Exhibit No.	
Issues:	Return on Equity and Capital Structure
Witness:	Ann E. Bulkley
Exhibit Type:	Direct Highly Confidential
Sponsoring Party:	Missouri-American Water Company
Case No.	WR-2017-0285 SR-2017-0286
Date:	January 17, 2018

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2017-0285
CASE NO. SR-2017-0286

REBUTTAL TESTIMONY

OF

ANN E. BULKLEY

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF MISSOURI-AMERICAN WATER COMPANY FOR AUTHORITY TO FILE TARIFFS REFLECTING INCREASED RATES FOR WATER AND SEWER SERVICE	)))))	**CASE NO. WR-2017-0285** **CASE NO. SR-2017-0286**

AFFIDAVIT OF ANN E. BULKLEY

Ann E. Bulkley, being first duly sworn, deposes and says that she is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony Revenue Requirement of Ann E. Bulkley"; that said testimony and schedules were prepared by her and/or under her direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, she would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of her knowledge.

Ann E. Bulkley

State of Massachusetts
County of Middlesex
SUBSCRIBED and sworn to
Before me this 10 **day of** January **2018.**

Notary Public

My commission expires:

LAUREEN G. SASSEVILLE
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
October 19, 2023

REBUTTAL TESTIMONY
ANN E. BULKLEY
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2017-0285
CASE NO. SR-2017-0286

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REBUTTAL TESTIMONY

ANN E. BULKLEY

I. INTRODUCTION, PURPOSE OF TESTIMONY AND RECOMMENDATIONS

Q. Please state your name and business address.

A. My name is Ann E. Bulkley. I am Senior Vice President of Concentric Energy Advisors, Inc. ("Concentric"). My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. On whose behalf are you submitting this testimony?

A. I am testifying on behalf of Missouri-American Water Company ("MAWC" or the "Company"), a wholly-owned subsidiary of American Water Works Company, Inc. ("AWW").

Q. Did you previously provide Direct Testimony in this proceeding?

A. Yes. I filed Direct Testimony on June 30, 2017.

Q. What is the purpose of your Rebuttal Testimony?

A. The purpose of my Rebuttal Testimony is to respond to the Cost of Service Report of the Missouri Public Service Commission Staff ("Staff") and, in particular, the section and testimony of Staff witness Jeffrey Smith relating to the authorized return on equity ("ROE") and capital structure, and the Direct Testimony of Michael P. Gorman on behalf of the Missouri Office of Public Counsel ("OPC") and the Missouri Industrial Energy Consumers ("MIEC").

Q. Are you sponsoring any schedules as part of your Rebuttal Testimony?

A. Yes, I am sponsoring Schedules AEB-11 through AEB-14.

Q. How is the remainder of your Rebuttal Testimony organized?

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

- In Section II, I provide a summary and overview of my Rebuttal Testimony and the important factors to be considered in establishing the ROE for MAWC.
- In Section III, I respond to Mr. Smith's and Mr. Gorman's testimony regarding capital market conditions and the implications for MAWC's cost of equity.
- In Section IV, I respond to Staff witness Mr. Smith's analyses and recommendations.
- In Section V, I respond to OPC and MIEC witness Mr. Gorman's analyses and recommendations.
- Finally, in Section VI, I summarize my conclusions and recommendations.

II. SUMMARY AND OVERVIEW

Q. What are your key conclusions and recommendations regarding the appropriate ROE and capital structure for MAWC in this proceeding?

A. My key conclusions are as follows:

1) Although the other ROE witnesses in this proceeding devote many pages of testimony to discussing the results of their various ROE estimation models and explaining why those models are producing reasonable results under current

market conditions, they essentially discard much of their own analyses in favor of recommendations that are lower than the low end of the range of recent ROE determinations for other water utilities.

2) The analyses of the other ROE witnesses are flawed in a number of ways including relying on unrealistically low growth projections, ignoring or discounting the fact that Federal monetary policy is tightening which will increase interest rates, relying on gas distribution companies or the Commission's most recently authorized ROE for an electric utility when there is a sufficiently robust water utility proxy group, and focusing on historical rather than forward-looking market conditions.

3) Mr. Smith's traditional discounted cash flow ("DCF") and Capital Asset Pricing Model ("CAPM") analyses produce ROE estimates well below his recommendation of 9.25 percent. In recognition of this fact, Mr. Smith does not rely on the results of those analyses and turns to the Commission's most recent ROE decision for Kanas City Power & Light ("KCPL") of 9.50 percent, and then adjusts this return down by 25 basis points because he claims that water utilities have lower risk than electric utilities. Mr. Smith fails to consider that the primary measure of risk (i.e., Beta) indicates that the companies in the water proxy group have greater risk than the companies in the electric proxy group used by Staff in the KCPL rate case. Further, interest rates on government and utility bonds have increased rather significantly since May 2016 when the Commission issued its order in the KCPL rate case.

4) Several of Mr. Gorman's analyses produce ROE estimates above the 9.0 percent ROE he recommends. His sustainable growth DCF analysis produces an average ROE result of 9.55 percent, his CAPM analysis using a projected market return of 11.40 percent produces an ROE result of 9.40 percent, and his risk premium analysis using Treasury bond yields produces an ROE result of 9.50 percent, yet Mr. Gorman recommends that the Commission adopt a 9.0 percent ROE. [1]

5) The wide range of results produced by Mr. Gorman's analyses (e.g., his multi-stage DCF analysis for water utilities produces a mean result of 6.62 percent, while his Constant Growth DCF result for an individual company is as high as 15.73 percent) highlight the effect of recent anomalous market conditions on ROE estimation models, and the importance of relying on multiple models and forward-looking assumptions, where possible, to more accurately estimate investors' expected cost of equity.

6) Reasonable adjustments to Mr. Gorman's CAPM and Risk Premium analyses result in returns that range from 9.74 percent to 11.19 percent. As shown in Table 1 below, the vast majority of recently authorized ROEs are within that range.

7) Utility commissions across the nation are struggling with these same issues. Even though the DCF model is currently producing return estimates between 6.50 percent and 9.00 percent, utility regulators recognize that such low returns

[1] Mr. Gorman's high-end risk premium estimate for Treasury bonds of 6.68% plus his projected Treasury bond yield of 3.6%. See Gorman Direct, at 39.

are not compensatory for investors. The authorized ROEs for water distribution companies from 2012 to 2017 have been within a range from 9.00 percent to 10.50 percent, with an average of 9.73 percent, suggesting that regulators are relying on more than just the results of the traditional models.

8) Mr. Smith recommends a common equity ratio below the level proposed by MAWC. In the case of Mr. Smith, his recommended common equity ratio is based on the actual capital structure of AWW (the parent of MAWC) as of June 30, 2017. Mr. Smith's recommended capital structure disregards the fact that MAWC has a capital structure that is consistent with the capital structure employed by his own water and electric proxy groups. Moreover, as I will show, Mr. Smith fails to account for the necessary increase in equity cost associated with the increased financial risk imposed by his recommendation of an equity ratio that is significantly lower than the averages established by his proxy group companies. Mr. Smith's recommended equity ratio, in combination with his ROE recommendation, do not meet the comparable return standard of *Hope* and *Bluefield*.

I continue to support the analyses and recommendations contained in my Direct Testimony. Specifically, I conclude that the range of reasonable ROE results for MAWC is between 10.00 percent and 10.80 percent. Nothing in the other ROE witnesses' testimony has caused me to change my range of results or my ROE recommendation. While the analytical results of ROE estimation models provide a starting point, my recommendation also considers other factors, including company-specific risk factors, capital market conditions and the capital attraction standard. Further, I support the Company's proposed capital

structure of 51.03 percent common equity, 48.92 percent long-term debt, and 0.05 percent preferred stock as reasonable relative to the operating utility companies held by the proxy group.[2]

Q. Please summarize the results of the ROE analyses and the recommendations of the other ROE witnesses in this proceeding.

A. Table 1 presents the results of the ROE analyses presented by the other witnesses in this proceeding and their final recommendations. As noted by the shading in the table, the majority of the analyses presented by the other ROE witnesses were not used in setting their final recommendations. Despite this fact, I have responded to the analysis and results presented for each analytical methodology that was presented.

[2] Direct Testimony of Scott Rungren.

Table 1: Summary of ROE Witnesses' Model Results[3]

Methodology (water utility group unless otherwise noted)	Bulkley Proxy Group	Mr. Smith (Staff)	Mr. Gorman (OPC and MIEC)		
			Range	Median	Supported Results[4]
Constant Growth DCF	6.43% to 11.43%	6.14% - 6.64%	4.87%-15.73%	8.61%	8.6%
Projected Constant Growth DCF	6.89%-11.97%	N/A	N/A	N/A	N/A
Constant Growth DCF (natural gas proxy group)	N/A	N/A	7.24%-9.46%	8.50%	
Sustainable Growth DCF	N/A	N/A	6.61%-13.90%	9.55%	
Multi-Stage DCF	N/A	6.44% - 6.78%	6.21%-7.15%	6.62%	
CAPM	10.57% to 11.04%	7.08% - 7.82%	8.06%-9.40%		9.4%
Risk Premium (natural gas authorized ROEs)	N/A	6.91% - 7.33%	7.04%-10.28%[5] Recommended range 8.9% - 9.5%		9.2%
Value Line Projected Equity Returns	10.50%-14.00%	N/A	N/A	N/A	N/A
Returns in other jurisdictions	N/A	9.43% - 9.90%	N/A	N/A	N/A
Recommended ROE	10.80%	9.25%			9.0%

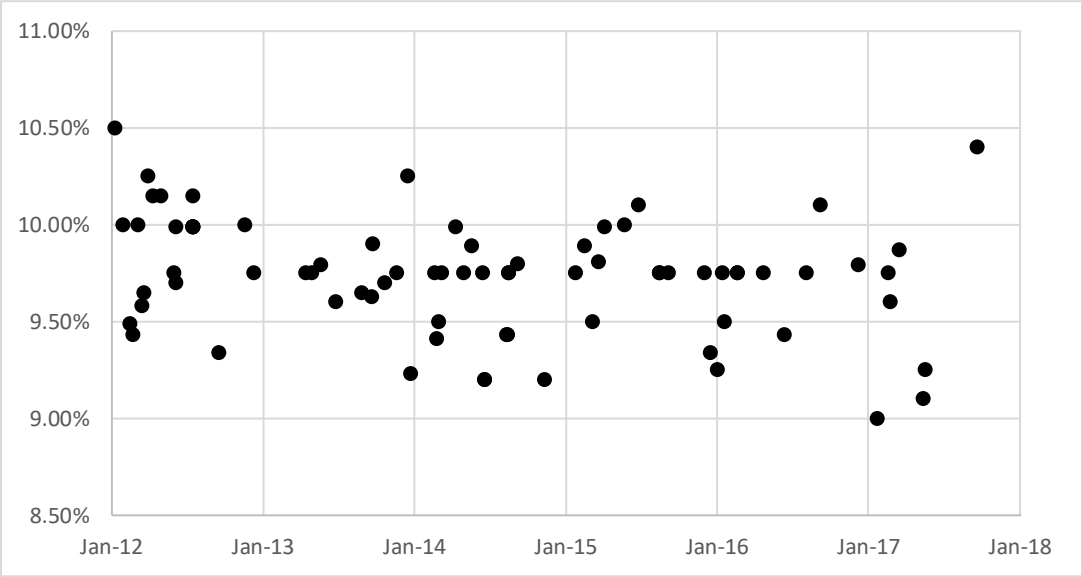
[3] Shading denotes analyses not relied on for recommendation.
[4] Direct Testimony and Schedules of Michael P. Gorman, at 46.

Q. Are authorized returns in other jurisdictions a relevant benchmark that investors consider?

A. Yes. The regulatory decisions of other Commissions provide a basic test of reasonableness and a benchmark that investors consider in assessing the authorized ROE against the returns available from other regulated utilities with comparable risk. It is a fundamental regulatory principle that authorized ROEs must be comparable to other investments of commensurate risk. Chart 1 shows the distribution of authorized returns for water utilities in 2012-2017. While the absolute range of authorized ROEs for water utilities has been between 9.00 percent and 10.50 percent over this period, there have been few determinations at the low end of this range. Furthermore, it is important to realize that over this time period, the Federal Reserve was controlling interest rates at artificially low levels. As the Federal Reserve continues to increase interest rates, investors' expectations for the cost of equity are also expected to increase.

[5] Range is established by relying on the unweighted risk premium estimates and the Treasury bond yields and the Moody's utility bond yields.

Chart 1: Recently Authorized Water Utility ROEs 2012-2017[6]



Q. What factors support your recommended ROE for MAWC in this case?

A. An authorized ROE for MAWC of 10.00 percent to 10.80 percent is reasonable and appropriate:

- Based on the analyses contained in my Direct Testimony;
- Consistent with current and prospective financial market conditions;
- Supported by the methodologies considered by other regulatory jurisdictions;
- Consistent with the range of ROEs awards for water utilities in other state jurisdictions;
- Reflects the expectation for rising interest rates; and

[6] Source: SNL Financial.

- Will support the Company's ability to attract capital to finance investments at reasonable rates, which will provide long-term benefits to ratepayers by limiting the long-term cost of capital.

III. CAPITAL MARKET CONDITIONS AND THE IMPLICATIONS FOR THE COST OF EQUITY

Q. Please summarize the other ROE witnesses' positions on capital market conditions and the implications for the cost of equity.

A. Staff witness Mr. Smith devotes more than ten pages of his testimony to discussing economic and capital market conditions, including: 1) GDP growth rates and inflation rates; 2) Federal Reserve monetary policy and the low interest rate environment; and 3) the strong performance and high valuations of utility stocks, including water utilities. Mr. Smith contends that economic conditions, in particular low inflation, will allow interest rates to increase more gradually than expected by the market, and he argues that the cost of capital for regulated utilities is currently very low.

Likewise, OPC and MIEC witness Mr. Gorman devotes several pages of his testimony to discussing interest rates, bond yields, GDP growth rates, and Federal monetary policy. Mr. Gorman contends that "capital market costs are near historically low levels", "regulated utilities continue to have access to large amounts of external capital", and the Commission should consider this in establishing MAWC's allowed ROE.[7]

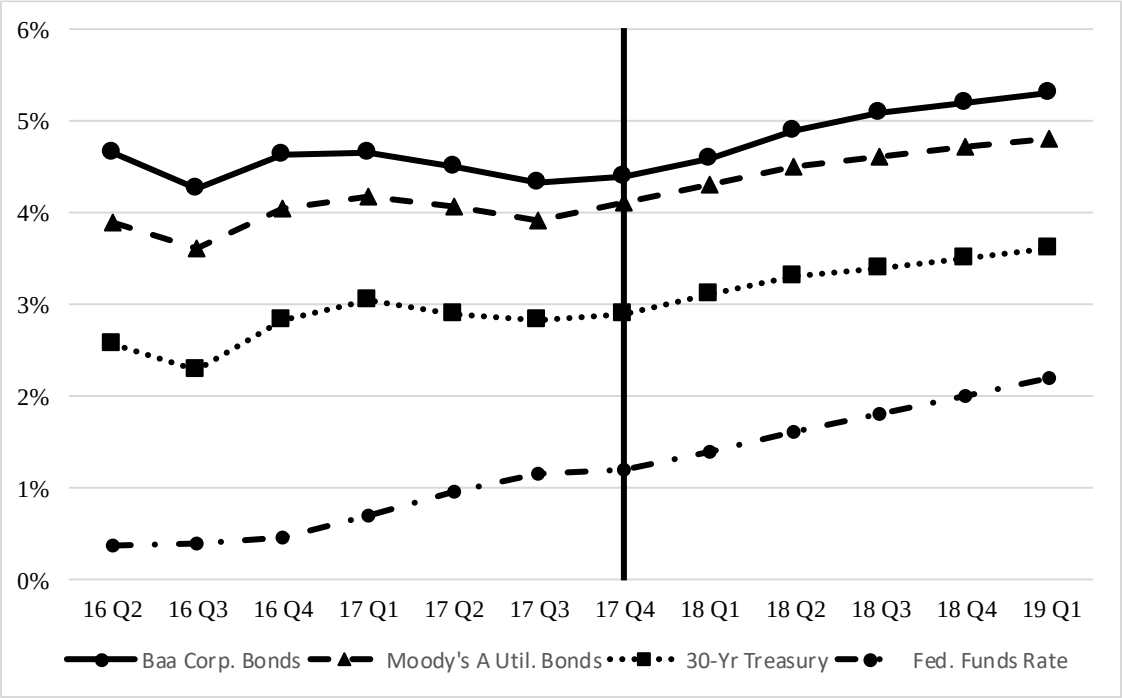
[7] Direct Testimony and Schedules of Michael P. Gorman, at 10.

Q. Do you agree with the other ROE witnesses' assessment of capital market conditions and the implications for the authorized ROE for MAWC in this proceeding?

A. While I agree that interest rates on government bonds have declined in recent years, I disagree with the conclusion that historically low interest rates imply a correspondingly low cost of equity for regulated utility companies such as MAWC. The ROE that is established in this proceeding is intended to reflect investors' required return over the forward-looking period during which the rates will be in effect. As shown in Chart 2, the interest rate environment is changing, as the Federal Reserve has begun tightening monetary policy, raising the federal funds rate in 25 basis point increments five times since December 2015. Yields on government and utility bonds have also increased since May 2016, which coincides with the Commission's previous decision approving new rates for MAWC. In addition, investor expectations are for substantially higher interest rates on government and corporate/utility bonds over the next few years.[8]

[8] These investor expectations are reported by Blue Chip Financial Forecasts, which conducts a monthly survey of 45 economists employed by some of America's largest and most respected manufacturers, banks, insurance companies and brokerage firms in order to develop their consensus view.

Chart 2: Interest Rate Conditions[9]



Therefore, I disagree with the other ROE witnesses that the context for setting the ROE for MAWC should be limited to the current low interest rate environment. In essence, Messrs. Smith and Gorman are asking the Commission to ignore recent evidence that interest rates have been increasing and that market conditions over the period that rates will be in effect are expected to be different than the current environment as the Federal Reserve normalizes monetary policy.

Q. Mr. Smith contends that there is reason to believe that future interest rate increases by the Federal Reserve may be tempered by economic conditions. Mr. Gorman

[9] Source: Historical data from Bloomberg Professional. Forecast data from Blue Chip Financial Forecasts, Vol. 36, No. 12, December 1, 2017, at 2.

contends that capital market costs will remain low over the next five to ten years. Do you agree?

A. No, I do not. The Federal Reserve again voted to raise short-term interest rates by 25 basis points at the December 2017 meeting, and reiterated its intention to continue raising rates in 2018 by an additional 75 basis points.[10] According to the January 2018 issue of Blue Chip Financial Forecasts, the financial markets expect the Fed to continue raising short-term interest rates in 2018, with more than 95 percent of those surveyed expecting an additional increase between 50 and 100 basis points in 2018.[11]

These witnesses would have the Commission ignore the Federal Reserve's tightening monetary policy and assume that the current very low interest rate environment will continue for five to ten years.[12] Table 2 summarizes the Federal Funds probabilities developed by CME group. The probability of a rate hike is calculated by adding the probabilities of all target rate levels above the current target rate. The current target Federal Funds rate is 150 bps after the rate increase set at the December 2017 meeting. The market expects further rate increases in 2018, shown by high expectations for target Federal Funds rates above the 125-150 bps range beginning in March of 2018 through November 2018.

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[10] Economic Projections of Federal Reserve Board Members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, December 13, 2017, at 3.

[11] Blue Chip Financial Forecasts, Vol. 37, No. 1, January 1, 2018, at 14.

[12] Economic Projections of Federal Reserve Board Members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, December 13, 2017, at 3.

Table 2: Investor Expectations of Future Federal Funds Rate Increases[13]

Target Federal Funds Rate(bps)	FOMC Meeting Dates						
	1/31/2018	3/21/2018	5/2/2018	6/13/2018	8/1/2018	9/26/2018	11/8/2018
125-150	91.5%	47.7%	45.2%	24.9%	23.9%	16.4%	15.6%
150-175	8.5	48.3%	48.2%	46.9%	46.0%	39.1%	37.9%
175-200		4.1%	6.4%	25.2%	26.1%	32.3%	32.6%
200-225		0.0%	0.2%	3.0%	3.9%	10.8%	11.9%
225-250				0.1%	0.2%	1.4%	1.8%
> 150		52.4%	54.8%	75.2%	76.2%	83.6%	84.2%
>175		4.1%	6.6%	28.2%	30.0%	43.1%	44.5%

Furthermore, in October 2017, the Federal Open Market Committee ("FOMC") started reducing the size of the Fed's $4.5 trillion bond portfolio by no longer reinvesting the proceeds of the bonds it holds. In response to the Great Recession, the Fed pursued a policy known as "Quantitative Easing," in which it systematically purchased mortgage-backed securities and long-term Treasury bonds to provide liquidity in financial markets and drive down yields on long-term government bonds. Although the Federal Reserve discontinued the Quantitative Easing program in October 2014, it continued to reinvest the proceeds from the bonds it holds. Under the new policy, the FOMC intends to gradually reduce the Federal Reserve's securities holdings by $10 billion per month.[14]

[13] CME Group, FedWatch as of November 11, 2017.

[14] Federal Reserve press release, Addendum to the Policy Normalization Principles and Plans, June 14, 2017, implemented at FOMC meeting, September 20, 2017.

The Federal Reserve's announced unwinding plan provides additional support for investors' view that long-term interest rates will increase, as the Federal Reserve gradually reverses the Quantitative Easing program that reduced those long-term rates. Furthermore, several analysts have recently suggested that the Federal Reserve's plan could cause sector rotation, as investors shift from utilities and telecom stocks to shares of banks and other sectors that benefit from rising interest rates.[15]

Q. What is the import of historically low interest rates on the cost of equity for water utilities?

A. As discussed in my Direct Testimony, it is important to consider the effects that the historically low interest rate environment has had on the ROE estimation models. Furthermore, it is important to consider whether it is possible to adjust the assumptions used in those models to better reflect the conditions that investors expect over the rate period.

Q. Are you aware of any regulatory commissions that have recognized that the current anomalous conditions in capital markets are causing ROE recommendations based on DCF models to be unreasonable?

A. Yes, several regulatory commissions have addressed the effect of capital market conditions on the DCF model. As discussed in my Direct Testimony, the Federal Energy Regulatory Commission ("FERC") has addressed this issue specifically as it relates to the DCF model.

[15] Reuters Business News, "Fed meeting could trigger stock sector rotation", September 15, 2017.

In addition, the Illinois Commerce Commission ("ICC"), the Pennsylvania Public Utility Commission ("PPUC") and the Massachusetts Department of Public Utilities ("MDPU") have all considered this in recent decisions.

Q. How have the PPUC, the ICC and the MDPU addressed the effect of market conditions on the ROE estimation models?

A. In a 2012 decision for PPL Electric Utilities, while noting that the PPUC has traditionally relied primarily on the DCF method to estimate the cost of equity for regulated utilities, the PPUC recognized that market conditions were causing the DCF model to produce results that were much lower than other models such as the CAPM and Bond Yield Plus Risk Premium. The PPUC's Order explained:

> Sole reliance on one methodology without checking the validity of the results of that methodology with other cost of equity analyses does not always lend itself to responsible ratemaking. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived equity return calculation.[16]

The PPUC ultimately concluded:

> As such, where evidence based on the CAPM and RP methods suggest that the DCF-only results may understate the utility's current cost of equity capital, we will give consideration to those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination.[17]

In a recent ICC case, Docket No. 16-0093, Staff relied on a DCF analysis that resulted in average returns for their proxy groups of 7.24 percent to 7.51 percent. The Company (Illinois-American Water Company) demonstrated that those results were

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[16] Pennsylvania Public Utility Commission, PPL Electric Utilities, R-2012-2290597, meeting held December 5, 2012, at 80.

[17] *Id.*, at 81.

uncharacteristically too low, by comparing the results of Staff's models to recently authorized ROEs for regulated utilities and the return on the S&P 500.[18] The ICC agreed with the Company that Staff's proposed ROE of 8.04 percent was anomalous and recognized that a return that is not competitive will deter investment in Illinois.[19] In setting the return in that proceeding, the ICC recognized that it was necessary to consider other factors beyond the outputs of the financial models, particularly whether the return is sufficient to attract capital, maintain financial integrity, and is commensurate with returns for companies of comparable risk, while balancing the interests of customers and shareholders.[20] Finally, in DPU 17-05, the MDPU noted that current Federal monetary policy has pushed treasury yields to near historic lows. Therefore, the Department found that it is appropriate to use prospective interest rate expectations in the CAPM.[21]

Q. What are your conclusions regarding the effect of capital market conditions on the cost of equity for MAWC?

A. My primary conclusion is that recent anomalous market conditions have had an effect on the assumptions used in the ROE estimation models. I agree with Mr. Gorman that it is important to rely on multiple models and forward-looking assumptions where possible to more accurately estimate investors' expected cost of equity.[22] As discussed in my Direct

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[18] State of Illinois Commerce Commission, Docket No. 16-0093, Illinois-American Water Company Initial Brief, August 31, 2016, at 10.

[19] Illinois Staff's analysis and recommendation in that proceeding were based on its application of the multi-stage DCF model and the CAPM to a proxy group of water utilities.

[20] State of Illinois Commerce Commission Decision, Docket No. 16-0093, Illinois-American Water Company, 2016 WL 7325212 (2016), at 55.

[21] D.P.U. 17-05, at 693.

[22] Direct Testimony and Schedules of Michael P. Gorman, at 13.

Testimony, this conclusion is supported by the FERC in its recent decisions involving electric transmission owners, where the FERC recognized that the inputs to the DCF model, which the FERC has historically relied on, have been affected by market conditions. For that reason, the FERC has determined that it is appropriate and necessary to also consider the results of alternative risk premium based models such as the CAPM.[23]

Furthermore, while the ROE estimation models use some historical data (i.e., stock prices and dividends in the DCF model, and bond yields in the CAPM, based on the expected change in market conditions), I believe it is also appropriate to consider the near-term projections in the ROE estimation models. The Fed has raised short-term interest rates five times since December 2015, and yields on Treasury bonds and utility bonds have increased since hitting a trough in July 2016. Investors are projecting that interest rates will continue rising in 2018 and beyond. For all of these reasons, I recommend an authorized ROE for MAWC that takes into consideration the likelihood that capital costs will continue to increase in the near to intermediate term.

IV. RESPONSE TO STAFF WITNESS MR. SMITH

Q. Please summarize Mr. Smith's ROE analyses.

A. Mr. Smith testifies that the approach he relied on is a comparable company approach with the use of the DCF and CAPM methodologies.[24] Mr. Smith's Constant Growth DCF analysis produces results of 6.14 percent to 7.14 percent.[25] In the Multi-Stage DCF

[23] Direct Testimony of Ann E. Bulkley, at 19-21.
[24] Missouri Public Service Commission Staff Report Cost of Service, at 16.
[25] *Id.*, at 39.

analysis, Mr. Smith derives results of 6.44 percent to 6.78 percent with a midpoint of 6.61 percent, based on a long-term growth rate of 4.0 percent to 4.4 percent.[26]

While Mr. Smith develops two approaches to the DCF model, he states that he does not rely on the Constant Growth DCF model results in his comparable company approach. The methodology that Mr. Smith states is the basis for his recommended ROE is the Multi-Stage DCF analysis. Mr. Smith uses the Multi-Stage DCF model for a water utility proxy group and an electric utility proxy group to tie his recommended ROE for MAWC in this proceeding to a recently authorized ROE for KCPL.

As tests of the reasonableness of his analyses, Mr. Smith also considers the results of the CAPM using historical returns to estimate the Market Risk Premium ("MRP") and the historical average yield on 30-year Treasury bonds as the estimate of the risk-free rate.[27] Mr. Smith states that both the DCF and CAPM methodologies provide accurate estimates of utilities' cost of equity when reasonable inputs are used.[28] Mr. Smith also considers a "Rule of Thumb" methodology which estimates the ROE based on a range of risk premium of 3.0 percent to 5.0 percent and the average yield on utility bonds.[29] Finally, Mr. Smith summarizes the average of recently authorized ROEs for electric utilities, water utilities and natural gas utilities from 2012 through 2017 and considers the recently authorized ROEs for other American Water subsidiaries. Table 3 summarizes the results of Mr. Smith's ROE estimation methodologies.

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[26] *Id.*, at 41.
[27] *Id.*, at 43-44.
[28] *Id.*, at 16.
[29] *Id.*, at 45.

Table 3: Results of Mr. Smith's ROE Estimation Methodologies

Methodology	Range
Constant Growth DCF	6.14%-7.14%
Multi-Stage DCF	6.44% - 6.78%
CAPM	7.08%-7.82%
Rule of Thumb	6.91%-7.33%
Recently Authorized ROEs for Water Utilities	9.43%-9.90%
Recently Authorized ROEs for Electric Utilities	9.77%-10.17%
Recently Authorized ROEs for Natural Gas Utilities	9.44%-9.94%

Q. What is the basis for Mr. Smith's ROE recommendation?

A. While the results of Mr. Smith's analyses are in the range of 6.14 percent to a 7.82 percent, his recommended ROE is 9.25 percent. Mr. Smith acknowledges that his recommendation is not based on the results of *any* of his analyses. Rather, he relies on a comparison to a model that was developed, but not filed, in the recent KCPL rate case to benchmark his recommended ROE for MAWC in this case to the most recently authorized ROE for KCPL of 9.50 percent. Mr. Smith then uses his judgment to estimate a 25 basis point reduction to the ROE authorized for KCPL to account for his opinion that water utilities are less risky than electric utilities and his claim that the cost of capital has declined slightly since the KCPL decision was issued in May 2017.

Q. What are the principal areas of disagreement with the methodologies that Mr. Smith uses as the basis for his modeling?

A. I have many areas of disagreement on the technical aspects of Mr. Smith's analysis and the assumptions relied on in each of the methodologies that he develops. As a practical matter, however, Mr. Smith did not actually rely on any of those analyses as they all produce results that are significantly below his recommended ROE of 9.25 percent. His recommendation claims to be primarily based on the comparison of the results of three Multi-Stage DCF models. Two of those models were developed for this proceeding for an electric and water utility proxy group. Mr. Smith states that the third DCF model was developed by Staff in the KCPL case, but the model was not introduced in that case. While I disagree with many aspects of Mr. Smith's Constant Growth DCF analysis, the CAPM and other benchmarking analyses that Mr. Smith has provided to the Commission, the fact is that Mr. Smith has not relied on those models in the development of his recommendation. Therefore, while my response will address each methodology at a high level, I will focus more specifically on the Multi-Stage DCF methodologies and the comparison underlying his recommended return.

A. Response to Mr. Smith's Multi-Stage DCF Comparison

Q. Please explain how Mr. Smith conducts his Multi-Stage DCF analysis and comparative analysis.

A. Mr. Smith's ROE recommendation is based on a comparison of the results of a Multi-Stage DCF analysis he developed for MAWC using current market data to the market conditions that existed at the time of the KCPL case. This analysis relies on three Multi-Stage DCF

models specified using: 1) a water utility proxy group and current market data; 2) an electric utility proxy group and current market data; and 3) an electric utility proxy group with market data from the time period of the KCPL decision. Mr. Smith compares the results of the Multi-Stage DCF analyses and concludes that ROEs are lower today than in the KCPL case. He also compares the results of the Multi-Stage DCF models for the water and electric utility proxy groups, using current market data, and concludes that water utility returns are lower than electric utility returns. Mr. Smith suggests that these analyses demonstrate that the cost of equity has declined since the KCPL case, and that water utility returns should be lower than electric utility returns.

Q. What is your response to Mr. Smith's methodology?

A. I disagree with several aspects of the methodology that Mr. Smith relies on to develop his ROE recommendation. Specifically, I disagree with 1) the relevance of the KCPL decision in this proceeding; 2) the use of a Multi-Stage DCF model that Staff developed but did not file in the KCPL proceeding; 3) the specification of the Multi-Stage DCF models that Mr. Smith relied on, and 4) the relationship that Mr. Smith suggests his model results imply for electric and water utilities generally and KCPL and MAWC in particular.

Q. Is the KCPL decision relevant in establishing the ROE for MAWC?

A. No. While I agree that the ROE is often determined based on a proxy group of companies, in order to meet the *Hope* and *Bluefield* standards that Mr. Smith agrees are relevant, it is necessary to establish that the comparison be based on risk-comparable companies. The intention in setting the ROE for a regulated utility is that the ROE be established based on the expected return requirements of investors. Mr. Smith has provided no evidence in this

proceeding that it is reasonable to consider KCPL comparable to MAWC from a risk perspective.

Q. Is the Multi-Stage DCF model that Staff developed at the time of the KCPL case relevant in this proceeding?

A. No. Mr. Smith acknowledges that while Staff may have developed this model at the time of the KCPL decision, it was not introduced in the case because Staff did not file testimony. Therefore, the model was never examined by any of the parties in that proceeding, nor was it used by the Commission in the determination of the final ROE for KCPL. As such, the results of that model cannot be assumed to have any relationship to the final authorized ROE in that proceeding.

Q. Please summarize Mr. Smith's specification of the Multi-Stage DCF model.

A. Mr. Smith's Multi-Stage DCF analysis is a three-stage model that relies on the average of projected earnings growth in the first five-year period, transitional growth rates for the second stage (years 6-10), and a long-term growth rate in year 11 and beyond.[30] Mr. Smith relies on three-month average stock prices for the water utility proxy companies.[31] Mr. Smith considers a range of estimates for the long-term growth rate from 4.0 percent to 4.4 percent.[32] Mr. Smith's sources include the nominal Gross Domestic Product ("GDP") growth rate published by the Congressional Budget Office for the period from 2017-2047, as well as projected GDP growth as reported by the U.S. Energy Information

[30] Missouri Public Service Commission Staff Cost of Service Report, at Schedule 15-1.
[31] *Id.*, at Schedule 12.
[32] *Id.*, at Schedule 15-1 through 15-3.

Administration for the period 2016-2040 and the Organization for Economic Cooperation and Development. In his final analysis, Mr. Smith relies on a long-term growth rate of 4.4 percent.[33] Mr. Smith's Multi-Stage DCF analysis results in an ROE of 6.78 percent.[34]

Q. Are the results of Mr. Smith's Multi-Stage DCF model reasonable?

A. No. The results of Mr. Smith's Multi-Stage DCF analysis are so low as to be unreasonable and are not reflective of the cost of equity. Not a single regulatory jurisdiction has authorized an ROE as low as the results of Mr. Smith's Multi-Stage DCF model. The *Hope* and *Bluefield* decisions, which Mr. Smith acknowledges are standards to be upheld, require the authorized return to be just and reasonable, as well as comparable to other returns available to investors in companies with similar risk. [35] Mr. Smith's Multi-Stage DCF results clearly violate this standard.

Q. Does Mr. Smith offer any attempt to reconcile his model results with his recommended ROE?

A. Yes. Mr. Smith attempts to reconcile the difference between the results of his ROE estimation models and Staff's recommendation by suggesting that it is common practice for utility regulatory commissions to allow ROEs that are higher than the cost of equity for utilities due to a continued very low cost of capital environment.[36]

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[33] *Id*., at 41.
[34] *Id*., at Schedule 15-3.
[35] *Id*., at 16.
[36] *Id*., at 17.

Q. What is your response?

A. As discussed previously in my Rebuttal Testimony, several regulatory commissions have indicated that capital market conditions have affected the ROE estimation models. Therefore, I would agree with Mr. Smith if his statement was intended to suggest that regulatory commissions have recognized that the models are not producing reliable results due to recent market conditions.

Q. What are the primary drivers of the unreasonably low results of Mr. Smith's Multi-Stage DCF analyses?

A. There are two primary factors that contribute to the unreasonably low results of his DCF models: 1) the dividend yield; and 2) the long-term growth rate. As discussed in my Direct Testimony, dividend yields for water utilities are currently at historically low levels due to market conditions.[37] The current dividend/price relationship cannot be expected to be maintained in perpetuity. As discussed in my Direct Testimony, Value Line notes that the prices of water utility stocks appear to be more than fully valued.[38] Furthermore, Value Line has commented that electric utility stocks are "expensively priced," and that "some investors are reaching for yield," which "has made the valuations of many of these equities higher than normal."[39] Value Line also observes that "it is not unusual to see a utility stock trading at a market price-earnings multiple," and "it is not unusual to see a utility quotation that is within my 2020-2022 Target Price Range for that issue."[40] In addition, Value Line

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[37] Direct Testimony of Ann E. Bulkley, Chart 1, at 16.
[38] *Id*., at 17.
[39] Value Line Investment Survey, Electric Utility (East) Industry, August 18, 2017, at 138.
[40] *Id*.

projects the stock prices of the proxy companies to decline in the forecast period. These data all suggest that utility stock prices are distorted, and that the dividend yield in the DCF model, while measurable using current market data, may not be a reliable indicator of the future performance of stocks.

Q. What is your opinion of the long-term growth rate used in Mr. Smith's Multi-Stage DCF model?

A. The long-term growth rate that Mr. Smith relies on results in an understated cost of equity. Mr. Smith assumes long-term growth rates of 4.20 percent to 4.40 percent, which are approximately 130 basis points below the long-term historical growth rate in nominal GDP reported by the Bureau of Economic Analysis, and therefore may understate a reasonable expectation of long-term economic growth. Furthermore, holding all else constant in his Multi-Stage DCF model, in order to achieve a return that is consistent with Mr. Smith's ROE recommendation of 9.25 percent, his Multi-Stage DCF model would need to rely on a growth rate of 7.25 percent, or 285 basis points higher than the highest long-term growth rate relied on by Mr. Smith.

Q. Please summarize the comparison that Mr. Smith performs between electric and water utility returns.

A. Mr. Smith develops the Multi-Stage DCF model for an electric utility proxy group and a water utility proxy group using current market data. The results of the electric utility analysis suggest an ROE of 6.97 percent to 7.38 percent, using a terminal growth rate of 3.50 percent to 4.0 percent, and 7.70 percent using nominal GDP for a terminal growth

rate.[41] The results of the water utility proxy group model suggest a return of 6.44 percent and 6.78 percent.[42] Mr. Smith concludes that the water utility group has lower return expectations than the electric utility group because the result generated using his Multi-stage DCF model was lower for the water group than for the electric group.

Mr. Smith compares the current results of his Multi-Stage DCF model for the electric utility proxy group to the results of that model as specified at the time of the KCPL case. He concludes that because the model results are moderately lower today, the market cost of capital for electric utilities has declined since the KCPL decision. The combination of these two comparisons are the support for Mr. Smith's conclusion that the ROE for MAWC in this case should be established at 25 basis points below the KCPL authorized ROE.

Q. Do you agree with this comparative approach?

A. No. The estimation of the ROE is a comparative approach that requires the analyst 1) establish the comparability of the subject company and the benchmark, 2) establish credible analytical results, and 3) consider factors that cannot be captured specifically from the analytical models to make any reasonable adjustments to the results determined by the models. As discussed in my Direct Testimony, there is a comparable group of water utilities that can and should be relied on for purposes of estimating the ROE for MAWC. There is no reason to rely on a proxy group of electric companies and then estimate the risk differential between that proxy group and MAWC as Mr. Smith has done.

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[41] Missouri Public Service Commission Staff Cost of Service Report, at 46.
[42] *Id.*, at 41.

If the proxy group Mr. Smith relied on from the KCPL case were the best comparison group, it would be necessary to determine that the model results that Mr. Smith relied on were reasonable predictors of the cost of equity for electric utilities and water utilities. To the contrary, none of the models that Mr. Smith has relied on is producing reasonable estimates of the cost of equity for electric utilities or water utilities. As such, there is no basis to draw any conclusions from a comparison of the results of these models. Because Mr. Smith's Multi-Stage DCF model results are not reliable on an individual basis, any conclusions that could be drawn will also be unreliable.

Q. Do you agree with Mr. Smith's conclusion that the expected returns for water utilities are lower than electric utilities?

A. Not necessarily. As discussed above, I do not agree that it was appropriate to rely on the returns for an electric utility proxy group as the benchmark for a water utility return.

Q. Have you conducted any analysis of the relative risk of the electric proxy group Mr. Smith relied on and the water utility proxy group?

A. Yes. I have reviewed the Betas for both proxy groups. Beta is a measure of the relative risk of the company (or proxy group) and the market index used for comparison. If the Beta is less than 1.0, a company is less volatile than the market, which has a Beta of 1.0. As shown in Table 4 comparing the Betas of Mr. Smith's electric utility proxy group to the Beta of the water utility proxy group indicates that the water utility group is currently trading more like the market than the electric utility group. This risk measure suggests that the water utility proxy group has greater risk than the electric utility proxy group that Mr.

Smith relied on. Since returns and risk are positively correlated, this suggests that allowed returns for the water utility proxy group should be higher not lower than for the electric utility proxy group.

Table 4: Comparison of Beta Estimates for Water and Electric Utilities[43]

	Beta
Water Proxy Group	0.744
Electric Proxy Group	0.672

Q. What are your conclusions regarding the comparative analysis that Mr. Smith used to support his recommended ROE of 9.25 percent?

A. Mr. Smith's analysis is not a reasonable approach to estimate the cost of equity in this case and should be given no weight. Mr. Smith's analysis does not start with comparable risk companies to MAWC. Furthermore, Mr. Smith relies on a model that was developed at the time of the KCPL case, but was not reviewed or relied on by the Commission in that proceeding. Therefore, any assumptions that Mr. Smith has made that the results of that model can be compared to current market conditions to benchmark the return in this case against the authorized return for KCPL are unfounded and should be disregarded. Mr. Smith further relies on a belief that electric distribution companies have greater risk, and hence require higher ROEs than water companies. That belief is belied by the fact that the water companies exhibit higher market betas than electric companies. By that metric, water

[43] Source: Value Line Investment Survey.

utilities trade more like the market and therefore have more risk than he avers. For all these reasons, his recommendation cannot be relied upon.

B. Response to Mr. Smith's Constant Growth DCF Analysis

Q. Are the ROE estimates produced by Mr. Smith's Constant Growth DCF analysis comparable to the returns available to investors in companies with similar risk, or supportive of his recommended ROE?

A. No. Mr. Smith's Constant Growth DCF analysis produces equity returns of 6.14 percent to 7.14 percent. These returns are not indicative of the cost of equity that has been authorized for any utility over the last six years. As such, Mr. Smith's Constant Growth DCF results do not meet the comparable return standard of *Hope* and *Bluefield*.

Q. Please summarize Mr. Smith's Constant Growth DCF analysis.

A. Mr. Smith considers 5- and 10- year historical dividends, earnings, and book value per share growth rates and 5-year projected earnings, dividend and book value per share growth rates for the water utility proxy group as reported by Value Line. The average growth rates that he considers are summarized in Table 5.

Table 5: Historical Growth Rates[44]

10-year Historical Growth Rate		5-Year Historical Growth Rate		5-Year Projected Growth Rate	
DPS	4.00%	DPS	5.00%	DPS	6.88%
EPS	7.00%	EPS	10.13%	EPS	6.94%
BVPS	4.94%	BVPS	5.44%	BVPS	4.31%

[44] Missouri Public Service Commission Staff Cost of Service Report, at Schedule 11-1 and 11-2.

Average	5.48%	Average	6.85%	Average	6.04%

While the historical growth rates range from 4.00 percent to 10.13 percent, and the projected growth rates range from 4.31 percent to 6.94 percent, Mr. Smith relies on two growth rates from the low end of this range of 4.00 percent and 5.00 percent. Mr. Smith notes, however, that because he is not relying on the Constant Growth DCF model to quantify the difference between the cost of equity for electric utilities and water utilities, the growth rate estimates he relies on are not as critical as the growth rates used in his Multi-Stage DCF model.[45]

Mr. Smith applies each of the selected growth rates to the average current dividend yield for the water utility proxy group of 2.04 percent to estimate an average return for the group of 6.14 percent to 7.14 percent. Mr. Smith did not provide an exhibit that develops the ROE estimates for each company in the proxy group using these assumptions.

Q. Why is it important to consider the ROE results for each proxy company?

A. In order to determine if the ROE is reasonable and meets the *Hope* and *Bluefield* standards, it is important to consider whether the indicated return for each individual company is reasonable before accepting the data for that company in the proxy group.

[45] *Id.*, at 38.

Q. Have you conducted any analysis to demonstrate the ROE results of Mr. Smith's proxy group companies using his Constant Growth DCF assumptions?

A. Yes. As shown in Schedule AEB-11, the individual company returns indicated by Mr. Smith's Constant Growth DCF analysis include observations as low as 5.59 percent. The highest individual company return based on Mr. Smith's Constant Growth DCF assumptions is 7.45 percent. Thus his highest individual company return is 180 basis points below his recommended ROE of 9.25% and 198 basis points below the 2017 average authorized ROE for water utilities, as reported by Mr. Smith.

Q. What is your response to the results of Mr. Smith's Constant Growth DCF assumptions?

A. As discussed in my response to Mr. Smith's Multi-Stage DCF analysis, Mr. Smith has not considered the fact that utility dividend yields are at historically low levels based on recent market conditions and that the current dividend yields cannot be considered sustainable at this level in perpetuity. Furthermore, while the estimation of the cost of equity is a forward-looking effort, Mr. Smith has provided no analysis demonstrating that the growth rates he selects from within the range of historical and projected growth rates are reasonable on a forward-looking basis. Finally, comparing the results of Mr. Smith's Constant Growth DCF analysis to authorized ROEs as a benchmark for investors' return expectations, I conclude that his Constant Growth DCF model is not providing reasonable estimates of the cost of equity for water utilities.

C. Capital Asset Pricing Model

Q. Please summarize Mr. Smith's application of the CAPM.

A. Mr. Smith testifies that he develops the CAPM as a test of the reasonableness of his DCF results. Mr. Smith's CAPM analysis uses a risk-free rate based on the average yield on the 30-year Treasury bond for the three months ending October 2017, Value Line Betas for the water utility proxy group, and two measures of the historical MRP, using arithmetic and geometric average estimates for the period from 1929 through 2016. The results of Mr. Smith's CAPM analyses are 6.03 percent to 7.10 percent. Mr. Smith testifies that it is logical that in today's capital market environment that investors are only requiring equity returns on utilities in this range.[46]

Q. Do you agree with the risk-free rate Mr. Smith used in his CAPM?

A. No. Mr. Smith relies on a current risk-free rate of 2.82 percent, which was the three-month average yield on the 30-year Treasury bond as of October 2017. My concern with Mr. Smith's risk-free rate is that the estimation of the cost of equity is a forward-looking process. Financial markets are expecting interest rates on government bonds to increase to 3.5 percent by the fourth quarter of 2018, and to approximately 4.1 percent during the period from 2019-2023.[47] As equity investors consider their return requirements, they have begun to factor in expectations for higher interest rates on government bonds. Mr. Smith's

[46] *Id.*, at 44.

[47] Blue Chip Financial Forecasts, Vol. 36, No 10, October 1, 2017 at 2 and Vol. 36 No.12, December 1, 2017, at 14.

exclusive reliance on current interest rates does not reflect the market's expectations regarding interest rates over the rate period.

Q. Do you agree with Mr. Smith's market risk premium estimate?

A. No. I disagree with the use of the historical market risk premium because it fails to consider the inverse relationship between interest rates and the market risk premium. That is, as interest rates decrease, the market risk premium increases.

Q. Is there other evidence that the use of a historical market risk premium may produce counter-intuitive results?

A. Yes. Simply relying on the historical market risk premium may produce results that are not consistent 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 the 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.[48]

Table 6 illustrates the problem with relying on the historical market risk premium. Specifically, from 2007-2009 the historical market risk premium *decreased* even as market volatility (the primary statistical measure of risk) significantly increased.

[48] Morningstar Inc., 2010 Ibbotson Stocks, Bonds, Bills, and Inflation, Valuation Yearbook, at 55.

Table 6: Historical Market Risk Premium and Market Volatility

	Historical Market Risk Premium[49]
2009	6.70%
2008	6.50%
2007	7.10%

The assumption that investors would expect or require a lower risk premium during periods of increased volatility is counter-intuitive and leads to unreliable analytical results. As noted earlier, the relevant objective in the application of the CAPM is to ensure that all three components of the model (i.e., the risk-free rate, Beta, and the market risk premium) are consistent with market conditions and investor perceptions. Assuming a lower market risk premium during periods when interest rates are artificially suppressed by Federal Reserve monetary policy is at odds with that premise. The forward-looking market risk premium estimates used in my CAPM analysis specifically address that concern.

Q. What is your conclusion regarding Mr. Smith's CAPM analysis?

A. My conclusion is that Mr. Smith's average CAPM results of 6.03 percent to 7.10 percent are not reasonable estimates of the cost of equity for MAWC. In particular, Mr. Smith's CAPM analysis fails to take into consideration the projections of leading economists that

[49] Morningstar Inc., 2008 Ibbotson Stocks, Bonds, Bills, and Inflation, Valuation Yearbook at 28. Morningstar Inc., 2009 Ibbotson Stocks, Bonds, Bills, and Inflation, Valuation Yearbook at 23. Morningstar Inc., 2010 Ibbotson Stocks, Bonds, Bills, and Inflation, Valuation Yearbook at 23. Historical Market Risk Premium equals total return on large company stocks less income only return on long-term government securities.

interest rates will be substantially higher over the next few years. This affects both the risk-free rate and the market risk premium components of the CAPM analysis. As such, the results of Mr. Smith's CAPM analysis are not representative of the forward-looking cost of equity for MAWC in this proceeding.

D. Rule of Thumb methodology

Q. Please summarize Mr. Smith's "Rule of Thumb" analysis.

A. The "Rule of Thumb" methodology that Mr. Smith relies on is another risk premium methodology. This methodology relies on an estimated MRP of 3 to 5 percent plus the yield on utility bonds. Mr. Smith relies on the three-month average yield on Moody's A-rated and Baa-rated utility bonds and both estimates of the MRP to establish a range of returns between 6.91 percent and 9.33 percent.[50]

Q. Do you agree with this methodology?

A. I agree that it is generally appropriate to rely on properly-specified risk premium methodologies. However, similar to his CAPM analysis, Mr. Smith's specification of this risk premium approach relies on historical estimates of the MRP and does not take into consideration a rising interest rate environment. Furthermore, this methodology relies on the return on the market as a whole and does not appear to provide any adjustment for the return requirements of different industries. Therefore, the results of this methodology are not reflective of the expected return for a water utility. Finally, the use of the three-month

[50] Missouri Public Service Commission Staff Cost of Service Report, at 45.

average yield on utility bonds does not reflect the expectation of rising interest rates. As such, this methodology is not reflective of investor return requirements over the rate period.

E. Authorized Returns in Other Jurisdictions

Q. Please summarize Mr. Smith's analysis of authorized returns in other jurisdictions.

A. Mr. Smith summarizes the authorized returns for water utilities, electric utilities and gas distribution companies in other jurisdictions from 2012-2017. Mr. Smith's analysis demonstrates that the average authorized ROE for water utilities has been in the range of 9.43 percent to 9.90 percent.[51] As previously shown in Chart 1, the range of authorized ROEs for the water utilities is from 9.00 percent to 10.50 percent. Chart 2 and 3 show the authorized returns for electric utilities and gas distribution companies from 2012 through 2017.

[51] *Id.*, at 45.

Chart 3: Recently Authorized Electric ROEs[52]

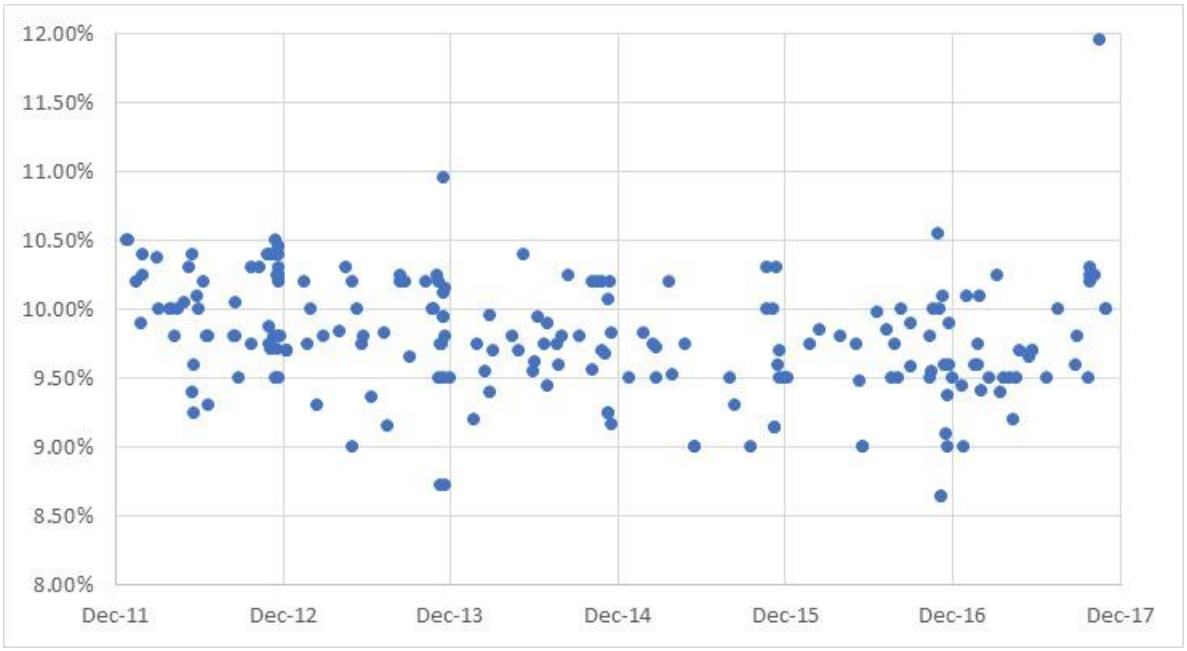
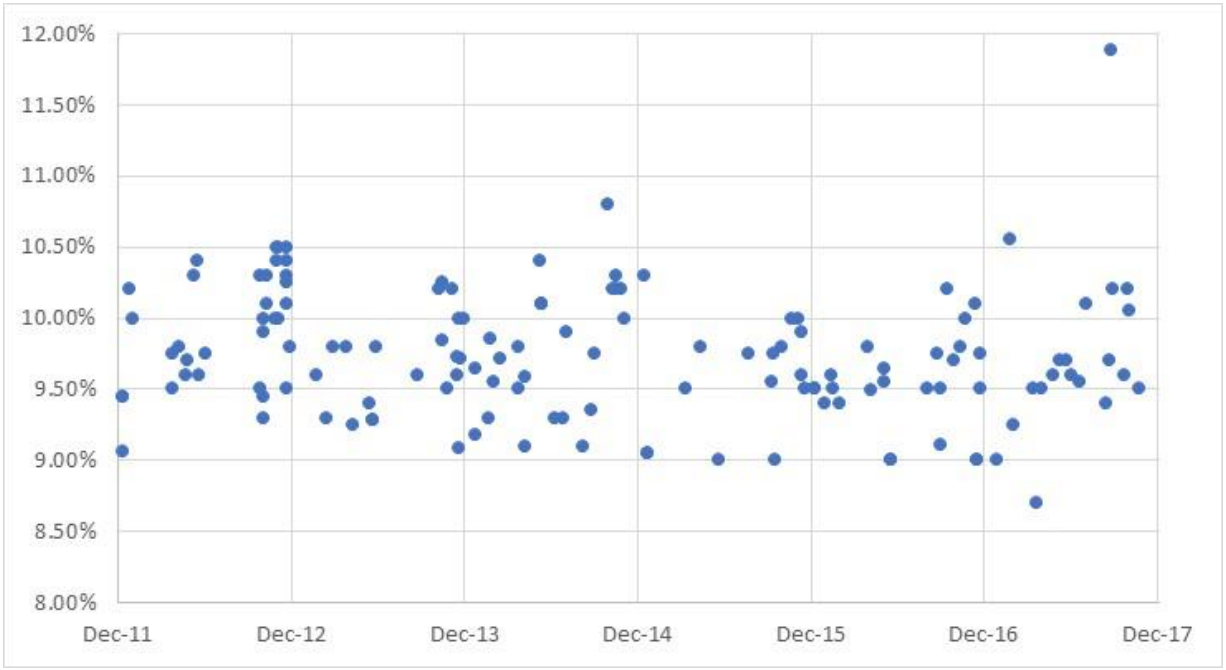


Chart 4: Recently Authorized Natural Gas ROEs[53]



[52] Source: SNL Financial.
[53] *Id.*

Q. What are your conclusions about these authorized returns?

A. Mr. Smith's recommended ROE of 9.25 percent is 48 basis points below the average authorized ROE for water utilities from 2012 to 2017 and 125 basis points below the highest ROE award during this period for a water utility. Mr. Smith has provided no evidence regarding the relative risk of MAWC and the proxy group companies. Furthermore, based on the methodology that Mr. Smith relies on for his recommendation, he suggests that water utility returns can be benchmarked against electric utility authorized ROEs. As shown on page 45 of Staff's report, the range of average authorized electric utility returns is 9.77 percent to 10.17 percent from 2012 through 2017. The absolute ranges of returns shown in Charts 3 and 4 demonstrate that there have been several returns for electric and natural gas utilities in the range of 10.00 to 10.50 percent. Mr. Smith has provided no information to demonstrate that MAWC is at or below the average risk level of the benchmark electric utility group that he relies on in this data set.

F. Bond Yield Comparison

Q. Please summarize Mr. Smith's comparison of bond yields.

A. Mr. Smith compares the yields to maturity for three bond issuances in order to evaluate whether interest rates have increased or decreased for public utilities since the evidence presented in the KCPL electric rate case. In particular, Mr. Smith analyzes bonds with maturities of approximately 20 years and those that had at least four trades during August-October 2016 and August-October 2017. Mr. Smith compares the yields to maturity in

October 2016 and October 2017 for bonds issued by American Water, KCPL, and Ameren Missouri.[54]

Q. Does Mr. Smith's analysis of bond yields provide evidence that the Commission can rely on to inform its ROE determination for MAWC?

A. Mr. Smith's bond yield analysis demonstrates that the average yield to maturity for the bond issued by American Water increased by 20 and 37 basis points, respectively, for the three months ended October 2016 and the three months ended October 2017. This indicates that the debt cost for American Water has increased since the market data that were used by the Commission in the KCPL rate case. The other two bonds in Mr. Smith's analysis are not directly comparable to those of American Water. As Mr. Smith notes, Great Plains Energy, the parent company of KCPL, has been engaged in merger and acquisition activity since May 2016, which may have influenced the debt yields for KCPL during the period of his analysis. In addition, Mr. Smith observes that the credit rating for KCPL's debt is two notches lower than American Water's debt according to S&P and one notch lower according to Moody's Investor Service. These factors represent important differences between American Water and KCPL, which render Mr. Smith's comparison less meaningful. With regard to the Ameren Missouri bonds, the credit ratings for these two debt issues are comparable to the ratings for American Water's debt. However, one of the Ameren Missouri bonds is a senior secured bond, while both American Water issues are

[54] *Id.*, at 25-26.

senior unsecured bonds, which also renders the yield on that particular Ameren Missouri bond not comparable to American Water's two bonds.

One important thing that Mr. Smith fails to point out is that the bonds in his analysis all have significantly higher coupon rates than the current yield to maturity. This demonstrates the significant capital appreciation in the bond's price that investors who purchased the bond when it was issued would receive if the bond were sold. This capital appreciation is driven by the significant decline in interest rates that has occurred since the financial crisis of 2008/2009, and is parallel to the increase in valuations for utility shares over this same period.

G. Conclusions regarding Mr. Smith's ROE analysis and recommendations

Q. Please summarize your conclusions about the ROE estimation methodologies that Mr. Smith relied on and his overall recommended ROE for MAWC.

A. While I have responded to each of the methodologies presented by Mr. Smith, his ROE recommendation is not based on the Constant Growth DCF, CAPM or other Risk Premium methodologies that he presents. Instead, Mr. Smith's ROE recommendation is based entirely on the results of the comparative analysis that he develops using the Multi-Stage DCF analyses for an electric utility proxy group and a water utility proxy group. Mr. Smith does not provide any evidence to demonstrate that these proxy groups are risk-comparable, nor does he provide any evidence to demonstrate that KCPL and MAWC are comparable companies.

Furthermore, the results of Mr. Smith's Multi-Stage DCF analyses are unreasonably low and do not reflect the market's return expectations. The results of Mr. Smith's DCF models demonstrate the issue that other commissions have been wrestling with; i.e., that anomalous market conditions have affected the DCF model and that the results of these models are understated. As a result, it is not reasonable to compare the results of Mr. Smith's water utility DCF analysis with the results from his electric utility DCF analysis, or to draw any conclusions about the relative risk of these two industries from these models. I do not believe it is reasonable to rely on Mr. Smith's final recommended ROE, which is supported on this comparison.

H. Response to Mr. Smith's Capital Structure Recommendation

Q. What capital structure does Mr. Smith recommend for MAWC?

A. Mr. Smith recommends a capital structure for MAWC composed of 43.99 percent common equity, 51.02 percent long-term debt, 0.09 percent preferred equity and 4.91 percent short-term debt.[55] By comparison, the Company is requesting a capital structure consisting of 51.0 percent common equity and 49.0 percent long-term debt.

Q. How does Mr. Smith attempt to justify his recommended capital structure?

A. Mr. Smith's capital structure recommendation is based on his position that MAWC is not operating as an independent entity, at least when considering MAWC's procurement of financing and the cost of that financing, and that debt issued by American Water Capital

[55] Missouri Public Service Commission Staff Report, at 15.

Corporation ("AWCC") is rated by credit rating agencies based on the consolidated credit quality of American Water.[56] Mr. Smith contends that the parent company's capital structure is the capital structure that will be analyzed by investors when determining the required rate of return for debt issued by AWCC and equity issued by American Water.[57] He notes that American Water's capital structure has contained approximately 46 percent equity over the last three years,[58] and that as of June 30, 2017, the capital structure of American Water contained 43.99 percent common equity.[59]

Q. Do you agree with Mr. Smith that the capital structure for MAWC should be based on the parent company capital structure of American Water?

A. No, I do not. Mr. Smith's recommended capital structure fails to take into consideration the stand-alone principle, which is a well-established regulatory principle providing that the rate of return (both return on equity and capital structure) for a regulated utility should be set as if the utility were seeking to attract capital in financial markets based on its own individual merits and risk profile. While I agree with Mr. Smith that MAWC and American Water have similar business risks, it is not appropriate to use the parent company capital structure of American Water as the ratemaking capital structure for MAWC because the additional debt on American Water's balance sheet is being used to fund acquisitions of other water companies, not to finance the operations of MAWC or other operating subsidiaries. In addition, my understanding is that all American Water subsidiaries are

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56 *Id.*, at 33.
57 *Id*.
58 *Id.*, at 34.
59 *Id.*, at 35.

managed to a 50 percent equity ratio, and American Water focuses on maintaining a strong financial profile for subsidiaries so that they could go to market if necessary.

Q. What would be the consequences of imputing a capital structure different from the Company's own capital structure?

A. If the Commission accepts Staff's proposal to impute a capital structure consisting of more debt than the Company's test year capital structure, the higher common equity cost rate related to a changed common equity ratio should be reflected in the approach. It is a fundamental tenet of finance that the greater the amount of financial risk borne by common shareholders, the greater the return required by shareholders in order to be compensated for the added financial risk imparted by the greater use of senior debt financing. In other words, the greater the debt ratio, the greater is the return required by equity investors. The cost of equity must be adjusted to reflect the additional risk associated with the more debt-heavy capital structure.

As discussed in my direct testimony, MAWC's proposed capital structure and ROE results in a Weighted Average Cost of Capital ("WACC") of 8.07 percent.[60] As shown in Table 8 below, adjusting the capital structure to the Staff's recommendation results in a WACC of 7.48 percent.[61] As shown in Table 9 below, it would be necessary to increase the ROE

[60] See Direct Testimony of Ann Bulkley, at 56. (51.03% x 10.8% +0.05% x 9.70% + 48.92% x 5.24%= 8.07%).

[61] This analysis includes short-term debt at the Staff's proposed cost rate for the purposes of this illustration and does not suggest that it is appropriate to include short-term debt in the ratemaking capital structure. The ratemaking capital structure should reflect the Company's operations. The capital structure should reflect the long-term financing structure of the Company.

by approximately135 basis points to 12.15 percent to achieve the same WACC as the Company proposed using Staff's proposed capital structure.

Table 7: Proposed WACC

	Capital Structure	Cost Rates	WACC
Equity	51.03%	10.80%	5.51%
Preferred	0.05%	9.70%	0.00%
Debt	48.92%	5.24%	2.56%
	100.00%		8.07%

Table 8: Adjusted Equity Ratio to Reflect Staff's Capital Structure

	Capital Structure	Cost Rates	WACC
Equity	43.99%	10.80%	4.75%
Preferred	0.09%	9.70%	0.01%
Long Term Debt	51.02%	5.24%	2.67%
Short-term Debt	4.91%	0.99%	0.05%
	100.0%		7.48%

Table 9: Adjusted ROE to Reflect Staff's Capital Structure

	Capital Structure	Cost Rates	WACC
Equity	43.99%	**12.15**%	5.34%
Preferred	0.09%	9.70%	0.01%
Long Term Debt	51.02%	5.24%	2.67%
Short-term Debt	4.91%	0.99%	0.05%
	100.0%		8.07%

Q. Is the Company's actual capital structure reasonable for ratemaking purposes?

A. Yes, it is for several reasons. I examined the capital structures adopted by regulators for electric and natural gas and water utilities. As shown in Table 10 below, the average authorized equity ratios have been in the range of 49.75 percent to 51.13 percent since 2012, the time period reviewed by Mr. Smith.

Table 10: Average Authorized Equity Ratios for Water, Electric and Natural Gas utilities

	Water Utility Equity Ratio	Natural Gas Utility Equity Ratio	Electric Utility Equity Ratio
2012	48.88%	51.13%	51.22%
2013	49.61%	51.16%	49.92%
2014	50.35%	51.90%	50.29%
2015	51.51%	49.79%	49.72%
2016	50.60%	51.74%	49.63%
2017	46.41%	51.07%	50.13%
AVG	49.75%	51.13%	50.15%

In addition, as discussed in my Direct Testimony, I have examined the actual capital structures of the proxy group of water utilities. Schedule AEB-10 displays the mean common equity ratios for that peer group, excluding AWW was 55.03 percent as of December 31, 2016. The five-year average equity ratio for this group was 54.20 percent, well above the Company's requested equity ratio.

Q. Have you conducted any analysis of the financial ratio benchmarks identified by the credit rating agencies?

A. Yes, I have reviewed the credit agencies' financial ratio benchmarks for various bond rating categories for utilities. Moody's publishes a matrix of financial ratios that correspond to their respective assessment of the investment risk of utility companies and related bond rating.

Table 11 below reproduces Moody's range for a utility company's debt ratio and related bond rating, one of its three primary financial ratios that it uses as guidance in its credit

review for utility companies. For a single A bond rating, which is considered optimal, the debt ratio range is 35 percent to 45 percent, implying a common equity ratio of at least 55 percent. Mr. Smith's recommendation of a 43.99 percent equity ratio is more reflective of a Ba rating from Moody's.

Table 11: Moody's Debt Ratio/ Bond Rating Benchmarks

Moody's Credit Rating	Debt Ratio	Implied Equity Ratio
Aaa	<25%	>75%
Aa	25%-35%	65%-75%
A	35%-45%	55%-65%
Baa	45%-55%	45%-55%
Ba	55%-65%	35%-45%
B	>65%	<35%

Based on these analyses, the Company's proposed common equity of 51.03 percent is fair and reasonable.

Q. From the perspective of prudent financial management, what is the benefit of maintaining a balanced capital structure with approximately equal parts equity and debt?

A. The main benefit of maintaining a balanced capital structure is that debt comes with specific obligations regarding the payment of interest and principle on a pre-determined schedule, whereas common equity provides financial flexibility that can be important for the utility and beneficial for customers. Since common equity has no specific requirements regarding the payment of dividends, management has the discretion to manage the capital structure to meet the business needs of the utility, which ultimately benefits customers as

well. For example, if the utility has significant capital spending needs, common equity provides more financial flexibility because management can inject equity from the parent company or manage the dividend payout ratio in order to provide the internal financing needed for capital spending while maintaining cash flows that support the credit metrics of the operating utility. In summary, a balanced capital structure, such as that proposed by MAWC, is sound financial management.

Q. Does Mr. Smith's recommended equity ratio for MAWC, in conjunction with his recommended ROE, meet the requirements of *Hope* and *Bluefield*?

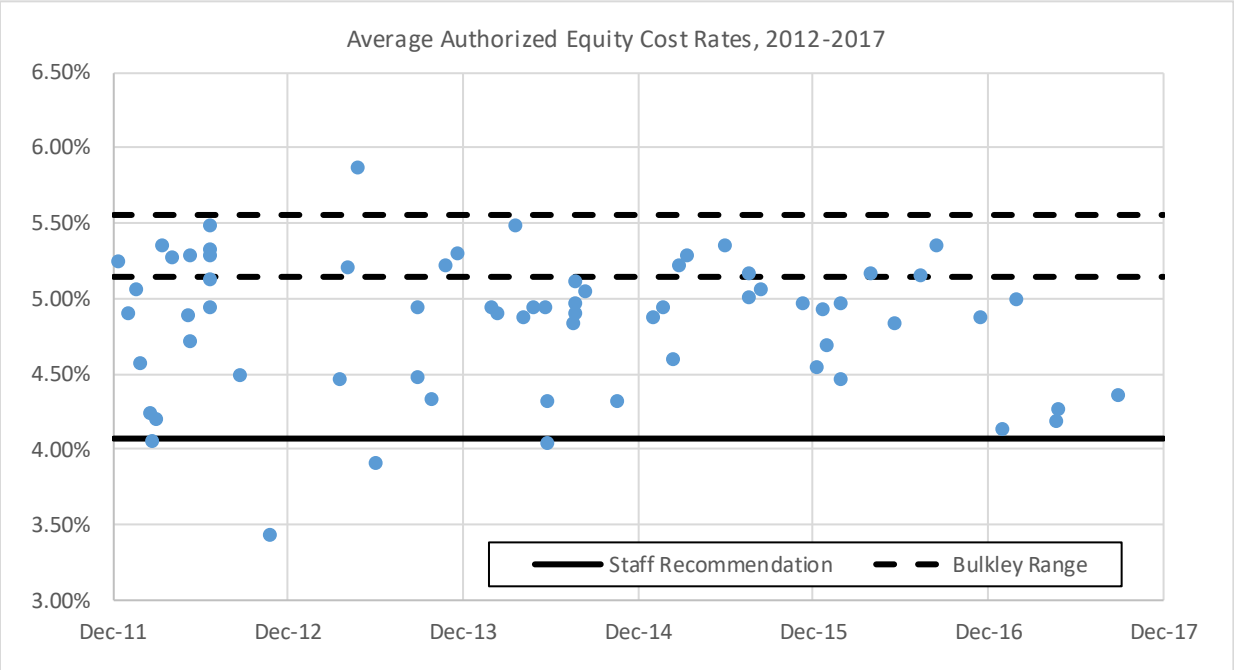
A. No, Mr. Smith's recommended capital structure and return on common equity for MAWC do not meet the comparable return standard of *Hope* and *Bluefield* and would not allow MAWC to attract capital on reasonable terms. As shown in Table 12, the average authorized common equity ratio for water companies since 2012 has typically been within a range from 48.9 percent to 51.5 percent, with an average of 49.75 percent.

Table 12: Average Authorized ROEs & Common Equity Ratios for Water Utilities – 2012-2017

	ROE	Equity Ratio	Equity Cost Rate
2012	9.90%	48.88%	4.84%
2013	9.73%	49.61%	4.83%
2014	9.60%	50.35%	4.83%
2015	9.78%	51.51%	5.04%
2016	9.68%	50.60%	4.90%
2017	9.57%	46.41%	4.44%
AVG	9.73%	49.75%	4.84%

Furthermore, Mr. Smith's recommended equity ratio of 43.99 percent, in combination with his recommended ROE of 9.25 percent, would provide an overall equity cost rate of 4.07 percent. This is lower than all but four of the equity cost rates approved in the approximately 90 rate case decisions reported by Regulatory Research Associates for water utilities since 2012. Chart 5 demonstrates that Mr. Smith's recommended equity ratio and ROE would provide MAWC a return well below the vast majority of authorized equity cost rates for water utilities since 2012.

Chart 5: Average Authorized Equity Cost Rates for Water Utilities – 2012- 2017



Mr. Smith has provided no evidence demonstrating that MAWC's risk profile is significantly lower than the proxy group companies or than other water operating utilities. Therefore, I conclude that Mr. Smith's recommended common equity ratio and ROE are not comparable to returns available to investors in other jurisdictions and do not meet the fair return standards of *Hope* and *Bluefield*.

V. RESPONSE TO WITNESS MR. GORMAN

Q. Please summarize Mr. Gorman's testimony and recommendations.

A. Mr. Gorman estimates a range of equity returns from 6.62 percent (the average results of his Multi-Stage DCF analysis for the water utility proxy group) to 9.55 percent (the average results of his Constant Growth DCF analysis using sustainable growth rates for the water utility proxy group). Mr. Gorman appears to recognize that the results of his Multi-Stage DCF analysis (6.62 percent) are unreasonably low since he essentially discarded that model in establishing his ROE recommendation. While three of Mr. Gorman's analyses produce ROE estimates in the range of 9.40 percent to 9.50 percent, he also gives weight to the median return estimate of 8.61 percent from his Constant Growth DCF model using analyst growth rates. Mr. Gorman ultimately recommends a 9.0 percent ROE for MAWC, based on the midpoint of his CAPM results and his Constant Growth DCF results.[62]

Q. What are the major areas of disagreement between you and Mr. Gorman?

A. Mr. Gorman and I disagree on a number of points: (1) the appropriate proxy group by which to assess MAWC's allowed ROE; (2) the use of the sustainable growth rate in the Constant Growth DCF model and the relevance of the results produced by this model under current market conditions; (3) the long-term growth rate used in the Multi-Stage DCF model; (4) the appropriate market risk premium and risk-free rate in the CAPM analysis;

[62] Direct Testimony and Schedules of Michael P. Gorman, at 2.

(5) the approaches used in our respective Risk Premium analyses; and (6) whether his recommended ROE meets the *Hope* and *Bluefield* standards.

A. Proxy Group

Q. Please summarize Mr. Gorman's proposed proxy groups.

A. Mr. Gorman relied upon two proxy groups: (1) the same water utility proxy group I recommended in my Direct Testimony; and (2) a gas utility proxy group. Mr. Gorman testifies that he relied upon the gas utility proxy group along with the water utility proxy group because gas utilities' securities are more widely followed than water utility stocks, and the capitalization of water and gas operations are similar, accordingly the two proxy groups, "produce a better investment risk proxy than only a water utility proxy group."[63]

Q. Do you agree with Mr. Gorman that a gas utility proxy group should be considered in establishing MAWC's allowed ROE?

A. No. The water utility proxy group includes eight publicly-traded water companies that satisfy reasonable criteria for a risk comparable proxy group, and is sufficiently robust in terms of size and comparability to MAWC. It is unnecessary and inappropriate to consider a gas utility proxy group in this case. For this reason, I have not considered or addressed the results of Mr. Gorman's gas utility proxy group analyses.

[63] *Id.*, at 15.

B. DCF Analyses

Q. Please summarize Mr. Gorman's DCF analyses.

A. Mr. Gorman conducts three DCF analyses, two forms of the Constant Growth DCF and a Multi-Stage DCF analysis. While Mr. Gorman develops these three methodologies, his final recommendation from his DCF analyses of 8.60 percent is essentially the median results of his Constant Growth DCF analysis for the water utility proxy group.[64] The essential problem with Mr. Gorman's approach is that, as shown in Chart 1, the return that Mr. Gorman relies on from his DCF approach is still below any Commission determined ROE for a water utility in the last six years– demonstrating that his recommendation does not meet the comparable return standard.[65]

1) Constant Growth DCF

Q. How did Mr. Gorman develop his Constant Growth DCF analyses?

A. Mr. Gorman's Constant Growth DCF analyses are based on the use of analysts' earnings growth estimates in the first analysis and a measure of "Sustainable Growth" in the second specification of the model.[66]

[64] Direct Testimony of Michael P. Gorman, at 32.

[65] The only authorized ROE for a water utility that has been at 9.00 percent was based on a settlement for Suez Water in New York State.

[66] *Id.*, at 19-24.

Q. Are the ROE estimates produced by Mr. Gorman's Constant Growth DCF analysis comparable to the returns available to investors in companies with similar risk?

A. No. As shown in Mr. Gorman's schedule MPG-4, the results of his Constant Growth DCF analysis range from 4.87 percent to 15.73 percent. This is a very wide range, within which five of his observations are below any ROE that has been authorized for a water utility in the last five years and one return is significantly greater than recently authorized ROEs. Only three observations are within the range of recently authorized returns. The average return for those three observations is 9.57 percent.

Q. What is Mr. Gorman's estimated dividend yield, and how does that affect his DCF analysis?

A. Mr. Gorman's average dividend yield for the proxy group is 2.11 percent. As I discussed earlier in my response to Staff witness Mr. Smith and in my Direct Testimony, the historically low interest rates available on Treasury bonds have driven water utility stock prices higher and dividend yields lower. While yields on 30-year Treasury bonds have declined by 106 basis points since 2009 when the Federal Reserve began to actively manage interest rates as a result of the Great Recession, dividend yields on water utilities have declined by 146 basis points over this period. The DCF models are not producing reliable results under current market conditions due to the effect of the low interest rate environment on dividend yields of utility stocks. High valuations on utility shares, as noted by Value Line, could result in an under-estimation of the cost of equity using the DCF models, especially if those high valuations are not sustainable in the future.

As interest rates increase, as expected by most experts, it is likely that dividend yields will return closer to historical averages (prior to the market collapse). Mr. Gorman acknowledges recent changes in Federal Reserve monetary policy, but he fails to take into consideration the effect of a rising interest rate environment on the forward-looking cost of equity for MAWC.

Q. Does Mr. Gorman rely on his Sustainable Growth rate DCF results?

A. No, he does not. It is interesting to note, that Mr. Gorman's sustainable growth analysis produces an average ROE for the water utility proxy group of 9.55 percent, or 55 basis points higher than Mr. Gorman's recommended ROE. Although Mr. Gorman devotes several pages of testimony to his sustainable growth DCF, he goes on to refute his own analysis and does not rely upon it in his recommended ROE for MAWC.[67]

Q. Do you agree with the use of the "sustainable growth" rate in the Constant Growth DCF analysis?

A. No, I do not. There is academic support for the theory that earnings growth may not occur along with increases in the retention ratio. This contradicts the fundamental principles of the sustainable growth rate. Moreover, as discussed in my Direct Testimony, in Order No. 531, the FERC recently abandoned the use of sustainable growth rates in the DCF analysis.

[67] Direct Testimony and Schedules of Michael P. Gorman, at 24.

2) Multi-Stage DCF Analysis

Q. Please summarize Mr. Gorman's Multi-Stage DCF analysis.

A. Mr. Gorman's Multi-Stage DCF model has three phases. In the first stage of his analysis (years 1-5), Mr. Gorman relies on consensus analyst EPS growth projections. In the second stage (years 6-10), the EPS growth rates are increased or decreased based on the difference between the short-term growth rate in Stage 1 and the long-term growth rate in Stage 3. In the third stage (starting in year 11), the growth rate is based on Mr. Gorman's estimate of projected GDP growth of 4.20 percent.[68] Mr. Gorman's Multi-Stage DCF analysis produces ROE estimates of 6.62 percent (average) and 6.60 percent (median) for his water utility proxy group.[69] These ROE estimates demonstrate that the DCF analysis is not producing reasonable results at this time because the results are well below the authorized ROE for any water utility company in the past six years.

Q. Do you agree with the long-term growth rate in Mr. Gorman's Multi-Stage DCF model?

A. No. Furthermore, Mr. Gorman's ROE recommendation contradicts his recommended long-term growth rate. Mr. Gorman assumes a long-term growth rate of 4.20 percent, which is the five-year average GDP growth rate estimate for the period from 2024 through 2028 as reported by Blue Chip Financial Forecasts.[70] Mr. Gorman's GDP growth projection is approximately 130 basis points below the long-term historical growth rate in

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[68] *Id.*, at 26.

[69] *Id.*, at 32.

[70] Direct Testimony and Schedules of Michael P. Gorman, at Schedule MPG-9.

nominal GDP reported by the Bureau of Economic Analysis. In order to arrive at a Multi-Stage DCF result of 9.0 percent, which is Mr. Gorman's ROE recommendation, he would need to use a long-term growth rate of 6.95 percent.

C. CAPM Analyses

Q. Please summarize Mr. Gorman's CAPM analyses.

A. Mr. Gorman develops a range of CAPM estimates of 8.06 percent to 9.40 percent, based on two estimates of the market risk premium ("MRP"). Mr. Gorman's "high" MRP (7.80 percent), which he refers to as "forward-looking," is based on the long-term historical arithmetic average real market return over the 1926-2016 period as reported by Duff & Phelps, which he then adjusts for current inflation forecasts.[71]

His "low" estimate of the MRP (i.e., 6.00 percent), is based on the arithmetic average of the achieved total return on the S&P 500 for the period from 1926 through 2016 and the total return on long-term government bonds. Finally, Mr. Gorman uses the near term projected yield on 30-year Treasury bonds from Blue Chip of 3.60 percent as his risk-free rate, together with Beta coefficients from Value Line to calculate his CAPM result.[72]

Mr. Gorman also discusses the methodology that Duff & Phelps develops to estimate the MRP, but does not rely on this in the development of his CAPM.

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[71] Direct Testimony and Schedules of Michael P. Gorman, at 43.
[72] *Id*., at 41-43.

Q. Does Mr. Gorman rely on the results of the CAPM using both the "high" and "low" MRP estimates?

A. No, he does not. His final recommended ROE from the CAPM methodology is based on the "high" MRP scenario.[73]

Q. Do you agree with the historical market risk premiums Mr. Gorman has used in his CAPM analysis?

A. No. As discussed in my response to Mr. Smith, there is an inverse relationship between interest rates and market risk premia. That is, as interest rates decrease, the market risk premium increases, and vice versa. Furthermore, relying on the historical market risk premium may produce results that are not consistent with investor sentiment and current conditions in capital markets, as was the case in the 2008-2009 time-period discussed in my response to Mr. Smith. Mr. Gorman's use of a historical MRP fails to accurately reflect the current low interest rate environment. The MRP developed in my Direct Testimony is forward-looking and is based on the total return on the S&P 500 Index less the 30-year Treasury Bond Yield. The total return on the S&P 500 is calculated using the Constant Growth DCF model applied to the companies in the S&P 500 index for which long-term earnings projections are available. The same method was endorsed by the FERC in Opinion No. 531-B as the appropriate manner to calculate the forward-looking MRP in the CAPM analysis.[74]

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[73] *Id*., at 45.

[74] Opinion No. 531-B,147 FERC ¶ 61,234 Order on Rehearing (March 3, 2015), at para. 109-111.

As shown in Schedule AEB-12, if Mr. Gorman had used a forward-looking market risk premium based on the S&P 500 Index as described above, and using his risk-free rate of 3.60 percent and his Value Line Beta estimate of 0.744, the CAPM analysis would produce an ROE estimate of 11.19 percent.

Q. Are the growth rates implicit in Mr. Gorman's CAPM analysis consistent with his DCF analyses?

A. No. In his CAPM analysis, Mr. Gorman uses a market return estimate of 11.40 percent.[75] Assuming that his market return estimate includes a dividend yield component equal to the value in my DCF-derived market return (i.e., 2.10 percent), Mr. Gorman's market return estimate implies earnings growth rates of 9.30 percent, or more than twice the long-term nominal GDP growth rate (i.e., 4.20 percent) that he uses in his Multi-Stage DCF model.[76] Mr. Gorman does not explain the inconsistency between his use of a market return growth rate in the CAPM that is materially higher than his long-term GDP growth rate estimate in the Multi-Stage DCF analysis, which he claims is the upper limit on long-term growth rates for the U.S. economy.

[75] Direct Testimony and Schedules of Michael P. Gorman, at 43.

[76] Note that, based on my DCF-derived market return calculation, the earnings growth rate equals ([market return] – [dividend yield]) / (1 + 0.5 x [dividend yield]).

D. Risk Premium Model

Q. Please summarize Mr. Gorman's risk premium analyses.

A. Mr. Gorman performs two additional Risk Premium analyses to estimate MAWC's cost of equity. Mr. Gorman's first approach calculates the equity risk premium by taking the difference between regulatory commission-authorized equity returns for regulated gas distribution companies and long-term Treasury bond yields from 1986-2017.[77] Mr. Gorman's second Risk Premium approach calculates the average risk premium for the period 1986-2017 as the difference between the average authorized equity returns for gas distribution companies and the concurrent A-rated utility bond yields.[78] Mr. Gorman then develops his ROE estimate by applying a 70/30 weighting to his high/low results to arrive at an ROE estimate. Based on those two approaches, Mr. Gorman calculates a range of ROE results from 8.94 percent to 9.50 percent and determines that the midpoint of approximately 9.20 percent represents a reasonable ROE estimate.[79]

Q. What are your specific concerns with Mr. Gorman's risk premium analyses?

A. Mr. Gorman's range of ROE estimates is based on the rolling five-year average risk premium as compared to Treasury bonds and A-rated utility bonds. However, as shown in Chart 6, the equity risk premium has been steadily increasing during the period covered by Mr. Gorman's analysis. The low end of his range is represented by the five-year rolling

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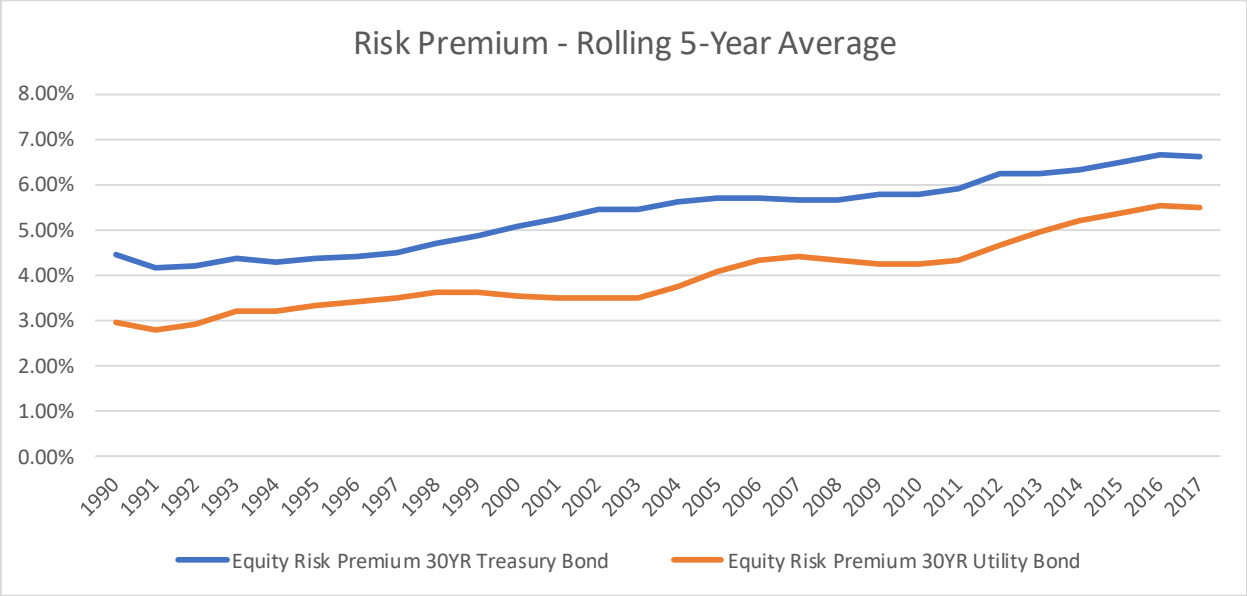
[77] Direct Testimony and Schedules of Michael P. Gorman, at 33.
[78] *Id.*, at 33-34.
[79] *Id.*, at 39-40.

average equity risk premium in 1991, while the high end of his range is based on the five-year rolling average equity risk premium in 2016.

Chart 6: Equity Risk Premium – 1991-2017 Rolling Five Year Average



Mr. Gorman offers no evidence as to why the average equity risk premium in the early years of his analysis is relevant to establishing forward-looking ROE estimates in 2017. In fact, as shown in Schedules AEB-13 and AEB-14, using the five-year rolling average risk premium estimates in 2017 from Mr. Gorman's own analysis produces ROEs in the 9.74 percent to 10.24 percent range.[80] While Mr. Gorman weights the high end of his risk premium estimates more heavily than the low end in order to be "conservative", of the historical equity risk premiums considered by Mr. Gorman, the most recent period would be most reflective of current and near-term projected market conditions.

[80] Projected treasury bond yield 3.6% + 6.64%; utility bond yield 4.24% + 5.50%.

E. Adjustments to Mr. Gorman's ROE Analyses

Q. Can any of Mr. Gorman's ROE analyses be adjusted to produce results that are more comparable to the authorized returns for water utilities in other jurisdictions?

A. Yes, with reasonable adjustments to the inputs and assumptions used in Mr. Gorman's CAPM and Risk Premium analyses, those models produce results that are generally consistent with the authorized returns for other water utilities in recent years. In particular, I propose the following changes to Mr. Gorman's analyses:

1) CAPM analysis: As shown in Schedule AEB-12, modifying Mr. Gorman's CAPM analysis to rely on a forward-looking market risk premium rather than the historical measures that he has developed would increase the CAPM result to 11.19 percent.
2) Risk Premium Analysis: The risk premium result for the most recent rolling five-year period is most reflective of the current low interest rate environment. Therefore, it would be more appropriate to rely on this analysis. As shown in Schedule AEB-14, relying on the current risk premium of 5.50 percent and the utility bond yield of 4.24 percent results in an ROE of 9.74 percent. Similarly, as shown in Schedule AEB-13, using the current 5-year rolling average market risk premium over Treasury bonds of 6.64 percent and Mr. Gorman's estimated Treasury bond yield of 3.6 percent results in a return of 10.24 percent.

Q. Is it reasonable to rely on the results of Mr. Gorman's Constant Growth DCF analysis?

A. No. As discussed in my Direct Testimony and in my responses to Mr. Gorman and Mr. Smith, the dividend yields in the DCF analyses have been depressed by current market

conditions, as water utility stock prices have increased dramatically due to Federal market intervention. As noted previously, Value Line has commented that electric utility stocks are "expensively priced," and that "some investors are reaching for yield," which "has made the valuations of many of these equities higher than normal."[81] Value Line also observes that "it is not unusual to see a utility stock trading at a market price-earnings multiple," and "it is not unusual to see a utility quotation that is within my 2020-2022 Target Price Range for that issue."[82] In addition, Value Line projects the stock prices of the proxy companies to decline in the forecast period. As a result of the concerns about the sustainability of current prices for water utility stocks, it is necessary to use caution when considering the results of the Constant Growth DCF model. Comparing the results of Mr. Gorman's DCF models to other industry benchmarks, such as the range of recently authorized ROEs, in addition to Mr. Gorman's other approaches when they are properly corrected, suggests that his Constant Growth DCF analysis understates investors' expected return for water utilities such as MAWC.

F. *Hope* and *Bluefield* Standard

Q. Mr. Gorman cites several credit rating agency reports regarding the credit ratings and credit outlooks for U.S. regulated utilities and infers that this recommended ROE

[81] Value Line Investment Survey, Electric Utility (East) Industry, August 18, 2017, at 138.
[82] *Id*.

is supportive of MAWC's credit quality and satisfies the *Hope* and *Bluefield* standards. Do you have any response?

A. Credit ratings consider both financial risk and business risk. In evaluating financial risk, the agencies consider certain credit metrics usually expressed as mathematically calculated ratios to measure and assess a company's financial strength and ability to service its debt. In evaluating business risk, the agencies consider the business profile of the company, including the regulatory environment in which the company operates. As described by S&P, "The regulatory framework/regime's influence is of critical importance when assessing regulated utilities' credit risk because it defines the environment in which a utility operates and has a significant bearing on a utility's financial performance."[83] In fact, credit rating agency reports cited by Mr. Gorman state the importance of the regulatory environment in their evaluations, for example: "A credit-supportive regulatory environment is the main driver of our stable outlook."[84]

Q. If Mr. Gorman's proposed ROE for MAWC were adopted, would it be indicative of a credit-supportive regulatory environment?

A. No. Mr. Gorman's ROE recommendation is neither consistent with the Commission's prior ROE determinations nor with industry benchmarks for ROE for water utilities. These deviations would create, among other things, regulatory uncertainty and risk.

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[83] S&P Criteria Corporates Utilities: Key Credit Factors For The Regulated Utilities Industry, November 19, 2013, page 3.

[84] Direct Testimony of Michael P. Gorman, at 4, quoting Moody's "Regulated Utilities – US: 2017 Outlook – Timely Cost-Recovery Drives Stable Outlook", November 4, 2016, at 1, emphasis added.

Q. Mr. Gorman cites an RRA report noting that capital spending has accelerated in the water utility sector and that this trend is likely to continue.[85] Do you agree?

A. Yes, I agree with the RRA report regarding capital spending trends in the water utility sector. This is why the authorized ROE in this proceeding is so important. MAWC must have continued access to capital markets on reasonable terms in order to support accelerated and/or growing capital expenditures, which, in turn, requires a supportive regulatory environment and competitive and compensatory equity returns. While Mr. Gorman cites to this report, he seemingly ignores its implications when he proposes a cost of equity for MAWC that is below both the rates of return on equity established for water utilities nationally and the rates of return on equity set in Missouri.

VI. SUMMARY AND RECOMMENDATION

Q. Please summarize your conclusions and recommendations.

A. Nothing in the other ROE witnesses' testimony has caused me to change my range of results or my ROE recommendation. Mr. Smith does not rely on the results of any of his models to underlie or inform his ROE recommendation of 9.25 percent. His sole reliance on one ROE determination made by the Commission for an electric utility last summer is, for the reasons I pointed out, irrelevant and insufficiently supported. Mr. Gorman's recommended cost of equity is also insupportable when compared with authorized ROEs nationally or in Missouri. Notably, Mr. Gorman's models, when corrected, both exceed his ROE recommendation and provide support for my recommendation. Finally, recently

[85] Direct Testimony and Schedules of Michael P. Gorman, at 5-6.

authorized ROEs are within the range established in my Direct Testimony. Therefore, I conclude that the range of reasonable ROE results for water utilities is between 10.00 percent and 10.80 percent. While the analytical results of ROE estimation models provide a starting point, my recommendation also considers other factors, including company-specific risk factors, capital market conditions and the capital attraction standard. Considering the financial and business risk factors facing MAWC, and the expectation for rising interest rates over the period that the rates that are established in this case will be in effect, I continue to believe that an ROE of 10.80 percent is reasonable and appropriate. Further, I support the Company's proposed capital structure of 51.03 percent common equity, 48.92 percent long-term debt, and 0.05 percent preferred stock as reasonable relative to the operating utility companies held by the proxy group.

Q. Does this conclude your Rebuttal Testimony?

A. Yes, it does.

Constant Growth DCF
Using Mr. Smith's proxy companies and projected growth rates

Company Name	Expected Annual Dividend	Average High/Low Stock Price	Projected Dividend Yield	Smith Low Growth Rate	ROE
American States Water Company	$1.03	$50.97	2.03%	4%	6.03%
American Water Works Company	$1.72	$82.68	2.08%	4%	6.08%
Aqua America	$0.84	$34.19	2.45%	4%	6.45%
California Water Service Group	$0.74	$39.02	1.90%	4%	5.90%
Connecticut Water Service, Inc.	$1.23	$58.17	2.11%	4%	6.11%
Middlesex Water Company	$0.86	$40.28	2.14%	4%	6.14%
SJW Corporation	$0.92	$57.54	1.59%	4%	5.59%
York Water Company	$0.69	$34.47	2.00%	4%	6.00%
Average			2.04%		6.04%

Company Name	Expected Annual Dividend	Average High/Low Stock Price	Projected Dividend Yield	Smith High Growth Rate	ROE
American States Water Company	$1.03	$50.97	2.03%	5%	7.03%
American Water Works Company	$1.72	$82.68	2.08%	5%	7.08%
Aqua America	$0.84	$34.19	2.45%	5%	7.45%
California Water Service Group	$0.74	$39.02	1.90%	5%	6.90%
Connecticut Water Service, Inc.	$1.23	$58.17	2.11%	5%	7.11%
Middlesex Water Company	$0.86	$40.28	2.14%	5%	7.14%
SJW Corporation	$0.92	$57.54	1.59%	5%	6.59%
York Water Company	$0.69	$34.47	2.00%	5%	7.00%
Average			2.04%		7.04%

Missouri-American Water Company

CAPM Return
Water Utilities

Line	Description	Market Risk Premium (1)
1	Risk-Free Rate[1]	3.60%
2	Risk Premium[2]	10.21%
3	Beta[3]	0.74
4	**CAPM**	**11.19%**

Sources:
[1] *Blue Chip Financial Forecasts*; November 1, 2017, at 2.
[2] Bloomberg Professional
[3] Schedule MPG-15, page 1.

Notes:

Expected Market Return	13.81%
Risk Free Rate	3.60%
Risk Premium	10.21%

MARKET RISK PREMIUM DERIVED FROM ANALYSTS' LONG-TERM GROWTH ESTIMATES

[1] Estimated Weighted Average Dividend Yield	1.94%
[2] Estimated Weighted Average Long-Term Growth Rate	11.75%
[3] S&P 500 Estimated Required Market Return	13.81%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	0.18%	3.48%	0.01%	8.00%	0.0143%
American Express Co	AXP	0.36%	1.47%	0.01%	10.17%	0.0369%
Verizon Communications Inc	VZ	0.85%	4.93%	0.04%	2.21%	0.0189%
Broadcom Ltd	AVGO	0.47%	1.55%	0.01%	16.39%	0.0772%
Boeing Co/The	BA	0.67%	2.20%	0.01%	15.37%	0.1033%
Caterpillar Inc	CAT	0.35%	2.30%	0.01%	10.00%	0.0351%
JPMorgan Chase & Co	JPM	1.55%	2.23%	0.03%	6.50%	0.1007%
Chevron Corp	CVX	0.96%	3.73%	0.04%	42.62%	0.4097%
Coca-Cola Co/The	KO	0.86%	3.22%	0.03%	5.58%	0.0478%
AbbVie Inc	ABBV	0.63%	3.15%	0.02%	9.40%	0.0592%
Walt Disney Co/The	DIS	0.66%	1.59%	0.01%	7.19%	0.0475%
Extra Space Storage Inc	EXR	0.04%	3.82%	0.00%	6.71%	0.0030%
Exxon Mobil Corp	XOM	1.55%	3.70%	0.06%	19.39%	0.2996%
Phillips 66	PSX	0.20%	3.07%	0.01%	-3.74%	-0.0076%
General Electric Co	GE	0.77%	4.76%	0.04%	9.37%	0.0717%
HP Inc	HPQ	0.16%	2.46%	0.00%	5.20%	0.0082%
Home Depot Inc/The	HD	0.86%	2.15%	0.02%	13.69%	0.1171%
International Business Machines Corp	IBM	0.62%	3.89%	0.02%	1.86%	0.0116%
Concho Resources Inc	CXO	0.09%	n/a	n/a	3.29%	0.0029%
Johnson & Johnson	JNJ	1.64%	2.41%	0.04%	7.10%	0.1163%
McDonald's Corp	MCD	0.59%	2.42%	0.01%	10.02%	0.0593%
Merck & Co Inc	MRK	0.66%	3.41%	0.02%	5.77%	0.0379%
3M Co	MMM	0.60%	2.04%	0.01%	9.55%	0.0573%
American Water Works Co Inc	AWK	0.07%	1.89%	0.00%	8.02%	0.0055%
Bank of America Corp	BAC	1.25%	1.75%	0.02%	12.65%	0.1582%
CSRA Inc	CSRA	0.02%	1.25%	0.00%	7.55%	0.0017%
Brighthouse Financial Inc	BHF	0.03%	n/a	n/a	8.00%	0.0026%
Baker Hughes a GE Co	BHGE	0.06%	2.29%	0.00%	7.57%	0.0045%
Pfizer Inc	PFE	0.91%	3.65%	0.03%	7.33%	0.0669%
Procter & Gamble Co/The	PG	0.96%	3.19%	0.03%	7.31%	0.0701%
AT&T Inc	T	0.90%	5.82%	0.05%	5.10%	0.0461%
Travelers Cos Inc/The	TRV	0.16%	2.17%	0.00%	6.95%	0.0110%
United Technologies Corp	UTX	0.42%	2.34%	0.01%	8.82%	0.0369%
Analog Devices Inc	ADI	0.15%	1.97%	0.00%	11.55%	0.0170%
Wal-Mart Stores Inc	WMT	1.14%	2.34%	0.03%	5.29%	0.0603%
Cisco Systems Inc	CSCO	0.74%	3.40%	0.03%	6.28%	0.0465%
Intel Corp	INTC	0.93%	2.40%	0.02%	8.56%	0.0798%
General Motors Co	GM	0.27%	3.54%	0.01%	8.94%	0.0239%
Microsoft Corp	MSFT	2.81%	2.02%	0.06%	10.32%	0.2898%
Dollar General Corp	DG	0.10%	1.29%	0.00%	8.55%	0.0083%
Kinder Morgan Inc/DE	KMI	0.18%	2.76%	0.00%	15.75%	0.0279%
Citigroup Inc	C	0.85%	1.74%	0.01%	11.75%	0.0999%
American International Group Inc	AIG	0.26%	1.98%	0.01%	11.00%	0.0281%
Honeywell International Inc	HON	0.48%	2.07%	0.01%	8.93%	0.0429%
Altria Group Inc	MO	0.54%	4.11%	0.02%	0.71%	0.0038%
HCA Healthcare Inc	HCA	0.12%	n/a	n/a	11.05%	0.0132%
Under Armour Inc	UAA	0.01%	n/a	n/a	10.44%	0.0011%
International Paper Co	IP	0.10%	3.32%	0.00%	7.18%	0.0074%
Hewlett Packard Enterprise Co	HPE	0.10%	2.16%	0.00%	-3.56%	-0.0035%
Abbott Laboratories	ABT	0.41%	1.95%	0.01%	11.42%	0.0471%
Aflac Inc	AFL	0.14%	2.15%	0.00%	2.85%	0.0041%
Air Products & Chemicals Inc	APD	0.15%	2.38%	0.00%	10.50%	0.0160%
Royal Caribbean Cruises Ltd	RCL	0.12%	1.94%	0.00%	20.16%	0.0235%
American Electric Power Co Inc	AEP	0.16%	3.33%	0.01%	4.34%	0.0069%
Hess Corp	HES	0.06%	2.26%	0.00%	-14.67%	-0.0090%
Anadarko Petroleum Corp	APC	0.12%	0.41%	0.00%	-2.78%	-0.0033%
Aon PLC	AON	0.16%	1.00%	0.00%	11.93%	0.0187%
Apache Corp	APA	0.07%	2.42%	0.00%	-19.79%	-0.0137%
Archer-Daniels-Midland Co	ADM	0.10%	3.13%	0.00%	8.50%	0.0085%
Automatic Data Processing Inc	ADP	0.23%	1.96%	0.00%	11.48%	0.0260%
Verisk Analytics Inc	VRSK	0.06%	n/a	n/a	6.94%	0.0043%
AutoZone Inc	AZO	0.07%	n/a	n/a	13.31%	0.0094%
Avery Dennison Corp	AVY	0.04%	1.70%	0.00%	7.80%	0.0032%
Ball Corp	BLL	0.07%	0.93%	0.00%	1.30%	0.0009%
Bank of New York Mellon Corp/The	BK	0.23%	1.87%	0.00%	8.93%	0.0208%
CR Bard Inc	BCR	0.10%	0.32%	0.00%	8.73%	0.0091%
Baxter International Inc	BAX	0.15%	0.99%	0.00%	13.45%	0.0207%
Becton Dickinson and Co	BDX	0.21%	1.40%	0.00%	12.34%	0.0256%
Berkshire Hathaway Inc	BRK/B	1.09%	n/a	n/a	n/a	n/a
Best Buy Co Inc	BBY	0.07%	2.43%	0.00%	12.68%	0.0093%
H&R Block Inc	HRB	0.02%	3.88%	0.00%	11.00%	0.0025%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
Boston Scientific Corp	BSX	0.17%	n/a	n/a	10.33%	0.0175%
Bristol-Myers Squibb Co	BMY	0.44%	2.53%	0.01%	8.00%	0.0353%
Fortune Brands Home & Security Inc	FBHS	0.04%	1.09%	0.00%	11.61%	0.0051%
Brown-Forman Corp	BF/B	0.05%	1.28%	0.00%	9.72%	0.0052%
Cabot Oil & Gas Corp	COG	0.06%	0.72%	0.00%	37.92%	0.0213%
Campbell Soup Co	CPB	0.06%	2.96%	0.00%	4.23%	0.0026%
Kansas City Southern	KSU	0.05%	1.38%	0.00%	14.55%	0.0069%
Advanced Micro Devices Inc	AMD	0.05%	n/a	n/a	8.00%	0.0036%
Hilton Worldwide Holdings Inc	HLT	0.10%	0.83%	0.00%	16.66%	0.0169%
Carnival Corp	CCL	0.16%	2.71%	0.00%	12.11%	0.0188%
Qorvo Inc	QRVO	0.04%	n/a	n/a	13.18%	0.0056%
CenturyLink Inc	CTL	0.05%	11.37%	0.01%	-5.30%	-0.0024%
Cigna Corp	CI	0.22%	0.02%	0.00%	12.91%	0.0281%
UDR Inc	UDR	0.05%	3.20%	0.00%	6.13%	0.0028%
Clorox Co/The	CLX	0.07%	2.66%	0.00%	6.27%	0.0045%
CMS Energy Corp	CMS	0.06%	2.75%	0.00%	6.28%	0.0037%
Colgate-Palmolive Co	CL	0.27%	2.27%	0.01%	7.53%	0.0204%
Comerica Inc	CMA	0.06%	1.53%	0.00%	18.50%	0.0111%
CA Inc	CA	0.06%	3.15%	0.00%	2.97%	0.0018%
Conagra Brands Inc	CAG	0.06%	2.49%	0.00%	7.00%	0.0043%
Consolidated Edison Inc	ED	0.12%	3.21%	0.00%	2.00%	0.0023%
SL Green Realty Corp	SLG	0.04%	3.24%	0.00%	0.64%	0.0003%
Corning Inc	GLW	0.12%	1.98%	0.00%	9.65%	0.0115%
Cummins Inc	CMI	0.13%	2.44%	0.00%	10.91%	0.0140%
Danaher Corp	DHR	0.28%	0.61%	0.00%	9.05%	0.0254%
Target Corp	TGT	0.14%	4.20%	0.01%	-0.78%	-0.0011%
Deere & Co	DE	0.19%	1.81%	0.00%	4.50%	0.0084%
Dominion Energy Inc	D	0.23%	3.80%	0.01%	5.97%	0.0136%
Dover Corp	DOV	0.07%	1.97%	0.00%	15.53%	0.0101%
Cboe Global Markets Inc	CBOE	0.06%	0.96%	0.00%	22.39%	0.0125%
Duke Energy Corp	DUK	0.27%	4.03%	0.01%	5.05%	0.0137%
Eaton Corp PLC	ETN	0.15%	3.00%	0.00%	10.22%	0.0158%
Ecolab Inc	ECL	0.17%	1.13%	0.00%	13.08%	0.0216%
PerkinElmer Inc	PKI	0.03%	0.39%	0.00%	10.42%	0.0036%
Emerson Electric Co	EMR	0.18%	2.98%	0.01%	7.45%	0.0135%
EOG Resources Inc	EOG	0.25%	0.67%	0.00%	-14.76%	-0.0373%
Entergy Corp	ETR	0.07%	4.13%	0.00%	-3.29%	-0.0022%
Equifax Inc	EFX	0.06%	1.44%	0.00%	10.55%	0.0060%
EQT Corp	EQT	0.05%	0.19%	0.00%	17.50%	0.0083%
Quintiles IMS Holdings Inc	Q	0.10%	n/a	n/a	14.50%	0.0145%
XL Group Ltd	XL	0.05%	2.17%	0.00%	20.45%	0.0093%
Gartner Inc	IT	0.05%	n/a	n/a	17.50%	0.0087%
FedEx Corp	FDX	0.27%	0.89%	0.00%	12.72%	0.0337%
Macy's Inc	M	0.03%	8.05%	0.00%	-0.48%	-0.0001%
FMC Corp	FMC	0.05%	0.71%	0.00%	12.60%	0.0069%
Ford Motor Co	F	0.21%	4.89%	0.01%	-7.57%	-0.0159%
NextEra Energy Inc	NEE	0.32%	2.53%	0.01%	7.30%	0.0233%
Franklin Resources Inc	BEN	0.10%	1.90%	0.00%	10.00%	0.0102%
Freeport-McMoRan Inc	FCX	0.09%	n/a	n/a	28.09%	0.0249%
Gap Inc/The	GPS	0.04%	3.54%	0.00%	6.34%	0.0028%
General Dynamics Corp	GD	0.27%	1.66%	0.00%	8.48%	0.0225%
General Mills Inc	GIS	0.13%	3.78%	0.00%	9.57%	0.0124%
Genuine Parts Co	GPC	0.06%	3.06%	0.00%	8.52%	0.0048%
WW Grainger Inc	GWW	0.05%	2.59%	0.00%	12.10%	0.0060%
Halliburton Co	HAL	0.16%	1.68%	0.00%	74.00%	0.1208%
Harley-Davidson Inc	HOG	0.04%	3.08%	0.00%	8.97%	0.0032%
Harris Corp	HRS	0.07%	1.64%	0.00%	n/a	n/a
HCP Inc	HCP	0.05%	5.73%	0.00%	2.90%	0.0015%
Helmerich & Payne Inc	HP	0.03%	5.16%	0.00%	n/a	n/a
Fortive Corp	FTV	0.11%	0.39%	0.00%	10.20%	0.0112%
Hershey Co/The	HSY	0.07%	2.47%	0.00%	9.53%	0.0066%
Synchrony Financial	SYF	0.11%	1.84%	0.00%	8.40%	0.0094%
Hormel Foods Corp	HRL	0.07%	2.18%	0.00%	6.15%	0.0044%
Arthur J Gallagher & Co	AJG	0.05%	2.46%	0.00%	10.83%	0.0054%
Mondelez International Inc	MDLZ	0.27%	2.12%	0.01%	11.64%	0.0315%
CenterPoint Energy Inc	CNP	0.06%	3.62%	0.00%	6.27%	0.0035%
Humana Inc	HUM	0.16%	0.63%	0.00%	12.93%	0.0209%
Willis Towers Watson PLC	WLTW	0.09%	1.32%	0.00%	13.10%	0.0124%
Illinois Tool Works Inc	ITW	0.23%	1.99%	0.00%	10.45%	0.0245%
Ingersoll-Rand PLC	IR	0.10%	2.03%	0.00%	9.90%	0.0096%
Foot Locker Inc	FL	0.02%	4.12%	0.00%	3.40%	0.0006%
Interpublic Group of Cos Inc/The	IPG	0.03%	3.74%	0.00%	4.57%	0.0015%
International Flavors & Fragrances Inc	IFF	0.05%	1.87%	0.00%	4.00%	0.0020%
Jacobs Engineering Group Inc	JEC	0.03%	1.03%	0.00%	10.12%	0.0031%
Hanesbrands Inc	HBI	0.04%	2.67%	0.00%	9.20%	0.0033%
Kellogg Co	K	0.09%	3.45%	0.00%	6.31%	0.0060%
Perrigo Co PLC	PRGO	0.05%	0.79%	0.00%	5.97%	0.0030%
Kimberly-Clark Corp	KMB	0.17%	3.45%	0.01%	6.03%	0.0104%
Kimco Realty Corp	KIM	0.03%	6.17%	0.00%	19.92%	0.0067%
Kohl's Corp	KSS	0.03%	5.27%	0.00%	5.45%	0.0017%
Oracle Corp	ORCL	0.93%	1.49%	0.01%	8.45%	0.0786%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
Kroger Co/The	KR	0.08%	2.42%	0.00%	5.79%	0.0047%
Leggett & Platt Inc	LEG	0.03%	3.05%	0.00%	n/a	n/a
Lennar Corp	LEN	0.05%	0.29%	0.00%	12.48%	0.0062%
Leucadia National Corp	LUK	0.04%	1.58%	0.00%	18.00%	0.0071%
Eli Lilly & Co	LLY	0.39%	2.54%	0.01%	9.35%	0.0369%
L Brands Inc	LB	0.05%	5.58%	0.00%	8.28%	0.0044%
Charter Communications Inc	CHTR	0.36%	n/a	n/a	22.44%	0.0816%
Lincoln National Corp	LNC	0.07%	1.53%	0.00%	9.25%	0.0068%
Loews Corp	L	0.07%	0.50%	0.00%	n/a	n/a
Lowe's Cos Inc	LOW	0.29%	2.05%	0.01%	14.38%	0.0419%
Host Hotels & Resorts Inc	HST	0.06%	4.09%	0.00%	4.10%	0.0026%
Marsh & McLennan Cos Inc	MMC	0.18%	1.85%	0.00%	12.86%	0.0232%
Masco Corp	MAS	0.05%	1.05%	0.00%	15.44%	0.0085%
Mattel Inc	MAT	0.02%	n/a	n/a	10.37%	0.0022%
S&P Global Inc	SPGI	0.17%	1.05%	0.00%	10.00%	0.0175%
Medtronic PLC	MDT	0.48%	2.29%	0.01%	6.44%	0.0307%
CVS Health Corp	CVS	0.30%	2.92%	0.01%	13.15%	0.0401%
DowDuPont Inc	DWDP	0.74%	2.54%	0.02%	7.83%	0.0579%
Micron Technology Inc	MU	0.22%	n/a	n/a	0.83%	0.0019%
Motorola Solutions Inc	MSI	0.06%	2.08%	0.00%	4.10%	0.0026%
Mylan NV	MYL	0.08%	n/a	n/a	3.60%	0.0030%
Laboratory Corp of America Holdings	LH	0.07%	n/a	n/a	10.50%	0.0072%
Newell Brands Inc	NWL	0.09%	2.26%	0.00%	11.29%	0.0099%
Newmont Mining Corp	NEM	0.08%	0.83%	0.00%	-11.20%	-0.0095%
Twenty-First Century Fox Inc	FOXA	0.12%	1.38%	0.00%	8.49%	0.0102%
NIKE Inc	NKE	0.31%	1.31%	0.00%	8.50%	0.0266%
NiSource Inc	NI	0.04%	2.65%	0.00%	6.10%	0.0023%
Noble Energy Inc	NBL	0.06%	1.44%	0.00%	3.72%	0.0022%
Norfolk Southern Corp	NSC	0.16%	1.86%	0.00%	13.70%	0.0225%
Eversource Energy	ES	0.09%	3.03%	0.00%	5.94%	0.0052%
Northrop Grumman Corp	NOC	0.23%	1.35%	0.00%	7.81%	0.0176%
Wells Fargo & Co	WFC	1.21%	2.78%	0.03%	22.22%	0.2691%
Nucor Corp	NUE	0.08%	2.61%	0.00%	12.00%	0.0097%
PVH Corp	PVH	0.04%	0.12%	0.00%	10.96%	0.0047%
Occidental Petroleum Corp	OXY	0.22%	4.77%	0.01%	-3.33%	-0.0072%
Omnicom Group Inc	OMC	0.07%	3.57%	0.00%	6.87%	0.0047%
ONEOK Inc	OKE	0.09%	5.49%	0.00%	13.25%	0.0120%
Raymond James Financial Inc	RJF	0.05%	1.04%	0.00%	15.45%	0.0083%
PG&E Corp	PCG	0.13%	3.67%	0.00%	5.43%	0.0070%
Parker-Hannifin Corp	PH	0.11%	1.45%	0.00%	11.25%	0.0120%
PPL Corp	PPL	0.11%	4.21%	0.00%	-0.10%	-0.0001%
PepsiCo Inc	PEP	0.69%	2.92%	0.02%	6.21%	0.0426%
Exelon Corp	EXC	0.17%	3.26%	0.01%	2.86%	0.0048%
ConocoPhillips	COP	0.27%	2.07%	0.01%	7.00%	0.0187%
PulteGroup Inc	PHM	0.04%	1.19%	0.00%	20.04%	0.0078%
Pinnacle West Capital Corp	PNW	0.04%	3.17%	0.00%	5.31%	0.0023%
PNC Financial Services Group Inc/The	PNC	0.28%	2.19%	0.01%	10.09%	0.0287%
PPG Industries Inc	PPG	0.13%	1.55%	0.00%	7.65%	0.0099%
Praxair Inc	PX	0.18%	2.16%	0.00%	10.35%	0.0190%
Progressive Corp/The	PGR	0.12%	1.40%	0.00%	11.93%	0.0148%
Public Service Enterprise Group Inc	PEG	0.11%	3.50%	0.00%	2.68%	0.0029%
Raytheon Co	RTN	0.23%	1.77%	0.00%	8.41%	0.0192%
Robert Half International Inc	RHI	0.03%	1.85%	0.00%	8.30%	0.0024%
SCANA Corp	SCG	0.03%	5.68%	0.00%	1.90%	0.0005%
Edison International	EIX	0.11%	2.71%	0.00%	6.12%	0.0070%
Schlumberger Ltd	SLB	0.39%	3.13%	0.01%	44.17%	0.1714%
Charles Schwab Corp/The	SCHW	0.26%	0.71%	0.00%	18.82%	0.0495%
Sherwin-Williams Co/The	SHW	0.16%	0.86%	0.00%	11.24%	0.0182%
JM Smucker Co/The	SJM	0.05%	2.94%	0.00%	3.96%	0.0021%
Snap-on Inc	SNA	0.04%	1.80%	0.00%	10.75%	0.0042%
AMETEK Inc	AME	0.07%	0.53%	0.00%	11.62%	0.0079%
Southern Co/The	SO	0.23%	4.44%	0.01%	3.17%	0.0072%
BB&T Corp	BBT	0.17%	2.68%	0.00%	8.65%	0.0147%
Southwest Airlines Co	LUV	0.14%	0.93%	0.00%	6.98%	0.0099%
Stanley Black & Decker Inc	SWK	0.11%	1.56%	0.00%	11.00%	0.0119%
Public Storage	PSA	0.16%	3.86%	0.01%	5.14%	0.0081%
SunTrust Banks Inc	STI	0.13%	2.66%	0.00%	9.38%	0.0119%
Sysco Corp	SYY	0.13%	2.37%	0.00%	10.04%	0.0128%
Andeavor	ANDV	0.07%	2.22%	0.00%	19.43%	0.0142%
Texas Instruments Inc	TXN	0.42%	2.56%	0.01%	10.74%	0.0450%
Textron Inc	TXT	0.06%	0.15%	0.00%	8.81%	0.0054%
Thermo Fisher Scientific Inc	TMO	0.34%	0.31%	0.00%	12.50%	0.0424%
Tiffany & Co	TIF	0.05%	2.14%	0.00%	10.10%	0.0052%
TJX Cos Inc/The	TJX	0.19%	1.79%	0.00%	12.12%	0.0236%
Torchmark Corp	TMK	0.04%	0.71%	0.00%	8.00%	0.0034%
Total System Services Inc	TSS	0.06%	0.72%	0.00%	11.56%	0.0067%
Johnson Controls International plc	JCI	0.17%	2.42%	0.00%	8.47%	0.0143%
Ulta Beauty Inc	ULTA	0.05%	n/a	n/a	21.00%	0.0114%
Union Pacific Corp	UNP	0.40%	2.09%	0.01%	11.80%	0.0471%
UnitedHealth Group Inc	UNH	0.89%	1.43%	0.01%	12.24%	0.1089%
Unum Group	UNM	0.05%	1.77%	0.00%	5.00%	0.0026%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
Marathon Oil Corp	MRO	0.05%	1.41%	0.00%	5.00%	0.0026%
Varian Medical Systems Inc	VAR	0.04%	n/a	n/a	7.20%	0.0030%
Ventas Inc	VTR	0.10%	4.94%	0.00%	3.01%	0.0029%
VF Corp	VFC	0.12%	2.64%	0.00%	8.50%	0.0102%
Vornado Realty Trust	VNO	0.06%	3.21%	0.00%	-1.19%	-0.0007%
Vulcan Materials Co	VMC	0.07%	0.82%	0.00%	21.63%	0.0152%
Weyerhaeuser Co	WY	0.12%	3.45%	0.00%	7.40%	0.0088%
Whirlpool Corp	WHR	0.05%	2.68%	0.00%	7.23%	0.0037%
Williams Cos Inc/The	WMB	0.10%	4.21%	0.00%	2.90%	0.0030%
WEC Energy Group Inc	WEC	0.09%	3.09%	0.00%	5.56%	0.0052%
Xerox Corp	XRX	0.03%	3.30%	0.00%	2.90%	0.0010%
Adobe Systems Inc	ADBE	0.38%	n/a	n/a	19.82%	0.0749%
AES Corp/VA	AES	0.03%	4.52%	0.00%	9.77%	0.0030%
Amgen Inc	AMGN	0.56%	2.63%	0.01%	5.39%	0.0300%
Apple Inc	AAPL	3.82%	1.49%	0.06%	10.05%	0.3842%
Autodesk Inc	ADSK	0.12%	n/a	n/a	26.00%	0.0312%
Cintas Corp	CTAS	0.07%	1.09%	0.00%	11.98%	0.0083%
Comcast Corp	CMCSA	0.74%	1.75%	0.01%	9.00%	0.0662%
Molson Coors Brewing Co	TAP	0.07%	2.03%	0.00%	1.82%	0.0013%
KLA-Tencor Corp	KLAC	0.07%	2.17%	0.00%	8.05%	0.0060%
Marriott International Inc/MD	MAR	0.19%	1.10%	0.00%	15.12%	0.0294%
McCormick & Co Inc/MD	MKC	0.05%	1.89%	0.00%	9.60%	0.0050%
Nordstrom Inc	JWN	0.03%	3.73%	0.00%	8.75%	0.0025%
PACCAR Inc	PCAR	0.11%	1.39%	0.00%	7.50%	0.0083%
Costco Wholesale Corp	COST	0.31%	1.24%	0.00%	10.27%	0.0316%
Stryker Corp	SYK	0.25%	1.10%	0.00%	8.77%	0.0222%
Tyson Foods Inc	TSN	0.09%	1.23%	0.00%	8.60%	0.0079%
Applied Materials Inc	AMAT	0.26%	0.71%	0.00%	16.71%	0.0440%
Time Warner Inc	TWX	0.33%	1.64%	0.01%	8.30%	0.0278%
American Airlines Group Inc	AAL	0.10%	0.85%	0.00%	-1.14%	-0.0011%
Cardinal Health Inc	CAH	0.09%	2.99%	0.00%	14.55%	0.0124%
Celgene Corp	CELG	0.35%	n/a	n/a	18.95%	0.0659%
Cerner Corp	CERN	0.10%	n/a	n/a	12.00%	0.0118%
Cincinnati Financial Corp	CINF	0.05%	2.85%	0.00%	n/a	n/a
DR Horton Inc	DHI	0.07%	0.90%	0.00%	14.86%	0.0108%
Flowserve Corp	FLS	0.03%	1.72%	0.00%	12.68%	0.0032%
Electronic Arts Inc	EA	0.16%	n/a	n/a	13.63%	0.0220%
Express Scripts Holding Co	ESRX	0.15%	n/a	n/a	12.78%	0.0194%
Expeditors International of Washington Inc	EXPD	0.05%	1.44%	0.00%	8.60%	0.0040%
Fastenal Co	FAST	0.06%	2.73%	0.00%	15.75%	0.0093%
M&T Bank Corp	MTB	0.11%	1.80%	0.00%	9.15%	0.0101%
Fiserv Inc	FISV	0.12%	n/a	n/a	10.80%	0.0129%
Fifth Third Bancorp	FITB	0.09%	2.21%	0.00%	4.80%	0.0043%
Gilead Sciences Inc	GILD	0.43%	2.77%	0.01%	3.62%	0.0155%
Hasbro Inc	HAS	0.05%	2.46%	0.00%	9.70%	0.0049%
Huntington Bancshares Inc/OH	HBAN	0.07%	3.19%	0.00%	10.27%	0.0067%
Welltower Inc	HCN	0.11%	5.20%	0.01%	2.61%	0.0028%
Biogen Inc	BIIB	0.29%	n/a	n/a	4.65%	0.0134%
Range Resources Corp	RRC	0.02%	0.44%	0.00%	-23.63%	-0.0046%
Northern Trust Corp	NTRS	0.09%	1.80%	0.00%	12.01%	0.0112%
Packaging Corp of America	PKG	0.05%	2.17%	0.00%	8.50%	0.0041%
Paychex Inc	PAYX	0.10%	3.14%	0.00%	8.28%	0.0083%
People's United Financial Inc	PBCT	0.03%	3.70%	0.00%	2.00%	0.0006%
Patterson Cos Inc	PDCO	0.02%	2.81%	0.00%	9.10%	0.0014%
QUALCOMM Inc	QCOM	0.33%	4.47%	0.01%	6.66%	0.0220%
Roper Technologies Inc	ROP	0.12%	0.54%	0.00%	12.83%	0.0148%
Ross Stores Inc	ROST	0.11%	1.01%	0.00%	13.00%	0.0139%
IDEXX Laboratories Inc	IDXX	0.06%	n/a	n/a	11.01%	0.0070%
Starbucks Corp	SBUX	0.35%	1.82%	0.01%	16.68%	0.0578%
KeyCorp	KEY	0.09%	2.08%	0.00%	12.32%	0.0107%
State Street Corp	STT	0.15%	1.83%	0.00%	13.07%	0.0197%
US Bancorp	USB	0.40%	2.21%	0.01%	7.93%	0.0316%
AO Smith Corp	AOS	0.04%	0.95%	0.00%	15.00%	0.0057%
Symantec Corp	SYMC	0.09%	0.92%	0.00%	13.14%	0.0115%
T Rowe Price Group Inc	TROW	0.10%	2.45%	0.00%	12.94%	0.0127%
Waste Management Inc	WM	0.16%	2.07%	0.00%	10.35%	0.0162%
CBS Corp	CBS	0.09%	1.28%	0.00%	13.37%	0.0120%
Allergan PLC	AGN	0.26%	1.58%	0.00%	11.93%	0.0309%
Constellation Brands Inc	STZ	0.17%	0.95%	0.00%	16.51%	0.0273%
Xilinx Inc	XLNX	0.08%	1.90%	0.00%	8.30%	0.0067%
DENTSPLY SIRONA Inc	XRAY	0.06%	0.57%	0.00%	9.80%	0.0060%
Zions Bancorporation	ZION	0.04%	1.38%	0.00%	9.00%	0.0037%
Alaska Air Group Inc	ALK	0.04%	1.82%	0.00%	-0.09%	0.0000%
Invesco Ltd	IVZ	0.06%	3.24%	0.00%	13.39%	0.0085%
Intuit Inc	INTU	0.17%	1.03%	0.00%	14.88%	0.0251%
Morgan Stanley	MS	0.40%	2.00%	0.01%	15.84%	0.0637%
Microchip Technology Inc	MCHP	0.10%	1.53%	0.00%	17.06%	0.0165%
Chubb Ltd	CB	0.31%	1.88%	0.01%	8.80%	0.0270%
Hologic Inc	HOLX	0.05%	n/a	n/a	8.50%	0.0039%
Chesapeake Energy Corp	CHK	0.02%	n/a	n/a	-13.20%	-0.0020%
Citizens Financial Group Inc	CFG	0.08%	1.89%	0.00%	15.14%	0.0126%

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Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
O'Reilly Automotive Inc	ORLY	0.08%	n/a	n/a	15.33%	0.0121%
Allstate Corp/The	ALL	0.15%	1.58%	0.00%	16.27%	0.0241%
FLIR Systems Inc	FLIR	0.03%	1.28%	0.00%	n/a	n/a
Equity Residential	EQR	0.11%	3.00%	0.00%	6.25%	0.0068%
BorgWarner Inc	BWA	0.05%	1.06%	0.00%	6.54%	0.0032%
Newfield Exploration Co	NFX	0.03%	n/a	n/a	12.13%	0.0033%
Incyte Corp	INCY	0.10%	n/a	n/a	44.05%	0.0461%
Simon Property Group Inc	SPG	0.21%	4.76%	0.01%	7.03%	0.0149%
Eastman Chemical Co	EMN	0.06%	2.25%	0.00%	7.43%	0.0043%
AvalonBay Communities Inc	AVB	0.11%	3.13%	0.00%	6.42%	0.0070%
Prudential Financial Inc	PRU	0.21%	2.72%	0.01%	8.00%	0.0165%
United Parcel Service Inc	UPS	0.35%	2.82%	0.01%	11.94%	0.0422%
Apartment Investment & Management Co	AIV	0.03%	3.27%	0.00%	19.05%	0.0058%
Walgreens Boots Alliance Inc	WBA	0.29%	2.41%	0.01%	10.70%	0.0313%
McKesson Corp	MCK	0.13%	0.99%	0.00%	10.50%	0.0132%
Lockheed Martin Corp	LMT	0.39%	2.60%	0.01%	11.18%	0.0432%
AmerisourceBergen Corp	ABC	0.07%	1.90%	0.00%	n/a	n/a
Capital One Financial Corp	COF	0.20%	1.74%	0.00%	7.25%	0.0142%
Waters Corp	WAT	0.07%	n/a	n/a	8.21%	0.0056%
Dollar Tree Inc	DLTR	0.09%	n/a	n/a	12.88%	0.0122%
Darden Restaurants Inc	DRI	0.04%	3.06%	0.00%	9.57%	0.0043%
NetApp Inc	NTAP	0.05%	1.80%	0.00%	9.90%	0.0052%
Citrix Systems Inc	CTXS	0.05%	n/a	n/a	9.53%	0.0052%
Goodyear Tire & Rubber Co/The	GT	0.03%	1.83%	0.00%	n/a	n/a
DXC Technology Co	DXC	0.11%	0.79%	0.00%	15.25%	0.0174%
DaVita Inc	DVA	0.05%	n/a	n/a	3.75%	0.0019%
Hartford Financial Services Group Inc/The	HIG	0.09%	1.82%	0.00%	9.50%	0.0082%
Iron Mountain Inc	IRM	0.05%	5.88%	0.00%	14.60%	0.0068%
Estee Lauder Cos Inc/The	EL	0.11%	1.22%	0.00%	11.46%	0.0126%
Cadence Design Systems Inc	CDNS	0.05%	n/a	n/a	12.00%	0.0064%
Principal Financial Group Inc	PFG	0.08%	2.98%	0.00%	10.40%	0.0087%
Stericycle Inc	SRCL	0.03%	n/a	n/a	7.68%	0.0020%
Universal Health Services Inc	UHS	0.04%	0.39%	0.00%	7.97%	0.0032%
E*TRADE Financial Corp	ETFC	0.05%	n/a	n/a	17.57%	0.0091%
Skyworks Solutions Inc	SWKS	0.09%	1.12%	0.00%	13.59%	0.0124%
National Oilwell Varco Inc	NOV	0.06%	0.59%	0.00%	n/a	n/a
Quest Diagnostics Inc	DGX	0.06%	1.92%	0.00%	7.97%	0.0045%
Activision Blizzard Inc	ATVI	0.22%	0.46%	0.00%	13.63%	0.0295%
Rockwell Automation Inc	ROK	0.11%	1.51%	0.00%	11.47%	0.0129%
Kraft Heinz Co/The	KHC	0.41%	3.23%	0.01%	7.71%	0.0318%
American Tower Corp	AMT	0.27%	1.84%	0.00%	19.71%	0.0532%
Regeneron Pharmaceuticals Inc	REGN	0.19%	n/a	n/a	18.00%	0.0334%
Amazon.com Inc	AMZN	2.33%	n/a	n/a	26.37%	0.6147%
Ralph Lauren Corp	RL	0.02%	2.24%	0.00%	0.29%	0.0001%
Boston Properties Inc	BXP	0.08%	2.48%	0.00%	4.77%	0.0039%
Amphenol Corp	APH	0.12%	0.87%	0.00%	12.33%	0.0143%
Arconic Inc	ARNC	0.05%	0.96%	0.00%	17.50%	0.0093%
Pioneer Natural Resources Co	PXD	0.11%	0.05%	0.00%	20.00%	0.0223%
Valero Energy Corp	VLO	0.15%	3.55%	0.01%	10.94%	0.0167%
Synopsys Inc	SNPS	0.06%	n/a	n/a	9.12%	0.0052%
L3 Technologies Inc	LLL	0.06%	1.60%	0.00%	5.77%	0.0037%
Western Union Co/The	WU	0.04%	3.52%	0.00%	8.00%	0.0032%
CH Robinson Worldwide Inc	CHRW	0.05%	2.29%	0.00%	9.20%	0.0044%
Accenture PLC	ACN	0.40%	1.87%	0.01%	10.63%	0.0424%
TransDigm Group Inc	TDG	0.06%	n/a	n/a	9.89%	0.0062%
Yum! Brands Inc	YUM	0.11%	1.61%	0.00%	12.74%	0.0143%
Prologis Inc	PLD	0.15%	2.73%	0.00%	6.84%	0.0102%
FirstEnergy Corp	FE	0.06%	4.37%	0.00%	-0.62%	-0.0004%
VeriSign Inc	VRSN	0.05%	n/a	n/a	10.50%	0.0049%
Quanta Services Inc	PWR	0.02%	n/a	n/a	8.00%	0.0020%
Henry Schein Inc	HSIC	0.05%	n/a	n/a	6.00%	0.0033%
Ameren Corp	AEE	0.07%	2.95%	0.00%	7.01%	0.0046%
ANSYS Inc	ANSS	0.05%	n/a	n/a	10.93%	0.0055%
NVIDIA Corp	NVDA	0.54%	0.27%	0.00%	12.52%	0.0680%
Scripps Networks Interactive Inc	SNI	0.04%	1.44%	0.00%	5.00%	0.0018%
Sealed Air Corp	SEE	0.04%	1.45%	0.00%	8.48%	0.0031%
Cognizant Technology Solutions Corp	CTSH	0.20%	0.79%	0.00%	14.35%	0.0281%
Intuitive Surgical Inc	ISRG	0.18%	n/a	n/a	10.47%	0.0193%
Aetna Inc	AET	0.24%	1.18%	0.00%	11.46%	0.0278%
Affiliated Managers Group Inc	AMG	0.05%	0.43%	0.00%	14.89%	0.0068%
Republic Services Inc	RSG	0.10%	2.12%	0.00%	11.21%	0.0108%
eBay Inc	EBAY	0.17%	n/a	n/a	9.08%	0.0156%
Goldman Sachs Group Inc/The	GS	0.41%	1.24%	0.01%	8.08%	0.0332%
Sempra Energy	SRE	0.13%	2.80%	0.00%	12.41%	0.0160%
SBA Communications Corp	SBAC	0.08%	n/a	n/a	22.70%	0.0185%
Moody's Corp	MCO	0.12%	1.07%	0.00%	n/a	n/a
Priceline Group Inc/The	PCLN	0.41%	n/a	n/a	17.26%	0.0709%
F5 Networks Inc	FFIV	0.03%	n/a	n/a	9.33%	0.0031%
Akamai Technologies Inc	AKAM	0.04%	n/a	n/a	12.53%	0.0049%
Devon Energy Corp	DVN	0.08%	0.65%	0.00%	17.27%	0.0147%
Alphabet Inc	GOOGL	1.35%	n/a	n/a	17.97%	0.2424%

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Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
Red Hat Inc	RHT	0.09%	n/a	n/a	17.00%	0.0159%
Allegion PLC	ALLE	0.03%	0.77%	0.00%	12.99%	0.0045%
Netflix Inc	NFLX	0.37%	n/a	n/a	41.62%	0.1548%
Agilent Technologies Inc	A	0.10%	0.78%	0.00%	9.53%	0.0091%
Anthem Inc	ANTM	0.24%	1.34%	0.00%	9.78%	0.0230%
CME Group Inc	CME	0.20%	1.92%	0.00%	12.29%	0.0251%
Juniper Networks Inc	JNPR	0.04%	1.61%	0.00%	6.98%	0.0029%
BlackRock Inc	BLK	0.33%	2.12%	0.01%	14.03%	0.0465%
DTE Energy Co	DTE	0.09%	2.99%	0.00%	5.43%	0.0047%
Nasdaq Inc	NDAQ	0.05%	2.09%	0.00%	9.08%	0.0048%
Philip Morris International Inc	PM	0.71%	4.09%	0.03%	9.39%	0.0668%
salesforce.com Inc	CRM	0.32%	n/a	n/a	28.05%	0.0903%
MetLife Inc	MET	0.25%	2.99%	0.01%	35.90%	0.0893%
Under Armour Inc	UA	0.01%	n/a	n/a	8.32%	0.0009%
Monsanto Co	MON	0.23%	1.78%	0.00%	6.23%	0.0145%
Tapestry Inc	TPR	0.05%	3.30%	0.00%	11.29%	0.0057%
Fluor Corp	FLR	0.03%	1.95%	0.00%	11.89%	0.0031%
CSX Corp	CSX	0.20%	1.59%	0.00%	13.16%	0.0260%
Edwards Lifesciences Corp	EW	0.09%	n/a	n/a	16.68%	0.0158%
Ameriprise Financial Inc	AMP	0.10%	2.12%	0.00%	10.40%	0.0107%
Xcel Energy Inc	XEL	0.11%	2.91%	0.00%	6.01%	0.0066%
Rockwell Collins Inc	COL	0.10%	0.97%	0.00%	9.75%	0.0094%
TechnipFMC PLC	FTI	0.06%	1.90%	0.00%	4.56%	0.0026%
Zimmer Biomet Holdings Inc	ZBH	0.11%	0.79%	0.00%	8.38%	0.0090%
CBRE Group Inc	CBG	0.06%	n/a	n/a	13.00%	0.0076%
Mastercard Inc	MA	0.68%	0.59%	0.00%	17.55%	0.1193%
Signet Jewelers Ltd	SIG	0.02%	1.89%	0.00%	3.40%	0.0006%
CarMax Inc	KMX	0.06%	n/a	n/a	13.27%	0.0080%
Intercontinental Exchange Inc	ICE	0.17%	1.21%	0.00%	10.98%	0.0187%
Fidelity National Information Services Inc	FIS	0.13%	1.25%	0.00%	12.00%	0.0162%
Chipotle Mexican Grill Inc	CMG	0.03%	n/a	n/a	46.98%	0.0158%
Wynn Resorts Ltd	WYNN	0.07%	1.36%	0.00%	32.40%	0.0215%
Assurant Inc	AIZ	0.02%	2.11%	0.00%	n/a	n/a
NRG Energy Inc	NRG	0.03%	0.48%	0.00%	57.73%	0.0200%
Monster Beverage Corp	MNST	0.14%	n/a	n/a	20.30%	0.0292%
Regions Financial Corp	RF	0.08%	2.33%	0.00%	11.88%	0.0096%
Mosaic Co/The	MOS	0.03%	0.45%	0.00%	11.70%	0.0040%
Expedia Inc	EXPE	0.08%	0.96%	0.00%	14.60%	0.0111%
Discovery Communications Inc	DISCA	0.01%	n/a	n/a	9.70%	0.0012%
CF Industries Holdings Inc	CF	0.04%	3.16%	0.00%	6.00%	0.0023%
Viacom Inc	VIAB	0.04%	3.33%	0.00%	2.96%	0.0011%
Wyndham Worldwide Corp	WYN	0.05%	2.17%	0.00%	13.65%	0.0065%
Alphabet Inc	GOOG	1.56%	n/a	n/a	17.97%	0.2795%
TE Connectivity Ltd	TEL	0.14%	1.76%	0.00%	6.87%	0.0097%
Cooper Cos Inc/The	COO	0.05%	0.03%	0.00%	9.75%	0.0050%
Discover Financial Services	DFS	0.11%	2.10%	0.00%	4.55%	0.0048%
TripAdvisor Inc	TRIP	0.02%	n/a	n/a	14.50%	0.0030%
Dr Pepper Snapple Group Inc	DPS	0.07%	2.71%	0.00%	8.58%	0.0058%
Visa Inc	V	0.88%	0.71%	0.01%	16.77%	0.1468%
Mid-America Apartment Communities Inc	MAA	0.05%	3.40%	0.00%	n/a	n/a
Xylem Inc/NY	XYL	0.05%	1.08%	0.00%	15.00%	0.0078%
Marathon Petroleum Corp	MPC	0.13%	2.68%	0.00%	12.47%	0.0159%
Tractor Supply Co	TSCO	0.03%	1.79%	0.00%	12.52%	0.0042%
ResMed Inc	RMD	0.05%	1.66%	0.00%	13.40%	0.0070%
Mettler-Toledo International Inc	MTD	0.08%	n/a	n/a	12.06%	0.0093%
Albemarle Corp	ALB	0.07%	0.91%	0.00%	12.95%	0.0088%
Essex Property Trust Inc	ESS	0.08%	2.67%	0.00%	6.32%	0.0048%
GGP Inc	GGP	0.08%	4.52%	0.00%	4.65%	0.0035%
Realty Income Corp	O	0.07%	4.74%	0.00%	4.18%	0.0028%
Seagate Technology PLC	STX	0.05%	6.82%	0.00%	8.65%	0.0040%
WestRock Co	WRK	0.07%	2.80%	0.00%	9.67%	0.0066%
IHS Markit Ltd	INFO	0.07%	n/a	n/a	13.89%	0.0103%
Western Digital Corp	WDC	0.12%	2.24%	0.00%	1.60%	0.0018%
Church & Dwight Co Inc	CHD	0.05%	1.68%	0.00%	9.14%	0.0045%
Duke Realty Corp	DRE	0.04%	2.81%	0.00%	4.52%	0.0020%
Federal Realty Investment Trust	FRT	0.04%	3.32%	0.00%	5.80%	0.0022%
MGM Resorts International	MGM	0.08%	1.40%	0.00%	10.34%	0.0082%
Twenty-First Century Fox Inc	FOX	0.09%	1.41%	0.00%	8.49%	0.0076%
Alliant Energy Corp	LNT	0.04%	2.91%	0.00%	6.32%	0.0028%
JB Hunt Transport Services Inc	JBHT	0.05%	0.86%	0.00%	13.87%	0.0071%
Lam Research Corp	LRCX	0.15%	0.86%	0.00%	11.33%	0.0168%
Mohawk Industries Inc	MHK	0.09%	n/a	n/a	8.35%	0.0071%
Pentair PLC	PNR	0.06%	1.96%	0.00%	8.18%	0.0046%
Vertex Pharmaceuticals Inc	VRTX	0.16%	n/a	n/a	70.84%	0.1147%
Facebook Inc	FB	1.87%	n/a	n/a	28.54%	0.5332%
United Rentals Inc	URI	0.05%	n/a	n/a	14.17%	0.0074%
Alexandria Real Estate Equities Inc	ARE	0.05%	2.78%	0.00%	6.77%	0.0035%
United Continental Holdings Inc	UAL	0.08%	n/a	n/a	-0.37%	-0.0003%
Navient Corp	NAVI	0.01%	5.14%	0.00%	n/a	n/a
Delta Air Lines Inc	DAL	0.16%	2.44%	0.00%	5.00%	0.0078%
News Corp	NWS	0.01%	1.44%	0.00%	19.57%	0.0024%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Weight in Index	[5] Current Dividend Yield	[6] Cap-Weighted Dividend Yield	[7] Long-Term Growth Est.	[8] Cap-Weighted Long-Term Growth Est.
Centene Corp	CNC	0.07%	n/a	n/a	12.48%	0.0088%
Regency Centers Corp	REG	0.05%	3.44%	0.00%	9.26%	0.0042%
Macerich Co/The	MAC	0.03%	5.42%	0.00%	7.61%	0.0026%
Martin Marietta Materials Inc	MLM	0.06%	0.81%	0.00%	20.04%	0.0120%
Envision Healthcare Corp	EVHC	0.02%	n/a	n/a	8.03%	0.0018%
PayPal Holdings Inc	PYPL	0.38%	n/a	n/a	20.37%	0.0778%
Coty Inc	COTY	0.05%	3.25%	0.00%	17.00%	0.0086%
DISH Network Corp	DISH	0.05%	n/a	n/a	-11.90%	-0.0058%
Alexion Pharmaceuticals Inc	ALXN	0.12%	n/a	n/a	18.81%	0.0220%
Everest Re Group Ltd	RE	0.04%	2.11%	0.00%	10.00%	0.0043%
News Corp	NWSA	0.02%	1.46%	0.00%	19.57%	0.0045%
Global Payments Inc	GPN	0.07%	0.04%	0.00%	14.50%	0.0101%
Crown Castle International Corp	CCI	0.19%	3.92%	0.01%	21.03%	0.0400%
Delphi Automotive PLC	DLPH	0.12%	1.17%	0.00%	12.18%	0.0141%
Advance Auto Parts Inc	AAP	0.03%	0.29%	0.00%	8.96%	0.0024%
Michael Kors Holdings Ltd	KORS	0.03%	n/a	n/a	7.00%	0.0023%
Align Technology Inc	ALGN	0.08%	n/a	n/a	30.00%	0.0252%
Norwegian Cruise Line Holdings Ltd	NCLH	0.06%	n/a	n/a	21.37%	0.0119%
Illumina Inc	ILMN	0.13%	n/a	n/a	15.02%	0.0197%
Acuity Brands Inc	AYI	0.03%	0.31%	0.00%	16.67%	0.0051%
Alliance Data Systems Corp	ADS	0.05%	0.93%	0.00%	14.00%	0.0076%
LKQ Corp	LKQ	0.05%	n/a	n/a	12.75%	0.0065%
Nielsen Holdings PLC	NLSN	0.06%	3.67%	0.00%	8.00%	0.0046%
Garmin Ltd	GRMN	0.05%	3.60%	0.00%	5.68%	0.0026%
Cimarex Energy Co	XEC	0.05%	0.27%	0.00%	63.76%	0.0311%
Zoetis Inc	ZTS	0.14%	0.66%	0.00%	14.32%	0.0196%
Digital Realty Trust Inc	DLR	0.11%	3.14%	0.00%	5.58%	0.0059%
Equinix Inc	EQIX	0.16%	1.73%	0.00%	30.35%	0.0480%
Discovery Communications Inc	DISCK	0.02%	n/a	n/a	9.70%	0.0017%

Notes:
[1] Equals Sum ([6])
[2] Equals Sum ([8])
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Equals weight in S&P 500 based on market capitalization
[5] Source: Bloomberg Professional
[6] Equals [4] x [5]
[7] Source: Bloomberg Professional
[8] Equals [4] x [7]

Missouri-American Water Company

Equity Risk Premium - Treasury Bond

Line	Year	Authorized Gas Returns[1] (1)	30 yr. Treasury Bond Yield[2] (2)	Indicated Risk Premium (3)
1	2013	9.68%	3.45%	6.23%
2	2014	9.78%	3.34%	6.44%
3	2015	9.60%	2.84%	6.76%
4	2016	9.54%	2.60%	6.94%
5	2017 [3]	9.75%	2.92%	6.83%
6	**Average**	**9.67%**	**3.03%**	**6.64%**
7	**Treasury Bond**			**3.60%**
8	**RP estimate**			**10.24%**

Sources:

[1] *Regulatory Research Associates, Inc* ., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 p. 5, and Jan. 2011 p. 3.
S&P Global Market Intelligence, RRA Regulatory Focus, Major Rate Case Decisions, January-September 2017, October 26, 2017, p. 5.

[2] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/.

[3] Data includes January - September 2017.

Missouri-American Water Company

Equity Risk Premium - Utility Bond

Line	Year	Authorized Gas Returns[1] (1)	Average "A" Rated Utility Bond Yield[2] (2)	Indicated Risk Premium (3)
1	2013	9.68%	4.48%	5.20%
2	2014	9.78%	4.28%	5.50%
3	2015	9.60%	4.12%	5.48%
4	2016	9.54%	3.93%	5.61%
5	2017 [3]	9.75%	4.05%	5.70%
6	**Average**	**9.67%**	**4.17%**	**5.50%**
7	**Treasury Bond**			**4.24%**
8	**RP estimate**			**9.74%**

Sources:

[1] *Regulatory Research Associates, Inc* ., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 p. 5, and Jan. 2011 p. 3.
S&P Global Market Intelligence, RRA Regulatory Focus, Major Rate Case Decisions, January-September 2017, October 26, 2017, p. 5.

[2] Mergent Public Utility Manual, Mergent Weekly News Reports, 2003.
The utility yields from 2010-2017 were obtained from http://credittrends.moodys.com/.

[3] Data includes January - September 2017.