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Witness: Robert B. Hevert
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File No.: ER-2019-0335
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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO: ER-2019-0335

REBUTTAL TESTIMONY

OF

ROBERT B. HEVERT

ON BEHALF OF

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

Westborough, Massachusetts
January 21, 2020

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GLOSSARY OF FREQUENTLY USED TERMS

TERM	DESCRIPTION
Beta Coefficient	A component of the CAPM that measures the risk of a given stock relative to the risk of the overall market.
Capital Asset Pricing Model ("CAPM")	A risk premium-based model used to estimate the Cost of Equity, assuming the stock is added to a well-diversified portfolio. The CAPM assumes that investors are compensated for the time value of money (represented by the Risk-Free Rate), and risk (represented by the combination of the Beta Coefficient and the Market Risk Premium).
Constant Growth DCF Model	A form of the DCF model that assumes cash flows will grow at a constant rate, in perpetuity. The model simplifies to a form that expresses the Cost of Equity as the sum of the expected dividend yield and the expected growth rate.
Cost of Equity	The return required by investors to invest in equity securities. The terms "Return on Equity" and "Cost of Equity" are used interchangeably.
Discounted Cash Flow ("DCF") Model	A model used to estimate the Cost of Equity based on expected cash flows. The Cost of Equity equals the discount rate that sets the current market price equal to the present value of expected cash flows.
Dividend Yield	For a given stock, the current dividend divided by the current market price.
Gross Domestic Product ("GDP")	The value of all finished goods and services produced within a country during a given period of time (usually measured annually). GDP includes public and private consumption, government expenditures, investments, and exports less imports.
Market Return	The expected return on the equity market, taken as a portfolio.
Market Risk Premium	The additional compensation required by investing in the equity market as a portfolio over the Risk-Free rate. The Market Risk Premium is a component of the CAPM.
Multi-Stage DCF Model	A form of the DCF model in which the rate of growth may change over different stages.
Proxy Group	A group of publicly traded companies used as the "proxy" for the subject company (in this case, Ameren Missouri). Proxy companies are sometimes referred to as "Comparable Companies."

TERM	DESCRIPTION
Return on Equity ("ROE")	The return required by investors to invest in equity securities. The terms "Return on Equity" and "Cost of Equity" are used interchangeably.
Risk-Free Rate	The rate of return on an asset with no risk of default.
Risk Premium	The additional compensation required by investors for taking on additional increments of risk. Risk Premium-based approaches are used in addition to the DCF and CAPM to estimate the Cost of Equity.
Terminal Growth	The expected rate of growth in the final, or terminal, stage of the Multi-Stage DCF model.
Treasury Inflation Protected Securities ("TIPS")	Treasury securities that are indexed to inflation. The principal value of TIPS increase with inflation and decrease with deflation, as measured by the Consumer Price Index.
Treasury Yield	The return on Treasury securities; the yield on long-term Treasury bonds is considered to be a measure of the Risk-Free Rate.

REBUTTAL TESTIMONY

OF

ROBERT B. HEVERT

File No. ER-2019-0335

I. INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

Q. Please state your name and business address.

A. My name is Robert B. Hevert and my business address is ScottMadden, Inc., 1900 West Park Drive, Suite 250, Westborough, MA 01581.

Q. On whose behalf are you submitting this testimony?

A. I am submitting this rebuttal testimony ("Rebuttal Testimony") before the Missouri Public Service Commission ("Commission") on behalf of Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or the "Company").

Q. Are you the same Robert B. Hevert who filed Direct Testimony in ER-2019-0335?

A. Yes, I am.

Q. What is the purpose of your Rebuttal Testimony?

A. My Rebuttal Testimony responds to the Revenue Requirement Cost of Service Report (the "Staff Cost of Service Report") submitted in this proceeding by the Missouri Public Service Commission Utility Services Division ("Staff"), and the direct testimonies of David Murray on behalf of the Office of the Public Counsel ("OPC") and Christopher C. Walters, on behalf of Missouri Industrial Energy Consumers ("MIEC") (collectively, the "Opposing ROE Witnesses"), as they relate to the Company's Return on Equity ("ROE" or "Cost of Equity"). Mr.

Jeffrey Smith presents Staff's ROE recommendation. My Rebuttal Testimony updates certain analyses contained in my Direct Testimony, and includes several additional analyses developed in response to issues raised by the Opposing ROE Witnesses. My analyses and conclusions are supported by the data presented in Schedules RBH-R1 through RBH-R12, which have been prepared by me or under my direction.

Q. Please summarize the key issues and recommendations addressed in your Rebuttal Testimony.

A. First, I do not agree with Mr. Smith and Mr. Murray that a hypothetical capital structure is appropriate for Ameren Missouri in this proceeding. The Company's proposed capital structure is consistent with industry practice and is not a threat to the long-run public interest.

In addition, in my Direct Testimony I found the Company's Cost of Equity to fall in the range of 9.80 percent to 10.60 percent.[1] As my Direct Testimony discussed, my ROE recommendation considers a variety of factors, including capital market conditions in general and certain risks faced by the Company. Because the application of financial models and the interpretation of their results are often sources of disagreement among analysts in regulatory proceedings, it is important to review and consider a variety of data points; doing so enables us to put in context both quantitative analyses and the associated recommendations. As such, I have updated the Constant Growth Discounted Cash Flow ("DCF") model, Capital Asset Pricing Model ("CAPM"), Empirical CAPM ("ECAPM"), Bond Yield Risk Premium, and Expected Earnings analyses based on data through December 13, 2019,[2] and have provided additional analyses in response to issues raised by the Opposing ROE Witnesses.

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1 Direct Testimony of Robert B. Hevert, at 3.
2 *See*, Schedules RBH-R1 through RBH-R12.

Q. Please provide an overview of your response to the witnesses who have imputed hypothetical capital structures to Ameren Missouri.

A. Messrs. Smith and Murray's use of hypothetical capital structures is inappropriate in this proceeding. Their hypothetical capital structures do not reflect the dynamic, complex, and continuous financing decisions that must be made to determine the appropriate target capital structure. Their proposals also are inconsistent with literature which notes that hypothetical capital structures are generally used when the subject company's actual capital structure is inconsistent with industry practice, or is not in the long-term public interest. Neither Mr. Smith nor Mr. Murray have shown that the Company's proposed capital structure meets either standard.

Q. Please provide an overview of your response to the Opposing ROE Witnesses.

A. Although I disagree with certain of Mr. Smith's analyses and conclusions, the high end of his recommended range, 9.75 percent, is within five basis points of my recommended range.[3] Mr. Smith's 9.25 percent recommendation,[4] however, falls considerably below a reasonable estimate of the Company's Cost of Equity.

Mr. Smith presents his analyses as of September 30, 2019 and June 30, 2017, the earlier date representing the analytical period underlying Staff's analysis in Spire Missouri, Inc.'s ("Spire Missouri") rate proceeding, the most recent fully litigated rate case in Missouri.[5] Mr. Smith bases his recommendation on the change in Staff's analytical results from that case to this. As discussed throughout my Rebuttal Testimony, I do not agree with Staff's premise that the Cost of Equity has fallen during that period. Nor do I believe Mr. Smith's analyses support a specific 55-basis point decrease from the 9.80 percent ROE authorized by the Commission in the Spire Missouri case, or

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[3] Staff Cost of Service Report (Public version), at 9.
[4] *Ibid.*
[5] *See*, File Nos. GR-2017-0215 and GR-2017-0216.

that it is appropriate to compare the results of a natural gas proxy group as of mid-June 2017 to those of an electric proxy group based on current data to arrive at that conclusion.

Further, although Mr. Smith's recommended range is 8.75 percent to 9.75 percent, his average results range from 4.61 percent to 8.17 percent.[6] I understand Mr. Smith's recommendation does not rely on those results *per se*, but on how Staff's results have changed over time. Nonetheless, it is difficult to see how changes in unreliable results produce a reliable estimate of the Company's Cost of Equity. Simply, if the results are unambiguously unreliable estimates in the first instance, they should not be relied on to measure changes in the Cost of Equity in the second.

Mr. Murray's recommendation is similarly disconnected from his analytical results. Although he recommends an ROE of 9.25 percent,[7] Mr. Murray's results range from 5.48 percent to 7.18 percent.[8] As discussed in Section V, there are numerous unreasonable assumptions underlying Mr. Murray's analyses that tend to reduce his ROE estimates.

Mr. Walters recommends an ROE of 9.20 percent, which falls at the midpoint of his estimated range of 8.80 percent to 9.50 percent.[9] Mr. Walters suggests his recommendation is supported by the trend in authorized returns, Federal monetary policy, and the "economic environment, as well as certain legislative changes since Ameren Missouri's last litigated rate case."[10] As discussed in Section IV, I disagree with several of Mr. Walters' assessments, and his conclusion that 9.20 percent is a reasonable estimate of the Company's Cost of Equity.

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6 Certain of those results are below Staff's recommended rate of return (i.e., 6.92 percent). Staff Cost of Service Report, Schedule JS-11.

7 Assuming his recommended common equity ratio of 48.00 percent.

8 Direct Testimony of David Murray, Schedules DM-3 and DM-4.

9 Direct Testimony of Christopher C. Walters, at 3.

10 *Ibid.* at 2-3.

Q. Have you made any changes to the proxy group presented in your Direct Testimony?

A. Yes, I have removed El Paso Electric Company, due to its proposed acquisition by J.P. Morgan Investment Management Inc;[11] and have included Avista Corporation ("Avista"), which had been party to a proposed acquisition by Hydro One Limited; that transaction was terminated on January 23, 2019.[12] Because Avista meets all my screening criteria and enough time has passed that the model inputs no longer are affected by the proposed transaction, I included Avista in my proxy group. I refer to the resulting group as the "Updated Proxy Group."

II. USE OF HYPOTHETICAL CAPITAL STRUCTURES

Q. Please summarize the Opposing ROE Witnesses' proposed capital structures.

A. Mr. Smith argues Ameren Missouri's equity ratio should be capped at 50.00 percent, because Ameren Corporation has funded capital expenditures using debt in the past and Ameren Missouri currently has "significant planned capital expenditure forecasts."[13] Mr. Murray recommends a capital structure including 48.00 percent common equity, 1.00 percent preferred stock, and 51.00 percent long-term debt, which he suggests "is in line with the capital structure ratios Ameren Corp appears to be targeting for its consolidated operations over the next couple of years."[14] Mr. Walters suggests the Company's proposed equity ratio is "largely in line with, but slightly higher than, the average common equity ratio being awarded to regulated electric utilities in 2019."[15]

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11 *See*, El Paso Electric, Merger Press Release, June 3, 2019.
12 *See*, *Hydro One and Avista Mutually Agree to Terminate Merger Agreement*, Press Release, January 23, 2019.
13 Staff Cost of Service Report, at 21.
14 Direct Testimony of David Murray, at 29.
15 Direct Testimony of Christopher C. Walters, at 21.

Q. What factors do utilities generally consider in developing their target capital structures?

A. As noted earlier, capital structure management is dynamic and complex, looking to satisfy multiple objectives subject to multiple constraints. Utilities must focus on the nature of the assets providing utility service, and recognize the constraints brought about by the obligation to serve. It therefore is important to understand utility financing practice, including the principles and constraints that drive financing decisions, and how that practice is reflected in the cost of capital.

In many ways, the nature of regulation determines the nature of utility assets, and how they are financed. In exchange for the obligation to serve, equity investors expect utilities to have the opportunity to earn a fair return on prudent investments. As the regulated rate of return granted to utilities is below that expected from unregulated enterprises, the nature of regulation is such that the variation in returns (that is, the expected risk) for utilities is expected to be less than those of unregulated companies. It is the nature of regulation that enables utilities to finance large, essentially irreversible, investments that are recovered over decades. Financing practice therefore must address the nature of investments made under the regulatory compact.

It also is important to keep in mind that capital structures, and the financial strength they support, are set not only to ensure capital access during normal markets, but to enable access when markets are constrained. The reason is straightforward: The obligation to serve is not contingent on capital market conditions. When markets are constrained, only those utilities with sufficient financial strength are able to attract capital at reasonable terms. That ability provides those utilities with critically important financing flexibility.

The requirement to access the capital markets in all market conditions can be contrasted with the financial needs of other entities without the legal obligation to serve. Because of that obligation, the financial flexibility brought about by the access to both long-term capital and short-term liquidity is critical for utilities' financial integrity, and their ability to continually attract capital. Merchant firms have options to choose whether, where, and when to make investments; what services or products will be offered; whether to invest in expansions; and whether to cease operations in a given location. That is, merchant companies may adjust the timing and amount of their major capital expenditures to align with economic cycles, and to defer decisions and investments to better match market conditions. Regulated companies have limited options to do so. Ensuring the financial strength to access capital because of the reduced spending flexibility therefore is critically important to utilities, their investors, and their customers.

As noted above, an appropriate capital structure is important not only to ensure long-term financial integrity, it also is critical to enabling access to capital during constrained markets, or when near-term liquidity is needed to fund extraordinary requirements. In that important respect, the capital structure, and the financial strength it engenders, must support both normal circumstances and periods of market uncertainty. Optimizing the capital structure therefore is a very complex process, which balances the need to maintain an appropriate financial profile while ensuring reasonable capital cost rates.

Q. Is there a general financing practice typically used by utilities?

A. Yes, there is. Although capital structure optimization is complex, there are certain principles that commonly apply among utilities. In my experience, the financing practice sometimes referred to as "maturity matching" is chief among those principles. That practice aligns the average life of the securities in the capital structure with the average lives of the assets being financed.[16] As noted by Brigham and Houston, "[t]his strategy minimizes the risk that the firm will be unable to pay off its maturing obligations."[17]

The perpetual nature of common equity makes it an important component of the capital structure. Because long-term debt generally has a duration shorter than the average life of the rate base, common equity is needed to extend the capital structure's duration to more closely match that of the rate base. That is, owing to its perpetual life, common equity extends the weighted average life of the capital structure, and mitigates financing risk. Conversely, relying more heavily on debt increases the risk of refinancing maturing obligations during less accommodating market environments.

Q. Are you familiar with published literature discussing the circumstances in which hypothetical capital structures may be appropriate?

A. Yes. Charles F. Phillips in The Regulation of Public Utilities (1993),[18] for example, discusses circumstances in which hypothetical capital structures may be appropriate for ratemaking purposes:

> The Colorado Commission said that it "could adopt a hypothetical structure for rate making in the event that applicants' actual financial structure is not in the long run public interest"
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> ***
>
> The Florida Commission held that capital structures "fall within the prerogatives of management" and that "invasion of the field of management in such a sensitive area is justified only when the public interest requires the exercise of extreme measures for its protection and benefit."
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> A hypothetical capital structure is used only where a utility's actual capitalization is clearly out of line with those of other utilities in its industry

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16 This is not to say that an individual dollar may be traced from its source to its use.

17 Brigham, Eugene F. and Houston, Joel F., Fundamentals of Financial Management, Concise 4th Ed., Thomson-Southwestern, 2004, at 574. Maturity matching was also noted by the Commission in Decision 20622-D01-2016, 2016 Generic Cost of Capital, October 7, 2016, pp. 571, at 124.

18 Phillips, Charles F., The Regulation of Public Utilities, Public Utilities Reports, Inc., 1993, pp. 389-391.

or where a utility is diversified.

Because Ameren Missouri's requested capital structure is consistent with industry practice (as discussed below) and not a threat to the long-run public interest, there is no need to set its rates based on a hypothetical capital structure.

Q. Did Mr. Smith or Mr. Murray review actual capital structures for utilities such as Ameren Missouri?

A. No, they did not. Mr. Smith reviews capital expenditures to operating cash and the equity ratio for Ameren Missouri, Ameren Corporation, Ameren Illinois Company, and Ameren Transmission Company of Illinois.[19] Mr. Murray reviews the capital structure of the Company, as well as Ameren Corporation and its subsidiaries.

Q. Please describe your analysis of the Company's capital structure relative to industry practice.

A. As a measure of industry practice, I reviewed the last eight quarters of long-term debt and common equity ratios of the operating utilities owned by each of my proxy companies. As shown in Schedule RBH-R7, the average capital structure over that period included 53.70 percent common equity and 46.30 percent long-term debt; the average common equity ratios (on a company-specific basis) range from 45.65 percent to 59.99 percent. Based on that review, it is apparent that the Company's projected investor-supplied capital structure is within the range of those within the proxy group. Because Ameren Missouri's actual capital structure is consistent with industry practice (as measured by the proxy group), there is no reason to conclude that it should be abandoned in favor of a hypothetical capital structure.

[19] Staff Cost of Service Report, at 20.

Q. What is the basis for using average capital components rather than a point-in-time measurement?

A. Measuring the capital components at a particular point in time can skew the capital structure by the specific circumstances of a particular period. Therefore, it is more appropriate to normalize the relative relationship between the capital components over a period of time.

Q. What would be the effect of increasing the debt component and reducing the common equity component of Ameren Missouri's capital structure?

A. Lowering Ameren Missouri's equity ratio would put upward pressure on its cost of capital, to the long-term detriment of its customers. There is little question that rating agencies such as Standard and Poor's ("S&P") consider the regulatory environment, including the extent to which the presiding regulatory commission is supportive of issues affecting credit quality, to be an important determinant of the subject company's credit profile. Based on criteria established by S&P, a company's credit rating is the result of the combination of the company's "Business Risk" rating and its "Financial Risk" rating. A decision by the Commission to increase Ameren Missouri's debt ratio (*i.e.*, increase Ameren Missouri's financial leverage) could adversely affect both the Company's Business Risk rating and investors' perception of the regulatory environment in Missouri.

In a similar fashion, Moody's considers the regulatory structure to be so important that 50.00 percent of the factors that weigh in a ratings determination are related to the nature of regulation.[20] Among the factors considered by Moody's in assessing the regulatory framework are the predictability and consistency of regulatory actions:

> As the revenues set by the regulator are a primary component of a utility's

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[20] *See*, Moody's Investors Service, *Rating Methodology; Regulated Gas and Electric Utilities*, page 4 (June 23, 2017).

> cash flow, the utility's ability to obtain predictable and supportive treatment within its regulatory framework is one of the most significant factors in assessing a utility's credit quality. The regulatory framework generally provides more certainty around a utility's cash flow and typically allows the company to operate with significantly less cushion in its cash flow metrics than comparably rated companies in other industrial sectors.
>
> ***
>
> In situations where the regulatory framework is less supportive, or is more contentious, a utility's credit quality can deteriorate rapidly.[21]

For example, as discussed in the Rebuttal Testimony of Darryl T. Sagel, Moody's raised concern with the Commission's initial discussion in the Spire Missouri Rate Case, suggesting that the parent company equity ratio should be used instead of the operating company equity ratio. Moody's further viewed the Commission's decision as a positive when it determined that the actual capital structure (and not that of the parent company) was appropriate.[22]

Q. What is your conclusion regarding an appropriate capital structure for the Company?

A. Ameren Missouri's proposed capital structure is supported by industry practice: Its equity ratio is within the range of its peers', and its overall capital structure is consistent with rating agency criteria for its credit profile. On that basis, I believe it is reasonable and appropriate, and should be approved by the Commission. If a lower, hypothetical equity ratio were to be approved, the combined effect of increased financial and regulatory risks likely would increase the costs of debt and equity, to the long-term detriment of Ameren Missouri's customers. Considering the average actual common equity ratios in place at the proxy group companies, I believe that Ameren Missouri's proposed common equity ratio of 51.93 percent is reasonable.

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[21] Moody's Investors Service, *Regulatory Frameworks – Ratings and Credit Quality for Investor-Owned Utilities*, page 2 (June 18, 2010).

[22] Rebuttal Testimony of Darryl T. Sagel, at 40-41.

III. RESPONSE TO TESTIMONY OF STAFF WITNESS SMITH

Q. Please briefly summarize Staff's recommendation regarding the Company's Cost of Equity.

A. Through its witness Mr. Smith, Staff recommends an ROE of 9.25 percent, within a range of 8.75 percent to 9.75 percent.[23] Mr. Smith estimates the ROE using the Constant Growth DCF model and the CAPM.[24] Mr. Smith reviews recently authorized returns for electric and natural gas utilities as a check on the reasonableness of his recommended ROE,[25] and considers current market conditions.[26] As noted earlier, Mr. Smith's recommendation rests on a relative analysis, comparing model results coincident with Spire Missouri's recent rate cases to those produced using current data.[27]

Q. What are the specific areas in which you disagree with Mr. Smith's analyses and conclusions?

A. The areas in which I disagree with Mr. Smith include:

1. The basis of his ROE recommendation;
2. Mr. Smith's interpretation of capital market conditions;
3. Mr. Smith's Constant Growth DCF analyses;
4. Mr. Smith's application of the CAPM, the reasonableness of those results, and their relevance in determining the Company's ROE; and
5. The relevance of authorized returns.

I discuss each in turn, below.

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[23] Staff Cost of Service Report, at 26.
[24] *Ibid.*, at 9-10, and Schedule JS-11.
[25] *Ibid.*, at 25-26.
[26] *Ibid.*, at 14-19.
[27] *Ibid.*, Schedule JS-9, JS-10, and JS-11.

A. ROE Recommendation

Q. Do you have any preliminary observations regarding Mr. Smith's recommended range?

A. Yes. Although I do not believe the low end of Mr. Smith's recommended range is a reasonable estimate of the Company's ROE, I recognize the upper end of his range, 9.75 percent, is only five basis points from my recommended range.

Q. Please summarize Mr. Smith's ROE recommendation and its derivation.

A. Mr. Smith recommends an ROE of 9.25 percent, within a range of 8.75 percent to 9.75 percent.[28] To determine his recommendation, Mr. Smith first:

1. Calculates the average of his Constant Growth DCF and CAPM results based on his *electric proxy group*;
2. Calculates the average of his Constant Growth DCF and CAPM results based on his *natural gas proxy group*; and
3. Presents the average of the Constant Growth DCF and CAPM results based on the *natural gas proxy group* presented by Staff in Spire's 2017 rate proceeding (Docket Nos. GR-2017-0215 and GR-2017-0216).

Mr. Smith then calculates the difference in the average results for his electric and natural gas proxy groups (an increase of 16 basis points); and the difference in the average results for his natural gas proxy group, and the average results from the Spire Missouri rate case (a decrease of 74 basis points). He begins with the 9.80 percent ROE authorized in the Spire Missouri Rate Case

[28] Staff Cost of Service Report, at 26.

and makes two adjustments: (1) adding 16 basis points; and (2) subtracting 74 basis points. That process produces an estimate of 9.22 percent, which Mr. Smith rounds to 9.25 percent.[29]

Q. Do you have any concerns with that approach?

A. Yes, I do. Although Mr. Smith argues his approach "reflects Staff's estimated [Cost of Equity] differential between electric and gas utilities (16 basis points), and Staff's estimated decrease in the [Cost of Equity] since the Spire Missouri rate cases (-74 basis points),"[30] it simply reflects the difference in the average results in the Spire Missouri rate case (which was based on a *natural gas proxy group*), and the average results for his *electric proxy group* in the current proceeding. The calculation presented in Schedule JS-11 can be stated using the following formula:

$$y = a - b + b - c \quad [1]$$

Where:

y = the adjustment to the authorized ROE in the Spire Missouri Rate Case.

a = the average current results based on the electric proxy group.

b = the average current results based on the natural gas proxy group.

c = the average results based on the natural gas proxy group from the Spire Missouri Rate Case.

Because it adds then subtracts b, Equation [1] can be simplified to:

$$y = a - c \quad [2]$$

The current results of the natural gas proxy group therefore have no effect on Mr. Smith's adjustment to the 9.80 percent authorized in the Spire Missouri rate case. Whether the current

[29] Schedule JS-11.

[30] Staff Cost of Service Report, at 9. [Clarification added]

natural gas proxy group results average 6.22 percent as Mr. Smith estimates, zero percent, 100.00 percent, or any other value, the adjustment remains negative 58 basis points (*see,* Schedule RBH-R8). That is, Mr. Smith's approach assumes it is appropriate to compare the current results of an *electric proxy group* to the prior results of a *natural gas proxy group* to determine how the ROE has changed over time. I do not agree, and it appears neither does Mr. Smith as he states that he attempted to estimate the current "[Cost of Equity] differential between electric and gas utilities."[31]

Q. Do you agree it is appropriate to consider the relative changes in models to determine the ROE?

A. Although it may be informative to review changes in model results over time, it is most important that the proxy groups are comparable, the model inputs are reasonable, and the results are meaningful. Here, the results presented in Schedule JS-11 all are significantly below the lowest authorized return for a vertically integrated utility in at least 40 years.[32] In addition, as discussed in more detail in my response to Mr. Smith's CAPM analysis, certain of those results suggest Ameren Missouri's Cost of Equity is equal to Staff's recommended (embedded) Cost of Debt, which is highly suspect given that equity investors face greater risks than debt investors and thus the cost of equity is obviously higher. When models produce results so far removed from reasonable benchmarks, those results and the analyses that produced them should be viewed with considerable caution. That is the case even if they are being relied on solely to estimate changes over time.

Mr. Smith produces various analyses, but his recommendation is far removed from those results. Recognizing that the Commission would be skeptical of model results and ROE

[31] *Ibid.*

[32] Source: Regulatory Research Associates.

recommendations as low as 4.61 percent, Mr. Smith instead focuses on the "relative change" in Staff's DCF and CAPM estimates. As discussed below, those analyses are highly flawed and cannot be relied on in either an absolute or a relative sense. That said, and assuming for the sake of argument Mr. Smith's approach, certain reasonable adjustments to the DCF model indicate that the Cost of Equity has increased since the Spire Missouri Rate Case.

Q. What has Staff recommended recently for other utilities?

A. In the most recent electric rate case in Missouri (for Kansas City Power & Light Company and KCP&L Greater Missouri Operations Company), Staff recommended an ROE of 9.85 percent.[33] Mr. Smith was Staff's witness in that case. The Staff Cost of Service report in that case was filed on June 19, 2018. Mr. Smith did not change his recommended ROE in his Rebuttal Testimony (filed July 27, 2018)[34] or his Surrebuttal Testimony (filed September 4, 2018).[35]

In the most recent natural gas rate case in Missouri (for Ameren Missouri's natural gas operations), Staff recommended an ROE of 9.50 percent.[36] Again, Mr. Smith was Staff's witness in that case. The Staff Cost of Service report in that case was filed on April 17, 2019. Mr. Smith did not change his recommended ROE in his Rebuttal Testimony (filed June 7, 2019)[37] or his Surrebuttal Testimony (filed July 10, 2019).[38]

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[33] *See*, Staff Report Cost of Service, Missouri Public Service Commission, Docket No. ER-2018-0145 and ER-2018-0146, June 19, 2018, at 2.

[34] *See*, Rebuttal Testimony of Jeffrey Smith, Missouri Public Service Commission, Docket No. ER-2018-0145 and ER-2018-0146, July 27, 2018.

[35] *See*, Surrebuttal Testimony of Jeffrey Smith, Missouri Public Service Commission, Docket No. ER-2018-0145 and ER-2018-0146, September 4, 2018, at 13.

[36] *See*, Staff Report Cost of Service, Missouri Public Service Commission, Docket No. GR-2019-0077, April 17, 2019, at 2.

[37] *See*, Rebuttal Testimony of Jeffrey Smith, Missouri Public Service Commission, Docket No. GR-2019-0077, June 7, 2019, at 15.

[38] *See*, Surrebuttal Testimony of Jeffrey Smith, Missouri Public Service Commission, Docket No. GR-2019-0077, July 10, 2019, at 20.

As noted above, Mr. Smith's analyses focus on the relative change over time. Mr. Smith, however, has not explained why investors view electric utilities, such as Ameren Missouri, as so much less risky now than in mid-2018 to lower their required return by 60 basis points. Similarly, Mr. Smith has not explained how market conditions have changed over approximately the last six months that would cause Ameren Missouri's electric ROE to be 25 basis points below the ROE for its natural gas operations.

Q. Do you have any other concerns with Mr. Smith's recommended ROE?

A. Yes, I do. As discussed in more detail later in my response to Mr. Smith, I have several concerns with Mr. Smith's application of the DCF and CAPM methods, and the results they produce.

B. Capital Market Conditions

Q. Please summarize Mr. Smith's testimony as it relates to current capital market conditions?

A. Mr. Smith reviews current economic conditions, and concludes slowing economic growth and low interest rates due to "accommodative support from the FED" suggest a lower Cost of Equity for utilities.[39] Mr. Smith also reviews the debt and equity markets, noting that debt costs have decreased since 2017 and low interest rates have caused utility stocks to outpace the overall market, supporting Staff's proposed 9.25 percent recommended ROE.[40]

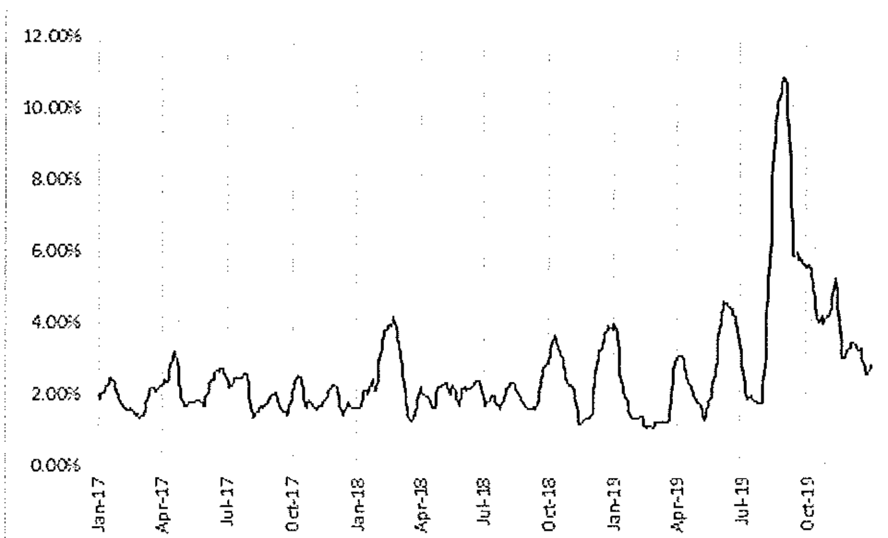
[39] Staff Cost of Service Report, at 14.
[40] *Ibid.*, at 14-19.

Q. Do you agree with Mr. Smith's conclusion that the capital market environment suggests a lower Cost of Equity for the Company?

A. No, I do not. In 2019, the 30-year Treasury yield fell by 119 basis points, a decline of about 38.00 percent, in 180 calendar days. Looking back to 2001, only 142 of 4,943 observations saw greater declines (only 17 saw greater percentage declines). On an absolute basis, 174 observations experienced greater basis point changes, and only 60 saw greater percentage changes.

One means of viewing the increasing volatility of Treasury yields is to view the Coefficient of Variation ("CoV") over time. The CoV is the ratio of the standard deviation to the average; it is a means of standardizing variability. As Chart 1 (below) demonstrates, by that measure, long-term Treasury yields became increasingly variable in 2019, relative to 2017 (i.e., as of the Spire Missouri Rate Case).

Chart 1: 30-Year Treasury Yields Coefficient of Variation



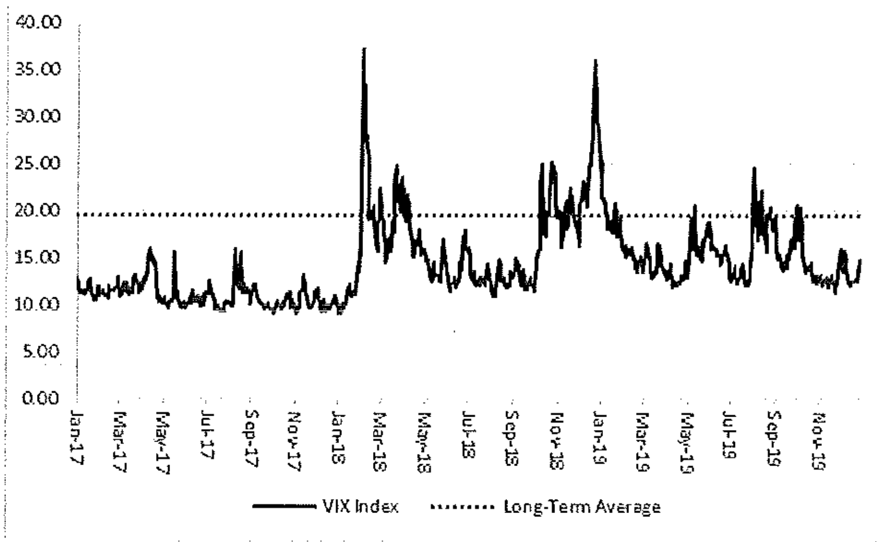
At issue is the extent to which that volatility should be considered in assessing the relationship between Treasury yields and the Cost of Equity. If the variability in yields relates to something other than long-term fundamental market factors, we should question the extent to which changes in bond yields reflect changes in investor return requirements.

As noted in my Direct Testimony, over time, significant and abrupt declines in Treasury yields have been associated with increases in equity market volatility.[41] That relationship makes intuitive sense; as investors see increasing risk, their objectives may shift to capital preservation (that is, avoiding a capital loss), rather than capital appreciation. Consistent with that objective, investors may allocate capital to the relative safety of Treasury yields, in a "flight to safety." Because bond yields are inversely related to bond prices, as investors bid up the prices of bonds, they bid down the yields. That pattern is seen in Chart 11 in my Direct Testimony, in which decreases in the 30-year Treasury yield coincided with increases in the VIX. In those instances, the fall in yields does not reflect a reduction in required returns, it reflects an increase in risk aversion and, therefore, an increase in investor-required returns.

As also shown in my Direct Testimony, the Cboe Options Exchange ("Cboe") Volatility Index ("VIX") increased since the Spire Missouri rate case in 2017.[42] Looking to more recent data (*see*, Chart 2), the VIX continues to remain elevated relative to 2017. In addition, although the VIX traded in a relatively narrow range in 2017, it experienced greater variability in 2018 and 2019.

[41] Direct Testimony of Robert B. Hevert, at 34-35.
[42] *Ibid.*, at 33-34.

Chart 2: VIX Since January 2017[43]



As discussed in my Direct Testimony, since the 2008/2009 financial crisis, Treasury yields have generally remained below utility dividend yields.[44] As shown in Chart 3, below, that relationship remained similar in 2017 relative to the current market, although the yield spread has recently increased as Treasury yields fell.

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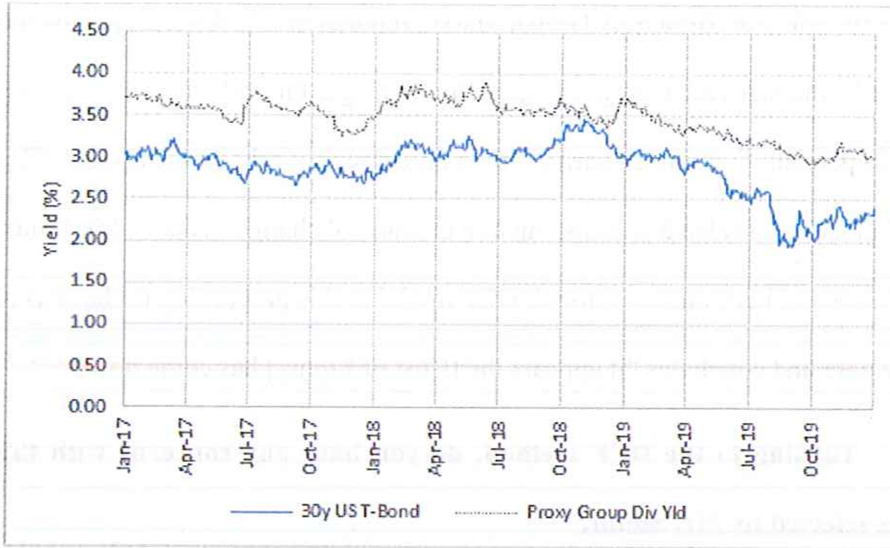
[43] Source: Bloomberg Professional, as of December 13, 2019.

[44] Direct Testimony of Robert B. Hevert, at 37.

Chart 3: Utility Dividend Yields and 30-Year Treasury Yields[45]



Further, although Mr. Smith suggests low interest rates and relatively higher Price-to-Earnings ("P/E") ratios imply reduced required returns, as discussed in my Direct Testimony, the greater variability in P/E ratios increases the risk of capital loss and a limit on valuation levels.[46] As such, I do not agree that current market conditions imply a lower ROE.

C. Constant Growth DCF Model

Q. Please summarize Staff's Constant Growth DCF analysis.

A. Mr. Smith calculates the Constant Growth DCF results using an electric proxy group and a natural gas proxy group. He calculates the dividend yield for each proxy company in his proxy groups by "dividing the calendar year projected dividends per share from Market Intelligence by the monthly high/low average stock price for the three months ending September 30, 2019."[47] Mr. Smith then reviews the ten- and five-year historical growth rates in dividend per

45 Source: S&P Global Market Intelligence.
46 Direct Testimony of Robert B. Hevert, at 39.
47 Staff Cost of Service Report, at 23.

share ("DPS"), book value per share ("BVPS"), and earnings per share ("EPS"), as well as the projected EPS growth rates from S&P Global Market Intelligence.[48] After reviewing those growth rates, Mr. Smith concludes an appropriate growth rate range, for both proxy groups, is from 4.20 percent to 5.00 percent.[49] As noted earlier, Mr. Smith does not rely on the results of his Constant Growth DCF model on an absolute basis, but as a measure of change. That is, Mr. Smith compares the range of results of his Constant Growth DCF model in this proceeding to those as of the Spire Missouri rate case and concludes "it appears the [Cost of Equity] has come down."[50]

Q. Turning to the DCF method, do you have any concerns with the range of growth rates selected by Mr. Smith?

A. Yes, I do. As noted above, Mr. Smith selects a range of growth rates of 4.20 percent to 5.00 percent for both proxy groups. The range of growth rates Staff assumed in the Spire Missouri analysis also was 4.20 percent to 5.00 percent, based on similar data.[51]

Table 1, below, summarizes the average growth rates presented in this proceeding for Mr. Smith's natural gas proxy group (as of September 30, 2019) relative to the same growth rates presented by Staff in the Spire Missouri rate case (as of June 30, 2017).

Table 1: Staff Growth Rates Comparison – Natural Gas Proxy Group[52]

Growth Rate	6/30/2017	9/30/2019	Difference
Ten-Year Avg DPS, EPS, BVPS	4.38%	4.73%	0.35%
Five-Year Avg DPS, EPS, BVPS	4.34%	5.81%	1.47%
Mean Proj. Long-Term Growth Rate	5.19%	5.60%	0.41%

48 *Ibid.*, at 23.
49 *Ibid.*, at 24.
50 *Ibid.*, at 24.
51 *Ibid.*, Schedule JS-8-6, and Missouri Public Service Commission, File Nos. GR-2017-0215 and GR-2017-0216, Staff Cost of Service Report, Schedule 9-4.
52 *Ibid.*

As shown in Table 1, since mid-2017 the ten-year and five-year historical growth rates increased 35 basis points and 147 basis points, respectively; the projected growth rates increased 41 basis points. Mr. Smith's assumed growth rate range, however, did not change. Despite those increases, Mr. Smith has not explained why he left his range constant, other than "to maintain consistency in the growth rates used for the different proxy groups."[53]

Q. Is it reasonable to attempt "to maintain consistency in the growth rates used for the different proxy groups"?[54]

A. No, it is not. Mr. Smith notes on page 23 of the Staff Cost of Service Report, the Constant Growth DCF model estimates the Cost of Equity based on the expected dividend yield and the expected growth rate. By holding the growth rate constant, Mr. Smith's approach assumes changes in DCF results relate only to changes in dividend yields. Clearly, that is an incorrect assumption. Under the fundamental assumptions of the Constant Growth DCF model, decreases in growth rates generally are associated with lower stock prices and, therefore, higher dividend yields. That is, higher growth expectations are reflected in higher stock prices and, therefore, lower dividend yields. The converse also is the case - lower growth expectations are associated with lower stock prices and higher dividend yields. Mr. Smith does not consider that fundamental relationship in his attempt "to maintain consistency in the growth rates."

As noted in Table 1, above, even though Mr. Smith assumes a growth rate range of 4.20 percent to 5.00 percent for his natural gas proxy group, the average growth rates he reviews range from 4.73 percent to 5.81 percent. Assuming, conservatively, an increase of 40 basis points to the growth rate range[55] (i.e., to a range of 4.60 percent to 5.40 percent), Mr. Smith's Constant Growth

[53] Staff Cost of Service Report, at 24.
[54] *Ibid.*
[55] 40 basis points is approximately equal to the low end of the increase in growth rates in Table 1.

DCF results would be 7.11 percent to 7.91 percent (using Mr. Smith's 2.51 percent expected dividend yield) relative to the 6.91 percent to 7.71 percent range in the Spire Missouri Rate Case.[56] That is, based on a conservative estimate of the increase in growth rates, the Constant Growth DCF results increase by 20 basis points. Again, I do not agree the current Constant Growth DCF results suggest a decrease in the ROE.[57]

Q. How do the adjusted results based on Mr. Smith's natural gas proxy group affect his ROE recommendation?

A. On a comparative basis, one reasonable adjustment to the range of growth rates indicates an increase in DCF estimates, not a decrease as Mr. Smith supposes.

Q. Do you have any concerns with Mr. Smith's assumed growth rate range for his electric proxy group?

A. Yes, I do. Even though Mr. Smith assumes the low end of his growth rate range is 24 basis points below the lowest average growth rate,[58] he provides no empirical support for why the low end of his growth rate range should be 4.20 percent. Had Mr. Smith relied on a growth rate range of 4.40 percent to 5.00 percent, more consistent with the average growth rates presented in Schedule JS-8-3, his Constant Growth DCF results would range from 7.57 percent to 8.17 percent.

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56 Schedule JS-9-3.

57 Please note, I do not agree that DCF results of 7.11 percent to 7.91 percent are reasonable. However, based on Mr. Smith's methodology, they represent an increase, not a decrease, to the ROE since Spire Missouri.

58 Staff Cost of Service Report, Schedule JS-8-3.

Q. Please summarize your concern with the growth rates used in Staff's DCF analysis.

A. Whereas my DCF analysis relies on analysts' consensus earnings growth projections, Mr. Smith's analysis reflects, as noted above, historical growth in DPS, BVPS, and EPS, and projected growth in EPS. Mr. Smith observes the consensus EPS growth estimates (provided by S&P Global Market Intelligence) average 5.10 percent for his electric proxy group and 5.60 percent for his natural gas proxy group,[59] and argues they are not reliable relative to Staff's "high-end" estimate of long-term GDP growth (approximately 3.89 percent).[60]

Q. Before discussing Mr. Smith's analysis, what is the relevance of expected growth rates in the DCF model?

A. As discussed in my Direct Testimony at page 44, the Constant Growth DCF model assumes the current price of a share of stock represents the present value of the expected cash flows associated with owning that stock. The expected cash flows include the dividends received during the period in which the stock is held, and the price at which the stock eventually is sold. The Cost of Equity is the discount rate that sets the current price equal to the present value of the expected cash flows.

Because both dividends and stock prices are determined by earnings, analysts' consensus projected earnings growth rates are the proper measure of growth for the Constant Growth DCF model. As discussed in more detail below, there is long-standing academic support for the use of earnings growth projections because they have a statistically meaningful relationship to utility stock prices. In summary, growth rates are important inputs to DCF analyses, and analysts'

[59] *Ibid.*, Schedules JS-8-3 and JS-8-6.
[60] *Ibid.*, at 23-24.

earnings growth rate projections are the appropriate measure of expected growth. Other measures, such as those proposed by Mr. Smith, often have the effect of unreasonably suppressing ROE estimates.

Q. Why does Mr. Smith express concern with the use of analysts' forecasts of EPS growth in his Constant Growth DCF model?

A. Mr. Smith asserts that because they are higher than his 3.89 percent high-end GDP growth estimate, analysts' growth rate projections are unsustainable.[61]

Q. Do you agree with Mr. Smith's assessment of alternative growth rates for his Constant Growth DCF model?

A. No, I do not. It is important to realize that earnings growth enables both dividend and book value growth.[62] Corporate decisions to manage the dividend payout ratio for the purpose of minimizing future dividend reductions or to signal future earnings prospects can influence dividend growth rates in near-term periods in a manner that is disproportionate to earnings growth. Similarly, book value can increase over time only through the addition of retained earnings or with the issuance of new equity, both of which are determined by earnings.

Mr. Smith's reference to dividend and book value growth rates also is misplaced because the only scenario in which dividend growth rates and book value growth rates are relevant is when the fundamental assumptions underlying the Constant Growth DCF model precisely hold. Because investors tend to value common equity on the basis income-related metrics such as Price-to-Earnings, and Earnings Before Interest, Taxes and Depreciation ("EBITDA")-to-Enterprise Value ratios, the investor-required ROE is a function of expected growth in earnings.

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[61] *Ibid.* at 24.
[62] Direct Testimony of Robert B. Hevert at 46.

Q. Is the use of analysts' earnings growth projections in the DCF model supported by financial literature?

A. Yes, it is. As explained in my Direct Testimony, the relationship between various growth rates and stock valuation metrics has been the subject of much academic research, including published articles that support the use of analysts' earnings growth projections in the DCF model.[63]

Q. What are Staff's DCF results based on the changes noted above?

A. As shown in Table 2, below, based on the reasonable adjustments to Staff's growth rates noted above, the current results based on the natural gas and electric proxy group are higher in this proceeding than in the Spire Missouri rate case, indicating an increase rather than a decrease in the Company's Cost of Equity relative to the Cost of Equity approved for Spire in 2017.

Table 2: Adjusted DCF Results

Proxy Group	Low	High
Natural Gas – Spire Missouri	6.91%	7.71%
Natural Gas – Current	7.11%	7.91%
Electric	7.57%	8.17%

D. Capital Asset Pricing Model

Q. Please briefly describe Mr. Smith's CAPM analyses.

A. Mr. Smith's CAPM analyses assume a risk-free rate of 2.29 percent, an average calculated Beta coefficient of 0.52 for his electric proxy group and 0.58 for his natural gas proxy group, and historical Market Risk Premium ("MRP") estimates of 6.00 percent (using the long-term arithmetic mean) and 4.50 percent (using the long-term geometric mean).[64] Based on those

[63] *Ibid.*, at 46-47.
[64] Staff Cost of Service Report, at 24-25.

inputs, Mr. Smith's CAPM calculations produce Cost of Equity estimates of 4.61 to 5.38 percent for his electric proxy group and 4.90 percent to 5.77 percent for his natural gas proxy group.[65] Again, Mr. Smith considers his results on a relative, not absolute, basis and compares the current results to those as of June 30, 2017. Mr. Smith reports the CAPM results as of June 30, 2017 to be in the range of 6.08 percent to 7.14 percent.[66]

Q. Do you agree with Mr. Smith's CAPM analysis?

A. No, I do not. The principal difference in our approaches is that Mr. Smith performs an historical, or *ex-post* analysis, whereas I perform a forward-looking, or *ex-ante* analysis. Because the purpose of this proceeding is to establish the Company's Cost of Equity on a forward-looking basis, it is important to develop a CAPM analysis that reflects investors' expectations.

Q. Before turning to the MRP, do you agree with Mr. Smith's use of the average 30-year Treasury yield as the risk-free rate?

A. Although I agree with Mr. Smith that it is appropriate to use the current average 30-year Treasury yield, I relied on both the current 30-day average 30-year Treasury yield and the (near-term) projected 30-year Treasury yield as reported in the *Blue Chip Financial Forecast*.[67]

Q. How did Mr. Smith calculate his MRP estimates?

A. Mr. Smith cites Duff & Phelps' 2019 SBBI Yearbook, and states he calculated his MRP estimates by taking the difference between the long-term average earned return on stocks and bonds from 1926 – 2018.[68]

65 *Ibid.*, at 25.
66 *Ibid.*, Schedule JS-11.
67 Direct Testimony of Robert B. Hevert, Schedule RBH-D4.
68 Staff Cost of Service Report at 35, and Schedule JS-10-1.

Q. Is it appropriate to rely exclusively on historical data in estimating the MRP, as Mr. Smith has done?

A. No, it is not. The Market Risk Premium represents the additional return required by equity investors to assume the risks of owning the "market portfolio" of equity relative to long-term Treasury securities. As with other elements of Cost of Equity analyses, the MRP is meant to be a forward-looking parameter. Simply relying on the historical MRP may produce results that are inconsistent with investor sentiment and current conditions in capital markets. For example, Morningstar observes:

> It is important to note that the expected equity risk premium, as it is used in discount rates and cost of capital analysis, is a forward-looking concept. That is, the equity risk premium that is used in the discount rate should be reflective of what investors think the risk premium will be going forward.[69]

The historical MRP, on the other hand, may not necessarily reflect investors' expectations or, for that matter, the relationship between market risk and returns. The relevant analytical issue in applying the CAPM is to ensure that all three components of the model (*i.e.*, the risk-free rate, Beta, and the MRP) are consistent with market conditions and investor expectations. Therefore, the *ex-ante* CAPM analyses are the more appropriate method to estimate the Company's Cost of Equity.

Q. What is the difference between the geometric and the arithmetic mean risk premium?

A. The arithmetic mean is the simple average of single period rates of return, whereas the geometric mean is the compound rate that equates a beginning value to its ending value. The important distinction between the two methods is that the arithmetic mean assumes that each

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

periodic return is an independent observation and, therefore, incorporates uncertainty in the calculation of the long-term average. The geometric mean, by contrast, is a backward-looking calculation that equates a beginning value to an ending value over a specific period of time. Geometric averages, therefore, provide a standardized basis of review of historical performance across investments or investment managers; they do not, however, reflect forward-looking uncertainty.

Because there is no uncertainty regarding past returns, the use of geometric averages is appropriate when comparing investment performance on a retrospective basis. On a prospective basis, however, uncertainty exists and should be taken into consideration when developing return expectations and requirements. That is why investors and researchers commonly use the arithmetic mean when estimating the risk premium over historical periods for the purpose of estimating equity cost rates.

Lastly, investment risk or volatility is typically measured on the basis of the standard deviation. The standard deviation, in turn, is a function of the arithmetic, as opposed to the geometric mean. In that regard, the Beta coefficients applied in CAPM analyses are derived from the standard deviation of returns.[70] In any case, Morningstar notes that:

> The arithmetic average equity risk premium can be demonstrated to be the most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of the stock market returns and the riskless rates is the relevant number.[71]

Similarly, an article reviewing literature on the topic noted the following rationale for using the arithmetic mean:

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[70] Direct Testimony of Robert B. Hevert at 40.

[71] Morningstar, Inc., Ibbotson Stocks, Bonds, Bills, and Inflation 2013 Valuation Yearbook at 56.

> Note that the arithmetic mean, not the geometric mean is the relevant value for this purpose. The quantity desired is the rate of return that investors expect over the next year for the random annual rate of return on the market. The arithmetic mean, or simple average, is the unbiased measure of the expected value of repeated observations of a random variable, not the geometric mean. ... [The] geometric mean underestimates the expected annual rate of return.[72]

Q. Putting aside the issue of whether it is more appropriate to use the geometric or arithmetic mean, do you have any concerns with the manner in which Mr. Smith calculated his assumed Market Risk Premium?

A. Yes, I do. Mr. Smith's estimates are based the historical difference in the total returns on stocks and bonds. According to Morningstar, however, the historical MRP is appropriately calculated by subtracting the *income only* portion of the government bond return from the total return on large company stocks:

> Another point to keep in mind when calculating the equity risk premium is that the income return on the appropriate-horizon Treasury security, rather than the total return, is used in the calculation. The total return is comprised of three return components: the income return, the capital appreciation return, and the reinvestment return.... The income return is thus used in the estimation of the equity risk premium because it represents the truly riskless portion of the return.[73]

By subtracting the total return on government bonds from the total return on stocks, Mr. Smith has understated the historical MRP by 93 basis points (using the arithmetic mean).[74] Based on Mr. Smith's average Beta coefficients of 0.52 and 0.58, the effect on his mean CAPM estimate would be approximately 49 to 54 basis points. Even that correction, however, produces results that are far too low to be reasonable estimates of the Company's Cost of Equity.

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[72] Ian Cooper, Arithmetic versus geometric mean estimators: Setting discount rates for capital budgeting, European Financial Management Vol. 2, No. 2 at 158 (1996).

[73] Morningstar, Inc., Ibbotson Stocks, Bonds, Bills, and Inflation 2013 Valuation Yearbook, at 55.

[74] *See* Duff & Phelps, CRSP Deciles Size Study – Supplementary Data Exhibits.

Q. Do you have any concerns with the results of Mr. Smith's CAPM analysis?

A. Yes, Mr. Smith's CAPM results are so far removed from observable benchmarks that they provide little, if any, value in determining the Company's ROE. For example, Mr. Smith's CAPM analysis suggests that investors would be willing to receive an ROE with a premium of only one to 78 basis points above the Company's embedded Cost of Debt as recommended by Staff (4.60 percent).[75] Debt and equity are fundamentally different securities with different risk/return characteristics, different lives, and different investors. Debt investors have a contractual, senior claim on cash flows not available to equity investors and as such, equity investors bear the residual risk of ownership. Moreover, debt investors' exposure to business and financial risk is finite (due to the finite life of debt) whereas equity investors are exposed to residual risk in perpetuity. As such, no rational equity investor would have a required ROE equal to the Cost of Debt, as Mr. Smith's CAPM analysis suggests.[76]

In addition, a CAPM estimate of 4.61 percent is less than half of Ameren Missouri's currently authorized return. If the Company's authorized ROE was lowered by over half, it would certainly be viewed as extremely negative by investors and credit rating agencies. The notion that the Company's Cost of Equity now is 4.61 percent simply is implausible.

Q. What are your conclusions regarding Mr. Smith's CAPM analysis?

A. As a practical matter, estimates as low as 4.61 percent have little, if any, practical meaning for the purpose of determining the Company's ROE, even if only used to assess the change in the ROE over time. Financial models must be applied giving due consideration to the reasonableness of the inputs, assumptions, and results.

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[75] Staff Cost of Service Report, at 21.
[76] Based on the geometric MRP.

E. Authorized Returns

Q. Do you have any observations regarding the authorized return data presented by Mr. Smith?

A. Although Mr. Smith does not provide any conclusions regarding the authorized return data presented on page 26 of the Staff Cost of Service Report, it is important to review that data in proper context. Average annual data obscures variation in returns and does not address the number of cases or the jurisdictions issuing orders within a given year. For example, one year may have fewer cases decided, and a relatively large portion of those cases decided by a single jurisdiction.

Mr. Smith only includes fully litigated rate cases in the average authorized returns. Tables 3 and 4, below, show the number of natural gas and vertically integrated electric rate cases that were settled versus fully litigated (where an authorized return was disclosed), from 2015 through 2019.

Table 3: Natural Gas Rate Cases[77]

Year	Fully Litigated	Settled	Total
2015	5	11	16
2016	9	16	25
2017	6	17	23
2018	15	24	39
2019	4	15	19

[77] Source: Regulatory Research Associates. Through November 30, 2019, consistent with data presented on page 26 of the Staff Cost of Service Report.

Table 4: Vertically Integrated Electric Rate Cases[78]

Year	Fully Litigated	Settled	Total
2015	13	4	17
2016	9	11	20
2017	8	20	28
2018	9	14	23
2019	5	12	17

In 2015, there were only five fully litigated rate cases for natural gas utilities, there were four in 2019 (through November 30), and in 2017 there were only six fully litigated rate cases. In 2019 (through November 30), there have been only five fully litigated rate cases for vertically integrated electric utilities and no more than nine in any year since 2015.

In addition, focusing solely on annual averages of authorized returns does not take into consideration the jurisdiction in which those returns were authorized. In the data presented by Mr. Smith, 2017 is the highest in terms of the average authorized ROE for natural gas utilities. In 2017, of the six fully litigated authorized returns, two were in Above Average jurisdictions and another, ENSTAR Natural Gas in Alaska (which is considered a Below Average jurisdiction from an investor perspective), was authorized an 11.88 percent ROE. Interestingly, although there were 15 fully litigated rate cases for natural gas utilities in 2018, only one was in an Above Average jurisdiction. That is, given the small number of fully litigated cases in a given year, the jurisdiction in which returns are authorized can have a significant effect on the average result.

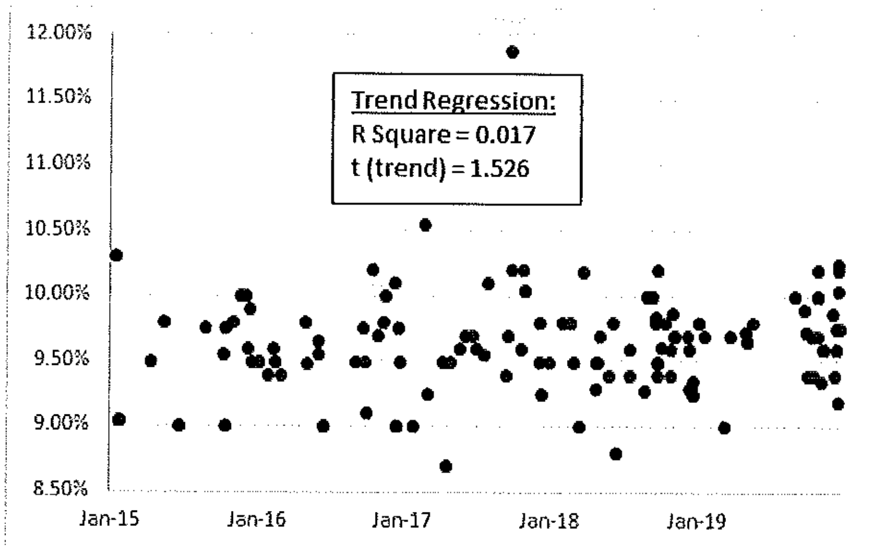
Further, although the 2019 average for electric utilities appears to be lower, that average is substantially biased by the 8.75 percent authorized return for Otter Tail Power in South Dakota. That return represents the lowest authorized return for a vertically integrated electric utility in at least the last 40 years.[79]

[78] Source: Regulatory Research Associates. Through November 30, 2019, consistent with data presented on page 26 of the Staff Cost of Service Report.

[79] Source: Regulatory Research Associates.

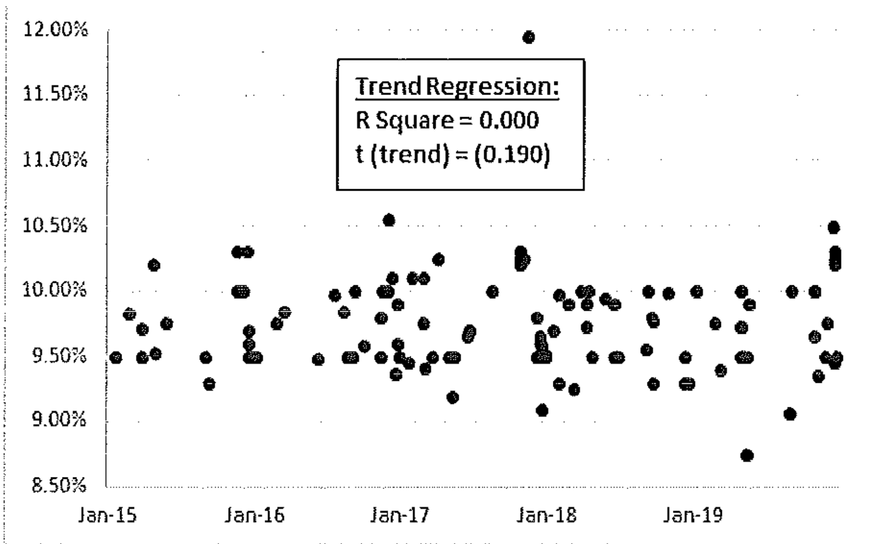
It is difficult to draw any conclusions regarding trends in authorized returns based on so few observations and on a simple review of annual averages. However, as shown in Charts 4 and 5, if all authorized ROEs (including both fully litigated and settled) are charted (rather than the simple average), there has been no meaningful trend since 2015; time explains no more than 1.00 percent of the change in ROEs, and the trend is statistically insignificant.

Chart 4: Natural Gas Authorized Returns (2015-2019)[80]



[80] Source: Regulatory Research Associates.

Chart 5: Vertically Integrated Electric Authorized Returns (2015-2019)[81]



Q. Do you have any observations regarding the 8.75 percent ROE authorized to Otter Tail Power?

A. Yes, the lowest authorized ROE for a vertically integrated electric utility (8.75 percent) was authorized to Otter Tail Power by the South Dakota Public Utilities Commission ("SDPUC") on May 30, 2019.[82] Regarding the SDPUC's order relating to Otter Tail Power, there are several points to keep in mind. First, South Dakota represents less than 9.00 percent of Otter Tail Corporation's ("OTTR") retail electric revenues.[83] Yet, from May 6 to May 31, 2019, OTTR lost about 5.20 percent of its market value, even though the Dow Jones Utility Average gained about 1.00 percent.[84] I recognize that is a limited observation, but still, it appears OTTR meaningfully underperformed the utility sector around the time the SDPUC issued its order. My

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81 Source: Regulatory Research Associates.

82 Public Utilities Commission of the State of South Dakota, In the Matter of the Application of Otter Tail Power Company Fore Authority to Increase its Electric Rates, Final Decision and Order; Notice of Entry, Docket No. EL18-021, May 30, 2019.

83 Otter Tail Corporation, SEC Form 10-K for the fiscal year ended December 31, 2018, at 5.

84 Source: Yahoo! Finance.

view that the SDPUC's order was anomalously low relative to returns authorized in other jurisdictions seems to be consistent with OTTR's price behavior.

IV. RESPONSE TO TESTIMONY OF MIEC WITNESS WALTERS

Q. Please summarize Mr. Walters' recommendation regarding the Company's Cost of Equity.

A. Mr. Walters recommends an ROE of 9.20 percent, within a range of 8.80 percent to 9.50 percent.[85] Mr. Walters sets his recommendation by reference to: (1) his Constant Growth DCF model using both consensus analyst growth rates and a Sustainable Growth rate (with median and average results ranging 7.19 percent to 8.74 percent);[86] (2) his Risk Premium study (ranging from 8.90 percent to 9.50 percent);[87] and (3) his CAPM analyses (ranging from 7.09 percent to 9.47 percent).[88] Mr. Walters' 9.20 percent recommendation represents the midpoint of his range; the low end is based on (the average of) the high end of his DCF and the low end of his Risk Premium estimates (8.90 percent), and the high end set by reference to his high Risk Premium-based and CAPM estimates (9.50 percent).[89]

Q. What are the principal analytical areas in which you disagree with Mr. Walters?

A. The principal areas in which I disagree with Mr. Walters include: (1) the effect of market conditions and utility risk profiles on the Company's Cost of Equity, in particular his assessment of recently authorized ROEs and the TCJA; (2) the application of the DCF model, and interpretation of its results; (3) the Market Risk Premium component of his CAPM analysis, in

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[85] Direct Testimony of Christopher C. Walters, at 3.
[86] *Ibid.*, at 36.
[87] *Ibid.*, at 41.
[88] *Ibid.*, at 51.
[89] *Ibid.*, at 52, Table 11.

particular the expected market return from which the Market Risk Premium is calculated; (4) the assumptions and methods underlying Mr. Walters' Risk Premium analyses; and (5) the effect of lower interest rates and Senate Bill 564 on Ameren Missouri's ROE.

A. Market Conditions and Utility Risk Profiles

Q. Mr. Walters refers to several recent reports by S&P, Moody's, and Fitch Ratings, concluding that the current rating outlook for regulated utilities is stable.[90] What is your response to Mr. Walters on that point?

A. Mr. Walters' testimony notes those reports discuss the uncertainties surrounding the implications of tax reform,[91] and the implications of large capital investment programs.[92] His Figure 2 demonstrates utility capital investment has "increased considerably" and is expected to "remain elevated, but slightly below current levels" in the 2019-2021 forecast period relative to the prior ten-year historical period.[93] It therefore is clear that efficient access to external capital at reasonable rates will be important to fund capital expenditures.

Mr. Walters also explains that electric utilities on average are expected to have higher levels of capital spending relative to cash flow in 2019 and 2020, which indicates utilities will require external capital to fund capital expenditures in the near-term.[94] It also is clear that the markets in which that capital will be raised reflect greater volatility than those experienced even over the past two years.[95] As such, continued strong utility credit quality will be critical, in particular as utilities will need to access capital to fund capital expenditures.

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90 *Ibid.*, at 8-12.
91 *Ibid.*, at 10-12.
92 *Ibid.*, at 8.
93 *Ibid.*, at 8-9.
94 *See*, Schedule CCW-2, page 7. The ratio of Cash Flow to Capital Spending is less than one, which indicates utilities will require external capital to fund capital expenditures in the near-term.
95 *See*, Chart 1.

Further, all three rating agencies observed the negative effects of the Tax Cuts and Jobs Act ("TCJA") on utilities' cash flow and the potential consequences for their credit profiles. As Fitch Ratings pointed out "[a]bsent mitigating strategies on the regulatory front, this is expected to lead to weaker credit metrics and negative rating actions for issuers with limited headroom to absorb the leverage creep."[96] In a similar fashion, S&P observed that the TCJA is "...negative for credit quality because the combination of a lower tax rate and the loss of stimulus provisions related to bonus depreciation or full expensing of capital spending will create headwinds in operating cash-flow generation capabilities as customer rates are lowered in response to the new tax code."[97] Moody's stated the following:

> Tax reform is credit negative for US regulated utilities because the lower 21% statutory tax rate reduces cash collected from customers, while the loss of bonus depreciation reduces tax deferrals, all else being equal. Moody's calculates that the recent changes in tax laws will dilute a utility's ratio of cash flow before changes in working capital to debt by approximately 150 - 250 basis points on average, depending to some degree on the size of the company's capital expenditure programs. From a leverage perspective, Moody's estimates that debt to total capitalization ratios will increase, based on the lower value of deferred tax liabilities.[98]

On June 18, 2018 Moody's changed its outlook on the U.S. regulated utility sector to "negative" from "stable." Moody's explained that its change in outlook "...primarily reflects a degradation in key financial credit ratios, specifically the ratio of cash flow from operations to debt, funds from operations (FFO) to debt and retained cash flow to debt, as well as certain book leverage ratios."[99] The sector's outlook could remain "negative" if cash flow-based metrics continue to decline, or if there emerge signs of a more "contentious" regulatory environment

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96 FitchRatings Special Report, *Tax Reform Impact on the U.S. Utilities, Power & Gas Sector*, January 24, 2018.

97 S&P Global Ratings, *U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound*, January 24, 2018.

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

99 Moody's Investors Service, *Announcement: Moody's changes the US regulated utility sector outlook to negative from stable*, June 18, 2018.

(which, Moody's notes, is not fully reflected in lower authorized returns). Moody's also noted that "[m]anagement teams' defensive efforts and a few initial signs of supportive regulatory responses to tax reform are important first steps in addressing the sector's increased financial risk," and explained that in its view, "it will take longer than 12-18 months for the sector to exhibit a material financial improvement from these actions."[100]

B. Authorized Returns

Q. Do you have any observations regarding the annual average authorized returns discussed on pages 4-6 of Mr. Walters' Direct Testimony?

A. Yes, I do. Average annual data obscures variation in returns and does not address the number of cases or the jurisdictions issuing orders within a given year. For example, one year may have fewer cases decided, and a relatively large portion of those cases decided by a single jurisdiction. As discussed in my response to Mr. Smith, if all authorized ROEs are charted, rather than annual averages, there is no meaningful trend since 2015 (*see*, Charts 4 and 5). Rather, time explains only 1.00 percent of the change in ROEs, and the trend variable is statistically insignificant.

From a slightly different perspective, the recent fluctuations around the annual average authorized return data are well within the standard deviation of authorized ROEs, as shown in Table 5, below.

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[100] *Ibid.*

Table 5: Mean, Median, and Standard Deviation of Authorized Returns for Vertically Integrated Electric Utilities (2015-2019)[101]

Year	Average	Median	Standard Deviation
2015	9.75%	9.70%	0.30%
2016	9.77%	9.78%	0.28%
2017	9.80%	9.65%	0.53%
2018	9.68%	9.73%	0.27%
2019	9.73%	9.73%	0.39%

From that perspective as well, there is no reason to conclude authorized returns have fallen since 2015.

Q. What is your response to Mr. Walters' claim "the majority of authorized ROEs since 2016 have been below 9.7%, with a significant portion of those being below 9.5%"?[102]

A. Mr. Walters reviews the authorized returns for all electric utilities, including distribution-only utilities.[103] Focusing on vertically integrated electric utilities similar to Ameren Missouri, of the 96 authorized returns since 2016, only 16 were below 9.50 percent and 45 were below 9.70 percent.[104] That is, 80 authorized returns (83.00 percent) were 9.50 percent or higher and 51 (53.00 percent) were 9.70 percent or higher. As such, when considering vertically integrated electric utilities, I do not agree with Mr. Walters' conclusion that the majority of

[101] Source: Regulatory Research Associates, through December 31, 2019. Excludes limited issue rate riders.
[102] Direct Testimony of Christopher C. Walters, at 5.
[103] *See*, CCW Confidential WP 13.
[104] Source: Regulatory Research Associates, based on data through December 13, 2019. Since 2016 the number of authorized returns for vertically integrated electric utilities that were 9.50 percent and below was 34 and the number of authorized returns that were 9.70 percent and below were 46. Only approximately half were 9.70 percent and below, not a majority as Mr. Walters suggests.

authorized ROEs have been below 9.70 percent. Moreover, since 2016 only four cases have been as low as 9.20 percent,[105] Mr. Walters' recommendation in this case.

Q. Do you have any other concerns with the data presented in Mr. Walters' Table 1?

A. Yes, I do. In addition to including authorized returns for electric distribution companies, Mr. Walters also includes authorized returns in Illinois,[106] which are set annually based on a formula, which adds 580 basis points to the 12-month average 30-year Treasury yield in the prior calendar year.[107] Because the authorized return is not determined based on the market data and analytical models considered in this proceeding, I do not believe the annually authorized returns by the Illinois Commerce Commission are a comparable benchmark to assess the appropriate ROE for Ameren Missouri.

C. Tax Cuts and Jobs Act

Q. Mr. Walters asserts that because the S&P 500 Utilities Index has outperformed the S&P 500 since late 2017, and that enough time has passed since the TCJA, there is no reason to conclude the TCJA results in an increased cost of capital.[108] Do you agree?

A. No, I do not. As discussed above, the utility sector faces several risks associated with the TCJA. And because other sectors would benefit from the TCJA in ways utilities could not, utilities became less attractive on a relative basis. Mr. Walters suggests that because the

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105 Source: Regulatory Research Associates.
106 *See*, CCW Confidential WP 13.
107 Regulatory Research Associates, Illinois Commerce Commission, Commission Profile, accessed December 18, 2019.
108 Direct Testimony of Christopher C. Walters, at 13.

TCJA's effect on returns have long been reflected in utility share prices, it is reasonable not to expect an increase in the cost of capital moving forward.[109]

Q. Are there empirical methods that can be used to assess the effect of an event such as the TCJA on utility stock performance?

A. Yes, a method frequently used is an "event study," sometimes referred to as a "cumulative abnormal return" analysis. To understand whether a specific event affected stock prices, it is important to control for factors beyond the event under consideration. The portion of the stock's return that is not attributable to those other factors is considered the "abnormal" or "excess" return; the sum of those excess returns is the "cumulative" abnormal return.

To apply that approach, I defined the abnormal return on a given day as:

$$A_t = R_{i,t} - R_{m,t} \quad [3]$$

where A_t is the Abnormal Return on day t, $R_{i,t}$ is the actual return for the proxy group[110] on day t, and $R_{m,t}$ is the expected return for the proxy group defined in Equation [4] below.

$$R_{m,t} = \alpha_t + \beta_{m,t} \quad [4]$$

The expected return, $R_{m,t}$, (sometimes referred to as the "market-adjusted return") is based on a regression equation in which Mr. Walters' proxy group's daily returns[111] are the dependent variable, and the market's daily return (measured by S&P 500 Index) is the explanatory variable. Because it relies on market-adjusted returns, the approach controls for factors that, like the TCJA, affect companies across market sectors. Consistent with Value Line's approach for calculating Beta coefficients, I applied the regression (*i.e.*, Equation [4]) over five years, using daily (rather

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109 *Ibid.*

110 Calculated as an index. Source: S&P Global Market Intelligence.

111 Calculated as an index. Source: S&P Global Market Intelligence.

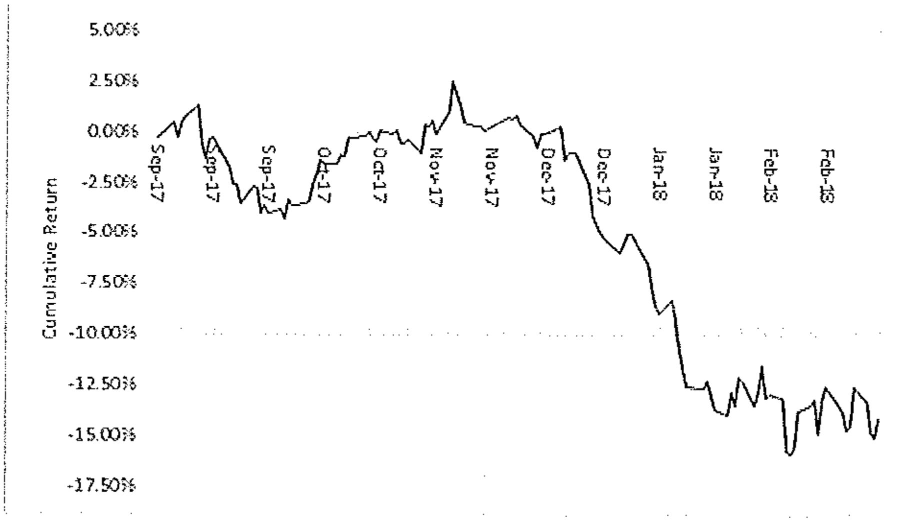
than weekly) returns. The equation and slope coefficient both were statistically significant (*see* Table 6, below).

Table 6: Market Model Regression Statistics

	SLOPE	INTERCEPT
Coefficient	0.325	0.0003
Std. Err.	0.029	0.0002
R-Square	0.091	
F-Stat	126.06	
t-Stat	11.228	1.0579

To determine whether the TCJA likely affected the proxy companies' stock valuations, I considered the "event date" to be December 1, 2017. Because it pre-dates the TCJA's enactment, the event date provides for the likelihood that equity investors were aware of, and began to consider how the TCJA may affect utility risks before the TCJA became law. I then calculated the cumulative abnormal return for each day over a window that spanned from September 1, 2017 to March 1, 2018 (that is, approximately three months before and after December 1, 2017). Chart 6 (below) provides the cumulative abnormal return over that period (*i.e.*, negative 14.15 percent).

Chart 6: Cumulative Abnormal Return[112]



Q. What conclusions do you draw from those analyses?

A. Controlling for market-wide events, the TCJA had a strong negative effect on utility valuations. I appreciate that over time, intervening events may affect the relationship between the two. Nonetheless, we reasonably can conclude that the TCJA has had a meaningful negative effect on utility stock prices, and should be considered in determining the Company's ROE.

D. Constant Growth DCF Method

Q. As a preliminary matter, does Mr. Walters give his Constant Growth DCF results any weight in arriving at his 9.20 percent ROE recommendation?

A. Yes. As noted earlier, Mr. Walters' 9.20 percent recommendation represents the approximate midpoint of his 8.80 percent to 9.50 percent recommended range. The lower bound is based on the high end of his DCF and the low end of his Risk Premium estimates (8.90 percent), and the high end set by reference to his Risk Premium-based and CAPM estimates (9.50 percent.)

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[112] Source: S&P Global Market Intelligence. Based on a t-test, the cumulative abnormal returns are significant.

Q. Do you have any concerns with the Constant Growth DCF model, and the weight Mr. Walters applies to it?

A. Yes, I do. As explained in my Direct Testimony,[113] the DCF model noted by the equation $k = \frac{D(1+g)}{P_0} + g$ is derived from the longer-form present value formula:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_\infty}{(1+k)^\infty} \quad [5]$$

Using the DCF model as the principal method to estimate the Cost of Equity fundamentally assumes investors use the present value structure alone to find the intrinsic value of common stock, and that intrinsic value always equals market value (that is, they always are in equilibrium). Consequently, the DCF approach will not produce accurate estimates of the market-required ROE if the market price diverges from the present value-based estimate of intrinsic value.

Market prices may depart from intrinsic value for a variety of reasons. For example, differences may arise when investors take short-term trading positions to hedge risk (*e.g.*, a "flight to safety"), as a temporary position to increase current income (*i.e.*, a "reach for yield"), or to speculate based on recent trading patterns (*e.g.*, momentum trades). The implications of market prices diverging from DCF-based estimates of intrinsic value was studied in an article published in the Journal of Applied Finance. That article, which focused on back-tests of the Constant Growth DCF model, found that even under "ideal" circumstances:

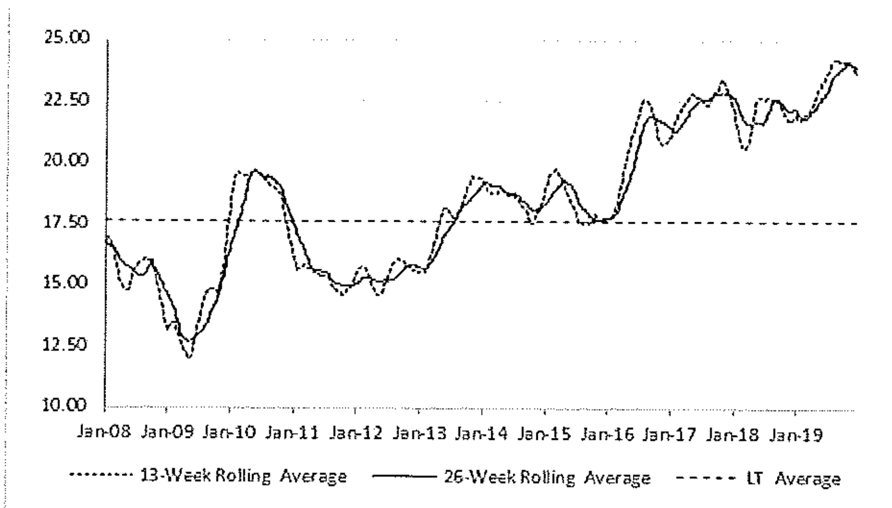
> … it is difficult to obtain good intrinsic value estimates in models stretching over lengthy periods of time. Shorter horizon models based on five or fewer years show more promise. Any model based on dividend streams of ten years or more, whether as a teaching tool or in practice, should be used with caution since they are likely to produce low-quality estimates. [114]

[113] Direct Testimony of Robert B. Hevert, at 44.

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

In short, because the DCF method is derived from a valuation model that assumes constancy in perpetuity, it is likely to produce less reliable ROE estimates when market conditions are non-constant, especially when investor practice is to consider multiple valuation methods,[115] and market prices are not in equilibrium with DCF-based measures of intrinsic value, reflecting utility valuations at abnormally elevated levels (see Chart 7, below).

Chart 7: Mr. Walters' Proxy Group Rolling Average P/E Ratio[116]



E. Capital Asset Pricing Model

Q. Please briefly summarize Mr. Walters' CAPM analysis and results.

A. Mr. Walters' CAPM analyses use three estimates of the Market Risk Premium along with his projected risk-free rate of 2.50 percent from *Blue Chip Financial Forecasts*, to calculate the below CAPM estimates.[117]

[115] Direct Testimony of Robert B. Hevert, at 4.
[116] Source: S&P Global Market Intelligence. Rolling 13-week and 26-week average.
[117] Direct Testimony of Christopher C. Walters, at 44-45.

Table 7: Mr. Walters CAPM Results

Description	Current Beta	Historical Beta
Risk Premium Method	7.32%	8.25%
FERC 2-Step DCF Method	7.09%	7.98%
DCF Method	8.34%	9.47%

Mr. Walters' first Market Risk Premium estimate is based on the historical average real market return over the 1926-2018 period as reported by Duff & Phelps, combined with an expected inflation rate of 2.00 percent to calculate an expected market return of 11.00 percent. Subtracting his 2.50 percent projected risk-free rate results in a Market Risk Premium of 8.50 percent.[118]

To estimate his next two Market Risk Premium estimates, Mr. Walters first adds a projected growth rate for the overall market to a projected dividend yield. In the first calculation, he used the 3-5 year expected growth rate of the S&P 500 Index from State Street Global Advisors ("State Street") of 10.70 percent and projected dividend yield of 1.91 percent as of November 12, 2019. Subtracting the projected Treasury yield of 2.50 percent produces a market risk premium estimate of 10.31 percent.[119]

In the second calculation, he applies FERC's two-step DCF method to the S&P 500 Index as reported by State Street to calculate the total expected market return. For the dividend yield component, Mr. Walters again assumes State Street's published dividend yield of 1.91 percent. For the growth rate component, he applies two-thirds weight to State Street's three-to-five year projected EPS growth rate of 10.70 percent, and one-third weight to his projected GDP growth rate estimate of 4.10 percent. Those estimates and weights produce a blended growth rate of 8.50 percent.[120] Combining the 1.91 percent dividend yield with Mr. Walters' blended growth rate of

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[118] *Ibid.*, at 45.
[119] *Ibid.*, at 46.
[120] *Ibid.*

8.50 percent results in an expected market return of 10.57 percent.[121] Subtracting his 2.50 percent projected risk-free rate from his DCF-based Market Return results in a Market Risk Premium of 8.10 percent.[122]

Q. Do you agree with Mr. Walters' application of the Federal Energy Regulatory Commission's ("FERC") Two-Step DCF method to calculate the market return?

A. No, I do not. As a practical matter, State Street reports the S&P 500's ten-year return as 13.54 percent (as of October 31, 2019) to 13.09 percent (as of the quarter ending September 30, 2019),[123] which are consistent with my expected market return of 12.64 percent to 14.44 percent (*see* Schedule RBH-R2). That aside, Mr. Walters' premise that growth rates applied in the DCF approach to estimate the market return for the CAPM analysis need to be sustainable is flawed.[124]

FERC has found the DCF-based growth rates used to calculate the Market Risk Premium in the CAPM need not meet a "sustainability" threshold because, although an individual company may not be expected to sustain high short-term growth rates in perpetuity, the same cannot be said for a stock index like the S&P 500 that is regularly updated to contain only companies with high market capitalizations. As the FERC stated in Opinion 531-B (March 3, 2015):

> Further, the fact that the Commission's two-step DCF methodology incorporates a long-term growth rate does not necessitate the incorporation of a long-term growth rate in the DCF study the NETOs used to develop the market risk premium for their CAPM analysis. The Commission's rationale for incorporating a long-term growth rate estimate in DCF analyses for public utilities was that it is often unrealistic and unsustainable for high short-term growth rates to continue in perpetuity. [citation omitted] Under the CAPM model, the market risk premium is based on the difference between the "required return on the overall market" and the risk-free rate. [citation omitted]

[121] 11.13% = 2.01% x (1 + 8.94%) + 8.94%
[122] Direct Testimony of Christopher C. Walters, at 43-44.
[123] Mr. Walters' Public Workpaper WP 3.
[124] Direct Testimony of Christopher C. Walters, at 46-47.

> The required return on the overall market is determined by conducting a DCF study of "a representative market index, such as the Standard & Poor's 500 Index."[citation omitted] As noted above, the NETOs developed the market risk premium in their CAPM analysis in exactly this way, by conducting a DCF analysis of the dividend-paying companies in the S&P 500 to determine the required return on the overall market. The rationale for incorporating a long-term growth rate estimate in conducting a two-step DCF analysis of a specific group of utilities does not necessarily apply when conducting a DCF study of the companies in the S&P 500. That is because the S&P 500 is regularly updated to include only companies with high market capitalization. While an individual company cannot be expected to sustain high short-term growth rates in perpetuity, the same cannot be said for a stock index like the S&P 500 that is regularly updated to contain only companies with high market capitalization, and the record in this proceeding does not indicate that the growth rate of the S&P 500 stock index is unsustainable.[125]

Mr. Walters' concern regarding "sustainability" of growth rates in the S&P 500 is misplaced.

Q. As a practical matter, does Mr. Walters explain the timing of the long-term growth estimate in his Two-Step DCF analysis?

A. No, he does not. As Mr. Walters does explain, the "two-step" DCF method is applied in a manner similar to the Constant Growth DCF model. The only difference is that the growth rate is a weighted average of analysts' earnings growth projections, and nominal GDP growth rate projections. We can convert Mr. Walters' approach to a true two-step DCF analysis, in which the first stage growth rate applies for a finite period, and the long-term growth rate applies from that point on (in perpetuity). In that case, the DCF estimate is the Internal Rate of Return ("IRR") that sets the market price equal to the present value of the projected dividends. To

[125] Docket No. EL11-66-002, *Opinion 531-B Order on Rehearing*, 150 FERC ¶ 61,165 (March 3, 2015), at Para. 113. FERC affirmed those findings in Opinion No. 569, *see* Docket No. EL14-12-003 and Docket No. EL15-45-000, *Order on Briefs, Rehearing, and Initial Decision*, 169 FERC ¶ 61,129 (November 21, 2019), at Para. 263.

determine the year in which the second stage growth applies, we only need set the IRR equal to Mr. Walters' "two-step" DCF result.

To do so, I first replicated Mr. Walters' Two-Step DCF model estimate, based on the fundamental Present Value formula $P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_r}{(1+k)^r}$, and the assumptions discussed on page 44 of his testimony. I then altered the Present Value formula such that the growth in dividends would change from the first-stage growth to the second stage in a given year (which I refer to as the "transition year"). At that point, all that was needed was to find the transition year that caused the IRR to equal Mr. Walters' two-step DCF estimate.

As shown in Schedule RBH-R9, Mr. Walters' "two-step" DCF approach implicitly assumes the first stage growth rate transitions to his assumed 4.10 percent growth rate in the 35th year. Mr. Walters has not explained why that is a reasonable assumption, or how it corresponds to the forecast horizons from the sources he cites. In my view, assuming – implicitly or explicitly – growth rates will transition in the 35th year, without a basis for that assumption is nearly arbitrary. That being the case, I do not believe Mr. Walters' "two-step" DCF approach should be given weight in determining the expected market return, or the Company's ROE.

Q. Turning to Mr. Walters' historical average estimate, do you agree with that approach?

A. No, I do not. As discussed in response to Mr. Smith, the MRP is meant to be a forward-looking parameter, and as such, Mr. Walters' reliance on historical averages is incorrect.

Q. What is your response to Mr. Walters' reference to professional investor forecasts that indicate expected market returns range from 2.60 percent to 7.10 percent?[126]

A. I have several concerns with his reference. First, Mr. Walters' 9.20 percent ROE estimate is entirely at odds with the data he presents. In this instance, Mr. Walters' refers to the market forecasts summarized in Table 8, below.

Table 8: Summary of Mr. Walters' Market Return Forecast References[127]

Institution	Term (Yrs.)	Market Return Forecast
BlackRock Capital Management	25	7.10%
JP Morgan Chase	10 - 15	5.25%
Vanguard	10	3.00 – 5.00%
Research Affiliates	10	2.60%
Morningstar	10	2.70%

As Table 8 indicates, the expected market returns range from 2.60 percent to 7.10 percent for U.S. equities. Mr. Walters, however, estimates an ROE of 9.20 percent for a utility that, we agree, is less risky than the overall market. Consequently, if Mr. Walters believes these expected returns were meaningful measures of investor-required returns, which is the subject of his testimony, his recommendation should be no higher than 7.10 percent.

Lastly, Mr. Walters does not consider the limiting language often contained in documents providing expected market returns. For example, JP Morgan Asset Management's *2019 Long-Term Capital Market Assumptions* (the source document for the 5.25 percent expected market return noted in Table 8, above) states:

> Please note that all information shown is based on qualitative analysis. Exclusive reliance on the above is not advised. This information is not intended as a recommendation to invest in any particular asset class or strategy or as a promise of future performance. Note that these asset class and strategy assumptions are passive only – they do not consider

[126] Direct Testimony of Christopher C. Walters, at 48.
[127] *Ibid.*

> the impact of active management. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve. Assumptions, opinions and estimates are provided for illustrative purposes only.[128]

F. Risk Premium Method

Q. Please briefly describe Mr. Walters' Risk Premium analyses.

A. Mr. Walters defines the "Risk Premium" as the difference between average annual authorized equity returns for electric utilities and a measure of long-term interest rates each year from 1986 through 2019.[129] Mr. Walters' first approach to estimating the Risk Premium looks to the 30-year Treasury yield, and his second considers the average A-rated utility bond yield.[130] In each case, Mr. Walters establishes his risk premium estimate by reference to five-year and ten-year rolling averages.

Mr. Walters looks to 34 years of returns, arguing (on page 39 of his Direct Testimony) "it is reasonable to assume that averages of annual achieved returns over long time periods will generally converge on the investors' expected returns." He argues his risk premium study is based on "investor expectations, not actual investment returns, and, thus, need not encompass a very long historical time period."[131] Pointing specifically to the current interest rate environment, Mr. Walters uses the most recent five-year average Risk Premium estimates of 6.77 percent based on his Treasury bond analysis, and 5.57 percent based on his A-rated utility bond analysis.[132]

Combined with a 2.50 percent projected Treasury yield, A-rated utility bond yield averages of 3.35 percent and 3.57 percent, and Baa-rated utility bond yield estimates of 3.68 percent and

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[128] JP Morgan Asset Management, *2019 Long-Term Capital Market Assumptions,* at PDF 112.
[129] Direct Testimony of Christopher C. Walters, at 37.
[130] *Ibid.*, at 37-38. Schedules CCW-12 and CCW-13.
[131] *Ibid.*, at 39.
[132] *Ibid.*

3.97 percent for the 13- and 26-week periods ended November 1, 2019,[133] Mr. Walters' Risk Premium analysis produces results ranging from 8.90 percent to 9.50 percent (*see* Table 9 below).[134]

Table 9: Mr. Walters' Risk Premium ROE Results[135]

Mr. Walters' Risk Premium Estimates	**Projected 30-Year Treasury Yield: 2.50%**	**13-Week Avg A-Rated Utility Bond Yield: 3.35%**	**26-Week Avg A-Rated Utility Bond Yield: 3.57%**	**13-Week Avg Baa-Rated Utility Bond Yield: 3.68%**	**26-Week Avg Baa-Rated Utility Bond Yield: 3.97%**
Treasury: 6.77%	9.30%				
Utility Bond: 5.57%		8.90%	9.10%	9.30%	9.50%

Q. What are your concerns with Mr. Walters' Risk Premium analysis?

A. My principal concern lies with Mr. Walters' failure to apply projected utility bond yields in deriving his A-and Baa-rated utility-based Risk Premium ROE estimates. As Mr. Walters points out, the Cost of Equity is forward-looking.[136] Although he applies a projected Treasury yield in calculating his 9.30 percent Treasury-based Risk Premium ROE estimate, he has not done the same in calculating his utility-based Risk Premium ROE estimates.

Q. Have you updated Mr. Walters' Risk Premium analysis to incorporate projected A-and Baa-rated utility bond yields?

A. Yes, I have. *Blue Chip Financial Forecasts* dated October 1, 2019 (the source of Mr. Walters' projected 2.50 percent Treasury yield) publishes projected Corporate Aaa and Baa bond yields, 3.50 percent and 4.40 percent, respectively. Based on data from Mr. Walters' Schedule CCW-14, the most recent five-year average utility to Corporate A/Aaa and Baa spreads

133 *See*, CCW-15.
134 Direct Testimony of Christopher C. Walters, at 41 and Table 8.
135 *Ibid.*, at 40-41.
136 *Ibid.*, at 42.

are 0.38 percent, and negative 0.18 percent, respectively.[137] Applying those spreads to the *Blue Chip Financial Forecast* estimates results in projected A-rated utility bond yield of 3.78 percent, and a projected Baa-rated utility bond yield of 4.22 percent.[138] Correcting Mr. Walters' utility based Risk Premium estimates to reflect forward looking utility bond yields results in updated results of 9.35 percent and 9.79 percent[139] (A and Baa-rated utility bond yield projections, respectively).

G. Other Considerations

Q. Please summarize the additional factors Mr. Walters discusses to provide context to his recommendation.

A. Mr. Walters reviews the change in interest rates since Ameren Missouri filed its most recent fully litigated rate case (ER-2014-0258) on July 3, 2014 and when the order was issued in that case, relative to interest rates as of November 12, 2019, noting that interest rates have decreased. In addition, Mr. Walters notes the passage of Senate Bill 564. Based on those two factors, Mr. Walters suggests that the Company's risk is lower in the current market relative to 2014-2015.[140]

Q. What is your response to Mr. Walters' review of interest rates?

A. As discussed in my Direct Testimony and in response to Mr. Smith, lower interest rates have occurred in conjunction with higher volatility. As volatility increases, the risk of capital loss does as well. As such, I do not agree that lower interest rates necessarily imply the Company's ROE is lower.

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[137] Consistent with Mr. Walters approach in selecting Risk Premium estimates of 6.77 percent and 5.57 percent. Direct Testimony of Christopher C. Walters, at 39.

[138] Projected A-rated utility bond yield: 3.78% = 3.40% + 0.38%; projected Baa-rated utility bond yield: 4.22% = 4.40% - 0.18%.

[139] 9.35% = 5.57% + 3.78%; 9.79% = 5.57% + 4.22%.

[140] Direct Testimony of Christopher C. Walters, at 52-56.

Q. What is your response to Mr. Walters' assertion that the passage of Senate Bill 564 supports a lower ROE?

A. As discussed in my Direct Testimony, the relevant issue is not whether the Company's risk is lower as a result of the effects of Senate Bill 564, it is whether investors view the Company as having relatively lower risk than the proxy companies to the point that they would measurably reduce their return requirements.[141] As shown in Schedule RBH-D8, the proxy companies employ a substantial number of revenue stabilization mechanisms and alternative regulatory constructs. As such, Senate Bill 564 only serves to increase the comparability of Ameren Missouri to the proxy group, and as such, does not lower the Company's relative risk.

V. RESPONSE TO TESTIMONY OF OPC WITNESS MURRAY

Q. Please briefly summarize Mr. Murray's recommendation regarding the Company's Cost of Equity.

A. Mr. Murray recommends an ROE of 9.25 percent, within a range of 9.00 percent to 9.25 percent, assuming a common equity ratio of 48.00 percent.[142] If the Commission does not authorize a decrease to the Company's common equity ratio, Mr. Murray believes the ROE should be in a range of 8.50 percent to 9.00 percent. Mr. Murray estimates the ROE using the Multi-Stage DCF model and the CAPM.[143] He also reviews his "rule of thumb" method, and his Constant Growth DCF analysis, as checks on the reasonableness of his ROE recommendation.[144]

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141 Direct Testimony of Robert B. Hevert, at 22.
142 Direct Testimony of David Murray, at 28.
143 *Ibid.*, at 16.
144 *Ibid.*, at 16, 26-28.

A. Multi-Stage DCF Model

Q. Please describe Mr. Murray's Multi-Stage DCF model.

A. Mr. Murray's Multi-Stage DCF analysis includes three stages, the first two of which include five-year horizons, while the third assumes cash flows in perpetuity. In the first stage, he relies on estimates of cash flow (where available), an estimated dividend payout ratio, and analysts' growth projections. The second stage assumes a linear transition from analysts' growth projections to a 2.85 percent growth rate and an industry payout ratio of 70.00 percent.[145] Since his final stage assumes his long-term growth rate will remain constant in perpetuity, it essentially is equivalent to the "Gordon Growth" form of the Constant Growth DCF model. The "Gordon Growth" model represents the "terminal value," or the expected price at which the stock may be sold at the end of the forecast horizon. Mr. Murray's Multi-Stage DCF analysis produces average ROE estimates between 6.41 percent to 7.18 percent, based on the seven proxy groups he presents.[146]

Mr. Murray also presents a Multi-Stage DCF analysis based on the same approach he used in Ameren Missouri's most recent rate case (Docket No. ER-2014-0258). That model also includes three stages but assumes a constant payout ratio. The first stage relies on analyst growth rates, and the second stage assumes a linear transition to a 3.00 percent third stage growth rate.

Q. How did Mr. Murray develop the terminal growth estimates?

A. Mr. Murray's Schedule DM-D-3.2 estimates his 2.85 percent terminal growth rate based on the sustainable growth rate, calculated as the product of an assumed ROE of 9.50 percent and a 30.00 retention ratio.[147] As noted on page 19 of his direct testimony, however, Mr. Murray

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[145] *Ibid.*, at 22, Schedule DM-D-3.
[146] *Ibid.*, Schedule DM-D-3.
[147] As provided in Mr. Murray's workpapers.

states he assumes a 2.70 percent terminal growth rate based on a 9.00 percent ROE and 30.00 percent retention ratio. Had Mr. Murray relied on 2.70 percent as the terminal growth rate his results would fall below his already unreasonably low estimates.

Mr. Murray does not explain how he determined 3.00 percent is an appropriate terminal growth rate in his Multi-Stage DCF analysis based on the methodology he relied on in Docket No. ER-2014-0258,[148] other than to note that he believes sustainable growth rates are in the 2.00 percent to 3.00 percent range.[149]

Q. Does Mr. Murray provide support for a sustainable growth rate of approximately 2.00 percent to 3.00 percent?

A. Mr. Murray refers to analyses of historical industry growth based on the Moody's electric utility index, and historical growth for a sample group of electric utility companies based on Value Line data, and equity analyst reports.[150]

Q. Do you have any concerns with Mr. Murray's analyses?

A. Yes, I do. First, Mr. Murray's analyses of historical growth do not include data from the past 20 years. His analysis of growth rates associated with the Moody's electric utility index is based on the period 1947 through 2000, and his analysis of growth rates associated with Value Line electric utilities is based on the period 1968 through 1999.[151] That is, Mr. Murray's approach assumes electric utility growth rates over the subsequent 20-year period are not relevant to a sustainable growth rate, which he assumes will be applied in perpetuity.

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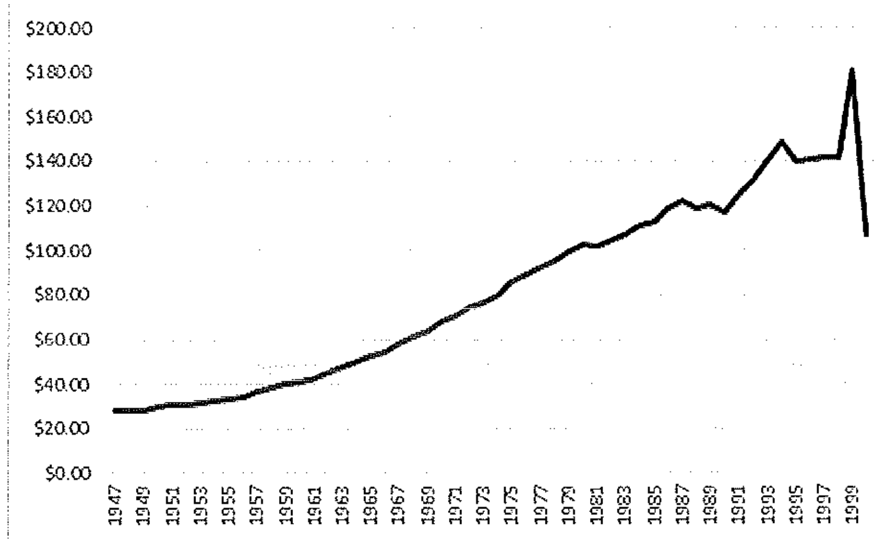
148 Direct Testimony of David Murray, Schedule DM-D-3.5.
149 *Ibid.*, at 18.
150 *Ibid.*, at 19.
151 *See*, Mr. Murray's response to Ameren Missouri First Data Request 2.a and 3.a.

Further, to calculate the long-term historical growth rate based on the Moody's electric utility index, Mr. Murray reviews the geometric mean of dividends, earnings, and book value. As discussed in my response to Mr. Smith, the geometric mean is a backward-looking calculation that equates a beginning value to an ending value over a specific period of time. Because the geometric mean does not consider uncertainty, as the arithmetic mean does, it is inappropriate for use in estimating a long-term sustainable growth.

The geometric mean also can be sensitive to the beginning and ending year chosen. For example, based on the data provided by Mr. Murray (see Chart 8, below), in 1999 the book value of the Moody's electric utility index increased approximately 28.00 percent in 1999 and then decreased almost 41.00 percent in 2000. Mr. Murray's calculated geometric mean growth rate of 2.57 percent was based on the ending year 2000.[152] Had his analysis ended only one year early in 1999, the geometric mean growth rate would have been 3.66 percent, 109 basis points higher.

[152] *See*, attachment "2.b. Moody's Utility Index Data.xls" to Mr. Murray's response to Ameren Missouri First Data Request 2.b.

Chart 8: Moody's Electric Utility Index Book Value 1947-2000[153]



Similarly, had Mr. Murray considered an ending year of 1999, instead of 2000, his calculated growth rate in earnings would be 3.02 percent instead of 1.66 percent. Mr. Murray also reports the average of the rolling ten-year average dividends, earnings, and book value compound growth rates to be 3.74 percent, 3.18 percent, and 3.63 percent, respectively. Each of those results is above Mr. Murray's assumed range of sustainable growth rates.

Given the arbitrary nature of the analysis and the period chosen by Mr. Murray, his review of calculated historical growth rates based on Moody's Utility Index data does not provide support for his assertion that the long-term sustainable growth rate is in the 2.00 percent to 3.00 percent range.

[153] Source: Attachment "2.b. Moody's Utility Index Data.xls" to Mr. Murray's response to Ameren Missouri First Data Request 2.b.

Q. Do you have any concerns with Mr. Murray's analysis of historical Value Line growth rates?

A. Yes, Mr. Murray's analysis of historical growth rates from Value Line is similarly outdated; of the ten companies in Mr. Murray's historical analysis, only two remain as publicly traded entities. In addition, Mr. Murray calculates the average of the rolling ten-year average DPS, EPS, and BVPS, reporting those results as 3.99 percent, 3.62 percent, and 3.18 percent.[154] Although I do not agree those are reasonable estimates of long-term growth, it is unclear how they support Mr. Murray's assertion that the long-term growth rate is between 2.00 percent and 3.00 percent.

Q. Do you agree with Mr. Murray's estimate of long-term growth?

A. No, I do not. It is important to keep in mind that the terminal growth rate is intended to reflect expected growth in perpetuity. By assuming a long-term growth rate in the range of 2.85 to 3.00 percent, Mr. Murray has assumed the "sustainable growth rate" is lower than all but one of the five-year consensus growth rates for the 40 companies in his broad proxy group.

Further, although I recognize that the *Blue Chip Financial Forecast* long-range consensus estimates end in 2030, based on those estimates the Consumer Price Index ("CPI") is expected to be between 2.10 and 2.20 percent over the next ten years. That is, a terminal growth rate of 3.00 percent is less than 100 basis points above the expected rate of inflation.[155] Under that assumption, utility stocks would provide a dividend yield and a measure of protection against inflation, but little more than that. At the same time, investors would remain exposed to the risk of capital losses associated with equity ownership. Because other investments, such as Treasury Inflation Protected

[154] *See*, Mr. Murray's response to Ameren Missouri First Data Request 3.a.
[155] Or only 50 basis points based on Mr. Murray's stated 2.70 percent terminal growth rate.

Securities ("TIPS") provide inflation protection and carry a minimal risk of capital loss (if held to maturity), Mr. Murray's position assumes that investors would require the difference in yields as compensation for the additional risk of capital loss, as well as minimal additional growth, an unreasonable and unsupported assumption.

If Mr. Murray is correct that expected long-term growth is only somewhat greater than expected inflation, electric utilities would offer investors little prospects for real capital appreciation or dividend growth. Under that scenario, the industry would not be able to attract equity capital at reasonable terms, and would not be able to generate the cash flow needed to maintain appropriate credit metrics, or the liquidity needed to fund day-to-day operations. Utilities then would fund increasing amounts of capital investments with long-term debt. That scenario suggests a downward spiral in which leverage increases, creditworthiness decreases, and access to both debt and equity becomes increasingly constrained. In the long run, utilities would not be able to fund the investments needed to provide safe and reliable service in an efficient and cost-effective manner.

In short, Mr. Murray has not meaningfully supported his assumption that investors would expect significantly lower growth rates in perpetuity, despite that assumption's significant effect on the model's result.

Q. Do you have any other concerns with Mr. Murray's assumed terminal growth rate?

A. Yes, I disagree with Mr. Murray's assumption that the historical payout ratios have been 70.00 percent. As shown in Schedule RBH-R10, since 1990 utilities have averaged a payout ratio closer to 65.00 percent.[156] Had Mr. Murray assumed a 35.00 percent retention ratio,[157] the terminal growth rate would increase from 2.85 percent to 3.33 percent. Although I continue to believe that terminal growth rate is unduly low, that change illustrates how Mr. Murray's subjective assumptions may affect his analysis.

Q. Do you agree with Mr. Murray's specification of the sustainable growth rate?

A. No, I do not. The basic form of the model assumes growth is the product of (1) expected earnings ("R"), and (2) the extent to which it retains earnings to invest in the enterprise (the "retention ratio", or "B"). Mr. Murray relies on that basic form, which defines growth solely as a function of internally generated funds.

Although I do not believe it is appropriate to use "sustainable growth" as a measure of terminal growth, the more complete form should be used. That structure, sometimes referred to as "BR + SV" form, models growth from internally generated funds (i.e., the "BR" term) and issuances of equity (i.e., the "SV" term). As noted above, the "BR" term represents growth from retained earnings. The "SV" term is represented as:

$$\left(\frac{m}{b}-1\right) x \; Common \; shares \; growth \; rate \quad [6]$$

where:

$$\left(\frac{m}{b}\right) = \text{ the Market} - \text{to} - \text{Book ratio.}$$

The "SV" term models an additional element of growth resulting from the issuance of shares at a price above book value.

156 As noted in his response to Ameren Missouri First Data Request 4.a, Mr. Murray stated that in determining that electric utility payout ratios are approximately 70.00 percent he reviewed historical payout ratios. However, his analysis covered the period 1968 through 1999, whereas my analysis included the period 1990 through 2018. Mr. Murray also calculated the payout ratio for the Moody's electric utility index over the period 1947 through 1999. Again, a period that ended approximately 20 years ago.

157 0.35 = 1.00 – 0.65.

Q. Are there any other methods for estimating the terminal growth rate in a Multi-Stage DCF model?

A. Yes, there are. For example, a brief survey of finance texts demonstrates that the use of long-term GDP growth is a reasonable estimate for the terminal period. For example, Dr. Roger Morin notes that "[i]t is useful to remember that eventually all company growth rates, especially utility services growth rates, converge to a level consistent with the growth rate of the aggregate economy."[158] Similarly, Morningstar describes a Multi-Stage DCF model in which the terminal growth rate is based on the long-term historical growth in real GDP and the rate of inflation.[159] As shown in Schedule RBH-R11, had Mr. Murray relied on the method described by Morningstar, the long-term growth rate would be 5.04 percent. As shown in Schedule RBH-R12, making that change increases Mr. Murray's Multi-Stage DCF results by almost 200 basis points. Although still unreasonably low (all results, except the average of all companies in Mr. Murray's universe of companies, are below the lowest authorized ROE for a vertically integrated electric utility since at least 1980), they are significantly higher than Mr. Murray's unreasonably low results. The point simply is that the terminal growth rate has a significant effect on the model's results, and Mr. Murray's assumption tends to produce unreasonably low estimates of the Company's Cost of Equity.

Q. Have you assessed the reasonableness of Mr. Murray's terminal growth estimate?

A. Yes, I have. As Mr. Murray noted in Docket No. ER-2014-0258, "[c]ost of equity estimates using multi-stage DCF methodologies are **extremely sensitive** to the assumed perpetual

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158 Roger A. Morin, New Regulatory Finance, at 308 (2006).

159 *See*, Morningstar, Inc., Ibbotson Stocks, Bonds, Bills and Inflation 2013 Valuation Yearbook, at 52.

growth rate."[160] That sensitivity is due to the fact that the long-term growth rate used in the DCF model extends indefinitely into the future. It is an important parameter, accounting for approximately 75.00 percent of the model's results.[161]

Because they are perpetual, terminal growth rates that substantially deviate from the long-term historical average should be viewed with considerable caution. That is the case with Mr. Murray's estimates. As a point of reference, the long-term compound average GDP growth rate has been approximately 6.10 percent, 310 to 325 basis points above Mr. Murray's estimate.[162]

To assess the terminal growth rates used in Mr. Murray's Multi-Stage DCF analyses, I calculated the average five-year annual growth rates from 1929 to 2018. I then arranged that data in histograms to provide a perspective of how frequently various levels of growth have occurred. As Chart 9 demonstrates, average annual growth as low as 2.85 percent and 3.00 percent have been observed very infrequently. In fact, average annual growth *exceeded* 3.00 percent in 78 of 85 five-year periods.

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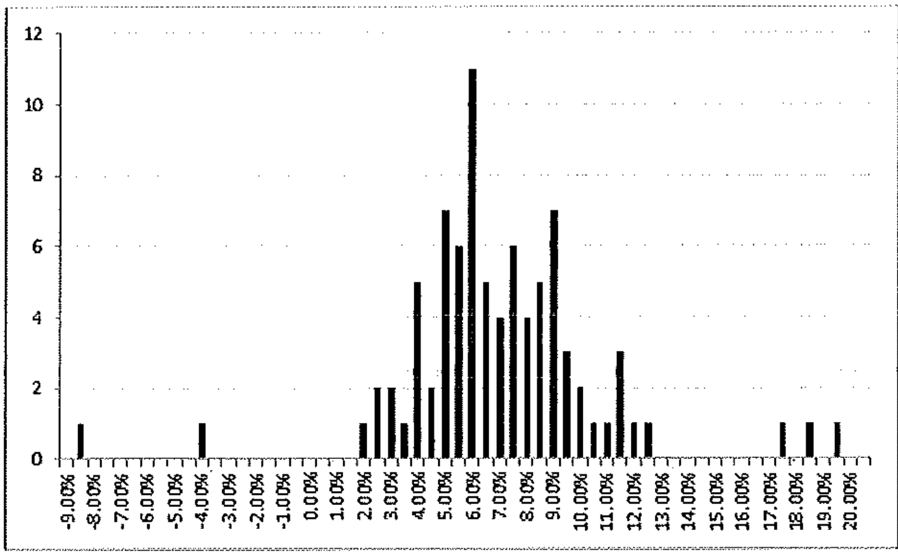
[160] Staff Revenue Requirement Cost of Service Report, Docket No. ER-2014-0258, at 33 (original emphasis).
[161] Schedule RBH-R12.
[162] Source: Bureau of Economic Analysis.

Chart 9: Average Annual GDP Growth Measured Over Five-Year Periods[163]



Q. What are your conclusions related to Mr. Murray's Multi-Stage DCF model?

A. Mr. Murray's extremely low estimate of the terminal growth rate is inconsistent with market data and results in estimates that are unreasonably low. As such, Mr. Murray's application of the Multi-Stage DCF model should be given no weight in estimating the Company's ROE.

B. Capital Asset Pricing Model

Q. Please briefly describe Mr. Murray's CAPM analyses.

A. Mr. Murray presents four CAPM analyses based on various estimates of the risk-free rate and MRP. His first CAPM analysis assumes a risk-free rate of 2.21 percent, based on a 30-year Treasury yield, average calculated five-year Beta coefficients of 0.545 to 0.571 based on Ameren Corporation's Beta coefficient and those of five additional proxy groups, and an historical

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[163] *Ibid.*

MRP estimate of 6.00 percent.[164] Based on those inputs, Mr. Murray's CAPM calculations produce Cost of Equity estimates of 5.48 percent to 5.63 percent.[165] His second CAPM analysis relies on the same approach, but he relies on the 20-year Treasury yield (instead of the 30-year Treasury yield) of 2.03 percent.[166] Those results range from 5.31 percent to 5.41 percent.[167]

Mr. Murray's third approach assumes the same Beta coefficients, but relies on the normalized risk-free rate (3.00 percent) and MRP (5.50 percent) from Duff & Phelps.[168] Those results range from 6.00 percent to 6.14 percent.[169]

Mr. Murray's final CAPM analysis, again, relies on the same Beta coefficients, but he assumes the risk-free rate is the 10-year Treasury yield (1.74 percent) and the MRP is based on an estimate from Ameren Missouri's Meeting of the Finance Committee of the Board of Directors.[170]

Q. What is your position as to the appropriate risk-free rate?

A. I disagree with Mr. Murray's use of the 20-year Treasury yield, and continue to support use of the 30-year Treasury yield. As stated in my Direct Testimony, utility assets represent long-term investments.[171] Therefore, the maturity of the risk-free security should approximate the life, or duration, of the underlying investment. Moreover, equity ownership represents a perpetual claim on the subject company's cash flows.[172] Because the 30-year Treasury bond is the longest duration risk-free security, it most closely matches the horizon of equity and, therefore, is the appropriate security for the CAPM. As noted by Morningstar:

[164] Direct Testimony of David Murray, Schedule DM-D-4.
[165] *Ibid.*
[166] *Ibid.*, Schedule DM-D-5.
[167] *Ibid.*
[168] *Ibid.*, Schedule DM-D-6.
[169] *Ibid.*
[170] *Ibid.*, Schedule DM-D-7 HC.
[171] Direct Testimony of Robert B. Hevert, at 52.
[172] The Constant Growth DCF model, for example, reflects the perpetual nature of equity investments.

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the time horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[173]

The Chartered Financial Analyst ("CFA") program also notes the risk-free rate used in the CAPM should match the timing of the expected asset's cash flows:

> A risk-free asset is defined here as an asset that has no default risk. A common proxy for the risk-free rate is the yield on a default-free government debt instrument. In general, the selection of the appropriate risk-free rate should be guided by the duration of projected cash flows. If we are evaluating a project with an estimated useful life of 10 years, we may want to use the rate on the 10-year Treasury bond.[174]

Pratt and Grabowski likewise recommend matching the horizon of the investment with the maturity of the risk-free security: "In theory, when determining the risk-free rate and the matching ERP [Equity Risk Premium] you should be matching the risk-free security and the ERP with the period in which the investment cash flows are expected."[175]

If interest rate risk is a concern, the shortest-term Treasury bill should be used as the risk-free rate, but Mr. Murray rightly has not recommended that approach. The appropriate approach is to recognize that the term of the risk-free security should match the life of the asset being financed which, in this case, is the common equity of electric utility companies. Because common equity is perpetual, the appropriate security is longest-lived (i.e., 30-year) Treasury bond.

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173 Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook at 44.

174 2011 CFA Curriculum Level I, Volume 4 at 52.

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

Q. How did Mr. Murray calculate his MRP estimates?

A. Mr. Murray reviews MRPs from Duff & Phelps' 2019 Valuation Handbook, a JP Morgan report to the Ameren Board of Directors, and a survey from the Philadelphia Federal Reserve, concluding that a 6.00 percent MRP is reasonable.[176] As noted above, Mr. Murray also relied on estimates of the MRP from Duff & Phelps and Ameren Missouri's Meeting of the Finance Committee of the Board of Directors.

Q. Do you agree with Mr. Murray's estimate of the MRP?

A. No, I do not. As to Mr. Murray's use of historical data, as discussed in my response to Mr. Smith, the MRP is meant to be forward-looking. Simply relying on the historical MRP may produce results that are inconsistent with investor sentiment and current conditions in capital markets.

Regarding Mr. Murray's position that expected market returns "are as low as in the 5% to 6% range,"[177] as reported by the Federal Bank of Philadelphia, looking to the Federal Bank of Philadelphia's First Quarter 2019 survey, only 16 of 38 participants responded to the question regarding the expected return for the S&P 500 over the next ten years.[178]

Further, Mr. Murray's estimate of the MRP (i.e., 6.00 percent) implies a market return of 8.21 percent (assuming Mr. Murray's 2.21 percent risk-free rate). That return, which is for the overall market, is lower than Ameren Missouri's currently authorized return, my recommended return and the recommended returns of the Opposing ROE Witnesses, and the lowest authorized return for a vertically integrated electric utility since at least 1980. Because utilities generally are

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176 Direct Testimony of David Murray, at 25.
177 *Ibid.*, at 25.
178 *See*, Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, First Quarter of 2019 at 19.

viewed as less risky than the market, I do not agree that an expected market return of 8.21 percent is reasonable.

Q. What are your conclusions regarding Mr. Murray's CAPM analysis?

A. As a practical matter, estimates as low as 5.48 percent have little, if any, practical meaning for the purpose of determining the Company's ROE. Mr. Murray's view that his 5.48 percent to 5.63 percent CAPM results have any analytical meaning is misplaced on its face. Equally important, Mr. Murray's position demonstrates the difficulty in applying financial models without giving due consideration to the reasonableness of the inputs, assumptions, and results.

C. "Rule of Thumb" Calculation

Q. Please briefly summarize Mr. Murray's "rule of thumb" calculation.

A. Mr. Murray's calculation adds a premium of 3.00 percent to the 3.25 percent coupon rate on Ameren Missouri's recent bond issuance. Mr. Murray reasons that the premium for utilities is no higher than 3.00 percent, because investors view utility stocks as similar to utility bonds.[179] Based on that approach, Mr. Murray presents an ROE estimate of 6.25 percent.[180]

Q. Are Mr. Murray's conclusions valid?

A. No, his "rule of thumb" approach ignores the finding that the Equity Risk Premium is inversely related to interest rates. That relationship, which was demonstrated with respect to long-term Treasury yields in my Direct Testimony,[181] and is consistent with published research,[182] also applies to utility bond yields. As Chart 10 (below), demonstrates, there is a significant,

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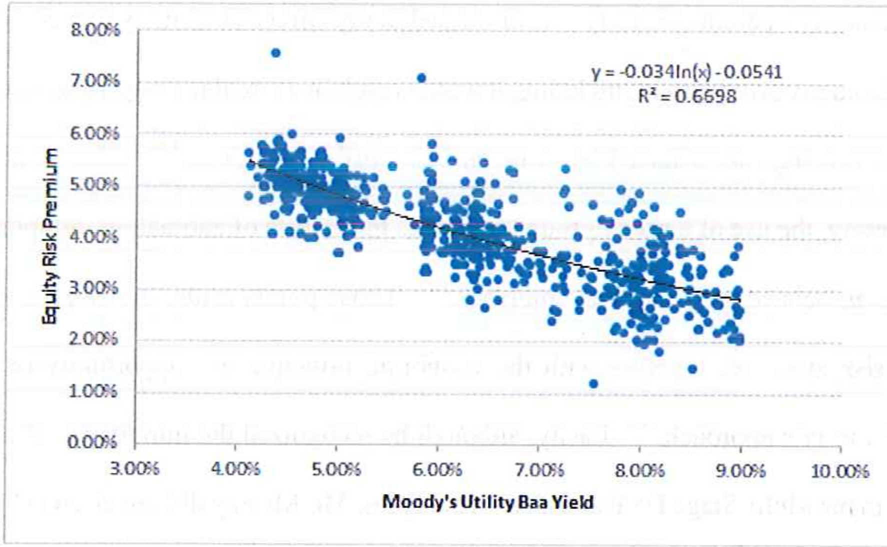
179 Direct Testimony of David Murray, at 26-27.
180 *Ibid.*, at 27.
181 Direct Testimony of Robert B. Hevert at 60.
182 *See*, Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management at 63-70 (Summer 1992); Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management at 33-45 (Spring 1985); and Farris M. Maddox, Donna T. Pippert, and Rodney N. Sullivan, *An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry*, Financial Management at 89-95 (Autumn 1995).

negative relationship between the Moody's Baa Utility Bond Index yield and the Equity Risk Premium (defined by reference to authorized ROEs).

Chart 10: Equity Risk Premium vs. Moody's Utility Baa Index Yield[183]



Applying the 30-day average Moody's utility bond yield of 3.74 percent to the regression equation provided in Chart 10 produces a Risk Premium estimate of approximately 5.82 percent, and an ROE of 9.56 percent, well above Mr. Murray's "rule of thumb" estimate.[184]

D. Constant Growth DCF Model

Q. Please briefly summarize Mr. Murray's Constant Growth DCF model.

A. Mr. Murray performs his Constant Growth DCF analysis based solely on Ameren Corporation. In doing so, Mr. Murray assumes a dividend yield of 2.70 percent, and adds to that a 3.00 percent to 4.00 percent growth rate, which he bases on "long-term industry averages and economic logic."[185]

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

[184] In my response to Mr. Walters, I provide more detail regarding the strongly supported inverse relationship between the equity risk premium and interest rates.

[185] Direct Testimony of David Murray, at 27.

Q. Do you have any concerns with Mr. Murray's Constant Growth DCF model.

A. Yes, I do. Mr. Murray does not perform his Constant Growth DCF analysis on a proxy group, as he does his Multi-Stage DCF and CAPM analyses. Rather, he applies the model to Ameren Missouri's parent company. As discussed in my Direct Testimony, I excluded Ameren Corporation from my proxy group; including it would result in a circular analysis, because Ameren Corporation's earnings are affected by Ameren Missouri's operations.[186] Also as noted in my Direct Testimony, the use of a proxy group moderates the effects of anomalous, temporary events that could be associated with any one company.[187] Those points aside, the *Hope* and *Bluefield* comparable risk standard, together with the economic principle of "opportunity costs" weigh against Mr. Murray's approach.[188] Lastly, although he recognized the importance of relying on a proxy group in his Multi-Stage DCF and CAPM analyses, Mr. Murray did not do so in his Constant Growth DCF analysis.

Moreover, Mr. Murray's Constant Growth DCF analysis does not reflect company-specific growth factors - it relies on what he considers reasonable growth rates for the industry in general. Had Mr. Murray applied this approach to his proxy group, the only difference between companies would be the dividend yield. As noted earlier, under the DCF model's fundamental assumptions, growth and dividend yields are inextricably related. Here, Mr. Murray holds one variable constant while changing the other; he assumes varying dividend yields are associated with single growth rate. That approach violates the model's basic assumptions, and produces unreliable results.

[186] Direct Testimony of Robert B. Hevert, at 42.
[187] *Ibid.*, at 11.
[188] *Ibid.*, at 6-7.

Lastly, Mr. Murray's analysis assumes utility equity investors base their decisions solely on a company's dividend yield, not its growth prospects. That evaluation construct suggests utility stocks are debt-like, with debt-like returns in exchange for debt-like risks.

Q. What are your conclusions regarding Mr. Murray's Constant Growth DCF model.

A. Because Mr. Murray's Constant Growth DCF model is based solely on Ameren Corporation and does not consider company-specific growth factors, I do not believe the analysis has any meaningful value, and believe it should be disregarded.

E. Financial Integrity and ROE Determinations

Q. Did Mr. Murray quantify the potential effect of his ROE recommendation on Ameren Missouri's financial integrity?

A. Mr. Murray develops a *pro forma* analysis in which he considers Ameren Missouri's Funds from Operations ("FFO") to debt ratio under two scenarios: (1) a 48.00 percent common equity ratio together with a 9.50 percent ROE; and (2) a 48.00 percent common equity ratio with a 9.00 percent ROE.[189] Mr. Murray argues both scenarios support a Moody's credit rating of Baa1 for Ameren Missouri.[190]

Q. Do you have any general observations regarding Mr. Murray's approach to assessing his recommendation by reference to *pro forma* credit metrics?

A. Yes, I do. It is helpful to review rating agencies' perspectives regarding their use of credit metrics in rating determinations. On November 30, 2007, S&P released a statement announcing that electric, gas, and water utility ratings would be "categorized under the

[189] Direct Testimony of David Murray, at 42.
[190] *Ibid.*

business/financial risk matrix used by the Corporate Ratings group".[191] S&P also provided matrices of business and financial risk, based on "Financial Risk Indicative Ratios": FFO/Debt; FFO/Interest; and Total Debt/Capital. In that announcement, S&P noted:

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

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

> The rating matrix indicative outcomes are what we typically observe - - but are not meant to be precise indications of guarantees of future rating opinions. Positive and negative nuances in our analysis may lead to a notch higher or lower than the outcomes indicated in the various cells of the matrix... Still, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees...
>
> Moreover, our assessment of financial risk is not as simplistic as looking at a few ratios.[192]

Later, on September 18, 2012, S&P further expanded its matrix, confirming "[s]till, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees."[193]

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

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

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

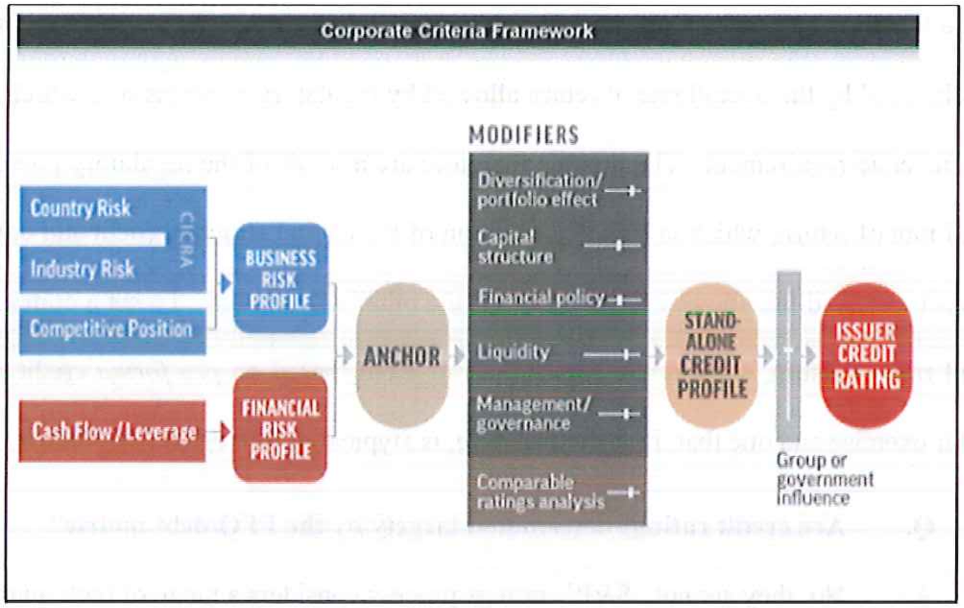
[193] Standard & Poor's Ratings Services, *Methodology: Business Risk/Financial Risk Matrix Expanded*, September 18, 2012.

Financial metrics, such as FFO/debt, are derived from financial statements, including the Income Statement, Balance Sheet and Cash Flow Statements. For regulated utilities, those ratios are influenced by the overall rate of return allowed by regulatory commissions, which is reflected in the revenue requirement. The metrics therefore are a result of the regulatory process, *i.e.*, the overall rate of return, which in turn is a function of the capital structure (debt and equity ratios), debt cost rate, and the allowed ROE. It is not the other way around. To set a component of the overall rate of return, such as the equity ratio or ROE, based on *pro forma* credit metrics is a circular exercise and one that, in my experience, is atypical of the regulatory process.

Q. Are credit ratings determined largely by the FFO/debt metric?

A. No, they are not. S&P's ratings process considers a range of both quantitative and qualitative data. As Chart 11 (below) demonstrates, Cash Flow/Leverage considerations are but one element of a broad set of criteria. The FFO/debt metric therefore represent only a portion of the factors considered by S&P. Again, a *pro forma* assessment of certain ratios does not address the complex assessments considered by either debt or equity investors.

Chart 11: Standard & Poor's Corporate Criteria Framework[194]



S&P notes it is the regulatory regime which is one of the most important factors in its bond/credit rating analyses. S&P states:

> For a regulated utility company, the regulatory regime in which it operates will influence its performance in profound ways. As such, Standard & Poor's Ratings Services' regulatory advantage assessment - - which informs both our business and financial risk scores - - is one of the most important factors in our credit analysis of regulated utilities.[195]

Consequently, even if we were to assume credit determinations are distilled to Mr. Murray's *pro forma* metrics, the actual assessment of those metrics is far more complex than his analysis suggests.

Q. Does Moody's consider similar factors in its ratings determinations?

A. Yes, it does. Moody's also considers a broad range of factors, many of which are qualitative in nature. Of the four general categories considered, the nature of regulation (including

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

[195] Standard & Poor's Ratings Services, *How Regulatory Advantage Scores Can Affect Ratings On Regulated Utilities*, April 23, 2015 at 2.

the Regulatory Framework, and the Ability to Recover Costs) accounts for about one-half of the weight Moody's applies in its rating determinations. The financial metric calculated in Mr. Murray's *pro forma* analysis, on the other hand, account for 15.00 percent of the weight applied (*see* Chart 12, below).

Chart 12: Moody's Rating Factors and Associated Weights[196]

Factor / Sub-Factor Weighting - Regulated Utilities

Broad Rating Factors	Broad Rating Factor Weighting	Rating Sub-Factor	Sub-Factor Weighting
Regulatory Framework	25%	Legislative and Judicial Underpinnings of the Regulatory Framework	12.5%
		Consistency and Predictability of Regulation	12.5%
Ability to Recover Costs and Earn Returns	25%	Timeliness of Recovery of Operating and Capital Costs	12.5%
		Sufficiency of Rates and Returns	12.5%
Diversification	10%	Market Position	5%*
		Generation and Fuel Diversity	5%**
Financial Strength, Key Financial Metrics	40%		
		CFO pre-WC + Interest/ Interest	7.5%
		CFO pre-WC / Debt	15.0%
		CFO pre-WC – Dividends / Debt	10.0%
		Debt/Capitalization	7.5%
Total	100%		100%
Notching Adjustment			
Holding Company Structural Subordination			0 to -3

*10% weight for issuers that lack generation; **0% weight for issuers that lack generation

Moody's ratings process is not mechanical and does not rely on *pro forma* assessments of financial metrics. As Moody's explains, "…the four rating factors and the notching factor in the grid do not constitute an exhaustive treatment of all of the considerations that are important for ratings of companies in the regulated electric and gas utility sector."[197] More generally, Moody's notes that its rating grid:

> …provides summarized guidance for the factors that are generally most important in assigning ratings to companies in the regulated electric and gas utility industry. However, the grid is a summary that does not include every rating consideration. The weights shown for each factor

[196] Moody's Investors Service, *Rating Methodology, Regulated Electric and Gas Utilities*, June 23, 2017, at 4.
[197] *Ibid.* at 24.

> in the grid represent an approximation of their importance for rating decisions but actual importance may vary substantially. In addition, the grid in this document uses historical results while ratings are based on our forward-looking expectations. As a result, the grid-indicated rating is not expected to match the actual rating of each company.[198]

Both Moody's and S&P therefore consider a broad range of factors, of which *pro forma* metrics are only one. In the case of both agencies, the assessment of credit metrics is forward-looking, and consider factors not reflected in Mr. Murray's analysis.

Q. Do you agree with Mr. Murray that his ROE recommendation is higher than Ameren Missouri's actual Cost of Equity, and that it is common practice for utility commissions to set the authorized ROE above the actual Cost of Equity?[199]

A. No, I do not. Mr. Murray argues his analysis suggests an ROE in the range of 5.50 percent to 6.50 percent, but his recommendation considers capital market conditions, investor expectations, and recently authorized returns. He ultimately recommends an ROE in the range of 8.50 percent and 9.25 percent.[200] Mr. Murray's position, however, fails to recognize that regulatory commissions in other jurisdictions consider the same *Hope* and *Bluefield* standards he cites,[201] and base their decisions on the same type of market-based analyses that have been presented by the ROE witnesses in this proceeding. The *Hope* and *Bluefield* standards require the authorized ROE to be comparable to the returns available from companies with similar business and financial risks. To that point, the Commission has determined that authorized ROEs in other jurisdictions are a relevant benchmark in developing a zone of reasonableness against which it may test the authorized ROE.[202]

198 *Ibid.*, at 1.
199 Direct Testimony of David Murray, at 4.
200 *Ibid.*
201 *Ibid.*, at 3-4.
202 *See, for example*, Report and Order, Case No. ER-2011-0028 at 67.

VI. CONCLUSIONS AND RECOMMENDATION

Q. What are your overall conclusions and recommendations?

A. Based on the analyses discussed throughout my Rebuttal Testimony, I conclude that the reasonable range of ROE estimates remains from 9.80 percent to 10.60 percent. I continue to believe an ROE of 9.95 percent is reasonable for Ameren Missouri.

In addition, the Company's proposed capital structure of 51.93 percent common equity and 48.07 percent long-term debt is consistent with industry practice.

Q. Does this conclude your Rebuttal Testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren)
Missouri's Tariffs to Decrease Its Revenues for) File No. ER-2019-0335
Electric Service.)

AFFIDAVIT OF ROBERT B. HEVERT

COMMONWEALTH OF MASSACHUSETTS)
) ss
COUNTY OF WORCESTER)

COMES NOW Robert B. Hevert, and on his oath declares that he is of sound mind and lawful age; that he has prepared the foregoing *Rebuttal Testimony*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Robert B. Hevert

Subscribed and sworn to before me this 20th day of January, 2020.

Notary Public

My commission expires:

SARA A. DERSTINE
MY COMM. EXPIRES NOVEMBER 8, 2024
NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS

Please see EFIS
for Schedules
RBH-R1 through
R12