BEFORE THE WASHINGTON

UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

AVISTA CORPORATION d/b/a AVISTA UTILITIES,

Respondent.

DOCKETS NOS. UE-190334 and UG-190335, UE-190222 (*Consolidated*)

RESPONSE TESTIMONY OF DAVID J. GARRETT ON BEHALF OF THE WASHINGTON STATE OFFICE OF ATTORNEY GENERAL PUBLIC COUNSEL UNIT

EXHIBIT DJG-1T

October 3, 2019

DOCKET NOS. UE-190334, UG-190335 & UE-190222 (*Consolidated*)

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RESPONSE TESTIMONY OF DAVID J. GARRETT

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I. INTRODUCTION

Q. State your name and occupation.

A. My name is David J. Garrett. I am a consultant specializing in public utility regulation. I am the managing member of Resolve Utility Consulting, PLLC. I focus my practice on the primary capital recovery mechanisms for public utility companies: cost of capital and depreciation.

Q. Summarize your educational background and professional experience.

A. I received a B.B.A., with a major in Finance, an M.B.A., and a Juris Doctor from the University of Oklahoma. I worked in private legal practice for several years before accepting a position as assistant general counsel at the Oklahoma Corporation Commission in 2011. At the Oklahoma Commission, I worked in the Office of General Counsel in regulatory proceedings. In 2012, I began working for the Public Utility Division as a regulatory analyst providing testimony in regulatory proceedings. I am a Certified Depreciation Professional with the Society of Depreciation Professionals. I am also a Certified Rate of Return Analyst with the Society of Utility and Regulatory Financial Analysts. I have testified in many regulatory proceedings on cost of capital, depreciation, and other issues. A more complete description of my qualifications and regulatory experience is included in my curriculum vitae.[1]

[1] David J. Garrett, Exh. DJG-2.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of the Public Counsel Unit of the Washington Office of Attorney General ("Public Counsel").

Q. Describe the scope and organization of your testimony.

A. The purpose of my testimony is to present an independent analysis and opinion of the cost of equity capital and a prudent capital structure for Avista Corp. (Avista or the Company). Based on my estimates of the Company's weighted average cost of capital, I present a recommendation for the allowed rate of return for the Company. My testimony primarily addresses issues raised in the Direct Testimony of Adrien M. McKenzie. I also respond to issues raised in the Direct Testimony of Mark T. Thies regarding capital structure.

II. EXECUTIVE SUMMARY

Q. Explain the concept of the "weighted average cost of capital."

A. The term "cost of capital" refers to the weighted average cost of all types of components.

Q. Explain the weighted average cost of capital and how the Company's cost of equity and capital structure affect this equation.

A. The term "cost of capital" refers to the weighted average cost of all types of securities within a company's capital structure, including debt and equity. Determining the cost of debt is relatively straight-forward. Interest payments on bonds are contractual, "embedded costs" that are generally calculated by dividing total interest payments by the book value of outstanding debt. Determining the cost of equity, on the other hand, is

more complex. Unlike the known, contractual cost of debt, there is no explicit "cost" of common equity. To determine the appropriate cost of equity capital, companies must estimate the return their equity investors will demand in exchange for giving up their opportunity to invest in other securities or postponing their own consumption, in light of the level of risk associated with the investment. Thus, the overall weighted average cost of capital (WACC), includes the cost of debt and the estimated cost of equity. It is a "weighted average," because it is based upon the Company's relative levels of debt and equity. Companies in the competitive market often use their WACC as the discount rate to determine the value of various capital projects. The basic WACC equation used in regulatory proceedings is presented below:[2]

Equation 1:
Weighted Average Cost of Capital

$$WACC = \left(\frac{D}{D+E}\right)C_D + \left(\frac{E}{D+E}\right)C_E$$

where: $WACC$ = *weighted average cost of capital*
D = *book value of debt*
C_D = *embedded cost of debt capital*
E = *book value of equity*
C_E = *market-based cost of equity capital*

Thus, the term "cost of capital" is synonymous with the "weighted average cost of capital," which includes both debt and equity components. As discussed further below,

[2] David J. Garrett, Exh. DJG-3 (Roger A. Morin, NEW REGULATORY FINANCE 449-450 (Pub. Util. Rep., Inc. 2006)). The traditional practice uses current market returns and market values of the company's outstanding securities to compute the WACC, but in the ratemaking context, analysts usually employ a hybrid computation consisting of embedded costs of debt from the utilities books, and a market-based cost of equity. Additionally, the traditional WACC equation usually accounts for the tax shield provided by debt, but taxes are accounted for separately in the ratemaking revenue requirement).

the Commission's determination of a fair awarded rate of return should be based on a reasonable estimate of the Company's weighted average cost of capital.

In this Application, the Company has proposed a cost of equity of 9.9 percent, as discussed in the direct testimony of Mr. McKenzie. The Company has also proposed a cost of debt of 5.62 percent and a debt ratio of 50 percent. These three factors equate to a proposed weighted average cost of capital of 7.7 percent for the Company. In the sections below, I discuss several significant errors upon which the Company's requested weighted average cost of capital is based.

Q. Summarize your analyses and conclusions regarding Avista's Cost of Equity.

A. In formulating my recommendation, I performed thorough independent analyses to calculate Avista's cost of equity. To do this, I selected a proxy group of companies that represents a relevant sample with asset and risk profiles similar to those of Avista. Based on this proxy group, I evaluated the results of two widely accepted financial models for calculating cost of equity: (1) the Discounted Cash Flow (DCF) Model; and (2) the Capital Asset Pricing Model (CAPM). I evaluated these models to ensure a balanced approach that meets the legal standards, objective market considerations, and regulatory goals for establishing an appropriate awarded return for Avista. Based on my quantitative and qualitative analyses, as discussed throughout my testimony below, I recommend an awarded return on equity of nine percent, which represents the midpoint within a reasonable a range of 8.75 percent and 9.25 percent. While Avista's actual cost of capital is much lower, my recommendation represents a gradual, rather than abrupt move towards market-based cost of equity.

Q. Summarize your analyses and conclusions regarding Avista's capital structure.

A. The Company's actual capital structure consists of 53 percent debt and 47 percent equity.[3] However, the Company is requesting an imputed debt ratio of only 50 percent. A lower debt ratio in this case would unreasonably increase the Company's overall awarded rate of return and revenue requirement. An objective analysis, including a comparison of competitive industry debt ratios and the debt ratios of the proxy group indicate that Avista's actual debt ratio of 53 percent is fair and reasonable.

Q. Provide an overview of the problems you have identified with the Company's cost of capital estimate.

A. In this case, Mr. McKenzie supports the Company's request for a very high awarded rate of return of 9.9 percent.[4] Mr. McKenzie's recommendations are based on several models, including the CAPM and DCF Model, however, several of his key assumptions and inputs to these models violate fundamental, widely-accepted tenants in finance and valuation. In the sections below, I will discuss my concerns regarding the Company's requested cost of capital in further detail. However, the key areas of concern are summarized as follows:

[3] *See* David J. Garrett, Exh. DJG-4 (Elizabeth Andrews, Workpapers, 'Section 1 -- Electric Pro Forma.pdf' at 30 and 'Section 2 -- Nat Gas Pro Forma.pdf' at 28).

[4] *See generally* Direct Testimony of Adrien M. McKenzie, Exh. AMM-1T

1. In his DCF Model, Mr. McKenzie used long-term growth rates as high as 12.5 percent, which is more than three times the projected growth rate of the entire U.S. economy, as measured by GDP. It is a fundamental concept in finance that, in the long run, a company cannot grow at a faster rate than the aggregate economy in which it operates. This is especially true for a regulated utility with a defined service territory. Avista's own projections for more qualitative growth indicators, such as customer growth, indicate that the Company's actual growth rate is much less than what is implied in Mr. McKenzie's DCF Model.

3. Mr. McKenzie's estimate for the Equity Risk Premium ("ERP"), the single most important factor in estimating the cost of equity, is nearly twice as high as the estimate reported by thousands of other financial experts across the country. Mr. McKenzie inappropriately bases his equity risk premium estimate in part on awarded returns in other jurisdictions – a non-market factor that bears no meaningful relationship to the market-based ERP. Mr. McKenzie's ERP input to the CAPM is so unreasonably high that it should be considered an error.

4. Mr. McKenzie suggests that Company-specific risk factors have an increasing effect on its cost of equity. However, this overlooks the fundamental concept that the market does not reward diversifiable, firm-specific risk; therefore, investors do not expect a return for such risk. Mr. McKenzie also erroneously suggests that the Company's relative size should have an increasing effect on its cost of equity despite the overwhelming evidence confirming that the "size premium" phenomenon was short-lived and has not been seen for over a quarter-century.

5. Mr. McKenzie and Mr. Thies request the Commission impute a capital structure consisting of more equity than the Company's actual capital structure, which would simply have the effect of increasing the Company's rate of return. Objective analysis and indicators show that the Company's actual debt ratio of 53 percent is reasonable. Mr. Thies offers a misleading narrative regarding the Commission's duty as it relates to capital structure and credit ratings by suggesting that it is the Commission's responsibility to support the Company's credit ratings. However, this arrangement is not contemplated by the regulatory model under which Avista and other regulated utilities operate.

In short, the assumptions employed by Mr. McKenzie skew the results of his financial models such that they do not reflect the economic realities of the market upon which cost of equity recommendation should be based. In the testimony below, I demonstrate how correcting the various erroneous assumptions in the DCF and CAPM financial models

results in appropriate ROE recommendations which better align with today's market and Avista's risk profile.

Q. Please summarize your recommendation regarding the Company's awarded return on equity and capital structure.

A. I recommend the Commission award Avista with a return on equity of nine percent, which is the midpoint between a reasonable range of 8.75 percent - 9.25 percent. I also recommend that the Commission reject the Company's requested debt ratio of only 50 percent and instead adopt the Company's actual debt ratio of 53 percent.[5]

III. LEGAL STANDARDS FOR ESTABLISHING COST OF CAPITAL

Q. Discuss the legal standards governing the allowed rate of return on capital investments for regulated utilities.

A. In *Wilcox v. Consolidated Gas Co. of New York*, the U.S. Supreme Court first addressed the meaning of a fair rate of return for public utilities.[6] The Court found that "the amount of risk in the business is a most important factor" in determining the appropriate allowed rate of return.[7] Later, in two landmark cases, the Court set forth the standards by which public utilities are allowed to earn a return on capital investments. In *Bluefield Water*

[5] The Company's actual debt ratio is 52.77 percent, which throughout this testimony I round to 53 percent. To be clear, I am recommending approval of Avista's actual capital structure, which consists of 52.77 percent debt.

[6] *Wilcox v. Consolidated Gas Co. of New York*, 212 U.S. 19 (1909).

[7] *Id*. at 48.

Works & Improvement Co. v. Public Service Commission of West Virginia, the Court held:

> 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 . . . but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.[8]

In *Federal Power Commission v. Hope Natural Gas Company*, the Court expanded on the guidelines set forth in *Bluefield* and stated:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses ***but also for the capital costs of the business***. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[9]

The cost of capital models I have employed in this case are in accord with all of the foregoing legal standards.

Q. Is it important that the "allowed" rate of return be based on the Company's actual cost of capital?

A. Yes. The Supreme Court in *Hope* makes it clear that the allowed return should be based on the cost of capital. Under the rate base rate of return model, a utility should be allowed

[8] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679, 692-93 (1923).

[9] *Fed. Power Comm'n v. Hope Nat. Gas Co*., 320 U.S. 591, 603 (1944) (emphasis added).

to recover all of its reasonable expenses, its capital investments through depreciation, and a return on its capital investments sufficient to satisfy the required return of its investors. The "required return" from the investors' perspective is synonymous with the "cost of capital" from the utility's perspective. Scholars agree that the allowed rate of return should be based on the cost of capital:

> Since by definition the cost of capital of a regulated firm represents precisely the expected return that investors could anticipate from other investments while bearing no more or less risk, and since investors will not provide capital unless the investment is expected to yield its opportunity cost of capital, the correspondence of the definition of the cost of capital with the court's definition of legally required earnings appears clear.[10]

The models I have employed in this case closely estimate the Company's true cost of equity. If the Commission sets the awarded return based on my lower, and more reasonable rate of return, it will comply with the Supreme Court's standards, allow the Company to maintain its financial integrity under prudent and efficient management, and satisfy the required return of its investors commensurate with the very low risk inherent of their investment. On the other hand, if the Commission sets the allowed rate of return much *higher* than the true cost of capital, it arguably results in an inappropriate transfer of wealth from ratepayers to shareholders. This point is underscored as follows:

[10] David J. Garrett, Exh. DJG-5 (A. Lawrence Kolbe, James A. Read, Jr. & George R. Hall, THE COST OF CAPITAL: ESTIMATING THE RATE OF RETURN FOR PUBLIC UTILITIES 21 (The MIT Press 1984)).

> [I]f the allowed rate of return is greater than the cost of capital, capital investments are undertaken and investors' opportunity costs are more than achieved. Any excess earnings over and above those required to service debt capital accrue to the equity holders, and the stock price increases. In this case, the wealth transfer occurs from ratepayers to shareholders.[11]

Thus, it is important to understand that *awarded* returns and *actual* cost of capital are two separate concepts. Awarded returns are set through the regulatory process and may be influenced by a number of factors other than objective market drivers. Cost of capital, on the other hand, should be evaluated objectively and closely tie to the economic market realities. In other words, cost of capital it is driven by stock prices, dividends, growth rates, and, most importantly, it is driven by risk. Cost of capital can be estimated through the use of financial models used by firms, investors, and academics around the world for decades. The problem is, with respect to regulated utilities, there has been a trend in which awarded returns fail to closely track with actual market-based cost of capital. To the extent this occurs, the results are detrimental to ratepayers and the state's economy.

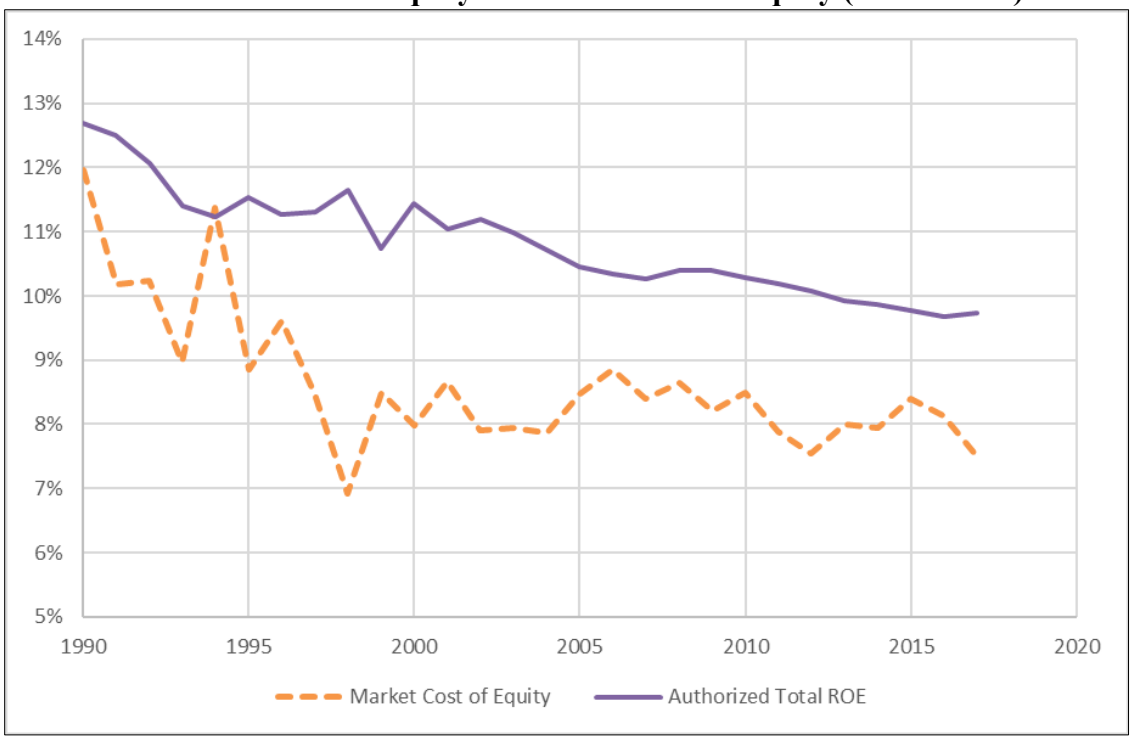
Q. If the Commission sets the allowed return at a level far greater than the market-based cost of capital, will this permit an excess transfer of wealth from Washington ratepayers to Company shareholders and the federal government?

A. Yes. As discussed further in the sections below, Mr. McKenzie's recommendation of a 9.9 percent awarded ROE is far higher than Avista's true cost of capital based on objective market data and risk profiles of comparable firms. If the Commission were to adopt the Company's position in this case, it would be permitting an excess transfer of

[11] Garrett, Exh. DJG-3 (Roger A. Morin, NEW REGULATORY FINANCE 23-24 (Pub. Util. Rep., Inc. 2006) (1994)).

wealth from Washington customers to Company shareholders. The negative impact to ratepayers and the state's economy is clear. Establishing an awarded return based on flawed assumptions which overstate the cost of capital effectively prevents the awarded returns from changing along with economic conditions. As shown in the figure below, awarded returns for public utilities have been well above the average required market return for at least 30 years. Due to the fact that utility stocks are consistently far less risky than the average stock in the marketplace, the cost of equity for utility companies is *less* than the market cost of equity.

Figure 1:
Awarded Returns on Equity vs. Market Cost of Equity (1990 – 2018)[12]



[12] *See* David J. Garrett, Exh. DJG-6.

In other words, awarded ROEs that are actually based upon (i.e., much closer to) utility cost of equity should be below the dotted line in the graph (in only one year in the last 30 years, 1994, did this occur). The gap between the average awarded returns and utility cost of equity has resulted in an excess of ratepayer wealth being transferred to utility shareholders and the IRS for nearly 30 years (at least). This is likely due, in part, to the fact that interest rates were much higher in the 1990s, and there was also an average required market return around 12 percent. In that environment, the cost of equity for low-risk utility stocks might have been about nine percent. Since that time, however, interest rates have dramatically declined among other economic changes, and it is clear that awarded returns have failed to keep pace with decreasing equity costs. As shown in the graph, since 1990 there was only one year in which the average awarded ROE was below the market cost of equity – 1994. In other words, 1994 was the year that regulators awarded ROEs that were the closest to utilities' market-based cost of equity. In my opinion, when awarded ROEs for utilities are below the market cost of equity, they more closely conform to the standards set forth by *Hope* and *Bluefield* and minimize the excess wealth transfer from ratepayers to shareholders.

Q. Have other analysts commented on this national phenomenon of awarded ROEs exceeding market-based cost equity for utilities?

A. Yes. In his article published in Public Utilities Fortnightly in 2016, Steve Huntoon observed that even though utility stocks are less risky than the stocks of competitive

industries, utility stocks have nonetheless outperformed the broader market.[13] Specifically, Huntoon notes the following three points which lead to this problematic conclusion:

> 1. Jack Bogle, the founder of Vanguard Group and a Wall Street legend, provides rigorous analysis that the long-term total return for the broader market will be around 7 percent going forward. Another Wall Street legend, Professor Burton Malkiel, corroborates that 7 percent in the latest edition of his seminal work, A Random Walk Down Wall Street.
>
> 2. Institutions like pension funds are validating [the first point] by piling on risky investments to try and get to a 7.5 percent total return, as reported by the Wall Street Journal.
>
> 3. Utilities are being granted returns on equity around 10 percent.[14]

In a follow-up article analyzing and agreeing with Mr. Huntoon's findings, Leonard Hyman and William Tilles found that utility equity investors expect about a 7.5 percent annual return.[15]

Other scholars have also observed that awarded ROEs have not appropriately tracked with declining interest rates over the years, and that excessive awarded ROEs have negative economic impacts. In a white paper issued last year, Charles S. Griffey stated:

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[13] David J. Garrett, Exh. DJG-7 (Steve Huntoon, *Nice Work If You Can Get It*, PUB. UTIL. FORTNIGHTLY (Aug. 2016)).

[14] *Id*.

[15] David J. Garrett, Exh. DJG-8 (Leonard Hyman & William Tilles, *Don't Cry for Utility Shareholders, America*, PUB. UTIL. FORTNIGHTLY (Oct. 2016)).

> The "risk premium" being granted to utility shareholders is now higher than it has ever been over the last 35 years. Excessive utility ROEs are detrimental to utility customers and the economy as a whole. From a societal standpoint, granting ROEs that are higher than necessary to attract investment creates an inefficient allocation of capital, diverting available funds away from more efficient investments. From the utility customer perspective, if a utility's awarded and/or achieved ROE is higher than necessary to attract capital, customers pay higher rates without receiving any corresponding benefit.[16]

It is interesting that both Mr. Huntoon and Mr. Griffey use the word "sticky" in their articles to describe the fact that awarded ROEs have declined at a much slower rate than interest rates and other economic factors resulting in a decline in capital costs and expected returns on the market. It is not hard to see why this phenomenon of sticky ROEs has occurred. Because awarded ROEs are often based primarily on a comparison with other awarded ROEs around the country, the average awarded returns effectively fail to adapt to true market conditions, and regulators seem reluctant to deviate from the average. Once utilities and regulatory commissions become accustomed to awarding rates of return higher than market conditions actually require, this trend becomes difficult to reverse. The fact is, utility stocks are *less risky* than the average stock in the market, and thus, awarded ROEs should be less than the expected return on the market. However, that is rarely the case. Ratepayers can only hope that "[s]ooner or later, regulators may see the gap between allowed returns and cost of capital."[17]

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[16] David J. Garrett, Exh. DJG-9 (Charles S. Griffey, WHEN 'WHAT GOES UP' DOES NOT COME DOWN: RECENT TRENDS IN UTILITY RETURNS (2017)).

[17] Garrett, Exh. DJG-8 (Leonard Hyman & William Tilles, *Don't Cry for Utility Shareholders, America*, PUB. UTIL. FORTNIGHTLY, Oct. 2016).

Q. Please summarize the legal standards governing the awarded ROE issue.

A. The Commission should strive to move the awarded return to a level more closely aligned with the Company's actual, market-derived cost of capital while keeping in mind the following legal principles:

1. Risk is the most important factor when determining the awarded return. The awarded return should be commensurate with those on investments of corresponding risk.

The legal standards articulated in *Hope* and *Bluefield* demonstrate that the Court understands one of the most basic, fundamental concepts in financial theory: the more (or less) risk an investor assumes, the more (or less) return the investor requires. Since utility stocks are very low risk, the return required by equity investors should be relatively low. I have used financial models in this case to closely estimate the Company's cost of equity, and these financial models account for risk. The public utility industry is one of the least risky industries in the entire country. This is not surprising due to the presence of stable revenues, captive customers, the consistent demand for utility service, and operations that are essentially supported by the state. This means that, in the long run, the profits realized in riskier industries should be higher than the profits realized in the utility industry. To the extent awarded returns for utilities remain comparatively higher than the returns for companies in riskier industries, this is further evidence of the disconnect resulting from the regulatory process, rather than financial or market drivers.

2. The awarded return should be sufficient to assure financial soundness under efficient management.

Because awarded returns in the regulatory environment have not closely tracked market-based trends and commensurate risk, utility companies have been able to remain more than financially sound, perhaps in spite of management efficiencies. In fact, the transfer of wealth from ratepayers to shareholders has been so far removed from actual cost-based drivers, that even under relatively inefficient management a utility could remain financially sound. Therefore, regulatory commissions should strive to set the awarded return to a regulated utility at a level based on accurate market conditions, to promote prudent and efficient management and minimize economic waste.

IV. GENERAL CONCEPTS AND METHODOLOGY

Q. Discuss your general approach in estimating the cost of equity in this case.

A. While a competitive firm must estimate its own cost of capital to assess the profitability of capital projects, regulators should determine a utility's cost of capital to establish a fair rate of return. The legal standards set forth above do not include specific guidelines regarding the specific models that must be used to estimate the cost of equity. Over the years, however, regulatory commissions have consistently relied on several models. The models I have employed in this case have been widely used and accepted in regulatory proceedings for many years. These models include the Discounted Cash Flow Model (DCF) and the Capital Asset Pricing Model (CAPM). The specific inputs and calculations for these models are described in more detail below.

Q. Explain why you used multiple models to estimate the cost of equity.

A. The models used to estimate the cost of equity attempt to measure the required return of equity investors by estimating a number of different inputs. It is preferable to use multiple models because the results of any one model may contain a degree of inconsistency, especially depending on the reliability of the inputs used at the time of conducting the model. By using multiple models, the analyst can compare the results of the models and look for outlying results and inconsistencies. Likewise, if multiple models produce a similar result, it may indicate a more narrow range for the cost of equity estimate.

V. THE PROXY GROUP

Q. Explain the benefits of choosing a proxy group of companies in conducting cost of capital analyses.

A. The cost of equity models in this case can be used to estimate the cost of capital of any individual, publicly-traded company. There are advantages, however, to conducting cost of capital analysis on a "proxy group" of companies that are comparable to the target company. First, it is better to assess the financial soundness of a utility by comparing it a group of other financially sound utilities. Second, using a proxy group provides more reliability and confidence in the overall results because there is a larger sample size. Finally, the use of a proxy group is often a pure necessity when the target company is a subsidiary that is not publicly traded, as is the case with Avista. This is because the

financial models used in this case require information from publicly-traded firms, such as stock prices and dividends.

Q. Describe the proxy group you selected.

A. In this case, I used the same proxy group for my analysis as the group selected by Mr. McKenzie.[18] There could be reasonable arguments made for the inclusion or exclusion of particular companies in a proxy group, but for all intents and purposes, the cost of equity estimates in rate cases are influenced far more by the assumptions and inputs to the various financial models than the composition of the proxy groups. A summary of the proxy group appears in my Exhibit DJG-10 at page 2.

VI. RISK AND RETURN CONCEPTS

Q. Discuss the general relationship between risk and return.

A. As discussed above, risk is among the most important factors for the Commission to consider when determining the allowed return. In order to comply with this standard, it is necessary to understand the relationship between risk and return. There is a direct relationship between risk and return: the more (or less) risk an investor assumes, the larger (or smaller) return the investor will demand. There are two primary types of risk that affect equity investors: firm-specific risk and market risk. Firm-specific risk affects individual firms, while market risk affects all companies in the market to varying degrees.

[18] David J. Garrett, Exh. DJG-10.

Q. Discuss the differences between firm-specific risk and market risk.

A. Firm-specific risk affects individual companies, rather than the entire market. For example, a competitive firm might overestimate customer demand for a new product, resulting in reduced sales revenue. This is an example of project risk.[19] There are several other types of firm-specific risks, including: (1) financial risk – the risk that equity investors of leveraged firms face as residual claimants on earnings; (2) default risk – the risk that a firm will default on its debt securities; and (3) business risk – which encompasses all other operating and managerial factors that may result in investors realizing more or less than their expected return in that particular company. While firm-specific risk affects individual companies, market risk affects all companies in the market to varying degrees. Examples of market risk include interest rate risk, inflation risk, and the risk of major socio-economic events. When there are changes in these risk factors, they affect all firms in the market to some extent.[20]

Q. Is it possible for investors to mitigate or eliminate firm-specific risk?

A. Yes. One of the fundamental concepts in finance is that firm-specific risk can be eliminated through diversification.[21] If someone irrationally invested all of their funds in one firm, they would be exposed to all of the firm-specific risk and the market risk

[19] *See* David J. Garrett, Exh. DJG-11 (Aswath Damodaran, INVESTMENT VALUATION: TOOLS AND TECHNIQUES FOR DETERMINING THE VALUE OF ANY ASSET 62-63 (John Wiley & Sons, Inc. 3d. ed. 2012)).

[20] David J. Garrett, Exh. DJG-12 (Zvi Bodie, Alex Kane & Alan J. Marcus, ESSENTIALS OF INVESTMENTS 149 (McGraw-Hill/Irwin 9th ed. 2013)).

[21] David J. Garrett, Exh. DJG-13 (John R. Graham, Scott B. Smart & William L. Megginson, CORPORATE FINANCE: LINKING THEORY TO WHAT COMPANIES DO 179-80 (S. W. Cengage Learning 3d ed. 2010)).

inherent in that single firm. Rational investors, however, are risk-averse and seek to eliminate risk they can control. Investors can eliminate firm-specific risk by simply adding more stocks to their portfolio through a process called "diversification." There are two reasons why diversification eliminates firm-specific risk. First, each stock in a diversified portfolio represents a much smaller percentage of the overall portfolio than it would in a portfolio of just one or a few stocks. Thus, any firm-specific action that changes the stock price of one stock in the diversified portfolio will have only a small impact on the entire portfolio. For example, an investor who had his or his entire portfolio invested in Enron stock at the beginning of 2001 would have lost the entire investment by the end of the year, as a result of exposure to the firm-specific risk of Enron's imprudent management. On the other hand, a rational, diversified investor who owned every stock in the S&P 500 would have incurred a much smaller loss over the same period of time.

The second reason why diversification eliminates firm-specific risk is that the effects of firm-specific actions on stock prices can be either positive or negative for each stock. Thus, in large portfolios, the net effect of these positive and negative firm-specific risk factors will be essentially zero and will not affect the value of the overall portfolio. Firm-specific risk is also called "diversifiable risk" due to the fact that it can be easily eliminated through diversification.

Q. Is the assumption of firm-specific risk rewarded by the market through higher returns?

A. No. Because investors eliminate firm-specific risk through diversification, they know they cannot expect a higher return for assuming the firm-specific risk in any one company. Thus, the risks associated with an individual firm's operations, as well as managerial risk and default risk are not rewarded by the market. In fact, firm-specific risk is also called "unrewarded" risk for this reason. Market risk, on the other hand, cannot be eliminated through diversification. Market risks, such as interest rate risk and inflation risk, affect all stocks in the market to different degrees. Because market risk cannot be eliminated through diversification, investors who assume higher levels of market risk also expect higher returns. Market risk is also called "systematic risk."

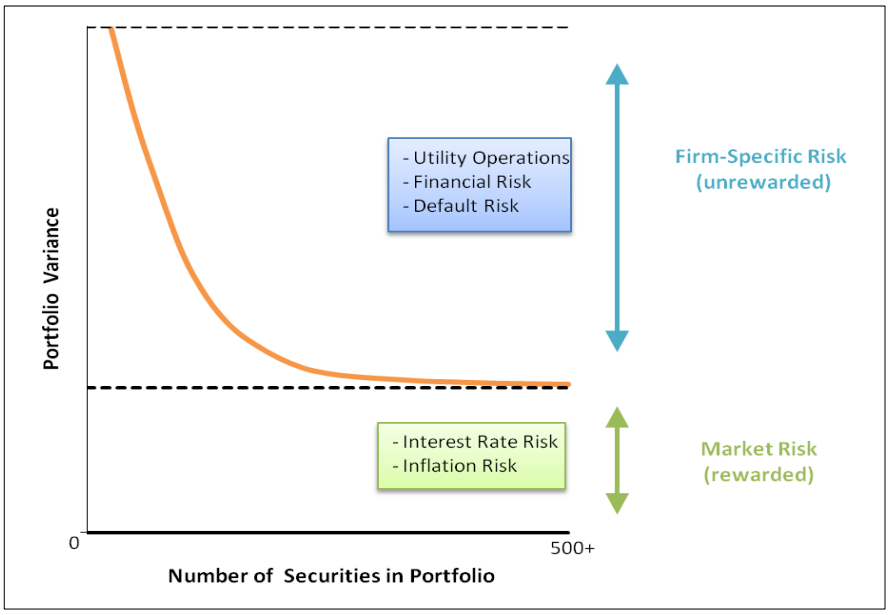
Scholars recognize the fact that market risk, or "systematic risk," is the only type of risk for which investors expect a return for bearing:

> If investors can cheaply eliminate some risks through diversification, then we should not expect a security to earn higher returns for risks that can be eliminated through diversification. Investors can expect compensation only for bearing systematic risk (i.e., risk that cannot be diversified away).[22]

These important concepts are illustrated in the figure below.

[22] *See* Garrett, Exh. DJG-13 (John R. Graham, Scott B. Smart & William L. Megginson, CORPORATE FINANCE: LINKING THEORY TO WHAT COMPANIES DO 180 (S. W. Cengage Learning 3d. ed. 2010)).

Figure 2:
Effects of Portfolio Diversification



This figure shows that as stocks are added to a portfolio, the amount of firm-specific risk is reduced until it is essentially eliminated. No matter how many stocks are added, however, there remains a certain level of fixed market risk. The level of market risk will vary from firm to firm. Market risk is the only type of risk that is rewarded by the market and is thus the primary type of risk the Commission should consider when determining the allowed return.

Q. Describe how market risk is measured.

A. Investors who want to eliminate firm-specific risk must hold a fully diversified portfolio. To determine the amount of risk that a single stock adds to the overall market portfolio, investors measure the covariance between a single stock and the market portfolio. The

result of this calculation is called "beta."[23] Beta represents the sensitivity of a given security to the market as a whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater than one are relatively more sensitive to market risk than the average stock. For example, if the market increases (or decreases) by 1.0 percent, a stock with a beta of 1.5 will, on average, increase (or decrease) by 1.5 percent. In contrast, stocks with betas of less than one are less sensitive to market risk. For example, if the market increases (or decreases) by 1.0 percent, a stock with a beta of 0.5 will, on average, only increase (or decrease) by 0.5 percent. Thus, stocks with low betas are relatively insulated from market conditions. The beta term is used in the Capital Asset Pricing Model to estimate the required return on equity, which is discussed in more detail later.

Q. Please describe the level of risk typically associated with of public utilities.

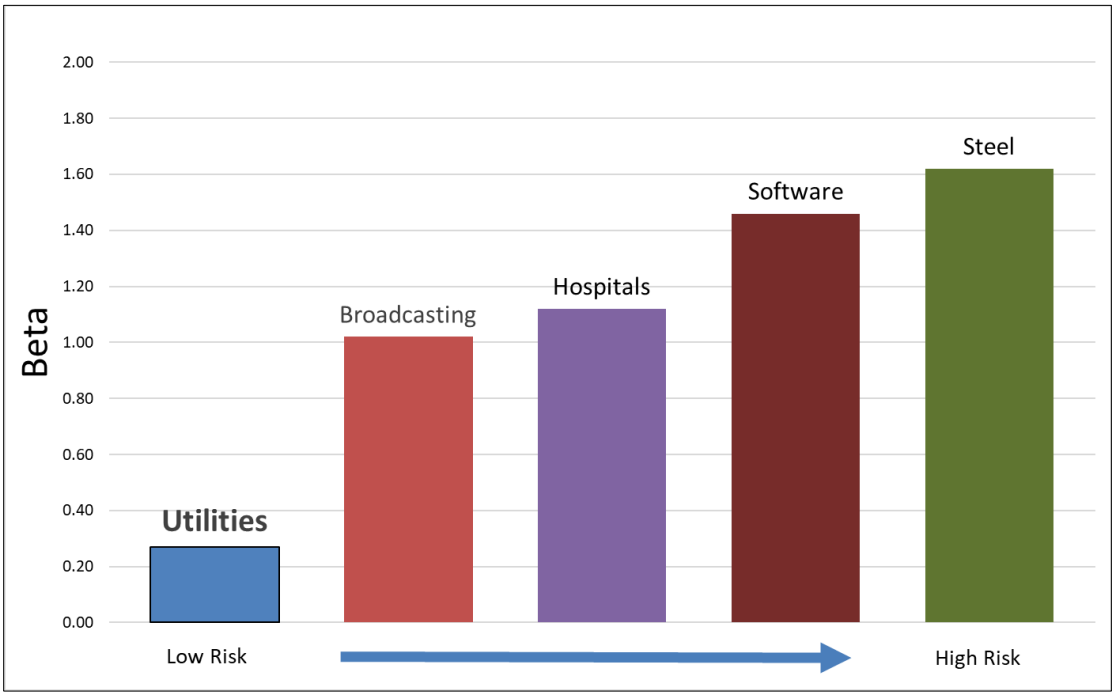
A. Recall that although market risk affects all firms in the market, it affects different firms to varying degrees. Firms with high betas are affected more than firms with low betas, which is why firms with high betas are riskier. Stocks with betas greater than one are generally known as "cyclical stocks." Firms in cyclical industries are sensitive to recurring patterns of recession and recovery known as the "business cycle."[24] Thus, cyclical firms are exposed to a greater level of market risk. Securities with betas less than one, on the other hand, are known as "defensive stocks." Companies in defensive

[23] *Id*. at 180-81.

[24] Garrett, Exh. DJG-12 (Zvi Bodie, Alex Kane & Alan J. Marcus, ESSENTIALS OF INVESTMENTS 382 (McGraw-Hill/Irwin 9th ed. 2013)).

industries, such as public utility companies, "will have low betas and performance that is comparatively unaffected by overall market conditions."[25] The figure below compares the betas of several industries and illustrates that the utility industry is one of the least risky industries in the U.S. market.[26]

Figure 3:
Beta by Industry



The fact that utilities are defensive firms that are exposed to little market risk is beneficial to society. When the business cycle enters a recession, consumers can be assured that

[25] *Id*. at 383.

[26] Aswath Damodaran, *Betas by Sector (US)*, N.Y. UNIV. (Jan. 5, 2019) http://www.stern.nyu.edu/~adamodar/pc/datasets/betas.xls. The exact beta calculations are not as important as illustrating the well-known fact that utilities are very low-risk companies. The fact that the utility industry is one of the lowest risk industries in the country should not change from year to year.

their utility companies will be able to maintain normal business operations, and utility investors can be confident that utility stock prices will not widely fluctuate. Thus, because utilities are defensive firms that experience little market risk and are relatively insulated from market conditions, this fact should also be appropriately reflected in the Commission's awarded rate of return.

Q. Does this generally mean that investors in firms with low betas require a smaller return than the average required return on the market?

A. Yes. This is the basic concept of the risk and return doctrine: The more (or less) risk an investor assumes, the larger (or smaller) return the investor will demand. So, if a particular stock is less risky than the market average, then an investor in that stock will require a smaller return than the average return on the market. Since utilities are low-risk companies with low betas, the required return (i.e., cost of capital) for utilities should be lower than the required return on the overall market.

VII. DISCOUNTED CASH FLOW ANALYSIS

Q. Describe the Discounted Cash Flow model.

A. The Discounted Cash Flow ("DCF") Model is based on a fundamental financial model called the "dividend discount model," which maintains that the value of a security is equal to the present value of the future cash flows it generates. Cash flows from common stock are paid to investors in the form of dividends. There are several variations of the DCF Model. A general form of the DCF Model used in utility proceedings is expressed as follows:

Equation 2:
Constant Growth Discounted Cash Flow

$$K = \frac{D_1}{P_0} + g$$

where: K = *discount rate / required return on equity*
D_1 = *expected dividend per share one year from now*
P_0 = *current stock price*
g = *expected growth rate of future dividends*

The Constant Growth DCF Model may be considered in two parts. The first part is the dividend yield (D_1/P_0), and the second part is the growth rate (g). One of the inherent assumptions in the DCF Model is that the growth rate is constant, or infinite. Thus, it is especially important not to overestimate the growth rate.

Q. Describe the Quarterly Approximation DCF Model.

A. The basic form of the Constant Growth DCF Model described above is sometimes referred to as the "Annual" DCF Model. This is because the model assumes an annual dividend payment to be paid at the end of every year, as well as an increase in dividends once each year. In reality, however, most utilities pay dividends on a quarterly basis. The Constant Growth DCF equation may be modified to reflect the assumption that investors receive successive quarterly dividends and reinvest them throughout the year at the discount rate. This variation is called the Quarterly Approximation DCF Model.

Equation 3:
Quarterly Approximation Discounted Cash Flow

$$K = \left[\frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4}\right]^4 - 1$$

where: K = *discount rate / required return*
d_0 = *current quarterly dividend per share*
P_0 = *stock price*
g = *expected growth rate of future dividends*

The Quarterly Approximation DCF Model assumes that dividends are paid quarterly and that each dividend is constant for four consecutive quarters. There are several other variations of the Constant Growth (or Annual) DCF Model, including a Semi-Annual DCF Model which is used by the Federal Energy Regulatory Commission (FERC). These models, along with the Quarterly Approximation DCF Model, have been accepted in regulatory proceedings as useful tools for estimating the cost of equity. For this case, I have chosen to use the Quarterly Approximation DCF Model described above, which results in the highest cost of equity estimate relative to the other models, all else held constant.

Q. Describe the inputs to the DCF Model.

A. There are three primary inputs in the DCF Model: (1) stock price; (2) dividend; and (3) the long-term growth rate. The stock prices and dividends are known inputs based on recorded data, while the growth rate projection must be estimated. I will discuss each of these inputs in turn.

A. Stock Price

Q. Describe how you determined the stock price input of the DCF Model.

A. For the stock price, I used a 30-day average of stock prices for each company in the proxy group.[27] Analysts sometimes rely on average stock prices for longer periods (e.g., 60, 90, or 180 days). According to the efficient market hypothesis, however, markets reflect all relevant information available at a particular time, and prices adjust instantaneously to the arrival of new information.[28] Past stock prices, in essence, reflect outdated information. The DCF Model used in utility rate cases is a derivation of the dividend discount model, which is used to determine the current value of an asset. Thus, according to the dividend discount model and the efficient market hypothesis, the value for the "price" term in the DCF Model should technically be the current stock price, rather than an average.

Q. Explain why you used a 30-day average for the current stock price input.

A. Using a short-term average of stock prices for the current stock price input adheres to market efficiency principles which avoids any irregularities that may arise from using a single current stock price. In the context of a utility rate proceeding, there is a significant length of time from when an application is filed and responsive testimony is due. Choosing a current stock price for one particular day during that time could raise a

[27] Garrett, Exh. DJG-14.

[28] David J. Garrett, Exh. DJG-15 (Eugene F. Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, Vol. 25, No. 2, The Journal of Finance 383 (1970)).

separate issue concerning which day was chosen to be used in the analysis. In addition, a single stock price on a particular day may be unusually high or low. It is arguably ill-advised to use a single stock price in a model that is ultimately used to set rates for several years, especially if a stock is experiencing some volatility. Thus, it is preferable to use a short-term average of stock prices, which represents a good balance between adhering to well-established concepts of market efficiency while avoiding any irregularities that may arise from using a single stock price on a given day. The stock prices I used in my DCF analysis are based on 30-day averages of adjusted closing stock prices for each company in the proxy group.[29]

B. Dividend

Q. Describe how you determined the dividend input of the DCF Model.

A. The dividend term in the Quarterly Approximation DCF Model is the current quarterly dividend per share. I obtained recent quarterly dividends for each proxy company.[30] The Quarterly Approximation DCF Model assumes that the company increases its dividend payments each quarter. Thus, the model assumes that each quarterly dividend is greater than the previous one by $(1 + g)^{0.25}$. This expression could be described as the dividend quarterly growth rate, where the term "g" is the growth rate and the exponential term

[29] Garrett, DJG-14. Adjusted closing prices, rather than actual closing prices, are ideal for analyzing historical stock prices. The adjusted price provides an accurate representation of the firm's equity value beyond the mere market price because it accounts for stock splits and dividends.

[30] *Dividend History*, NASDAQ, http://www.nasdaq.com/quotes/dividend-history.aspx (last visited Sept. 30, 2019).

"0.25" signifies one quarter of the year.[31]

Q. Does the Quarterly Approximation DCF Model result in the highest cost of equity relative to other DCF Models, all else held constant?

A. Yes. The DCF Model I employed in this case results in a higher DCF cost of equity estimate than the annual or semi-annual DCF Models due to the quarterly compounding of dividends inherent in the model.

C. Growth Rate

Q. Summarize the growth rate input in the DCF Model.

A. The most critical input in the DCF Model is the growth rate. Unlike the stock price and dividend inputs, the growth rate input must be estimated. As a result, the growth rate is often the most contentious DCF input in utility rate cases. The DCF model used in this case is based on the constant growth valuation model. Under this model, a stock is valued by the present value of its future cash flows in the form of dividends. Before future cash flows are discounted by the cost of equity, however, they must be "grown" into the future by a long-term growth rate. As stated above, one of the inherent assumptions of this model is that these cash flows in the form of dividends grow at a constant rate forever. Thus, the growth rate term in the constant growth DCF model is often called the "constant," "stable," or "terminal" growth rate. For young, high-growth firms, estimating the growth rate to be used in the model can be especially difficult, and may require the

[31] David J. Garrett, Exh. DJG-16.

use of multi-stage growth models. For mature, low-growth firms such as utilities, however, estimating the terminal growth rate is more transparent. The growth term of the DCF Model is one of the most important, yet apparently most misunderstood aspects of cost of equity estimations in utility regulatory proceedings. Therefore, I have devoted a more detailed explanation of this issue in the following sections, which are organized as follows:

1) The Various Determinants of Growth
2) Reasonable Estimates for Long-Term Growth
3) Quantitative vs. Qualitative Determinants of Utility Growth: Circular References, "Flatworm" Growth, and the Problem with Analysts' Growth Rates
4) Growth Rate Recommendation

1. The Various Determinants of Growth

Q. Describe the various determinants of growth.

A. Although the DCF Model directly considers the growth of dividends, there are a variety of growth determinants that should be considered when estimating growth rates. It should be noted that these various growth determinants are used primarily to determine the short-term growth rates in multi-stage DCF models. For utility companies, it is necessary to focus primarily on long-term growth rates, which are discussed in the following section. That is not to say that these growth determinants cannot be considered when estimating long-term growth; however, as discussed below, long-term growth must be constrained much more than short-term growth, especially for young firms with high

growth opportunities. Additionally, I briefly discuss these growth determinants here because it may reveal some of the source of confusion in this area.

1. Historical Growth

Looking at a firm's actual historical experience may theoretically provide a good starting point for estimating short-term growth. However, past growth is not always a good indicator of future growth. Some metrics that might be considered here are a historical growth in revenues, operating income, and net income. Since dividends are paid from earnings, estimating historical earnings growth may provide an indication of future earnings and dividend growth.

2. Analyst Growth Rates

Analyst growth rates refer to short-term projections of earnings growth published by institutional research analysts such as Value Line and Bloomberg. A more detailed discussion of analyst growth rates, including the problems with using them in the DCF Model to estimate utility cost of equity, is provided in a later section.

3. Fundamental Determinants of Growth

Fundamental growth determinants refer to firm-specific financial metrics that arguably provide better indications of near-term sustainable growth. One such metric for fundamental growth considers the return on equity and the retention ratio. The idea behind this metric is that firms with high ROEs and retention ratios should have higher opportunities for growth.[32]

[32] Garrett, Exh. DJG-11 at 285.

Q. Did you use any of these growth determinants in your DCF Model?

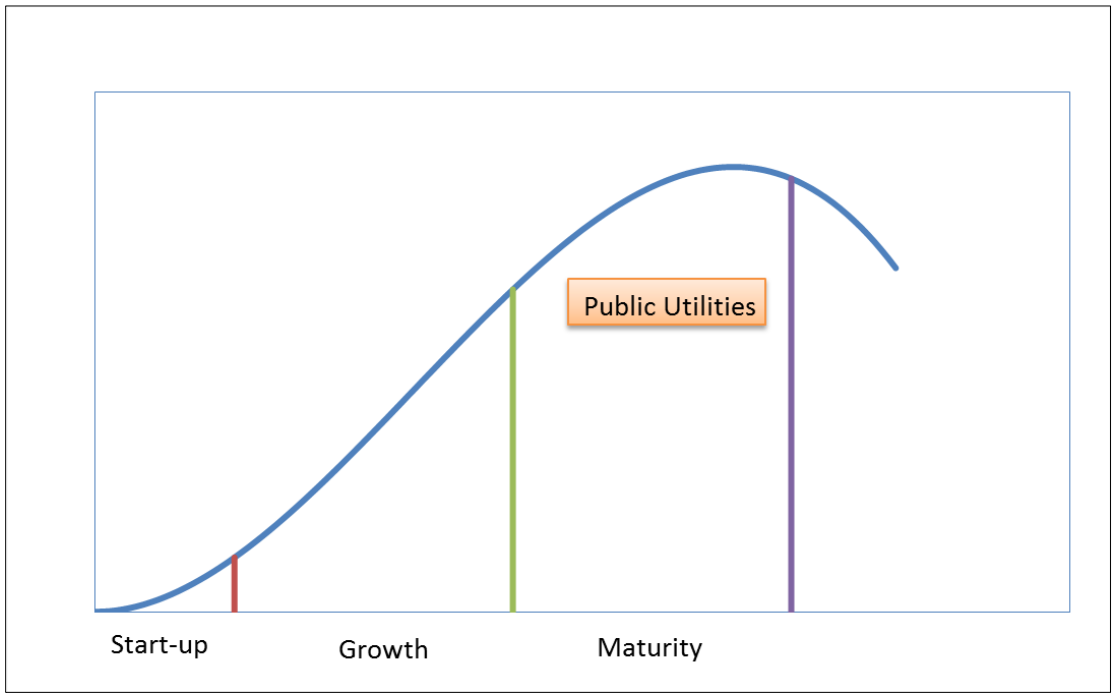
A. No. Primarily, these growth determinants discussed above would provide better indications of short to mid-term growth for firms with average to high growth opportunities. Utilities, however, are mature, low-growth firms. While it may not be unreasonable on its face to use any of these growth determinants for the growth input in the DCF Model, we must keep in mind that the stable growth DCF Model considers only long-term growth rates, which are constrained by certain economic factors, as discussed further below.

2. Reasonable Estimates for Long-Term Growth

Q. Describe what is meant by long-term growth.

A. In order to make the DCF a viable, practical model, an infinite stream of future cash flows must be estimated and then discounted back to the present. Otherwise, each annual cash flow would have to be estimated separately. Some analysts use "multi-stage" DCF Models to estimate the value of high-growth firms through two or more stages of growth, with the final stage of growth being constant. However, it is not necessary to use multi-stage DCF Models to analyze the cost of equity of regulated utility companies. This is because regulated utilities are already in their "terminal," low growth stage. Unlike most competitive firms, the growth of regulated utilities is constrained by physical service territories and limited primarily by the customer and load growth within those territories. The figure below illustrates the well-known business / industry life-cycle pattern.

Figure 4:
Industry Life Cycle



In an industry's early stages, there are ample opportunities for growth and profitable reinvestment. In the maturity stage however, growth opportunities diminish, and firms choose to pay out a larger portion of their earnings in the form of dividends instead of reinvesting them in operations to pursue further growth opportunities. Once a firm is in the maturity stage, it is not necessary to consider higher short-term growth metrics in multi-stage DCF Models; rather, it is sufficient to analyze the cost of equity using a stable growth DCF Model with one terminal, long-term growth rate. Because utilities are in their maturity stage, their real growth opportunities are primarily limited to the population growth within their defined service territories, which is usually less than two percent.

Q. Is it true that the terminal growth rate cannot exceed the growth rate of the economy, especially for a regulated utility company?

A. Yes. A fundamental concept in finance is that no firm can grow forever at a rate higher than the growth rate of the economy in which it operates.[33] Thus, the terminal growth rate used in the DCF Model should not exceed the aggregate economic growth rate. This is especially true when the DCF Model is conducted on public utilities because these firms have defined service territories. As stated by Dr. Damodaran: "If a firm is a purely domestic company, either because of internal constraints . . . or external constraints (such as those imposed by a government), the growth rate in the domestic economy will be the limiting value."[34] In fact, it is reasonable to assume that a regulated utility would grow at a rate that is less than the U.S. economic growth rate. Unlike competitive firms, which might increase their growth by launching a new product line, franchising, or expanding into new and developing markets, utility operating companies with defined service territories cannot do any of these things to grow. Gross domestic product (GDP) is one of the most widely-used measures of economic production and is used to measure aggregate economic growth. According to the Congressional Budget Office's Budget Outlook, the long-term forecast for nominal U.S. GDP growth is 3.9 percent, which includes an inflation rate of two percent.[35] For mature companies in mature industries, such as utility

[33] Garrett, Exh. DJG-11 at 306.

[34] *Id*.

[35] *The 2016 Long-Term Budget Outlook*, CONGRESSIONAL BUDGET OFFICE (Jul. 12, 2016) https://www.cbo.gov/publication/51580.

companies, the terminal growth rate will likely fall between the expected rate of inflation and the expected rate of nominal GDP growth. Thus, Avista's terminal growth rate is realistically between about two percent and four percent.

Q. Is it reasonable to assume that the terminal growth rate will not exceed the risk-free rate?

A. Yes. In the long term, the risk-free rate will converge on the growth rate of the economy. For this reason, financial analysts sometimes use the risk-free rate for the terminal growth rate value in the DCF model.[36] I discuss the risk-free rate in further detail later in this testimony.

Q. Please summarize the various long-term growth rate estimates that can be used as the terminal growth rate in the DCF Model.

A. The reasonable long-term growth rate determinants are summarized as follows:

1) Nominal GDP Growth
2) Inflation
3) Current Risk-Free Rate

Any of the foregoing growth determinants could provide a reasonable input for the terminal growth rate in the DCF Model for a utility company, including Avista. In general, we should expect that utilities will, at the very least, grow at the rate of projected

[36] Garrett, Exh. DJG-11 (Aswath Damodaran, INVESTMENT VALUATION: TOOLS AND TECHNIQUES FOR DETERMINING THE VALUE OF ANY ASSET 307 (John Wiley & Sons, Inc. 3d ed. 2012)).

inflation. However, the long-term growth rate of any U.S. company, especially utilities, will be constrained by nominal U.S. GDP growth.

3. Qualitative Growth: The Problem with Analysts' Growth Rates

Q. Describe the differences between "quantitative" and "qualitative" growth determinants.

A. Assessing "quantitative" growth simply involves mathematically calculating a historic metric for growth (such as revenues or earnings) or calculating various fundamental growth determinants using various figures from a firm's financial statements (such as ROE and the retention ratio). However, any thorough assessment of company growth should be based upon a "qualitative" analysis. Such an analysis would consider specific strategies that company management will implement to achieve a sustainable growth in earnings. Therefore, it is important to begin the analysis of Avista's growth rate with this simple, qualitative question: How is this regulated utility going to achieve a sustained growth in earnings? If this question were asked of a competitive firm, there could be several answers depending on the type of business model, such as launching a new product line, franchising, rebranding to target a new demographic, or expanding into a developing market. Regulated utilities, however, cannot engage in these potential growth opportunities.

Q. Why is it especially important to emphasize real, qualitative growth determinants when analyzing the growth rates of regulated utilities?

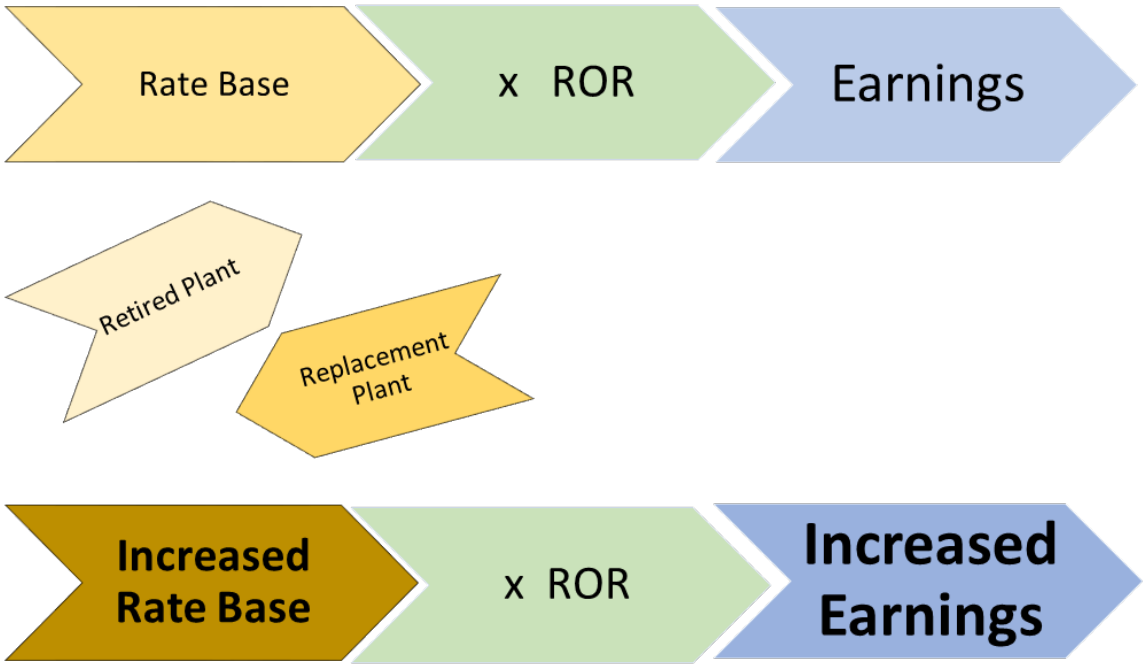
A. While qualitative growth analysis is important regardless of the entity being analyzed, it is especially important in the context of utility ratemaking. This is because the rate base rate of return model inherently possesses two factors that can contribute to distorted views of utility growth when considered exclusively from a quantitative perspective. These two factors are (1) rate base and (2) the awarded ROE. I will discuss each factor further below. It is important to keep in mind that the ultimate objective of this analysis is to provide a foundation upon which to base the fair rate of return for the utility. Thus, we should strive to ensure that each individual component of the financial models used to estimate the cost of equity are also "fair." If we consider only quantitative growth determinants, it may lead to projected growth rates that are overstated and ultimately unfair, because they result in inflated cost of equity estimates.

Q. How does rate base relate to growth determinants for utilities?

A. Under the rate base rate of return model, a utility's rate base is multiplied by its awarded rate of return to produce the required level of operating income. Therefore, increases to rate base generally result in increased earnings. Thus, utilities have a natural financial incentive to increase rate base. This concept is also discussed in Part II of my direct testimony as it relates to accelerated depreciation and the misleading narrative of "intergenerational inequity." In short, utilities have a financial incentive to increase rate base regardless of whether such increases are driven by a corresponding increase in demand. A good, relevant example of this is seen in the early retirement of old, but

otherwise functional coal plants in response to environmental regulations. Under these circumstances, utilities have been able to increase their rate bases by a far greater extent than what any concurrent increase in demand would have required. In other words, utilities "grew" their earnings by simply retiring old assets and replacing them with new assets. If the tail of a flatworm is removed and regenerated, it does not mean the flatworm actually grew. Likewise, if a competitive, unregulated firm announced plans to close production plants and replace them with new plants, it would not be considered a real determinant of growth unless analysts believed this decision would directly result in increased market share for the company and a real opportunity for sustained increases in revenues and earnings. In the case of utilities, the mere replacement of old plant with new plant does not increase market share, attract new customers, create franchising opportunities, or allow utilities to penetrate developing markets, but may result in short-term, quantitative earnings growth. However, this "flatworm growth" in earnings was merely the quantitative byproduct of the rate base rate of return model, and not an indication of real, fair, or qualitative growth. The following diagram illustrates this concept.

Figure 5:
Analysts' Earnings Growth Projections: The "Flatworm Growth" Problem



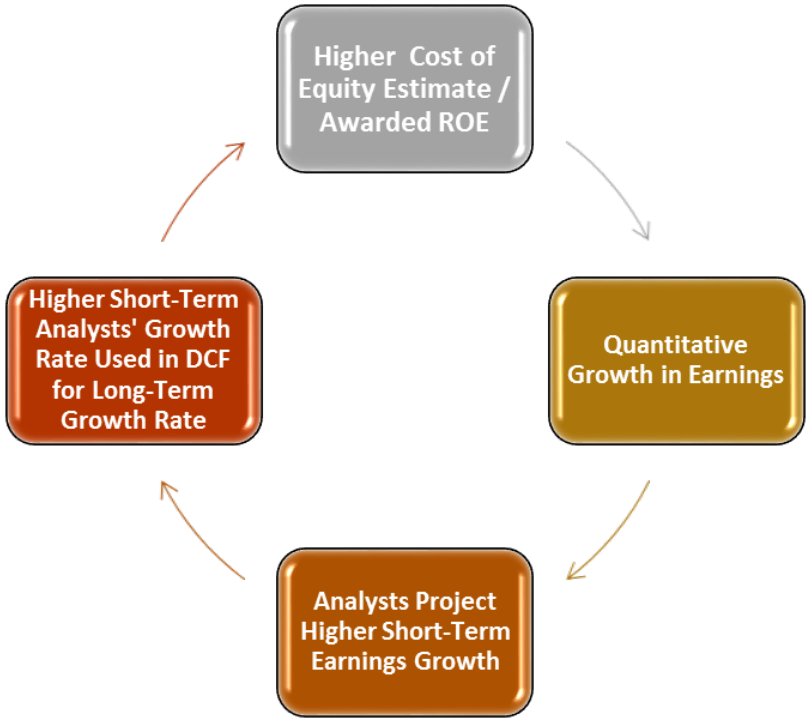
Of course, utilities might sometimes add new plant to meet a modest growth in customer demand. However, as the foregoing discussion demonstrates, it would be more appropriate to consider load growth projections and other qualitative indicators, rather than mere increases to rate base or earnings, to attain a fair assessment of growth.

Q. Please discuss the other way in which analysts' earnings growth projections do not provide indications of fair, qualitative growth for regulated utilities.

A. If we give undue weight to analysts' projections for utilities' earnings growth, it will not provide an accurate reflection of real, qualitative growth because a utility's earnings are heavily influenced by the ultimate figure that all this analysis is supposed to help us estimate: the awarded return on equity. This creates a circular reference problem or

feedback loop. In other words, if a regulator awards an ROE that is above market-based cost of capital (which is often the case, as discussed above), this could lead to higher short-term growth rate projections from analysts. If these same inflated, short-term growth rate estimates are used in the DCF Model (and they often are by utility witnesses), it could lead to higher awarded ROEs; and the cycle continues, as illustrated in the following figure:

Figure 6:
Analysts' Earnings Growth Projections: The "Circular Reference" Problem



Therefore, it is not advisable to simply consider the quantitative growth projections published by analysts, as this practice will not necessarily provide fair indications of real utility growth.

Q. Are there any other problems with relying on analysts' growth projections?

A. Yes. While the foregoing discussion shows two reasons why we cannot rely on analysts' growth rate projections to provide fair, qualitative indicators of utility growth in a stable growth DCF Model, the third reason is perhaps the most obvious and undisputable. Various institutional analysts, such as Zacks, Value Line, and Bloomberg, publish estimated projections of earnings growth for utilities. These estimates, however, are short-term growth rate projections, ranging from three to 10 years. Many utility ROE analysts, however, inappropriately insert these short-term growth projections into the DCF Model as *long-term* growth rate projections. For example, assume that an analyst at Bloomberg estimates that a utility's earnings will grow by seven percent per year over the next three years. This analyst may have based this short-term forecast on a utility's plans to replace depreciated rate base (i.e., "flatworm" growth) or on an anticipated awarded return that is above market-based cost of equity (i.e., "circular reference" problem). When a utility witness uses this figure in a DCF Model, however, it is the *witness*, not the Bloomberg analyst, that is testifying to the regulator that the utility's earnings will qualitatively grow by seven percent per year over the *long-term*, which is an unrealistic assumption.

4. Long-Term Growth Rate Recommendation

Q. Describe the growth rate input used in your DCF Model.

A. I considered various qualitative determinants of growth for Avista, along with the maximum allowed growth rate under basic principles of finance and economics. The

following chart shows three of the long-term growth determinants discussed in this section.[37]

Figure 7:
Terminal Growth Rate Determinants

Terminal Growth Determinants		Rate
Nominal GDP		3.9%
Inflation		2.0%
Risk Free Rate		2.1%
Highest		**3.9%**

For the long-term growth rate in my DCF model, I selected the maximum, reasonable long-term growth rate of 3.9 percent, which means my model assumes that Avista's qualitative growth in earnings will match the nominal growth rate of the entire U.S. economy over the long run. This is a very charitable assumption. As the following discussion will show, there are several qualitative growth determinants specific to Avista that indicate the Company's real growth over the long run will be much less than 3.9 percent.

[37] David J. Garrett, Exh. DJG-17.

Q. Please compare the market-based growth determinants you have discussed, as well other specific growth determinants provided by the Company.

A. As discussed above, there are several reasonable, long-term growth rate determinants that could be used in the DCF Model to estimate Avista's cost of equity, including nominal GDP, inflation, and the risk-free rate. In addition, there are several other factors we could consider in order to assess the qualitative long-term growth rate for Avista. These factors include Avista's own projections for growth in customers and load. These factors have analytical value because they provide better indications of qualitative growth for Avista, and they avoid the circular reference problem created by using analysts' short-term, quantitative growth rates, or by using Avista's projections for earnings (which are directly tied to the ultimate figure we are trying to determine – the ROE). The table below summarizes these various growth determinants.[38]

Figure 8:
Other Qualitative Growth Determinants for Avista

Company-Specific Qualitiative Growth Determinants		Rate
Electric Customer Growth		0.8%
Gas System Wide Growth		1.2%
Population Growth		1.1%
Average		**1.0%**

[38] Garrett, Exh. DJG-17.

As shown in this table, Avista's own projections for these growth determinants are only about one percent. These figures are widely divergent from the growth rates as high as 12.5 percent that Mr. McKenzie relied upon as part of his DCF Model.[39]

Q. Please describe the final results of your DCF Model.

A. I used the Quarterly Approximation DCF Model discussed above to estimate Avista's cost of equity capital. I obtained an average of reported dividends and stock prices from the proxy group, and I used a reasonable terminal growth rate estimate for Avista. My DCF cost of equity estimate for Avista is 7.3 percent.[40] As noted above, this estimate is likely at the higher end of a reasonable range due to my relatively high estimate for the long-term growth rate. That is, my long-term growth rate input of 3.9 percent far exceeds any of Avista's qualitative growth factors discussed above, and it assumes Avista will grow at the same rate as the U.S. economy over the long-run – a very generous assumption.

D. Response to Mr. McKenzie's DCF Model

Q. Mr. McKenzie's DCF Model yielded much higher results. Did you find any errors in his analysis?

A. Yes. Mr. McKenzie's DCF Model produced cost of equity results as high as 11.2 percent.[41] The results of Mr. McKenzie's DCF Model are overstated primarily because of

[39] McKenzie, Exh. AMM-6.

[40] David J. Garrett, Exh. DJG-18.

[41] McKenzie, Exh. AMM-4.

a fundamental error regarding his growth rate inputs. In addition, Mr. McKenzie has included a flotation cost adjustment, which is unreasonable in my opinion. Finally, Mr. McKenzie conducted a non-utility DCF Model, which is also an unreasonable approach in estimating utility cost of equity. I will discuss these three issues below.

1. Long-Term Growth Rates

Q. Describe the problems with Mr. McKenzie's long-term growth input.

A. Mr. McKenzie used long-term growth rates in his proxy group as high as 12.5 percent,[42] which is more than three times as high as projected, long-term U.S. GDP growth (only 3.9 percent). This means Mr. McKenzie's growth rate assumption violates the basic principle that no company can grow at a greater rate than the economy in which it operates over the long-term, especially a regulated utility company with a defined service territory. Furthermore, Mr. McKenzie used short-term, quantitative growth estimates published by analysts. As discussed above, these analysts' estimates are inappropriate to use in the DCF Model as long-term growth rates because they are estimates for short-term growth. For example, Mr. McKenzie considered a growth rate estimate of 12.5 percent from Value Line for CenterPoint Energy Corp.[43] This means that an analyst at Value Line apparently thinks that CenterPoint's earnings will quantitatively increase by 12.5 percent each year over the next several years. However, it is *Mr. McKenzie*, not the Value Line analyst, who is suggesting to the Commission that CenterPoint's earnings will

[42] McKenzie, Exh. AMM-6.

[43] *Id*.

grow by more than three times the amount of U.S. GDP every year for many decades into the future.[44] This assumption is simply not realistic, and it contradicts fundamental concepts of long-term growth. The growth rate assumptions used by Mr. McKenzie for many of the other proxy companies suffer from the same shortcomings.[45]

2. Flotation Costs

Q. What additional errors did you find in Mr. McKenzie's DCF analysis?

A. A proper DCF analysis considers the market-based stock price of a firm for the stock price input of the model. In this case, Mr. McKenzie inappropriately added a flotation cost adjustment to his DCF Model results.[46] When companies issue equity securities, they typically hire at least one investment bank as an underwriter for the securities. "Flotation costs" generally refer to the underwriter's compensation for the services it provides in connection with the securities offering.

Q: Do you agree with Mr. McKenzie's flotation cost allowance?

A. No. Mr. McKenzie's flotation cost allowance is inappropriate for several reasons, as discussed further below.

1. Flotation costs are not actual "out-of-pocket" costs.

Avista has not experienced any out-of-pocket costs for flotation. Underwriters are not compensated in this fashion. Instead, underwriters are compensated through an

[44] *Id*. Technically, the constant growth rate in the DCF Model grows dividends each year to "infinity." Yet even if we assumed that the growth rate applied to only a few decades, the annual growth rate would still be too high to be considered realistic.

[45] McKenzie, Exh. AMM-6.

[46] McKenzie, Exh. AMM-4.

"underwriting spread." An underwriting spread is the difference between the price at which the underwriter purchases the shares from the firm, and the price at which the underwriter sells the shares to investors.[47] If the Company has experienced out-of-pocket flotation costs, those costs should be accounted for in the Company's expense schedules.

2. The market already accounts for flotation costs.

When an underwriter markets a firm's securities to investors, the investors are well aware of the underwriter's fees. In other words, the investors know that a portion of the price they are paying for the shares does not go directly to the company, but instead goes to compensate the underwriter for its services. In fact, federal law requires that the underwriter's compensation be disclosed on the front page of the prospectus.[48] Thus, investors have already considered and accounted for flotation costs when making their decision to purchase shares at the quoted price. As a result, there is no need for the Company's shareholders to receive additional compensation to account for costs they have already considered and agreed to. We see similar compensation structures in other kinds of business transactions. For example, a homeowner may hire a realtor and sell a home for $100,000. After the realtor takes a six percent commission, the seller nets $94,000. The buyer and seller agreed to the transaction notwithstanding the realtor's commission. Obviously, it would be unreasonable for the buyer or seller to demand

[47] *See* Garrett, Exh. DJG-13 (John R. Graham, Scott B. Smart & William L. Megginson, CORPORATE FINANCE: LINKING THEORY TO WHAT COMPANIES DO 509 (S. W. Cengage Learning 3d ed. 2010)).

[48] Regulation S-K, 17 C.F.R. § 229.501(b)(3) (requiring that the underwriter's discounts and commissions be disclosed on the outside cover page of the prospectus). A prospectus is a legal document that provides details about an investment offering.

additional funds from anyone after the deal is completed to reimburse them for the realtor's fees. Likewise, investors of competitive firms do not expect additional compensation for flotation costs. Thus, it would not be appropriate for a commission standing in the place of competition to award a utility's investors with this additional compensation.

3. The DCF Model itself does not include a flotation cost adjustment.

The DCF Model that has been used to estimate cost of equity in utility rate cases is derived from the Gordon Growth Model, a highly regarded valuation model which was first proposed in 1956.[49] In Gordon's original publication, there is no mention of flotation costs. Likewise, when the model is presented in objective financial textbooks, there is no additional factor or "adjustment" for flotation costs that I have seen; the model is simply presented with essentially three variables: stock price, dividends, and growth rate. For a model that has been used for decades by companies, analysts, investors, and academics around the world to analyze the value of stocks and cost of capital as a part of crucial decision-making processes, it is curious that apparently nobody (except for utility ROE witnesses) has thought to add an adjustment to the model to account for flotation costs.

4. It is inappropriate to add any additional basis points to an awarded ROE proposal that is already far above the Company's cost of equity.

For the reasons discussed above, flotation costs should be disallowed from a technical standpoint; they should also be disallowed from a practical standpoint. Avista is

[49] David J. Garrett, Exh. DJG-19 (Myron J. Gordon and Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit*, Vol. 3, No. 1 Management Science 102-10 (Oct. 1956)).

asking this Commission to award it a cost of equity that is more than 300 basis points above its market-based cost of equity. Under these circumstances, it is especially inappropriate to suggest that flotation costs should be considered in any way to increase an already inflated ROE proposal.

3. Non-Utility DCF Model

Q: Did Mr. McKenzie also conduct the DCF Model on a group of non-utility companies?

A. Yes. Mr. McKenzie conducted the DCF Model on a group of non-utility companies.

Q: Do you agree with his analysis?

A. No. There are several problems with Mr. McKenzie's non-utility DCF analysis. First, the analysis is unnecessary. The DCF Model (and the CAPM) were designed to be conducted on any single firm. However, in utility regulatory proceedings, it is customary to conduct these models on a peer group of utilities because often the subject utility is not publicly traded. Furthermore, conducting the analyses on a peer group promotes the "commensurate risk" standard set forth by the *Hope* Court.[50] Conducting the analysis on non-utility companies is unnecessary because we have plenty of utilities in the peer group on which to conduct the analysis. Moreover, because utilities are among the least risky industries in the U.S., extending the analysis to non-utility companies is actually at odds with the *Hope* Court's "commensurate risk" standard. As discussed above, higher risk leads to higher cost of equity. Thus, a DCF Model conducted on non-utility companies

[50] *Hope Nat. Gas Co*., 320 U.S. at 603 (emphasis added).

will result in a cost of equity estimate than is higher than that of regulated utility. For these reasons, the Commission should reject the results of Mr. McKenzie's non-utility DCF analysis.

VIII. CAPITAL ASSET PRICING MODEL ANALYSIS

Q. Describe the Capital Asset Pricing Model.

A. The Capital Asset Pricing Model (CAPM) is a market-based model founded on the principle that investors demand higher returns for incurring additional risk.[51] The CAPM estimates this required return.

Q. Is the CAPM approach consistent with the legal standards set forth by the U.S. Supreme Court?

A. Yes. Our courts have recognized that "the amount of risk in the business is a most important factor" in determining the allowed rate of return,[52] and that "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."[53] The CAPM is a useful model because it directly considers the amount of risk inherent in a business. It is arguably the strongest of the models usually presented in rate cases because unlike the DCF Model, the CAPM directly measures the most important component of a fair rate of return analysis: Risk.

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[51] David J. Garrett, Exh. DJG-20 (William F. Sharpe, *A Simplified Model for Portfolio Analysis* 277-93 (Management Science IX 1963)).

[52] *Wilcox*, 212 U.S. at 48 (emphasis added).

[53] *Hope Nat. Gas Co*., 320 U.S. at 603 (emphasis added).

Q. Describe the CAPM equation.

A. The basic CAPM equation is expressed as follows:

Equation 4:
Capital Asset Pricing Model

$$K = R_F + \beta_i(R_M - R_F)$$

where: K = *required return*
R_F = *risk-free rate*
β = *beta coefficient of asset i*
R_M = *required return on the overall market*

There are essentially three terms within the CAPM equation that are required to calculate the required return (K): (1) the risk-free rate (R_F); (2) the beta coefficient (β); and (3) the equity risk premium ($R_M - R_F$), which is the required return on the overall market less the risk-free rate. Each term is discussed in more detail below, along with the inputs I used for each term.

A. The Risk-Free Rate

Q. Explain the risk-free rate.

A. The first term in the CAPM is the risk-free rate. The risk-free rate is simply the level of return investors can achieve without assuming any risk. The risk-free rate represents the bare minimum return that any investor would require on a risky asset. Even though no investment is technically void of risk, investors often use U.S. Treasury securities to represent the risk-free rate because they accept that those securities essentially contain no default risk. The Treasury issues securities with different maturities, including short-term Treasury Bills, intermediate-term Treasury Notes, and long-term Treasury Bonds.

Q. Is it preferable to use the yield on long-term Treasury bonds for the risk-free rate in the CAPM?

A. Yes. In valuing an asset, investors estimate cash flows over long periods of time. Common stock is viewed as a long-term investment, and the cash flows from dividends are assumed to last indefinitely. Thus, short-term Treasury bill yields are rarely used in the CAPM to represent the risk-free rate. Short-term rates are subject to greater volatility and can thus lead to unreliable estimates. Instead, long-term Treasury bonds are usually used to represent the risk-free rate in the CAPM. I considered a 30-day average of daily Treasury yield curve rates on 30-year Treasury bonds in my risk-free rate estimate, which resulted in a risk-free rate of 2.42 percent.[54]

B. The Beta Coefficient

Q. Describe the beta coefficient.

A. As discussed above, beta represents the sensitivity of a given security to movements in the overall market. The CAPM states that in efficient capital markets, the expected risk premium on each investment is proportional to its beta. Recall that a security with a beta greater (or less) than one is more (or less) risky than the market portfolio. The historical betas for publicly traded firms are published by several commercial sources.[55] Beta may also be calculated through a linear regression analysis, which provides additional

[54] David J. Garrett, Exh. DJG-21.

[55] E.g., Value Line, Bloomberg, and Merrill Lynch.

statistical information about the relationship between a single stock and the market portfolio. Also, as discussed above, beta represents the sensitivity of a given security to the market as a whole. The market portfolio of all stocks has a beta equal to one. Stocks with betas greater than one are relatively more sensitive to market risk than the average stock. For example, if the market increases (or decreases) by one percent, a stock with a beta of 1.5 will, on average, increase (or decrease) by 1.5 percent. In contrast, stocks with betas of less than one are less sensitive to market risk. For example, if the market increases (or decreases) by one percent, a stock with a beta of 0.5 will, on average, only increase (or decrease) by 0.5 percent.

Q. Describe the source for the betas you used in your CAPM analysis.

A. I used betas recently published by Value Line Investment Survey.[56] The beta for each proxy company was less than 1.0, and the average beta for the proxy group is 0.63. Thus, we have an objective measure to prove the well-known concept that utility stocks are less risky than the average stock in the market, which has a beta of 1.0.

C. The Equity Risk Premium

Q. Describe the equity risk premium.

A. The final term of the CAPM is the equity risk premium (ERP), which is the required return on the market portfolio less the risk-free rate. In other words, the ERP is the level of return investors expect above the risk-free rate in exchange for investing in risky

[56] David J. Garrett, Exh. DJG-22.

securities. Many experts would agree that "the single most important variable for making investment decisions is the equity risk premium."[57] Likewise, the ERP is arguably the single most important factor in estimating the cost of capital in this matter. There are three basic methods to estimate the ERP: (1) calculating a historical average; (2) taking a survey of experts; and (3) calculating the implied equity risk premium. I incorporated each one of these methods in determining the ERP used in my CAPM analysis. I will discuss each method in turn.

1. Historical Average

Q. Describe the historical equity risk premium.

A. The historical ERP may be calculated by simply taking the difference between returns on stocks and returns on government bonds over a certain period of time. Ibbotson, one of the most widely cited source for the historical ERP in the U.S.,[58] reports both the geometric mean and arithmetic mean for the returns of stocks and government bonds in its annual yearbooks. Many practitioners rely on the historical ERP as an estimate for the forward-looking ERP because it is easy to obtain. However, there are disadvantages to relying on the historical ERP as an indication of the current ERP.

[57] David J. Garrett, Exh. DJG-23 (Elroy Dimson, Paul Marsh & Mike Staunton, TRIUMPH OF THE OPTIMISTS: 101 YEARS OF GLOBAL INVESTMENT RETURNS 4 (Princeton Univ. Press 2002).

[58] *Id*. at 173.

Q. What are the limitations of relying solely on a historical average to estimate the current or forward-looking ERP?

A. Many investors use the historic ERP because it is convenient and easy to calculate. What matters in the CAPM model, however, is not the actual risk premium from the past, but rather the current and forward-looking risk premium.[59] Some investors may think that a historic ERP provides some indication of what the prospective risk premium is, but there is empirical evidence to suggest the prospective, forward-looking ERP is actually lower than the historical ERP. In a landmark publication on risk premiums around the world, *Triumph of the Optimists*, the authors suggest through extensive empirical research that the prospective ERP is lower than the historical ERP.[60] This is due in large part to what is known as "survivorship bias" or "success bias" – a tendency for failed companies to be excluded from historical indices.[61] From their extensive analysis, the authors make the following conclusion regarding the prospective ERP: "The result is a forward-looking, geometric mean risk premium for the United States . . . of around 2½ to 4 percent and an arithmetic mean risk premium . . . that falls within a range from a little below 4 to a little above 5 percent."[62] Indeed, these results are lower than many reported historical risk premiums. Other noted experts agree:

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[59] *See* Garrett, Exh. DJG-13 (John R. Graham, Scott B. Smart & William L. Megginson, CORPORATE FINANCE: LINKING THEORY TO WHAT COMPANIES DO 330 (S. W. Cengage Learning 3d ed. 2010)).

[60] Garrett, Exh. DJG-23 (Elroy Dimson, Paul Marsh & Mike Staunton, TRIUMPH OF THE OPTIMISTS: 101 YEARS OF GLOBAL INVESTMENT RETURNS 194 (Princeton Univ. Press 2002)).

[61] *Id*. at 34.

[62] *Id*. at 194.

> The historical risk premium obtained by looking at U.S. data is biased upwards because of survivor bias . . . . The true premium, it is argued, is much lower. This view is backed up by a study of large equity markets over the twentieth century (*Triumph of the Optimists*), which concluded that the historical risk premium is closer to 4%.[63]

Regardless of the variations in historic ERP estimates, many scholars and practitioners agree that simply relying on a historic ERP to estimate the risk premium going forward is not ideal. Fortunately, "a naïve reliance on long-run historical averages is not the only approach for estimating the expected risk premium."[64]

2. Expert Surveys

Q. Describe the expert survey approach to estimating the ERP.

A. As its name implies, the expert survey approach to estimating the ERP involves conducting a survey of experts including professors, analysts, chief financial officers and other executives around the country and asking them what they think the ERP is. Graham and Harvey have performed such a survey every year since 1996. In their 2016 survey, they found that experts around the country believe that the current risk premium is only four percent.[65] The IESE Business School conducts a similar expert survey, and recently

[63] David J. Garrett, Exh. DJG-24 (Aswath Damodaran, EQUITY RISK PREMIUMS: DETERMINANTS, ESTIMATION AND IMPLICATIONS – THE 2015 EDITION 17 (N. Y. Univ. 2015)).

[64] *See* Garrett, Exh. DJG-13 (John R. Graham, Scott B. Smart & William L. Megginson, CORPORATE FINANCE: LINKING THEORY TO WHAT COMPANIES DO 330 (S. W. Cengage Learning 3d ed. 2010)).

[65] David J. Garrett, Exh. DJG-25 (John R. Graham and Campbell R. Harvey, THE EQUITY RISK PREMIUM IN 2016, at 3 (Fuqua Sch. of Bus., Duke Univ. 2014), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816603).

reported an average ERP of 5.7 percent.[66]

3. Implied Equity Risk Premium

Q. Describe the implied equity risk premium.

A. The third method of estimating the ERP is arguably the best. The implied ERP relies on the stable growth model proposed by Gordon, often called the "Gordon Growth Model," which is a basic stock valuation model widely used in finance for many years:[67]

Equation 5:
Gordon Growth Model

$$P_0 = \frac{D_1}{K - g}$$

where: P_0 = *current value of stock*
D_1 = *value of next year's dividend*
K = *cost of equity capital / discount rate*
g = *constant growth rate in perpetuity for dividends*

This model is similar to the Constant Growth DCF Model presented in Equation 3 above ($K=D_1/P_0+g$). In fact, the underlying concept in both models is the same: The current value of an asset is equal to the present value of its future cash flows. Instead of using this model to determine the discount rate of one company, we can use it to determine the discount rate for the entire market by substituting the inputs of the model. Specifically, instead of using the current stock price (P_0), we will use the current value of the S&P 500

[66] David J. Garrett, Exh. DJG-26 (Pablo Fernandez, Vitaly Pershin & Isabel F. Acin, MARKET RISK PREMIUM USED IN 71 COUNTRIES IN 2016: A SURVEY WITH 6,932 ANSWERS, at 3 (IESE Bus. Sch. 2015), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2954142).

[67] Garrett, Exh. DJG-19 (Myron J. Gordon & Eli Shapiro, *Capital Equipment Analysis: The Required Rate of Profit* Vol 3, No. 1 Management Science 102-10 (Oct. 1956)).

(V_{500}). Instead of using the dividends of a single firm, we will consider the dividends paid by the entire market. Additionally, we should consider potential dividends. In other words, stock buybacks should be considered in addition to paid dividends, as stock buybacks represent another way for the firm to transfer free cash flow to shareholders. Focusing on dividends alone without considering stock buybacks could understate the cash flow component of the model, and ultimately understate the implied ERP. The market dividend yield plus the market buyback yield gives us the gross cash yield to use as our cash flow in the numerator of the discount model. This gross cash yield is increased each year over the next five years by the growth rate. These cash flows must be discounted to determine their present value. The discount rate in each denominator is the risk-free rate (R_F) plus the discount rate (K). The following formula shows how the implied return is calculated. Since the current value of the S&P is known, we can solve for K: The implied market return.[68]

Equation 6:
Implied Market Return

$$V_{500} = \frac{CY_1(1+g)^1}{(1+R_F+K)^1} + \frac{CY_2(1+g)^2}{(1+R_F+K)^2} + \cdots + \frac{CY_5(1+g)^5 + TV}{(1+R_F+K)^5}$$

where:

V_{500}	=	*current value of index (S&P 500)*
$CY_{1\text{-}5}$	=	*average cash yield over last five years (includes dividends and buybacks)*
g	=	*compound growth rate in earnings over last five years*
R_F	=	*risk-free rate*
K	=	*implied market return (this is what we are solving for)*
TV	=	*terminal value = CY_5 (1+R_F) / K*

[68] David J. Garrett, Exh. DJG-27.

The discount rate is called the "implied" return here because it is based on the current value of the index as well as the value of free cash flow to investors projected over the next five years. Thus, based on these inputs, the market is "implying" the expected return. After solving for the implied market return (K), we simply subtract the risk-free rate from it to arrive at the implied ERP.

Equation 7:
Implied Equity Risk Premium

$$Implied\ Expected\ Market\ Return - R_F = Implied\ ERP$$

Q. Discuss the results of your implied ERP calculation.

A. After collecting data for the index value, operating earnings, dividends, and buybacks for the S&P 500 over the past six years, I calculated the dividend yield, buyback yield, and gross cash yield for each year. I also calculated the compound annual growth rate (g) from operating earnings. I used these inputs, along with the risk-free rate and current value of the index to calculate a current expected return on the entire market of 8.4 percent.[69] I subtracted the risk-free rate to arrive at the implied equity risk premium of 6.0 percent.[70] Dr. Damodaran, one of the world's leading experts on the ERP, promotes the implied ERP method discussed above. He calculates monthly and annual implied

[69] Garrett, Exh. DJG-27.

[70] *Id*.

ERPs with this method and publishes his results. Dr. Damodaran's average ERP estimate for September 2019 was only 5.1 percent.[71]

Q. Discuss the results of your final ERP estimate.

A. For the final ERP estimate I used in my CAPM analysis, I averaged the results of the ERP surveys along with Dr. Damodaran's published ERP and my implied ERP calculation.[72] The results are presented in the following figure:

Figure 9:
Equity Risk Premium Results

IESE Business School Survey		5.6%
Graham & Harvey Survey		4.4%
Duff & Phelps Report		5.5%
Damodaran		5.1%
Garrett		6.0%
Average		**5.3%**
Highest		**6.0%**

While it would be reasonable to select any one of these ERP estimates, or the average of these estimates, I selected the highest ERP estimate of six percent for my CAPM in the

[71] Aswath Damodaran, *Implied Equity Risk Premium Update*, N.Y. UNIV., http://pages.stern.nyu.edu/~adamodar/ (last visited Oct 2. 2019).

[72] David J. Garrett, Exh. DJG-28.

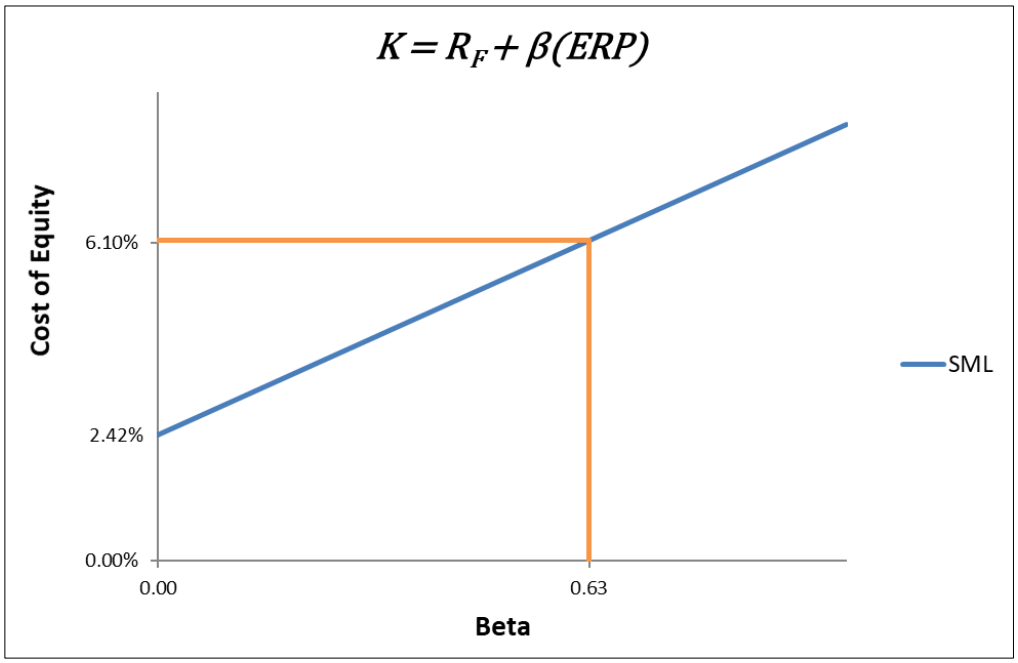
interest of reasonableness. All else held constant, a higher ERP will result in a higher CAPM cost of equity estimate.

Q. Explain the final results of your CAPM analysis.

A. Using the inputs for the risk-free rate, beta coefficient, and equity risk premium discussed above, I calculated the CAPM cost of equity for each proxy company. The results of my CAPM indicate a cost of equity of only 6.1 percent for Avista.[73] The CAPM may be displayed graphically through what is known as the Security Market Line (SML). The following figure shows the expected return (cost of equity) on the y-axis, and the average beta for the proxy group on the x-axis. The SML intercepts the y-axis at the level of the risk-free rate. The slope of the SML is the equity risk premium.

[73] David J. Garrett, Exh. DJG-29.

Figure 10:
CAPM Graph



The SML provides the required rate of return that will compensate investors for the beta risk of that investment. Thus, at an average beta of 0.63 for the proxy group, the estimated cost of equity for Avista is 6.1 percent.

D. Response to Mr. McKenzie's CAPM Analysis

Q: Mr. McKenzie's DCF Model yielded much higher results. Did you find any errors in his analysis?

A. Yes. Mr. McKenzie's CAPM cost of equity estimates are as high as 10.2 percent. This is primarily due to overestimation of the risk-free rate and equity risk premium.

1. Risk-Free Rate

Q: Do you agree with Mr. McKenzie's estimate of the risk-free rate?

A. No. Instead of simply using the current yield on U.S. Treasury securities for the risk-free rate, which is the most common method in financial modeling, Mr. McKenzie attempted to estimate a "forward-looking" risk free rate.[74] Utility ROE witnesses typically attempt these types of "forward-looking" analysis for the risk-free rate, and in every instance that I can recall (which includes the review of dozens of testimonies over many years) the "forward-looking" risk-free rate is always higher than the current risk-free rate. A higher risk-free rate, all else held constant, results in a higher cost of equity estimate in the CAPM. In this case, Mr. McKenzie estimated a forward-looking risk-free rate of 3.1 percent.[75] Since filing his testimony in this case, however, the yield on 30-year Treasury bonds has declined to about two percent.[76] Thus, Mr. McKenzie's risk-free rate estimate is overstated and further inflates his CAPM cost of equity estimate.

2. Equity Risk Premium

Q: Did Mr. McKenzie rely on a reasonable measure for the ERP?

A. No. Mr. McKenzie estimates an ERP of 10.1 percent.[77] The ERP is one of three inputs in the CAPM equation, and it is one of the most single important factors for estimating the

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[74] *See* McKenzie, Exh. AMM-1T at 36:1-3.

[75] McKenzie, Exh. AMM-8.

[76] The Daily Treasury Yield Curve Rate for 9-24-19 was 2.09 percent. U.S. DEPT. OF TREASURY (Sept. 30, 2019) https://www.treasury.gov/resource-center/data-chart-center/interest-rates/pages/TextView.aspx?data=yieldYear&year=2019.

[77] McKenzie, Exh. AMM-8.

cost of equity in this case. As discussed above, I used three widely accepted methods for estimating the ERP, including consulting expert surveys, calculating the implied ERP based on aggregate market data, and considering the ERPs published by reputable analysts. The highest ERP found from my research and analysis is six percent. This means that Mr. McKenzie's ERP estimate over 400 basis points higher than the highest reasonable ERP I could find or calculate, and about twice as high as the average ERP estimated by thousands of other experts across the country.[78]

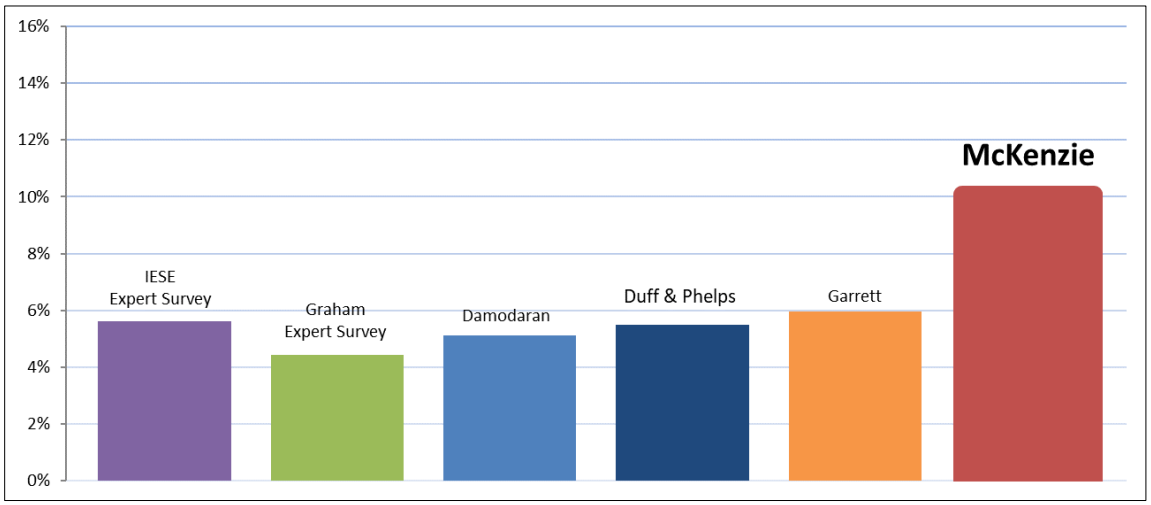
Q: Please discuss and illustrate how Mr. McKenzie's ERP compares with other estimates for the ERP.

A. As discussed above, Graham and Harvey's 2018 expert survey reports an average ERP of 4.4 percent. The 2018 IESE Business School expert survey reports an average ERP of 5.4 percent. Similarly, Duff & Phelps recently estimated an ERP of 5.5 percent. The following chart illustrates that Mr. McKenzie's ERP estimate is far out of line with industry norms[79].

[78] Garrett, Exh. DJG-28.

[79] The ERP estimated by Dr. Damodaran is the average of several ERP estimates under slightly differing assumptions.

Figure 11:
Equity Risk Premium Comparison



When compared with other independent sources for the ERP (as well as my estimate), which do not have a wide variance, Mr. McKenzie's ERP estimate is clearly not within the range of reasonableness. As a result, his CAPM cost of equity estimate is overstated and should be rejected by the Commission.

3. Other Risk Premium Analyses

Q: Did you review Mr. McKenzie's other risk premium analyses?

A. Yes. I am addressing Mr. McKenzie's other risk premium analyses in this section because the CAPM itself is a risk premium model. Many utility company ROE witnesses, including Mr. McKenzie in this case, conduct what they call a "historical risk premium analysis," "bond yield plus risk premium analysis" or "allowed return premium analysis." In short, this analysis simply compares the difference between awarded ROEs in the past with bond yields.

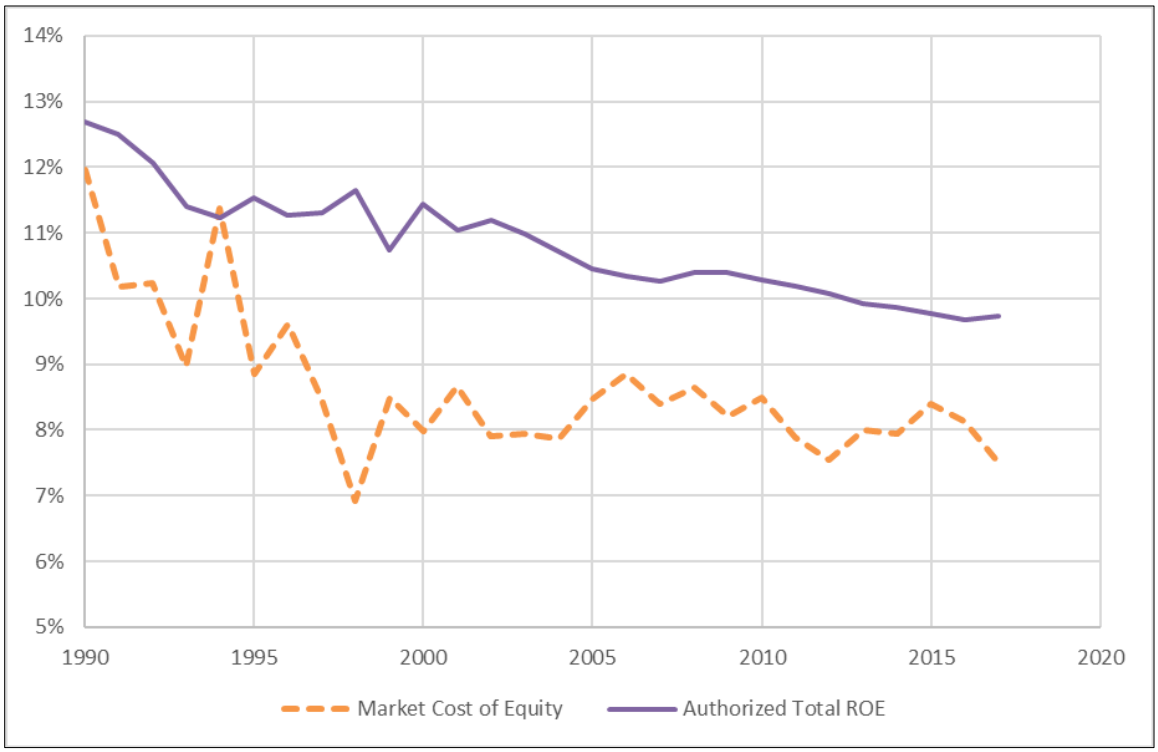
Q: Do you agree with the results of Mr. McKenzie's risk premium analysis?

A. No. Not only do I disagree with the results of Mr. McKenzie's risk premium analysis, I also disagree with the entire premise of the analysis. According to Mr. McKenzie, he examined the historical risk premiums implied in the ROEs allowed by regulatory commissions for electric utilities dating back several decades – to 1974.[80] This procedure alone contradicts Mr. McKenzie's multiple assertions that cost of equity estimates are "forward looking."[81] As discussed earlier in this testimony, it is clear that awarded ROEs are consistently higher than market-based cost of equity, and they have been for many years. Thus, these types of risk premium "models" seem to be clever devices used to perpetuate the discrepancy between awarded ROEs and market-based cost of equity. In other words, since awarded ROEs are consistently higher than market-based cost, a model that simply compares the discrepancy between awarded ROEs and any market-based factor (such as bond yields) will simply ensure that discrepancy continues. The following graph, which I discussed previously, shows the clear disconnection between awarded ROEs and utility cost of equity.

[80] McKenzie, Exh. AMM-10.

[81] *See e.g*. McKenzie, Exh. AMM-1T at 35:4.

Figure 1:[82]
Awarded Returns on Equity vs. Market Cost of Equity (1990 – 2018)[83]



Since it is indisputable that utility stocks are less risky than average stock in the market (with a beta equal to 1.0), utility cost of equity is below the market cost of equity (the dotted line, above). The gap between the market cost of equity and inflated ROEs represents an excess transfer of wealth from customers to shareholders.

Furthermore, the risk premium analysis offered by Mr. McKenzie is completely unnecessary when we already have a real risk premium model to use: the CAPM. The CAPM itself is a "risk premium" model; it takes the bare minimum return any investor

[82] Please note that the same Figure 1 is also featured on page 11, above.

[83] David J. Garrett, Exh. DJG-6.

would require for buying a stock (the risk-free rate), then adds a *premium* to compensate the investor for the extra risk he or she assumes by buying a stock rather than a riskless U.S. Treasury security. The CAPM has been utilized by companies around the world for decades for the same purpose we are using it in this case – to estimate cost of equity.

In stark contrast to the Nobel-prize-winning CAPM, the risk premium models relied upon by utility company witnesses like Mr. McKenzie are not market-based, and therefore have no value in helping us estimate the market-based cost of equity. Unlike the CAPM, which is found in almost every comprehensive financial textbook, the risk premium models used by utility witnesses are almost exclusively found in the texts and testimonies of such witnesses. Specifically, these risk premium models attempt to create an inappropriate link between market-based factors, such as interest rates, with awarded returns on equity. Inevitably, this type of model is used to justify a cost of equity that is much higher than one that would be dictated by market forces.

4. Empirical CAPM

Q: Please summarize Mr. McKenzie's empirical CAPM analysis

A. Mr. McKenzie offers another version of the CAPM that he calls the "empirical CAPM" (ECAPM). The premise of Mr. McKenzie's ECAPM is that the real CAPM underestimates the return required from low-beta securities, such as those of the proxy group.[84]

[84] *See* McKenzie, Exh. AMM-1T at 35:17-20.

Q: Do you agree with Mr. McKenzie's ECAPM results?

A. No. First, the betas both Mr. McKenzie and I used in the real CAPM already account for the theory that low-beta stocks might have a tendency to be underestimated. In other words, the raw betas for each of the utility stocks in the proxy groups have already been adjusted by Value Line to be higher. Second, there is empirical evidence suggesting that the type of beta-adjustment method used by Value Line actually overstates betas from consistently low-beta industries like utilities. According to this research, it is better to employ an adjustment method that adjusts raw betas toward an industry average, rather than the market average, which ultimately would result in betas that are lower than those published in Value Line.[85] Moreover, Mr. McKenzie's ECAPM still suffers from the same overestimated risk-free rate and ERP inputs discussed above. Thus, regardless of the differing theories regarding the mean reversion tendencies of low-beta securities, Mr. McKenzie's ECAPM should be disregarded for its improper risk-free rate and ERP inputs alone.

[85] David J. Garrett, Exh. DJG-30 (Michael J. Gombola and Douglas R. Kahl, *Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk,* Vol. 19, No. 3 Financial Management 92 (1990) (emphasis added)).

IX. OTHER COST OF EQUITY ISSUES

Q. Are there any other issues raised in Mr. McKenzie's testimony to which you would like to respond?

A. Yes, in his direct testimony Mr. McKenzie raises several other issues in his testimony: (1) firm-specific risks and (2) the size premium.

A. Firm-Specific Risks

Q. Do you agree that the Company's firm-specific risk factors cited by Mr. McKenzie materially influence its cost of equity?

A. No. Mr. McKenzie argues that "operating risks" and other company-specific risks should have an impact on the awarded ROE.[86] Recall that there are two primary types of risk: market risk, which affects all firms to varying degrees, and firm-specific risk, which affects individual firms. As discussed above, it is a well-known concept in finance that firm-specific risks are unrewarded by the market. This is because investors can easily eliminate firm-specific risks through portfolio diversification. Therefore, the Company's few and relatively small firm-specific business risks, while perhaps relevant to other issues in the rate case, have no meaningful effect on the cost of equity estimate. Rather, it is market risk that is rewarded by the market, and this concept is thoroughly addressed in my CAPM analysis discussed above.

[86] McKenzie, Exh. AMM-1T at 9:17-28.

B. Size Premium

Q. Does a Company's relative size warrant a premium addition to the cost of equity estimate?

A. No. Mr. McKenzie suggests that Avista's cost of equity should be further inflated due to its relatively small size.[87] Utility company ROE witnesses often refer to this as a "size premium." The size premium refers to the idea that the additional risk associated with smaller firms is not fully accounted for in their betas. The "size effect" phenomenon arose from a 1981 study conducted by Banz, which found that "in the 1936 – 1975 period, the common stock of small firms had, on average, higher risk-adjusted returns than the common stock of large firms."[88] According to Ibbotson, Banz's size effect study was "[o]ne of the most remarkable discoveries of modern finance."[89] Perhaps there was some merit to this idea at the time, but the size effect phenomenon was short lived. Banz's 1981 publication generated much interest in the size effect and spurred the launch of significant new small-cap investment funds. However, this "honeymoon period lasted for approximately two years." [90]

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[87] McKenzie, Exh. AMM-1T at 13:1-4.

[88] David J. Garrett, Exh. DJG-31 (Rolf W. Banz, *The Relationship Between Return and Market Value of Common Stocks* Vol. 9 Journal of Financial Economics 3-81 (1981)).

[89] David J. Garrett, Exh. DJG-32 (Morningstar, 2015 IBBOTSON STOCKS, BONDS, BILLS, AND INFLATION CLASSIC YEARBOOK 99 (2015)).

[90] Garrett, Exh. DJG-23 (Elroy Dimson, Paul Marsh & Mike Staunton, TRIUMPH OF THE OPTIMISTS: 101 YEARS OF GLOBAL INVESTMENT RETURNS 131 (Princeton Univ. Press 2002)).

After 1983, U.S. small-cap stocks actually underperformed relative to large cap stocks. In other words, the size effect essentially reversed. In *Triumph of the Optimists*, the authors conducted an extensive empirical study of the size effect phenomenon around the world. They found that after the size effect phenomenon was discovered in 1981, it disappeared within a few years:

> It is clear . . . that there was a global reversal of the size effect in virtually every country, with the size premium not just disappearing but going into reverse. Researchers around the world universally fell victim to Murphy's Law, with the very effect they were documenting – and inventing explanations for – promptly reversing itself shortly after their studies were published.[91]

In other words, the authors assert that the very discovery of the size effect phenomenon likely caused its own demise. The authors ultimately concluded that it is "inappropriate to use the term 'size effect' to imply that we should automatically expect there to be a small-cap premium," Yet this is exactly what utility witnesses often do in attempting to artificially inflate the cost of equity with a size premium.

Other prominent sources have agreed that the size premium is no longer a relevant phenomenon. According to Ibbotson:

[91] Garrett, Exh. DJG-23 at 133.

> The unpredictability of small-cap returns has given rise to another argument against the existence of a size premium: that markets have changed so that the size premium no longer exists. As evidence, one might observe the last 20 years of market data to see that the performance of large-cap stocks was basically equal to that of small cap stocks. In fact, large-cap stocks have outperformed small-cap stocks in five of the last 10 years.[92]

In addition to the studies discussed above, other scholars have concluded similar results. According to Kalesnik and Beck:

> Today, more than 30 years after the initial publication of Banz's paper, the empirical evidence is extremely weak even before adjusting for possible biases. . . . The U.S. long-term size premium is driven by the extreme outliers, which occurred three-quarters of a century ago. . . . Finally, adjusting for biases . . . makes the size premium vanish. If the size premium were discovered today, rather than in the 1980s, it would be challenging to even publish a paper documenting that small stocks outperform large ones.[93]

For all of these reasons, the Commission should reject the arbitrary size premium proposed by the Company.

X. COST OF EQUITY SUMMARY

Q. Please summarize the results of the DCF and CAPM cost of equity models you presented in testimony.

A. The following table shows the cost of equity results from each of the models I employed in this case.

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[92] Garrett, Exh. DJG-32 (Morningstar, 2015 IBBOTSON STOCKS, BONDS, BILLS, AND INFLATION CLASSIC YEARBOOK 112 (2015)).

[93] Vitali Kalesnik and Noah Beck, *Busting the Myth About Size*, RESEARCH AFFILIATES (Dec. 2014), https://www.researchaffiliates.com/Our%20Ideas/Insights/Fundamentals/Pages/284_Busting_the_Myth_About_Size.aspx.

Figure 12:
Cost of Equity Summary[94]

Model		Cost of Equity
Discounted Cash Flow Model		7.3%
Capital Asset Pricing Model		6.1%
Average		**6.7%**

The average cost of equity indicated by the CAPM and DCF Model in this case is about 6.7 percent.

Q. Is there a market indicator that you can use to test the reasonableness of your cost of equity estimate?

A. Yes, there is. The CAPM is a risk premium model based on the fact that all investors will require, at a minimum, a return equal to the risk-free rate when investing in equity securities. Of course, the investors will also require a premium on top of the risk-free rate to compensate them for the risk they have assumed. If an investor bought every stock in the market portfolio, they would require the risk-free rate, plus the ERP discussed above. Recall that the risk-free rate plus the ERP is called the required return on the market portfolio. This could also be called the "market cost of equity." It is undisputed that the cost of equity of utility stocks must be less than the total market cost of equity. This is because utility stocks are less risky than the average stock in the market. (We proved this

[94] David J. Garrett, Exh. DJG-33.

above by showing that utility betas were less than one). Therefore, once we determine the market cost of equity, it gives us a "ceiling" below which Avista's actual cost of equity must lie.

Q. Describe how you estimated the market cost of equity.

A. The methods used to estimate the market cost of equity are necessarily related to the methods used to estimate the ERP discussed above. In fact, the ERP is calculated by taking the market cost of equity less the risk-free rate. Therefore, in estimating the market cost of equity, I relied on the same methods discussed above to estimate the ERP: (1) consulting expert surveys; and (2) calculating the implied ERP. The results of my market cost of equity analysis are presented in the following table:[95]

Source		Estimate
IESE Survey		8.0%
Graham Harvey Survey		6.8%
Damodaran		7.5%
Garrett		8.4%
Average		7.7%

As shown in this table, the average market cost of equity from these sources is only 7.7 percent. Therefore, it is not surprising that the CAPM and DCF Model indicate a cost of equity for Avista of only 6.7 percent. In other words, any cost of equity estimates for

[95] Garrett, Exh. DJG-34.

Avista (or any regulated utility) that is above the market cost of equity should be viewed as unreasonable. In this case, Mr. McKenzie suggests a cost of equity for Avista more than 200 basis points above the market cost of equity (i.e., the "ceiling"), which is simply unreasonable.

Q. What do you recommend for the awarded return on equity?

A. The Commission should strive to award a return on equity that reflects the market-based cost of equity. However, the awarded return must also consider broader ratemaking principles and be reasonable under the circumstances. The results of the financial models presented in this case indicate a cost of equity estimate of about 6.7 percent. In the interest of achieving a gradual movement toward the appropriate market-based cost of equity, I recommend the Commission in this case adopt an awarded return on equity within the reasonable range of 8.75 percent to 9.25 percent. Specifically, I recommend the Commission award a return on equity of nine percent, which is the midpoint in that range of reasonableness.

XI. CAPITAL STRUCTURE

Q. Describe, in general, the concept of a company's "capital structure."

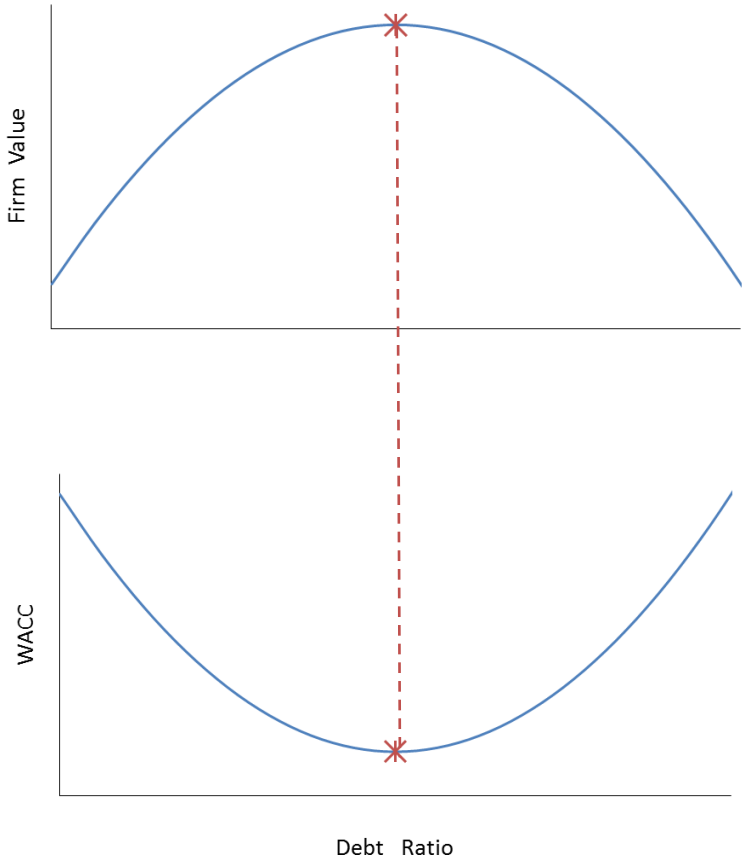
A. "Capital structure" refers to the way a firm finances its overall operations through external sources. The primary sources of long-term, external financing are debt capital and equity capital. Debt capital usually comes in the form of contractual bond issues that require the firm make payments, while equity capital represents an ownership interest in the form of stock. Because a firm cannot pay dividends on common stock until it satisfies

its debt obligations to bondholders, stockholders are referred to as "residual claimants." The fact that stockholders have a lower priority to claims on company assets increases their risk and required return relative to bondholders. Thus, equity capital has a higher cost than debt capital. Firms can reduce their weighted average cost of capital (WACC) by recapitalizing and increasing their debt financing. In addition, because interest expense is tax deductible, increasing debt also adds value to the firm by reducing the firm's tax obligation.

Q. Is it true that by increasing debt, competitive firms can add value and reduce their WACC?

A. Yes. A competitive firm can add value by increasing debt. After a certain point, however, the marginal cost of additional debt outweighs its marginal benefit. This is because the more debt the firm uses, the higher interest expense it must pay, and the likelihood of loss increases. This increases the risk of recovery for both bondholders and shareholders, causing both groups of investors to demand a greater return on their investment. Thus, if debt financing is too high, the firm's WACC will increase instead of decrease. The following figure illustrates these concepts.

Figure 13: Optimal Debt Ratio



As shown in this figure, a competitive firm's value is maximized when the WACC is minimized. In both of these graphs, the debt ratio [D/(D+E)] is shown on the x-axis. By increasing its debt ratio, a competitive firm can minimize its WACC and maximize its value. At a certain point, however, the benefits of increasing debt do not outweigh the costs of the additional risks to both bondholders and shareholders, as each type of investor will demand higher returns for the additional risk they have assumed.

Q. Does the rate base rate of return model effectively incentivize utilities to operate at the optimal capital structure?

A. No. While it is true that competitive firms maximize their value by minimizing their WACC, this is not the case for regulated utilities. Under the rate base rate of return model, a higher WACC results in higher rates, all else held constant. The basic revenue requirement equation is as follows:

Equation 8:
Revenue Requirement for Regulated Utilities

$$RR = O + d + T + \boldsymbol{r}(A - D)$$

where:	RR	=	*revenue requirement*
	O	=	*operating expenses*
	d	=	*depreciation expense*
	T	=	*corporate tax*
	$\boldsymbol{r}$	=	***weighted average cost of capital (WACC)***
	A	=	*plant investments*
	D	=	*accumulated depreciation*

As shown in this equation, utilities can increase their revenue requirement by <u>increasing</u> their WACC, not by minimizing it. Thus, because there is no incentive for a regulated utility to minimize its WACC, a Commission standing in the place of competition must ensure that the regulated utility is operating at the lowest reasonable WACC.

Q. Do you believe that, generally speaking, utilities can afford to have higher debt levels than other industries?

A. Yes. Because regulated utilities have large amounts of fixed assets, stable earnings, and low risk relative to other industries, they can afford to have higher debt ratios (or "leverage"). As aptly stated by Dr. Damodaran:

> Since financial leverage multiplies the underlying business risk, it stands to reason that firms that have high business risk should be reluctant to take on financial leverage. It also stands to reason that firms that operate in stable businesses should be much more willing to take on financial leverage. Utilities, for instance, have historically had high debt ratios but have not had high betas, mostly because their underlying businesses have been stable and fairly predictable.[96]

Note in the passage above that the author explicitly contrasts utilities with firms that have high underlying business risk. Because utilities have low levels risk and operate a stable business, they should generally operate with relatively high levels of debt to achieve their optimal capital structure. There are objective methods available to estimate the optimal capital structure, as discussed further below.

A. Objective Analysis

Q. Describe an objective approach to estimating a firm's optimal capital structure.

A. My analysis of the optimal capital structure includes objective methods to measure the effects of increasing debt on both the cost of debt and cost of equity. I will discuss the effects of increasing the debt ratio on each type of security separately.

Cost of Debt

As discussed above, increasing the debt ratio will increase the cost of debt. To objectively measure how much the cost of debt increases, I considered the spreads above the risk-free rate for various levels of bond ratings and interest coverage ratios. The following table shows increasing interest rates for debt based on different bond rating levels.

[96] Garrett, Exh. DJG-11 (Aswath Damodaran, INVESTMENT VALUATION: TOOLS AND TECHNIQUES FOR DETERMINING THE VALUE OF ANY ASSET (John Wiley & Sons, Inc. 3d. ed. 2012)).

Figure 14:
Bond Rating Spreads

Ratings Table			
Coverage Ratio	Bond Rating	Spread	Interest Rate
8.5 - 10.00	Aaa/AAA	0.75%	3.17%
6.5 - 8.49	Aa2/AA	1.00%	3.42%
5.5 - 6.49	A1/A+	1.25%	3.67%
4.25 - 5.49	A2/A	1.38%	3.80%
3.0 - 4.24	A3/A-	1.56%	3.98%
2.5 - 2.99	Baa2/BBB	2.00%	4.42%
2.25 - 2.49	Ba1/BB+	3.00%	5.42%
2.0 - 2.24	Ba2/BB	3.60%	6.02%
1.75 - 1.99	B1/B+	4.50%	6.92%
1.5 - 1.74	B2/B	5.40%	7.82%
1.25 - 1.49	B3/B-	6.60%	9.02%
0.8 - 1.24	Caa/CCC	9.00%	11.42%

As shown in this table, the spreads over the risk-free rate gradually increase as bond ratings fall.[97] The spread is added to the risk-free rate to obtain the interest rates shown in the far-right column. This concept is somewhat comparable to the interest rate a mortgage lender would charge a borrower. The mortgage lender's advertised rate is usually the lowest rate, or the "prime" rate, which is available to borrowers with stellar credit scores. As credit scores decrease, however, the offered interest rate will increase. The bond ratings in this figure are based on various levels of interest coverage ratios shown in the far-left column. The interest coverage ratio, as its name implies, is a metric used by

[97] The link between interest coverage ratios and ratings was developed by looking at all rated companies in the U.S. The default spreads are obtained from traded bonds. The spreads are added to the risk-free rate to obtain the interest rates in the table. Aswath Damodaran, *Ratings, Interest Coverage Ratios and Default Spread*, N.Y. UNIV. (Jan. 2019) http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm.

financial analysts to gauge a firm's ability to pay its interest expense from its available earnings before interest and taxes (EBIT). (Likewise, the mortgage lender would consider the borrower's personal income-debt ratio). The formula for the interest coverage ratio is as follows:

Equation 9:
Interest Coverage Ratio

$$\frac{Earnings\ before\ Interest\ and\ Taxes}{Interest\ Expense}$$

As the debt ratio rises, the interest coverage ratio falls, the bond ratings increase, and the cost of debt increases. Now that we have an objective way of measuring how increasing the debt ratio affects the cost of debt, we need to measure how increasing the debt ratio affects the cost of equity.

Cost of Equity

As with the cost of debt, increasing the debt ratio also increases the cost of equity. To objectively measure how much the cost of equity increases, I first calculated the Company's unlevered beta. The unlevered beta is determined by the assets owned by the firm and removes the effects of financial leverage. As leverage increases, equity investors bear increasing amounts of risk, leading to higher betas. Before the effects of financial leverage can be accounted for, however, the effects of leverage must first be removed, which is accomplished through the unlevered beta equation:[98]

[98] Garrett, Exh. DJG-11 (Aswath Damodaran, INVESTMENT VALUATION: TOOLS AND TECHNIQUES FOR DETERMINING THE VALUE OF ANY ASSET (John Wiley & Sons, Inc. 3d. ed. 2012)).

Equation 10:
Unlevered Beta

$$\beta_U = \frac{\beta_L}{\left[1 + (1 - T_c)\left(\frac{D}{E}\right)\right]}$$

where: β_U = *unlevered beta (or "asset" beta)*
β_L = *average levered beta of proxy group*
T_C = *corporate tax rate*
D = *book value of debt*
E = *book value of equity*

Using this equation, the beta for the firm can be unlevered, and then "re-levered" based on various debt ratios (by rearranging this equation to solve for β_L). So, by using the Bond Rating Spreads table and the unlevered beta equation, the costs of both debt and equity can be increased in correspondence with increasing the debt ratio, until the ideal capital structure is found: where the weighted average cost of capital is minimized.

Q. Describe Avista's optimal capital structure.

A. I analyzed the Company's optimal capital structure based on the approach discussed above. The following table presents different levels of Avista's weighted average cost of capital (WACC) based on increasing debt ratios.[99]

[99] David J. Garrett, Exh. DJG-35.

Figure 15:[100]
Avista's WACC at Various Debt Ratios

Debt Ratio	Levered Beta	Cost of Equity	Proposed ROE	Coverage Ratio	After-tax Debt Cost	Optimal WACC	WACC at 9.0% ROE
0%	0.342	4.46%	9.00%	∞	2.50%	4.46%	9.00%
20%	0.410	4.86%	9.00%	6.74	2.70%	4.43%	7.74%
30%	0.458	5.15%	9.00%	4.49	3.00%	4.50%	7.20%
40%	0.522	5.53%	9.00%	3.37	3.14%	4.58%	6.66%
50%	0.612	6.07%	9.00%	2.69	3.49%	4.78%	6.25%
52%	0.635	6.20%	9.00%	2.59	3.49%	4.79%	6.14%
53%	0.647	6.27%	9.00%	2.54	3.49%	4.80%	6.08%
55%	0.673	6.42%	9.00%	2.45	4.28%	5.25%	6.40%
60%	0.748	6.87%	9.00%	2.25	4.28%	5.32%	6.17%

In the figure above, the column on the far left shows increasing levels of debt ratios. At a debt ratio of zero percent, the utility's beta is completely unlevered. As the debt ratio in the far-left column increases, both the cost of equity and the cost of debt increase; however, the weighted average cost of capital generally decreases to a certain point. This table indicates that at my recommended nine percent ROE, the Company's overall weighted average cost of capital would be minimized at a debt ratio of about 53 percent.

Q. Did you also look at other competitive firms around the country to compare their debt ratios?

A. Yes. In fact, there are currently more than 1,000 firms across the country with debt ratios of 55 percent or greater, with an average debt ratio of 64 percent, as shown in the following figure:[101]

[100] Garrett, Exh. DJG. 35.

[101] David J. Garrett, Exh. DJG-36.

Figure 16:
Industries with Debt Ratios of 55% or Greater

Industry	# Firms	Debt Ratio
Hospitals/Healthcare Facilities	34	88%
Tobacco	17	88%
Broadcasting	24	83%
Brokerage & Investment Banking	38	77%
Auto & Truck	14	76%
Retail (Building Supply)	17	76%
Advertising	48	75%
Retail (Automotive)	24	74%
Software (Internet)	44	74%
Bank (Money Center)	10	67%
Trucking	28	65%
Food Wholesalers	18	64%
Hotel/Gaming	70	63%
Beverage (Soft)	37	63%
Packaging & Container	27	62%
R.E.I.T.	238	62%
Retail (Grocery and Food)	12	61%
Green & Renewable Energy	21	**60%**
Transportation	19	59%
Retail (Distributors)	88	59%
Telecom. Services	67	**58%**
Aerospace/Defense	85	58%
Air Transport	18	58%
Oil/Gas Distribution	20	58%
Farming/Agriculture	33	57%
Construction Supplies	48	56%
Utility (Water)	19	**56%**
Power	51	**56%**
Cable TV	14	**56%**
Office Equipment & Services	24	56%
Telecom (Wireless)	21	**55%**
Computers/Peripherals	57	55%
Business & Consumer Services	168	55%
Recreation	72	55%
Total / Average	**1,525**	**64%**

Many of the industries shown here, like public utilities, are generally well-established industries with large amounts of capital assets. The shareholders of these industries demand higher debt ratios in order to maximize their profits.

Q. Did you also analyze the average debt ratio of the proxy group?

A. Yes. Although it is not necessarily advisable to consider the debt ratios of the proxy group alone when doing a capital structure analysis for the target utility, such analysis can be a helpful factor to consider along with the objective analysis discussed above. Interestingly, the average debt ratio of the proxy group is the same as Avista's actual debt ratio, which is 53 percent.[102]

Q. What is your recommendation regarding the Company's capital structure?

A. The objective analysis above, as well as the proxy group analysis, strongly indicates that Avista's actual debt ratio of 53 percent is fair and reasonable. The competitive industry analysis indicates that a prudent debt ratio could be even higher. However, the Company is requesting a lower imputed debt ratio of only 50 percent. Given the evidence presented above, the Company's requested debt ratio is unreasonably low and would have the effect of unnecessarily increasing the awarded rate of return and resulting revenue requirement. Thus, I recommend the Commission approve Avista's actual capital structure consisting of 53 percent debt.

[102] David J. Garrett, Exh. DJG-37.

B. Response to Avista Regarding Capital Structure and Credit Ratings

Q. Summarize the Company's support of its requested capital structure as it relates to credit ratings.

A. Company witness Mr. Thies supports Avista's requested capital structure consisting of 50 percent debt and equity. Mr. Thies states that accepting the Company's proposed hypothetical capital structure would send a "positive signal" to rating agencies.[103] Mr. Thies also says that a "supportive regulatory environment" is essential in maintaining our current credit rating."[104]

Q. Do you have a response to these arguments?

A. Yes. In general, I do not agree with Mr. Thies's narrative regarding capital structure as it relates to credit ratings. In contrast to the implications of Mr. Thies testimony, it is not the Commission's duty to "support" the Company's shareholders or its credit rating. Mr. Thies, like many other utility witnesses who testify on this issue, attempts to create a direct link between capital structure (and/or the awarded ROE) and credit ratings. Doing this, however, implicitly absolves utility management of its duties to manage the company in a prudent and efficient manner. In reality, the Commission does not have control over the Company's credit ratings. In fact, it does not even have control over the Company's capital structure. The Company's actual capital structure, like many other aspects of its business operations, are within the complete discretion of Company

[103] Thies, Exh. MTT-1T at 17:15-17.

[104] *Id*. at 19:4-6.

personnel. For example, even if the Commission decided to impute a higher equity ratio as requested by the Company, the Company may simply use the additional profits to increase dividends rather than pay down debt to improve its credit ratings. In other words, by imputing a higher debt ratio, the Commission is simply authorizing an additional transfer of wealth from ratepayers to the Company. There is no guarantee that the Company would even recapitalize to a 50/50 capital structure.

It is simply not the Commission's duty to improve the Company's financial health for the benefit of shareholders. Instead, the Commission's duty to authorize an awarded rate of return (including capital structure) that would likely exist in a competitive environment. This will give the Company's *management* an opportunity to earn a fair return for its investors. If the Commission adopted the awarded ROE and capital structure I have recommended in this case, it would accomplish that objective.

XII. CONCLUSION AND RECOMMENDATION

Q. Summarize the key points of your testimony.

A. The key points of my testimony are summarized as follows:

1. The legal standards governing this issue are clear that the awarded rate of return should be based on the Company's cost of capital.

2. When the awarded rate of return exceeds the actual cost of capital, it results in an inappropriate transfer of excess wealth from customers to shareholders.

3. The models I used in this case indicate the Company's cost of equity is about 6.7 percent. However, under principles of gradualism, the Commission should award Avista's shareholders with a return on equity of 9.0 percent, which is within a reasonable range of 8.75 percent - 9.25 percent. Although we should move awarded returns in general towards market-based cost of equity, we should do so gradually rather than abruptly to avoid volatility within the industry.

4. The Commission should authorize the Company's actual capital structure consisting of 53 percent debt.

Q. Does this conclude your testimony?

A. Yes.