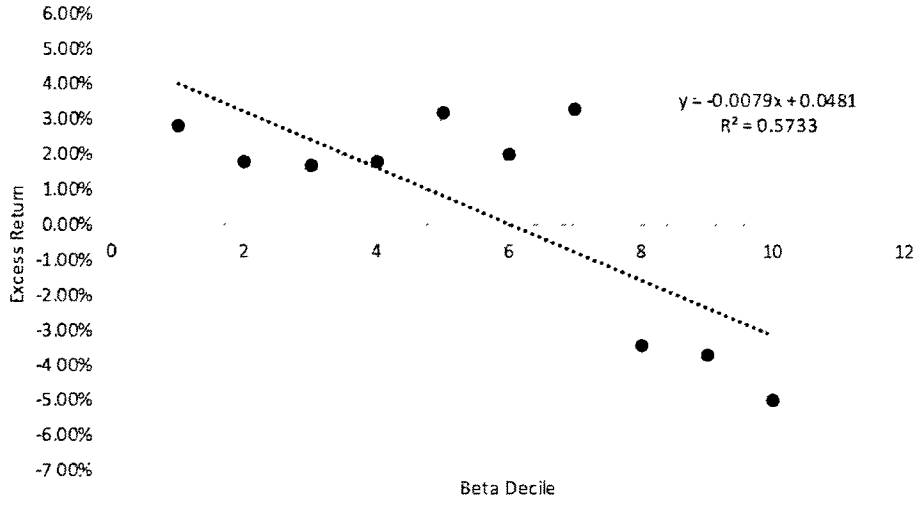
Chart 19: Excess Returns Under CAPM[280]



As Chart 19 demonstrates, the relationship between Excess Return and Beta coefficient deciles is strong, with deciles explaining nearly 69.00 percent of the Excess Return. Using the same data and calculating the Excess Return by reference to the ECAPM (as defined by Equation [3], above) produces the same downward sloping relationship, but not to the same degree (see Chart 20, below).

[280] Source: Bloomberg Professional.

Chart 20: Excess Returns Under ECAPM[281]



There are three observations to be drawn from the data presented in Charts 19 and 20. 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. Third, the point at which the excess return is at its lowest remains at the sixth decile, indicating that firms with Beta coefficients toward the middle of the range earn the expected return.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM THOSE ANALYSES?

A. First, Mr. Baudino's argument that the ECAPM assumes Value Line's Beta coefficients are "incorrect" is itself incorrect. As the analyses discussed above plainly demonstrate, because the ECAPM and adjusted Beta coefficients address two different aspects of security pricing it is entirely appropriate to apply both.

[281] Source Bloomberg Professional.