U-36003

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

PREPARED DIRECT TESTIMONY

OF

DYLAN W. D'ASCENDIS, CRRA, CVA
PARTNER
SCOTTMADDEN, INC.

ON BEHALF OF

UTILITIES, INC. OF LOUISIANA

May 2021

TABLE OF CONTENTS

I. INTRODUCTION

A. WITNESS IDENTIFICATION

Q. Please state your name and business address.

A. My name is Dylan W. D'Ascendis. My business address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ 08054.

Q. By whom are you employed and in what capacity?

A. I am a Partner of ScottMadden, Inc.

B. BACKGROUND AND QUALIFICATIONS

Q. Please summarize your professional experience and educational background.

A. I have offered expert testimony on behalf of investor-owned utilities in over 30 state regulatory commissions in the United States, the Federal Energy Regulatory Commission, the Alberta Utility Commission, and one American Arbitration Association panel on issues including, but not limited to, common equity cost rate, rate of return, valuation, capital structure, class cost of service, and rate design.

On behalf of the American Gas Association ("AGA"), I calculate the AGA Gas Index, which serves as the benchmark against which the performance of the American Gas Index Fund ("AGIF") is measured on a monthly basis. The AGA Gas Index and AGIF are a market capitalization weighted index and mutual fund, respectively, comprised of the common stocks of the publicly traded corporate members of the AGA.

I am a member of the Society of Utility and Regulatory Financial Analysts ("SURFA"). In 2011, I was awarded the professional designation "Certified Rate

of Return Analyst" by SURFA, which is based on education, experience, and the successful completion of a comprehensive written examination.

I am also a member of the National Association of Certified Valuation Analysts ("NACVA") and was awarded the professional designation "Certified Valuation Analyst" by the NACVA in 2015.

I am a graduate of the University of Pennsylvania, where I received a Bachelor of Arts degree in Economic History. I have also received a Master of Business Administration with high honors and concentrations in Finance and International Business from Rutgers University.

The details of my educational background and expert witness appearances are included in Appendix A.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony is to present evidence on behalf of Utilities, Inc. of Louisiana ("UIL" or the "Company") about the appropriate capital structure and corresponding cost rates the Company should be given the opportunity to earn on its jurisdictional rate base.

Q. Have you prepared an Exhibit in support of your recommendation?

A. Yes. Exhibit No. __, which contains Schedules DWD-1 through DWD-8 has been prepared by me or under my direct supervision.

Q. What is your recommended cost of capital for UIL?

A. I recommend the Louisiana Public Service Commission (the "Commission") authorize the Company the opportunity to earn an overall rate of return of 7.55% based on the expected capital structure of UIL's parent company, CORIX

Regulated Utilities, Inc. ("CRU"). The ratemaking capital structure consists of 50.00% long-term debt at an embedded cost rate of 4.10% and 50.00% common equity at my recommended common equity cost rate ("ROE") of 11.00%.[1] The overall rate of return is summarized on page 1 of Schedule DWD-1 and in Table 1 below:

Table 1: Summary of Overall Rate of Return

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	50.00%	4.10%	2.05%
Common Equity	50.00%	11.00%	5.50%
Total	100.00%		7.55%

III. SUMMARY

Q. Please summarize your recommended common equity cost rate.

A. My recommended common equity cost rate of 11.00% is summarized on page 2 of Schedule DWD-1. I have assessed the market-based common equity cost rates of companies of relatively similar, but not necessarily identical, risk to UIL. Using companies of relatively comparable risk as proxies is consistent with the principles of fair rate of return established in the *Hope*[2] and *Bluefield*[3] cases. No proxy group can be identical in risk to any single company, so there must be an evaluation of relative risk between the company and the proxy group to see if it is appropriate to make adjustments to the proxy group's indicated rate of return.

My recommendation results from the application of several cost of common equity models, specifically the Discounted Cash Flow ("DCF") model, the Risk

---

1 Following prior precedent would lead to a range of ROEs between 10.50% and 11.50%.
2 *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).
3 *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922). ("*Bluefield*")

Premium Model ("RPM"), and the Capital Asset Pricing Model ("CAPM"), to the market data of a proxy group of eight water companies ("Utility Proxy Group") whose selection criteria will be discussed below. In addition, I also applied the DCF, RPM, and CAPM to a proxy group of domestic, non-price regulated companies comparable in total risk to the Utility Proxy Group ("Non-Price Regulated Proxy Group").

The results derived from each are as follows:

Table 2: Summary of Common Equity Cost Rate

Discounted Cash Flow Model	8.63%
Risk Premium Model	11.03%
Capital Asset Pricing Model	10.16%
Market Models Applied to Comparable Risk, Non-Price Regulated Companies	10.68%
Indicated Range of Common Equity Cost Rates Before Adjustments for Company-Specific Risk	10.13% - 10.42%
Size Adjustment	0.75%
Indicated Range of Common Equity Cost Rates after Adjustment	10.88% – 11.17%
Recommended Cost of Common Equity	11.00%

After analyzing the indicated common equity cost rates derived through these models, the indicated range of common equity cost rates applicable to the Utility Proxy Group is between 10.13% and 10.42%. This range is set by using the average model result (10.13%) and the median model result (10.42%).

The indicated range of common equity cost rates applicable to the Utility Proxy Group was then adjusted upward by 0.75% to reflect UIL's smaller size relative to the Utility Proxy Group. These adjustments result in a Company-specific

range of common equity cost rates between 10.88% and 11.17%. From this range of results, I recommend the Commission consider a common equity cost rate of 11.00%, or the approximate midpoint, for use in setting rates for the Company.

IV. GENERAL PRINCIPLES

Q. What general principles have you considered in arriving at your recommended common equity cost rate of 11.00%?

A. In unregulated industries, the competition of the marketplace is the principal determinant of the price of products or services. For regulated public utilities, regulation must act as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public, while providing safe and reliable service at all times, requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other firms of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* decisions. Consequently, marketplace data must be relied on in assessing a common equity cost rate appropriate for ratemaking purposes. Just as the use of the market data for the proxy group adds reliability to the informed expert's judgment used in arriving at a recommended common equity cost rate, the use of multiple generally accepted common equity cost rate models also adds reliability and accuracy when arriving at a recommended common equity cost rate.

A. BUSINESS RISK

Q. Please define business risk and explain why it is important to the determination of a fair rate of return.

A. Business risk is the riskiness of a company's common stock without the use of debt and/or preferred capital. Examples of such general business risks faced by all utilities (*i.e.*, electric, natural gas distribution, and water) include size, the quality of management, the regulatory environment in which utilities operate, customer mix and concentration of customers, service territory growth, and capital intensity. All of these have a direct bearing on earnings.

Consistent with the basic financial principle of risk and return, business risk is important to the determination of a fair rate of return, because the higher the level of risk, the higher the rate of return investors demand.

Q. What business risks do the water and wastewater industries face in general?

A. Water and wastewater utilities have an ever-increasing responsibility to be stewards of the environment from which water supplies are drawn in order to preserve and protect essential natural resources of the United States. This increased environmental stewardship is a direct result of compliance with the Safe Water Drinking Act, as well as a response to continuous monitoring by the Environmental Protection Agency and state and local governments, of the water supply for potential contaminants and their resultant regulations. This, plus aging infrastructure, necessitate additional capital investment in the distribution and treatment of water, exacerbating the pressure on free cash flows arising from increased capital expenditures for infrastructure repair and replacement. The

significant amount of capital investment and, hence, high capital intensity, is a major risk factor for the water and wastewater utility industry.

Value Line Investment Survey ("*Value Line*") observes the following about the water utility industry:

> Following years and years of underinvestment, the nation found itself with an aging water infrastructure that is in poor condition. Many pipelines were installed 50 to 75 years ago. In badly need of replacement, water utilities have been spending heaving to replace old assets. This high level of expenditures will have to be maintained for decades.
>
> * * *
>
> As we have highlighted in the past, one of the most significant factors in determining the profitability of a utility is the regulatory climate where it operates. Fortunately for the Water Utility Industry, state authorities and water utilities both realize what needs to be done, and are working constructively to address the issues. Regulators agree that the outlays being made to upgrade the country's infrastructure are required, so they are allowing fair return on investment to be made. Having a positive relationship may seem reasonable, but this is not the case for gas and electric utilities. Conflicts are not unusual.[4]

The water and wastewater industry also experiences low depreciation rates. Depreciation rates are one of the principal sources of internal cash flows for all utilities (through a utility's depreciation expense) and are vital for a company to fund ongoing replacements and repairs of water and wastewater systems. Water / wastewater utility assets have long lives, and therefore have long capital recovery periods. As such, they face greater risk due to inflation, which results in a higher replacement cost per dollar of net plant.

---

4 *Value Line Investment Survey*, April 9, 2021.

Substantial capital expenditures, as noted by *Value Line,* will require significant financing. The three sources of financing typically used are debt, equity (common and preferred), and cash flow. All three are intricately linked to the opportunity to earn a sufficient rate of return as well as the ability to achieve that return. Consistent with *Hope* and *Bluefield*, the return must be sufficient to maintain credit quality as well as enable the attraction of necessary new capital, be it debt or equity capital. If unable to raise debt or equity capital, the utility must turn to either retained earnings or free cash flow,[5] both of which are directly linked to earning a sufficient rate of return. The level of free cash flow represents a utility's ability to meet the needs of its debt and equity holders. If either retained earnings or free cash flow is inadequate, it will be nearly impossible for the utility to attract the needed capital for new infrastructure investment necessary to ensure quality service to its customers. An insufficient rate of return can be financially devastating for utilities as well as a public safety issue for their customers.

The water and wastewater utility industry's high degree of capital intensity and low depreciation rates, coupled with the need for substantial infrastructure capital spending, require regulatory support in the form of adequate and timely rate relief, and in particular, a sufficient authorized return on common equity, so that the industry can successfully meet the challenges it faces.

---

5 Free Cash Flow = Operating Cash Flow (Funds From Operations) minus Capital Expenditures.

B. FINANCIAL RISK

Q. Please define financial risk and explain why it is important to the determination of a fair rate of return.

A. Financial risk is the additional risk created by the introduction of debt and preferred stock into the capital structure. The higher the proportion of debt and preferred stock in the capital structure, the higher the financial risk (*i.e.* likelihood of default). Therefore, consistent with the basic financial principle of risk and return, investors demand a higher common equity return as compensation for bearing higher default risk.

Q. Can bond and credit ratings be a proxy for the combined business and financial risk (*i.e.*, investment risk of an enterprise)?

A. Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (*i.e.*, total risk) faced by bond investors.[6] Although specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar, albeit not necessarily equal, as the purpose of the bond/credit rating process is to assess credit quality or credit risk, and not common equity risk.

Q. That being said, do rating agencies reflect company size in their bond ratings?

A. No. Neither Standard & Poor's ("S&P") nor Moody's Investors Service ("Moody's") have minimum company size requirements for any given rating level. This means,

---

[6] Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, i.e., within the A category, an S&P rating can be at A+, A, or A-. Similarly, risk distinctions for Moody's ratings are distinguished by numerical rating gradations, i.e., within the A category, a Moody's rating can be A1, A2 and A3.

all else equal, a relative size analysis needs to be conducted for companies with similar bond ratings.

V. UIL AND THE UTILITY PROXY GROUP

Q. Are you familiar with the operations of UIL?

A. Yes. UIL is a subsidiary of CRU. The Company serves approximately 25,391 customers in Louisiana. UIL's common stock is not publicly traded.

Q. Please explain how you chose your Utility Proxy Group.

A. The basis of selection for the Utility Proxy Group was to select those companies which meet the following criteria:

(i) They are included in the Water Utility Group of *Value Line's* Standard Edition or Small & Midcap Edition (April 9, 2021);

(ii) They have 70% or greater of 2020 total operating income and 70% or greater of 2020 total assets attributable to regulated water operations;

(iii) At the time of preparation of this testimony, they had not publicly announced that they were involved in any major merger or acquisition activity (*i.e.*, one publicly-traded utility merging with or acquiring another);

(iv) They have not cut or omitted their common dividends during the five years ending 2020 or through the time of the preparation of this testimony;

(v) They have *Value Line* and Bloomberg Professional Services ("Bloomberg") adjusted betas;

(vi) They have a positive *Value Line* five-year dividends per share ("DPS") growth rate projection; and

(vii) They have *Value Line*, Zacks, Yahoo! Finance, or Bloomberg consensus five-year earnings per share ("EPS") growth rate projections.

The following eight companies met these criteria: American States Water Co., American Water Works Co., Inc., Artesian Resources Corporation, California Water Service Group, Global Water Resources, Inc., Middlesex Water Co., SJW Corp., and The York Water Co.

Q. Please describe Schedule DWD-2, page 1.

A. Page 1 of Schedule DWD-2 contains comparative capitalization and financial statistics for the Utility Proxy Group identified above for the years 2016 to 2020. During the five-year period ending 2020, the historically achieved average earnings rate on book common equity for the group averaged 10.23%. The average common equity ratio based on total permanent capital (excluding short-term debt) was 49.39%, and the average dividend payout ratio was 58.61%.

Total debt to earnings before interest, taxes, depreciation, and amortization for the years 2016 to 2020 ranges between 3.73x and 5.32x, with an average of 4.44x. Funds from operations to total debt range from 12.38% to 23.06%, with an average of 18.33%.

VI. CAPITAL STRUCTURE

Q. What capital structure ratios do you recommend be employed in developing an overall fair rate of return appropriate for the Company?

A. I recommend the use of the expected capital structure of UIL's parent company, CRU, which consists of 50.00% long-term debt and 50.00% common equity as shown on page 1 of Schedule DWD-1.

Q. How does UIL's ratemaking common equity ratio of 50.00% compare with the equity ratios maintained by the companies in your Utility Proxy Group?

A. UIL's ratemaking common equity ratio of 50.00% is reasonable and consistent with the range of common equity ratios maintained, on average, by the companies in the Utility Proxy Group on which I base my recommended common equity cost rate. As shown on page 2 of Schedule DWD-2, the common equity ratios of the Utility Proxy Group range from 21.91% to 59.28% in 2020. In my opinion, UIL's ratemaking equity ratio of 50.00% is appropriate.

Q. What long-term debt cost rate is most appropriate for UIL in this proceeding?

A. CRU's expected long-term debt cost rate of 4.10% is reasonable and appropriate as UIL's cost of long-term debt for ratemaking purposes in this proceeding.

VII. COMMON EQUITY COST RATE MODELS

Q. Is it important that cost of common equity models be market based?

A. Yes. A public utility must compete for equity in capital markets along with all other companies of comparable risk, which includes non-utilities. The cost of common equity is thus determined based on equity market expectations for the returns of those comparable risk companies. If an individual investor is choosing to invest their capital among companies of comparable risk, they will choose a company providing a higher return over a company providing a lower return.

Q. Are your cost of common equity models market-based models?

A. Yes. The DCF model is market-based because market prices are used in developing the dividend yield component of the model. The RPM is market-based because the bond ratings and expected bond yields used in the application of the RPM reflect the market's assessment of bond/credit risk. In addition, the use of

beta coefficients (β) to determine the equity risk premium reflects the market's assessment of market/systematic risk, since beta coefficients are derived from regression analyses of market prices. The Predictive Risk Premium Model ("PRPM") uses monthly market returns in addition to expectations of the risk-free rate. The CAPM is market-based for many of the same reasons that the RPM is market-based (*i.e.*, the use of expected bond yields and beta coefficients). Selection of the comparable risk non-price regulated companies is market-based because it is based on statistics which result from regression analyses of market prices and reflect the market's assessment of total risk.

A. DISCOUNTED CASH FLOW MODEL

Q. What is the theoretical basis of the DCF model?

A. The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors' capitalization rate. DCF theory indicates that an investor buys a stock for an expected total return rate, which is derived from cash flows received in the form of dividends plus appreciation in market price (the expected growth rate). Mathematically, the dividend yield on market price plus a growth rate equals the capitalization rate, *i.e.*, the total common equity return rate expected by investors.

Q. Which version of the DCF model did you use?

A. I used the single-stage constant growth DCF model.

Q. Please describe the dividend yield you used in your application of the DCF model.

A. The unadjusted dividend yields are based on the proxy companies' dividends as of April 16, 2021, divided by the average of closing market prices for the 60 trading days ending April 16, 2021.[7]

Q. Please explain your adjustment to the dividend yield.

A. Because dividends are paid periodically (quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield. This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

DCF theory calls for the use of the full growth rate, or D_1, in calculating the dividend yield component of the model. Since the various companies in the Utility Proxy Group increase their quarterly dividend at various times during the year, a reasonable assumption is to reflect one-half the annual dividend growth rate in the dividend yield component, or $D_{1/2}$. Because the dividend should be representative of the next 12-month period, my adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1 on page 1 of Schedule DWD-3 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 7.

Q. Please explain the basis of the growth rates you applied to the Utility Proxy Group in your DCF model.

A. Investors with more limited resources than institutional investors are likely to rely on widely available financial information services, such as *Value Line*, Zacks, Yahoo! Finance, and Bloomberg. Investors realize that analysts have significant

---

7 *See,* Schedule DWD-3, page 1, Column 1.

insight into the dynamics of the industries and individual companies they analyze, as well as companies' abilities to effectively manage the effects of changing laws and regulations, and ever-changing economic and market conditions. For these reasons, I used analysts' five-year forecasts of EPS growth in my DCF analysis.

Over the long run, there can be no growth in DPS without growth in EPS. Security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. Thus, the use of earnings growth rates in a DCF analysis provides a better match between investors' market price appreciation expectations and the growth rate component of the DCF.

Q. Please summarize the DCF model results.

A. As shown on page 1 of Schedule DWD-3, the mean result of the application of the single-stage DCF model is 9.11%, the median result is 8.14%, and the average of the two is 8.63% for the Utility Proxy Group. In arriving at a conclusion for the DCF-indicated common equity cost rate for the Utility Proxy Group, I have relied on an average of the mean and the median results of the DCF. This approach takes into consideration all the proxy companies' results, while mitigating the high and low outliers of those individual results.

B. THE RISK PREMIUM MODEL

Q. Please describe the theoretical basis of the RPM.

A. The RPM is based on the fundamental financial principle of risk and return, namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings. As a result, investors require higher returns from common

stocks than from investment in bonds, to compensate them for bearing the additional risk.

While it is possible to directly observe bond returns and yields, investors' required common equity return cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds (either historically or prospectively), and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital, plus a risk premium over that cost rate, to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on the corporation's assets and earnings in the event of a liquidation.

Q. Please explain how you derived your indicated cost of common equity based on the RPM.

A. I relied on the results of the application of two risk premium methods. The first method is the PRPM, while the second method is a risk premium model using a total market approach.

Q. Please explain the PRPM.

A. The PRPM, published in the *Journal of Regulatory Economics* and *The Electricity Journal*[8], was developed from the work of Robert F. Engle who shared the Nobel Prize in Economics in 2003 "for methods of analyzing economic time series with time-varying volatility ("ARCH")".[9] Engle found that volatility changes over time

---

8 Autoregressive conditional heteroscedasticity. *See*, "A New Approach for Estimating the Equity Risk Premium for Public Utilities", Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. *The Journal of Regulatory Economics* (December 2011), 40:261-278 and "Comparative Evaluation of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset Pricing Model for Estimating the Cost of Common Equity", Richard A. Michelfelder, Ph.D, Pauline M. Ahern, Dylan W. D'Ascendis, and Frank J. Hanley, *The Electricity Journal* (May 2013), 84-89.

9 www.nobelprize.org.

and is related from one period to the next, especially in financial markets. Engle discovered that the volatility in prices and returns clusters over time and is therefore highly predictable and can be used to predict future levels of risk and risk premiums.

The PRPM estimates the risk / return relationship directly, as the predicted equity risk premium is generated by the prediction of volatility or risk. The PRPM is not based on an estimate of investor behavior, but rather on the evaluation of the results of that behavior (*i.e.*, the variance of historical equity risk premiums).

The inputs to the model are the historical returns on the common shares of each company in the Utility Proxy Group minus the historical monthly yield on long-term U.S. Treasury securities through March 2021. Using a generalized form of ARCH, known as GARCH, I calculated each Utility Proxy Group company's projected equity risk premium using Eviews© statistical software. When the GARCH Model is applied to the historical return data, it produces a predicted GARCH variance series[10] and a GARCH coefficient[11]. Multiplying the predicted monthly variance by the GARCH coefficient, then annualizing it[12], produces the predicted annual equity risk premium. I then added the forecasted 30-year U.S. Treasury Bond yield, 2.73%[13], to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity. The 30-year Treasury yield is a consensus forecast derived from the *Blue Chip Financial Forecasts ("Blue Chip")*[14]. The mean PRPM indicated common equity cost rate for the Utility Proxy

---

10 Illustrated on Columns 1 and 2 of page 2 of Schedule DWD-4.
11 Illustrated on Column 4 of page 2 of Schedule DWD-4.
12 Annualized Return = (1+Monthly Return)^12 – 1.
13 *See,* Column 6 of page 2 of Schedule DWD-4.
14 *Blue Chip Financial Forecasts*, December 1, 2020 at p. 14 and April 1, 2021 at p. 2.

Group is 12.72%, the median is 11.53%, and the average of the two is 12.13%. Consistent with my reliance on the average of the median and mean results of the DCF, I relied on the average of the mean and median results of the Utility Proxy Group PRPM to calculate a cost of common equity rate of 12.13%.

Q. Please explain the total market approach RPM.

A. The total market approach RPM adds a prospective public utility bond yield to an average of: 1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, and 2) an equity risk premium based on the S&P Utilities Index.

Q. Please explain the basis of the expected bond yield of 3.91% applicable to the Utility Proxy Group.

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital, including common equity cost rate, are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. I rely on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the third calendar quarter of 2022, and the long-term projections for 2022 to 2026, and 2027 to 2031 from *Blue Chip*. As shown on line 1 of page 3 of Schedule DWD-4, the average expected yield on Moody's Aaa-rated corporate bonds is 3.44%. In order to derive an expected yield on A2-rated public utility bonds, I make an upward adjustment of 0.42%, which represents a recent spread between Aaa-rated corporate bonds and A2-rated public utility bonds, in order to adjust the expected Aaa-rated corporate bond yield to an equivalent

Moody's A2-rated public utility bond.[15] Adding that recent 0.42% spread to the expected Aaa-rated corporate bond yield of 3.44% results in an expected A2-rated public utility bond of 3.86%.

Since the Utility Proxy Group's average Moody's long-term issuer rating is A2/A3, another adjustment to the expected A2-rated public utility bond yield is needed to reflect the difference in bond ratings. An upward adjustment of 0.05%, which represents one-sixth of a recent spread between A2- and Baa2-rated public utility bond yields, is necessary to make the A2-rated prospective bond yield applicable to an A2/A3-rated public utility bond.[16] Adding the 0.05% to the 3.86% prospective A2-rated public utility bond yield results in a 3.91% expected bond yield for the Utility Proxy Group.

Table 3: Summary of the Calculation of the Utility Proxy Group Projected Bond Yield[17]

Prospective Yield on Moody's Aaa-Rated Corporate Bonds (*Blue Chip)*	3.44%
Adjustment to Reflect Yield Spread Between Moody's Aaa-Rated Corporate Bonds and Moody's A2-Rated Utility Bonds	0.42%
Adjustment to Reflect the Utility Proxy Group's Average Moody's Bond Rating of A2/A3	0.05%
Prospective Bond Yield Applicable to the Utility Proxy Group	3.91%

15 As shown on line 2 and explained in note 2 of page 3 of Schedule DWD-4.

16 As shown on line 4 and explained in note 3, page 3 of Schedule DWD-4. Moody's does not provide public utility bond yields for A2/A3-rated bonds. As such, it was necessary to estimate the difference between A2-rated and A2/A3-rated public utility bonds. Because there are three steps between Baa2 and A2 (Baa2 to Baa1, Baa1 to A3, and A3 to A2) I assumed an adjustment of one-sixth of the difference between the A2-rated and Baa2-rated public utility bond yield was appropriate.

17 As shown on page 3 of Schedule DWD-4.

To develop the indicated ROE using the total market approach RPM, this prospective bond yield is then added to the average of the three different equity risk premiums described below.

Q. Please explain how the beta-derived equity risk premium is determined.

A. The components of the beta-derived risk premium model are: 1) an expected market equity risk premium over corporate bonds, and 2) the beta coefficient. The derivation of the beta-derived equity risk premium that I applied to the Utility Proxy Group is shown on lines 1 through 9 of page 8 of Schedule DWD-4. The total beta-derived equity risk premium I applied was based on an average of: 1) Ibbotson-based equity risk premiums; 2) *Value Line*-based equity risk premiums; and 3) Bloomberg-based equity risk premium. Each of these is described in turn.

Q. How did you derive a market equity risk premium based on long-term historical data?

A. To derive a historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the Stocks, Bonds, Bills, and Inflation ("SBBI") 2021 Yearbook ("SBBI – 2021")[18] less the average historical yield on Moody's Aaa/Aa-rated corporate bonds for the period 1928 to 2020. The use of holding period returns over a very long period of time is appropriate because it is consistent with the long-term investment horizon presumed by investing in a going concern, *i.e.*, a company expected to operate in perpetuity.

SBBI's long-term arithmetic mean monthly total return rate on large company common stocks was 11.94% and the long-term arithmetic mean monthly

---

[18] SBBI Appendix A Tables: Morningstar Stocks, Bonds, Bills, & Inflation 1926-2020.

yield on Moody's Aaa/Aa-rated corporate bonds was 6.02% from 1928 to 2020.[19] As shown on line 1 of page 8 of Schedule DWD-4, subtracting the mean monthly bond yield from the total return on large company stocks results in a long-term historical equity risk premium of 5.92%.

I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody's Aaa/Aa-rated corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI – 2021.[20] The use of the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums, they would have no insight into the potential variance of future returns because the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis.

Q. Please explain the derivation of the regression-based market equity risk premium.

A. To derive the regression analysis-derived market equity risk premium of 8.83%, shown on line 2 of page 8 of Schedule DWD-4, I used the same monthly annualized total returns on large company common stocks relative to the monthly annualized yields on Moody's Aaa/Aa-rated corporate bonds as mentioned above. The relationship between interest rates and the market equity risk premium was

---

19 As explained in note 1 on page 9 of Schedule DWD-4.
20 SBBI – 2021, at 10-22 – 10-23.

modeled using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody's Aaa/Aa-rated corporate bonds as the independent variable. I used a linear Ordinary Least Squares ("OLS") regression, in which the market equity risk premium is expressed as a function of the Moody's Aaa/Aa-rated corporate bonds yield:

$$RP = \alpha + \beta\ (R_{Aaa/Aa})$$

Q. Please explain the derivation of a PRPM equity risk premium.

A. I used the same PRPM approach described previously to develop another equity risk premium estimate. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Aaa/Aa-rated corporate bonds during the period from January 1928 through March 2021.[21] Using the previously discussed generalized form of ARCH, known as GARCH, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted market equity risk premium is 9.40%.[22]

Q. Please explain the derivation of a projected equity risk premium based on *Value Line* data for your RPM analysis.

A. As noted previously, because both ratemaking and the cost of capital are prospective, a prospective market equity risk premium is needed. The derivation of the forecasted or prospective market equity risk premium can be found in note 4 on page 9 of Schedule DWD-4. Consistent with my calculation of the dividend yield component in my DCF analysis, this prospective market equity risk premium

---

21 Data from January 1928-December 2020 is from SBBI – 2021. Data from January – March 2021 is from Bloomberg Professional Services.

22 Shown on line 3 on page 8 of Schedule DWD-4.

is derived from an average of the three- to five-year median market price appreciation potential by *Value Line* for the 13 weeks ending April 16, 2021, plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line*'s Standard Edition.[23]

The average median expected price appreciation is 28%, which translates to a 6.37% annual appreciation, and when added to the average of *Value Line's* median expected dividend yields of 1.87%, equates to a forecasted annual total return rate on the market of 8.24%. The forecasted Aaa-rated bond yield of 3.44% is deducted from the total market return of 8.24%, resulting in an equity risk premium of 4.80%, shown on page 8, line 4 of Schedule DWD-4.

Q. Please explain the derivation of an equity risk premium based on the S&P 500 companies.

A. Using data from *Value Line*, I calculated an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The expected total return for the S&P 500 is 14.10%. Subtracting the prospective yield on Aaa-rated Corporate bonds of 3.44% results in a 10.66% projected equity risk premium.

Q. Please explain the derivation of an equity risk premium based on Bloomberg data.

A. Using data from Bloomberg, I calculated an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation, identical to the method described above. The expected total

---

[23] As explained in detail in page 2, note 1 of Schedule DWD-5.

return for the S&P 500 is 14.01%. Subtracting the prospective yield on Aaa-rated Corporate bonds of 3.44% results in a 10.57% projected equity risk premium.

Q. What is your conclusion of a beta-derived equity risk premium for use in your RPM analysis?

A. I gave equal weight to the six equity risk premiums in arriving at my conclusion of 8.36%.[24]

Table 4: Summary of the Calculation of the Equity Risk Premium Using Total Market Returns[25]

Historical Spread Between Total Returns of Large Stocks and Aaa and Aa2-Rated Corporate Bond Yields (1928 – 2020)	5.92%
Regression Analysis on Historical Data	8.83%
PRPM Analysis on Historical Data	9.40%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected Aaa Corporate Bond Yields	4.80%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected Aaa Corporate Bond Yields	10.66%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected Aaa Corporate Bond Yields	10.57%
Average	8.36%

After calculating the average market equity risk premium of 8.36%, I adjusted it by beta to account for the risk of the Utility Proxy Group. As discussed below, the beta coefficient is a meaningful measure of prospective relative risk to the market as a whole and is a logical means by which to allocate a company's, or proxy group's, share of the market's total equity risk premium relative to corporate bond yields. As shown on page 1 of Schedule DWD-5, the average of the mean

24 *See,* line 7 on page 8 of Schedule DWD-4.
25 As shown on page 8 of Schedule DWD-4.

and median beta coefficient for the Utility Proxy Group is 0.78. Multiplying the beta coefficient of the Utility Proxy Group of 0.78 by the market equity risk premium of 8.36% results in a beta-adjusted equity risk premium of 6.52% for the Utility Proxy Group.

Q. How did you derive the equity risk premium based on the S&P Utility Index and Moody's A-rated public utility bonds?

A. I estimated three equity risk premiums based on S&P Utility Index holding returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derived a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns of 10.65% and monthly A-rated public utility bond yields of 6.49% from 1928 to 2020, to arrive at an equity risk premium of 4.16%.[26] I then used the same historical data to derive an equity risk premium of 6.45% based on a regression of the monthly equity risk premiums. The final S&P Utility Index holding period equity risk premium involved applying the PRPM using the historical monthly equity risk premiums from January 1928 to March 2021 to arrive at a PRPM-derived equity risk premium of 4.77% for the S&P Utility Index.

I then derived expected total returns on the S&P Utilities Index of 10.49% and 9.31% using data from *Value Line* and Bloomberg, respectively, and subtracted the prospective A2-rated public utility bond yield (3.86%[27]), which results in risk premiums of 6.63% and 5.45%, respectively. As with the market

---

26 As shown on line 1 on page 12 of Schedule DWD-4.
27 Derived on line 3 of page 3 of Schedule DWD-4.

equity risk premiums, I averaged each risk premium to arrive at my utility-specific equity risk premium of 5.49%.

Table 5: Summary of the Calculation of the Equity Risk Premium Using S&P Utility Index Holding Returns[28]

Historical Spread Between Total Returns of the S&P Utilities Index and A2-Rated Utility Bond Yields (1928 – 2020)	4.16%
Regression Analysis on Historical Data	6.45%
PRPM Analysis on Historical Data	4.77%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P Utilities Index less Projected A2 Utility Bond Yields	6.63%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P Utilities Index less Projected A2 Utility Bond Yields	5.45%
Average	5.49%

Q. What is your conclusion of an equity risk premium for use in your total market approach RPM analysis?

A. The equity risk premium I applied to the Utility Proxy Group is 6.01%, which is the average of the beta-derived and the S&P utility equity risk premiums of 6.52% and 5.49%, respectively.[29]

Q. What is the indicated RPM common equity cost rate based on the total market approach?

A. As shown on line 7 of page 3 of Schedule DWD-4, I calculated a common equity cost rate of 9.92% for the Utility Proxy Group based on the total market approach of the RPM.

28 As shown on page 12 of Schedule DWD-4.
29 As shown on page 7 of Schedule DWD-4.

Table 6: Summary of the Total Market Return Risk Premium Model[30]

Prospective Moody's A2/A3-Rated Utility Bond Applicable to the Utility Proxy Group	3.91%
Prospective Equity Risk Premium	6.01%
Indicated Cost of Common Equity	9.92%

Q. What are the results of your application of the PRPM and the total market approach RPM?

A. As shown on page 1 of Schedule DWD-4, the indicated RPM-derived common equity cost rate is 11.03%, which gives equal weight to the PRPM (12.13%) and the adjusted market approach results (9.92%).

C. THE CAPITAL ASSET PRICING MODEL

Q. Please explain the theoretical basis of the CAPM.

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by the beta coefficient (β). A beta coefficient less than 1.0 indicates lower variability than the market as a whole, while a beta coefficient greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all other risk (*i.e.*, all non-market or unsystematic risk) can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors require compensation only for systematic risk, which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual

30 As shown on page 3 of Schedule DWD-4.

security relative to the total market as measured by the beta coefficient. The traditional CAPM model is expressed as:

$$R_s = R_f + \beta(R_m - R_f)$$

Where:
- R_s = Return rate on the common stock;
- R_f = Risk-free rate of return;
- R_m = Return rate on the market as a whole; and
- β = Adjusted beta coefficient (volatility of the security relative to the market as a whole).

Numerous tests of the CAPM have measured the extent to which security returns and beta coefficients are related as predicted by the CAPM, confirming its validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of these tests support the notion that the beta coefficient is related to security returns, the empirical Security Market Line ("SML") described by the CAPM formula is not as steeply sloped as the predicted SML.[31] The ECAPM reflects this empirical reality. Fama and French clearly state regarding Figure 2, below, that "[t]he returns on the low beta portfolios are too high, and the returns on the high beta portfolios are too low."[32]

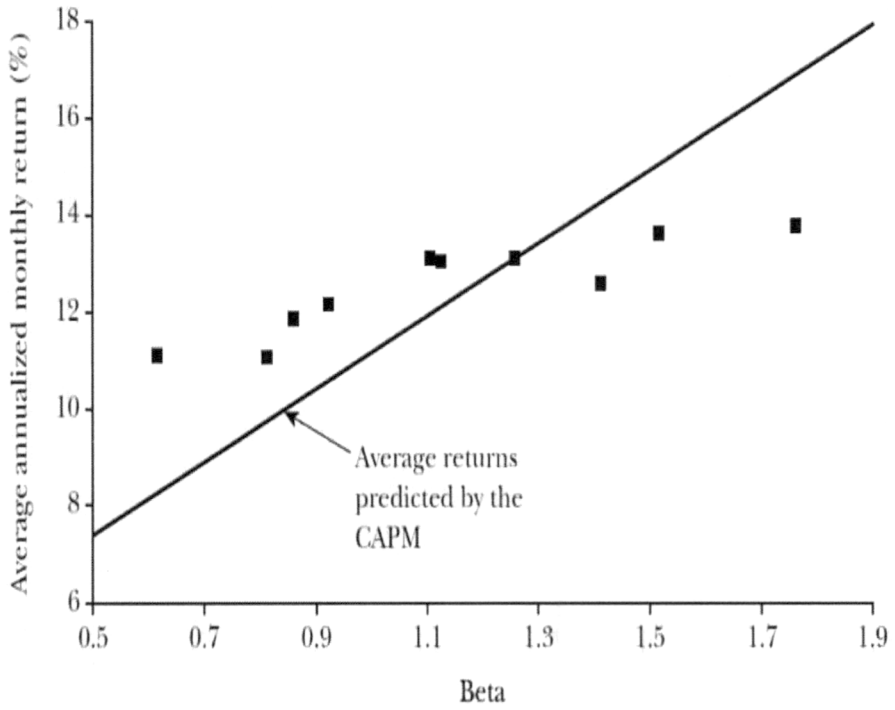
---

31 Roger A. Morin, Ph.D., New Regulatory Finance, (Public Utilities Reports, Inc., 2006) at 175. ("Morin")

32 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. ("Fama & French") http://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330042162430.

Figure 2 http://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330042162430

Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on Prior Beta, 1928–2003



In addition, Morin observes that while the results of these tests support the notion that beta is related to security returns, the empirical SML described by the CAPM formula is not as steeply sloped as the predicted SML. Morin states:

> With few exceptions, the empirical studies agree that ... low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.[33]
>
> * * *
>
> Therefore, the empirical evidence suggests that the expected return on a security is related to its risk by the following approximation:
>
> $$K = R_F + x\,\beta(R_M - R_F) + (1-x)\,\beta(R_M - R_F)$$
>
> where x is a fraction to be determined empirically. The value of x that best explains the observed relationship [is] Return = 0.0829 +

---

[33] Morin, at 175.

0.0520 β is between 0.25 and 0.30. If x = 0.25, the equation becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\,\beta(R_M - R_F)$$ [34]

Fama and French provide similar support for the ECAPM when they state:

> The early tests firmly reject the Sharpe-Lintner version of the CAPM. There is a positive relation between beta and average return, but it is too 'flat.'... The regressions consistently find that the intercept is greater than the average risk-free rate... and the coefficient on beta is less than the average excess market return... This is true in the early tests... as well as in more recent cross-section regressions tests, like Fama and French (1992).[35]

Finally, Fama and French further note:

> Confirming earlier evidence, the relation between beta and average return for the ten portfolios is much flatter than the Sharpe-Linter CAPM predicts. The returns on low beta portfolios are too high, and the returns on the high beta portfolios are too low. For example, the predicted return on the portfolio with the lowest beta is 8.3 percent per year; the actual return as 11.1 percent. The predicted return on the portfolio with the highest beta is 16.8 percent per year; the actual is 13.7 percent.[36]

Clearly, the justification from Morin, Fama, and French, along with their reviews of other academic research on the CAPM, validate the use of the ECAPM. In view of theory and practical research, I have applied both the traditional CAPM and the ECAPM to the companies in the Utility Proxy Group and averaged the results.

Q. What beta coefficients did you use in your CAPM analysis?

A. With respect to the beta coefficient, I considered two methods of calculation: 1) the average of the beta coefficients of the Utility Proxy Group companies reported by Bloomberg, and 2) the average of the beta coefficients of the Utility Proxy Group

---

34 Morin, at 190.
35 Fama & French, at 32.
36 *Ibid.,* at 33.

companies as reported by *Value Line*. While both of those services adjust their calculated (or "raw") beta coefficients to reflect the tendency of the beta coefficient to regress to the market mean of 1.00, *Value Line* calculates the beta coefficient over a five-year period, while Bloomberg's calculation is based on two years of data.

Q. Please describe your selection of a risk-free rate of return.

A. As shown in Column 5 on page 1 of Schedule DWD-5, the risk-free rate adopted for both applications of the CAPM is 2.73%. This risk-free rate of 2.73% is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the third calendar quarter of 2022, and long-term projections for the years 2022 to 2026 and 2027 to 2031.

Q. Why is the yield on long-term U.S. Treasury bonds appropriate for use as the risk-free rate?

A. The yield on long-term U.S. Treasury Bonds is almost risk-free, and its term is consistent with the long-term cost of capital to public utilities measured by the yields on A2-rated public utility bonds, the long-term investment horizon inherent in utilities' common stocks, and the long-term life of the jurisdictional rate base to which the allowed fair rate of return (*i.e.*, cost of capital) will be applied. In contrast, short-term U.S. Treasury yields are more volatile and largely a function of Federal Reserve monetary policy.

Q. Please explain the estimation of the expected risk premium for the market used in your CAPM analyses.

A. The basis of the market risk premium is explained in detail in note 1 on page 2 of Schedule DWD-5. As discussed previously, the market risk premium is derived from an average of:

(i) Ibbotson-based market risk premiums;

(ii) *Value Line* data-based market risk premiums; and

(iii) Bloomberg data-based market risk premiums.

The long-term income return on U.S. Government Securities of 5.05% was deducted from the SBBI - 2021 monthly historical total market return of 12.20%, which results in an historical market equity risk premium of 7.15%.[37] I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government Securities from SBBI - 2021. That regression analysis yielded a market equity risk premium of 9.54%. The PRPM market equity risk premium is 10.46% and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through March 2021.

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 2.73%, discussed above, from the *Value Line* projected total annual market return of 8.24%, resulting in a forecasted total market equity risk premium of 5.51%. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the

---

37 SBBI – 2021, at Appendix A-1 (1) through A-1 (3) and Appendix A-7 (19) through A-7 (21).

projected risk-free rate of 2.73% from the projected total return of the S&P 500 of 14.10%. The resulting market equity risk premium is 11.37%.

The S&P 500 projected market equity risk premium using Bloomberg data is derived by subtracting the projected risk-free rate of 2.73% from the projected total return of the S&P 500 of 14.01%. The resulting market equity risk premium is 11.28%.

These six market risk premiums, when averaged, result in an average total market equity risk premium of 9.22%.

Table 7: Summary of the Calculation of the Market Risk Premium for Use in the CAPM[38]

Historical Spread Between Total Returns of Large Stocks and Long-Term Government Bond Yields (1926 – 2020)	7.15%
Regression Analysis on Historical Data	9.54%
PRPM Analysis on Historical Data	10.46%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected 30-Year Treasury Bond Yields	5.51%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected 30-Year Treasury Bond Yields	11.37%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected 30-Year Treasury Bond Yields	11.28%
Average	9.22%

Q. What are the results of your application of the traditional and empirical CAPM to the Utility Proxy Group?

A. As shown on page 1 of Schedule DWD-5, the mean result of my CAPM/ECAPM analysis is 10.17%, the median is 10.14%, and the average of the two is 10.16%.

38 As shown on page 2 of Schedule DWD-5.

Consistent with my reliance on the average of mean and median DCF results discussed above, the indicated common equity cost rate using the CAPM/ECAPM is 10.16%.

D. COMMON EQUITY COST RATES FOR A PROXY GROUP OF DOMESTIC, NON-PRICE REGULATED COMPANIES BASED ON THE DCF, RPM, AND CAPM

Q. Why did you also consider a proxy group of domestic, non-price regulated companies?

A. In the *Hope* and *Bluefield* cases, the U.S. Supreme Court did not specify that comparable risk companies had to be utilities. Since the purpose of rate regulation is to be a substitute for the competition of the marketplace, non-price regulated firms operating in the competitive marketplace make an excellent proxy if they are comparable in total risk to the Utility Proxy Group being used to estimate the cost of common equity. The selection of such domestic, non-price regulated competitive firms theoretically and empirically results in a proxy group which is comparable in total risk to the Utility Proxy Group.

Q. How did you select non-price regulated companies that are comparable in total risk to the Utility Proxy Group?

A. In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I relied on the beta coefficients and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (*i.e.*, five years). Using these selection criteria resulted in a proxy group of 20 domestic, non-price regulated firms comparable in total risk to the Utility Proxy Group. Total risk is the sum of non-diversifiable market

risk and diversifiable company-specific risks. The criteria used in the selection of the domestic, non-price regulated firms was:

(i) They must be covered by *Value Line's* Standard Edition;

(ii) They must be domestic, non-price regulated companies, *i.e.*, non-utilities;

(iii) Their beta coefficients must lie within plus or minus two standard deviations of the average unadjusted beta coefficient of the Utility Proxy Group; and

(iv) The residual standard errors of the *Value Line* regressions which gave rise to the unadjusted beta coefficients must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.

Beta coefficients are a measure of market or systematic risk, which is not diversifiable. The residual standard errors of the regressions were used to measure each firm's company-specific, diversifiable risk. Companies that have similar beta coefficients and similar residual standard errors resulting from the same regression analyses have similar total investment risk.

Q. Have you prepared a schedule which shows the data from which you selected the 20 domestic, non-price regulated companies that are comparable in total risk to the Utility Proxy Group?

A. Yes, the basis of my selection, and both proxy groups' regression statistics, are shown in Schedule DWD-6.

Q. Did you calculate common equity cost rates using the DCF, RPM, and CAPM for the Non-Price Regulated Proxy Group?

A. Yes. Because the DCF, RPM, and CAPM have been applied in an identical manner as described above, I will not repeat the details of the rationale and

application of each model. One exception is in the application of the RPM, where I did not use public utility-specific equity risk premiums, nor did I apply the PRPM to the individual companies.

Page 2 of Schedule DWD-7 contains the derivation of the DCF cost rates. As shown, the indicated common equity cost rate using the DCF for the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group, is 11.75%.

Pages 3 through 5 of DWD-7 contain the data and calculations that support the 10.58% RPM cost rate. As shown on line 1 of page 3 of Schedule DWD-7, the consensus prospective yield on Moody's Baa-rated corporate bonds for the six quarters ending in the third quarter of 2022, and for the years 2022 to 2026 and 2027 to 2031, is 4.36%.[39] Because the Non-Price Regulated Proxy Group has an average Moody's bond rating of Baa1, a downward adjustment of 0.13% to the prospective Baa2-rated bond yield is necessary to reflect the difference in bond ratings.[40] Subtracting 0.13% from the prospective Baa2-rated bond yield of 4.36% is 4.23%.

When the beta-adjusted risk premium of 6.35%[41] relative to the Non-Price Regulated Proxy Group is added to the prospective Baa1-rated corporate bond yield of 4.36%, the indicated RPM cost rate is 10.58%.

Page 6 of DWD-7 contains the inputs and calculations that support my indicated CAPM/ECAPM cost rate of 10.02%.

---

39 *Blue Chip Financial Forecasts*, December 1, 2020, at p. 14 and April 1, 2021, at p. 2.
40 As demonstrated on Schedule DWD-7, page 3, note 2.
41 Derived on page 5 of Schedule DWD-7.

Q. What is the cost rate of common equity based on the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group?

A. As shown on page 1 of Schedule DWD-7, the results of the DCF, RPM, and CAPM applied to the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group are 11.75%, 10.58%, and 10.02%, respectively. The average of the mean and median of these models is 10.68%, which I used as the indicated common equity cost rate for the Non-Price Regulated Proxy Group.

VIII. CONCLUSION OF COMMON EQUITY COST RATE BEFORE ADJUSTMENT

Q. What is the indicated range of common equity cost rates before adjustments?

A. Based on the results of the application of multiple cost of common equity models to the Utility Proxy Group, my recommended range of ROEs attributable to the Utility Proxy Group is between 10.13% (average of all model results) and 10.42% (median of model results).

I used multiple cost of common equity models as primary tools in arriving at my recommended common equity cost rate, because no single model is so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models. The use of multiple models adds reliability to the estimation of the common equity cost rate, and the prudence of using multiple cost of common equity models is supported in both the financial literature and regulatory precedent.

As discussed previously, after determining the indicated range of ROE attributable to a comparable group, there must be an evaluation of relative risk between that group and the target company to determine whether it is appropriate

to apply adjustments to the comparable group's indicated ROE to better reflect the target company's specific risks.

IX. ADJUSTMENTS TO THE COMMON EQUITY COST RATE

A. SIZE ADJUSTMENT

Q. Does UIL's smaller size compared with the Utility Proxy Group increase its business risk?

A. Yes. UIL's smaller size relative to the Utility Proxy Group companies indicates greater relative business risk for the Company because, all else being equal, size has a material bearing on risk.

Size affects business risk because smaller companies generally are less able to cope with significant events that affect sales, revenues, and earnings. For example, smaller companies face more risk exposure to business cycles and economic conditions, both nationally and locally. Additionally, the loss of revenues from a few larger customers would have a greater effect on a small company than on a bigger company with a larger, more diverse, customer base.

As further evidence illustrates that smaller firms are riskier, investors generally demand greater returns from smaller firms to compensate for less marketability and liquidity of their securities. Duff & Phelps' 2020 Valuation Handbook – U.S. Guide to Cost of Capital ("D&P - 2020") discusses the nature of the small-size phenomenon, providing an indication of the magnitude of the size premium based on several measures of size. In discussing "Size as a Predictor of Equity Premiums," D&P - 2020 states:

> The size effect is based on the empirical observation that companies of smaller size are associated with greater risk and, therefore, have greater cost of capital [sic]. The "size" of a company is one of the

> most important risk elements to consider when developing cost of equity capital estimates for use in valuing a business simply because size has been shown to be a *predictor* of equity returns. In other words, there is a significant (negative) relationship between size and historical equity returns - as size *decreases*, returns tend to *increase*, and vice versa. (footnote omitted) (emphasis in original)[42]

Furthermore, in "The Capital Asset Pricing Model: Theory and Evidence," Fama and French note size is indeed a risk factor which must be reflected when estimating the cost of common equity. On page 38, they note:

> . . . the higher average returns on small stocks and high book-to-market stocks reflect unidentified state variables that produce undiversifiable risks (covariances) in returns not captured in the market return and are priced separately from market betas.[43]

Based on this evidence, Fama and French proposed their three-factor model which includes a size variable in recognition of the effect size has on the cost of common equity.

Also, it is a basic financial principle that the use of funds invested, and not the source of funds, is what gives rise to the risk of any investment.[44] Eugene Brigham, a well-known authority, states:

> A number of researchers have observed that portfolios of small-firms (sic) have earned consistently higher average returns than those of large-firm stocks; this is called the "small-firm effect." On the surface, it would seem to be advantageous to the small firms to provide average returns in a stock market that are higher than those of larger firms. In reality, it is bad news for the small firm; **what the small-firm effect means is that the capital market demands higher returns on stocks of small firms than on otherwise similar stocks of the large firms.** (emphasis added)[45]

Consistent with the financial principle of risk and return discussed above,

---

42 Duff & Phelps 2020 Valuation Handbook – U.S. Guide to Cost of Capital, Wiley 2018, at 4-1.

43 Fama & French, at 25-43.

44 Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205, 229.

45 Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989), at 623.

increased relative risk due to small size must be considered in the allowed rate of return on common equity. Therefore, the Commission's authorization of a cost rate of common equity in this proceeding must appropriately reflect the unique risks of UIL, including its small size, which is justified and supported above by evidence in the financial literature.

Q. Should the Commission consider UIL as a stand-alone company?

A. Yes, it should. Because it is UIL's rate base to which the overall rates of return set forth in this proceeding will be applied, they should be evaluated as a stand-alone entity. To do otherwise would be discriminatory, confiscatory, and inaccurate. It is also a basic financial precept that the use of the funds invested give rise to the risk of the investment. As Brealey and Myers state:

> The true cost of capital depends on the use to which the capital is put.
>
> ***
>
> *Each project should be evaluated at its own opportunity cost of capital; the true cost of capital depends on the use to which the capital is put.* (italics and bold in original) [46]

Morin confirms Brealey and Myers when he states:

> Financial theory clearly establishes that the cost of equity is the risk-adjusted opportunity cost of the investors and not the cost of the specific capital sources employed by the investors. The true cost of capital depends on the use to which the capital is put and not on its source. The Hope and Bluefield doctrines have made clear that the relevant considerations in calculating a company's cost of capital are the alternatives available to investors and the returns and risks associated with those alternatives.[47]

Additionally, Levy and Sarnat state:

> The firm's cost of capital is the discount rate employed to discount

---

46 Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance, McGraw-Hill, Third Edition, 1988, at pp. 173, 198.

47 Morin, at 523.

> the firm's average cash flow, hence obtaining the value of the firm. It is also the weighted average cost of capital, as we shall see below. The weighted average cost of capital should be employed for project evaluation... only in cases where the risk profile of the new projects is a "carbon copy" of the risk profile of the firm[48]

Although Levy and Sarnat discuss a project's cost of capital relative to a firm's cost of capital, these principles apply equally to the use of a proxy group-based cost of capital. Each company must be viewed on its own merits, regardless of the source of its equity capital. As *Bluefield* clearly states:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; [49]

In other words, it is the "risks and uncertainties" surrounding the property employed for the "convenience of the public" which determines the appropriate level of rates. In this proceeding, the property employed "for the convenience of the public" is the rate base of UIL. Thus, it is only the risk of investment in UIL that is relevant to the determination of the cost of common equity to be applied to the common equity-financed portion of that rate base.

In addition, in the Fama and French article previously cited, the authors[50] proposed that their three-factor model include the SMB (Small Minus Big) factor, which indicates that small capitalization firms are more risky than large capitalization firms, confirming that size is a risk factor which must be taken into account in estimating the cost of common equity.

---

48 Haim Levy & Marshall Sarnat, Capital Investment and Financial Decisions, Prentice/Hall International, 1986, at 465.

49 *Bluefield*, at 6.

50 Fama & French, at 39.

Consistent with the financial principle of risk and return discussed previously, and the stand-alone nature of ratemaking, an upward adjustment must be applied to the indicated cost of common equity derived from the cost of equity models of the proxy groups used in this proceeding.

Q. Is there a way to quantify a relative risk adjustment due to UIL's small size relative to the Utility Proxy Group?

A. Yes. The Company has greater relative risk than the average company in the Utility Proxy Group because of its smaller size compared with the group, as measured by an estimated market capitalization of common equity for UIL (whose common stock is not publicly-traded).

Table 8: Size as Measured by Market Capitalization for the Company and the Utility Proxy Group[51]

	Market Capitalization* ($ Millions)	Times Greater Than the Company
UIL	$96.104	
Utility Proxy Group Median	$1,692.873	17.6x

The Company's estimated market capitalization was at $96.104 million as of April 16, 2021, compared with the median market capitalization of the Utility Proxy Group of $1.7 billion as of April 16, 2021. The Utility Proxy Group's market capitalization is 17.6 times the size of UIL's estimated market capitalization.

As a result, it is necessary to upwardly adjust the indicated range of common equity cost rates to reflect UIL's greater risk due to its smaller relative size. The determination is based on the size premiums for portfolios of New York

[51] From page 1 of Schedule DWD-8.

Stock Exchange, American Stock Exchange, and NASDAQ listed companies ranked by deciles for the 1926 to 2020 period. The average size premium for the Utility Proxy Group with a market capitalization of $1.6 billion falls in the 6th decile, while UIL's market capitalization of $96.104 million places the Company in the 10th decile. The size premium spread between the 6th decile and the 10th decile is 3.64%. Even though a 3.64% upward size adjustment is indicated, I apply a size premium of 0.75% to UIL's indicated range of common equity cost rates.

Q. Since UIL is a wholly-owned subsidiary of Corix Utilities, why is the size of Corix not more appropriate to use when determining the size adjustment?

A. As discussed above, the return derived in this proceeding will not apply to Corix Utilities as a whole, but only UIL. Corix is the sum of its constituent parts, including those constituent parts' returns on common equity. Potential investors in Corix Utilities are aware that it is a combination of operations in each state, and that each state's operations experience the operating risks specific to their jurisdiction. The market's expectation of Corix Utilities' return is commensurate with the realities of its composite operations in each of the states in which it operates.

Q. What is the indicated cost of common equity after adjustments for size?

A. After applying the 0.75% upward adjustment for UIL's smaller size to the indicated range of equity cost rates between 10.13% and 10.42% applicable to the Utility Proxy Group, a Company-specific range of common equity cost rates between 10.88% and 11.17% results. From that range, I recommend the Commission approve an ROE of 11.00%.

X. CONCLUSION

Q. What is your recommended return on investor-supplied capital for Utilities, Inc. of Louisiana?

A. Given UIL's parent company expected capital structure which consists of 50.00% long-term debt at an expected embedded debt cost rate of 4.10%, and 50.00% common equity at my recommended ROE of 11.00%, I conclude that an appropriate return on investor-supplied capital for the Company is 7.55%. A common equity cost rate of 11.00% is consistent with the *Hope* and *Bluefield* standard of a just and reasonable return which ensures the integrity of presently invested capital and enables the attraction of needed new capital on reasonable terms. It also ensures that UIL will be able to continue providing safe, adequate, and reliable service to the benefit of customers. Thus, it balances the interests of both customers and the Company.

Q. In your opinion, is your proposed common equity cost rate of 11.00% fair and reasonable to UIL, its shareholders, and its customers?

A. Yes, it is.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE
LOUISIANA PUBLIC SERVICE COMMISSION

UTILITIES, INC. OF LOUISIANA **DOCKET NO. U-_____**

In re: Request for Extension of Formula Rate Plan With Modifications Thereto

AFFIDAVIT

STATE OF New Jersey

COUNTY OF Burlington

I, Dylan W D'Ascendis, being first duly sworn, depose that the Direct Testimony contained in the above captioned matter on behalf of Utilities, Inc. of Louisiana is true and correct to the best of my knowledge, information, and belief.

UTILITIES, INC. OF LOUISIANA

Mr. Dylan W. D'Ascendis

Subscribed and sworn before me this 21 day of May, 2021.

Notary Public

JOSEPH M NICHOLSON
Notary Public - State of New Jersey
My Commission Expires Dec 14, 2025