Exhibit No. 59

Ameren Missouri – Exhibit 59
Ann E. Bulkley
Surrebuttal Testimony (Gas)
File Nos. ER-2021-0240 & GR-2021-0241

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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. GR-2021-0241

SURREBUTTAL TESTIMONY

OF

ANN E. BULKLEY

ON BEHALF OF

AMEREN MISSOURI

November 5, 2021

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OF

ANN E. BULKLEY

FILE NO. GR-2021-0241

I. INTRODUCTION

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 submitting this testimony on behalf of Ameren Missouri (the "Company"), a wholly-owned subsidiary of Ameren Corporation ("Ameren").

Q. Did you previously provide Direct and Rebuttal testimonies in this proceeding?

A. Yes. I filed Direct Testimony in this proceeding on March 31, 2021. I filed Rebuttal Testimony on October 15, 2021.

Q. What is the purpose of your Surrebuttal Testimony?

A. The purpose of my Surrebuttal Testimony is to respond to the Rebuttal Testimony of the Missouri Public Service Commission Staff ("Staff") witness Dr. Seoung Joun Won relating to the authorized return on equity ("ROE"), and the Rebuttal Testimony of David Murray on behalf of the Missouri Office of Public Counsel ("OPC").

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

A. Yes, I am sponsoring Schedule AEB-S1, Attachments 1 through 6 to support my Surrebuttal Testimony, which were prepared by me or under my direction.

Q. Please briefly summarize your Surrebuttal Testimony and your key conclusions and recommendations regarding the appropriate ROE for Ameren Missouri in this proceeding.

A. My key conclusions are as follows:

1. Both Dr. Won and Mr. Murray spend many pages of their respective Rebuttal Testimonies disputing my application of the DCF and CAPM models. Their criticisms should be viewed, however, in the context that neither Dr. Won nor Mr. Murray rely on the results of any of their own ROE estimation models. Their respective 9.50 percent and 9.25 percent recommendations are not based on any of the assumptions they used to establish their ROE analyses. Rather, each of these witnesses comes to their recommendations by relying completely on subjective analyses.

2. Mr. Murray is inconsistent in his interpretation of market conditions. Mr. Murray opposes my conclusion that market conditions have affected the results of the DCF model, understating ROEs because interest rates are low which influences investors' decisions. However, Mr. Murray and I have both acknowledged that utility share prices and interest rates are inversely related. This would imply that if interest rates increase over the near-term as expected the cost of equity as estimated by the DCF model will also likely increase. As a result, to the extent that interest rates are expected to increase, it is unreasonable for Mr. Murray to suggest that the results of the DCF model are not currently underestimating the cost of equity that would result in a higher interest rate environment, such as the period that Ameren Missouri's rates will be in effect. My recommended

range of results considers the effect of this change in market conditions. Mr. Murray's unwillingness to acknowledge this effect on the DCF model is in direct conflict with his assumption regarding the relationship between interest rates and utility share prices.

3. Dr. Won and Mr. Murray oppose my use of earnings per share ("EPS") growth rates in the Constant Growth DCF model because, on average, the EPS growth rates exceed long-term GDP growth. However, while each of these witnesses criticizes the use of analysts' projected EPS growth rates in the Constant Growth DCF model, Mr. Murray's and Dr. Won's preferred specification of the DCF model produced ROE estimates that were below any recently authorized ROE for a natural gas utility and well below their own recommendations. For example, Mr. Murray's Multi-Stage DCF model resulted in a COE estimate for his natural gas proxy group of approximately 7.50 percent which is 175 basis points below his recommended ROE of 9.25 percent. Similarly, Dr. Won's Two-Stage DCF model produced a result of 8.32 percent which 120 basis points below Dr. Won's recommended ROE of 9.50 percent. Considering that both of these witnesses demonstrate no confidence in the results of their own DCF models, it is unreasonable to suggest that the use of their DCF models is a more appropriate estimate of the ROE for Ameren Missouri than the Constant Growth DCF model developed in my Direct Testimony.

4. Dr. Won opposes the methodology that I used to estimate the GDP growth rate for my Multi-Stage DCF analysis because this methodology results in a GDP growth rate that is higher than other estimates of GDP, such as the Congressional Budget Office ("CBO") and the Federal Open Market Committee ("FOMC"). However, the validity of this critique is solely based on the

assumption that Dr. Won's estimate of the long-term growth in GDP is correct. Both the CBO and FOMC have acknowledged that their GDP growth rate forecasts should be viewed with caution due to the uncertainty of the forecasting process. Furthermore, Dr. Morin, whom Dr. Won cites as support for the use of the GDP growth rate in the DCF model, relied on a methodology to calculate the GDP growth rate that is similar to the methodology I relied on in my Direct and Rebuttal Testimonies. My methodology is also consistent with the methodology recommended by Morningstar. As a result, Dr. Won has failed to provide support for his conclusion that my projected GDP growth rate is too high.

5. Dr. Won claims to rely on the Federal Energy Regulatory Commission ("FERC") as the basis for his adjustment to the growth rate relied on in my Constant Growth DCF analysis. However, the weightings that Dr. Won applies are not consistent with the FERC's most recent methodology as determined in Opinion No. 569-A and Opinion No. 569-B for the short and long-term growth rates. In Opinion No. 569-A, the FERC adopted a growth rate that places 80 percent weight on EPS growth rate estimates and 20 percent on the long-term GDP growth rate. Therefore, I adjusted Dr. Won's analysis to reflect the correct weighting relied on by FERC for the short-term and long-term growth rates, and rely on my estimate of the long-term projected nominal GDP growth rate. As shown in Schedule AEB-S1, Attachment 1, this increases the results of the analysis provided by Dr. Won by 69 basis points from 8.75 percent to 9.44 percent. Finally, if we consider that current estimates of the DCF model are understated due to the expected increase in interest rates over the near-term,

this analysis provides further support that Dr. Won's recommended ROE of 9.50 percent would understate the COE for Ameren Missouri over the near-term.

6. In his criticism of my CAPM analysis Dr. Won again misrepresents the FERC methodology. Had he applied that methodology correctly, the results of his analyses would fully support the Company's requested ROE. In Opinion No. 569-A, the FERC clearly supports the use of the Constant Growth DCF model with only an estimate of short-term growth- in particular EPS growth rates. In contrast, Dr. Won applies a Two-Stage model that weights short and long-term growth rates. If Dr. Won had correctly applied the FERC methodology, he would have estimated a market return of 12.11 percent which 268 basis points higher than the market return of 9.43 percent calculated by Dr. Won using the Two-Stage DCF analysis. The adjusted market return of 12.11 percent resulted in updated CAPM results that ranged from 9.23 percent to 10.92 percent, a range that supports the range provided in my Direct Testimony and the Company's requested ROE of 9.80 percent.

7. Dr. Won and Mr. Murray ignore historical market return data when they suggest that the market return used in my CAPM analysis is overstated. In addition, Mr. Murray ignores the market returns used in his own sources when he criticizes my analyses. As shown in my Direct Testimony, the market return estimate I relied on is 14.13 percent and the market return estimate using the FERC methodology is 12.11 percent. Reviewing historical arithmetic average returns for large company stocks from 1926-2020 demonstrates that the market return has been as high or higher than my estimate at least 50 percent of the years.

Further, the Duff and Phelps historical average return of 12.16 percent[1] demonstrates that the market return using the FERC approach is not unreasonable. Furthermore, Mr. Murray references the Wilshire 5000 Index in his Rebuttal Testimony. However, it is important to note that the Wilshire 5000 had a ten-year annualized total return as of June 30, 2021, of 14.76[2] which is consistent with my market return estimate of 14.13 percent and slightly higher than the 12.11 percent market return estimated using the FERC approach.

8. Dr. Won also references an MRP range of 4.63 percent to 6.43 percent as support for his conclusion that my market return and MRP are too high. However, it is important to note that the CAPM results produced by Dr. Won's referenced MRP range are well below the ROE recommended by Dr. Won of 9.50 percent. For example, Dr. Won's CAPM analyses ranged from 6.14 percent to 8.64 percent which is between 86 and 336 basis points below his final recommended ROE.[3] This demonstrates that Dr. Won abandons the results of his CAPM analyses in his final recommended ROE. Considering these facts, it is unclear to me how he can suggest that these assumptions more appropriately reflect the MRP than the assumptions relied upon in my analysis.

9. Dr. Won fails to consider the full range of results from the Bond Yield Plus Risk Premium analysis when he concludes that the result from this model supports his recommendation of 9.50 percent. As shown in Schedule AEB-R1, Attachment 7 to my Rebuttal Testimony, the low-end of the range of my risk premium analysis based on the 30-day average of the 30-year Treasury Bond

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1 Source: Duff &Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.
2 FT Wilshire 5000 Index Fact Sheet as of June 30, 2021.
3 Schedule SJW-14.

yield as of August 31, 2021 was 9.33 percent which is only slightly below Dr. Won's recommended ROE of 9.50 percent. However, reviewing the scenarios that consider the expectation for rising interest rates demonstrates that the Bond Yield Risk Premium analysis in my Rebuttal Testimony results in a range of returns as high as 10.00 percent, which is consistent with the Company's 9.80 percent requested return. As a result, my risk premium analysis provides support for the conclusion that Dr. Won's recommended ROE will understate the cost of equity as interest rates increase and during the period that Ameren Missouri's rates will be in effect.

10. Dr. Won and Mr. Murray have concluded that Ameren Missouri's business risk is similar to their respective proxy groups based on a review of the mechanisms available to Ameren Missouri. However, these witnesses fail to recognize that the determination of the ROE is based on a comparison of the subject company to a risk-comparable proxy group, using the market data for that proxy group. Because the ROE estimation process involves a comparison to the proxy group, it is necessary that the comparison of risk be on that same basis. Therefore, by failing to consider the relative risk of Ameren Missouri, as compared to the proxy group companies, Dr. Won and Mr. Murray have come to flawed conclusions about the risk of Ameren Missouri. The question is not whether Ameren Missouri has more or less risk after the implementation of cost recovery mechanisms. The correct comparison is does the Company have more or less risk than the proxy group as a result of the implementation of these mechanisms.

Neither Dr. Won nor Mr. Murray have reviewed the cost recovery mechanisms available to the companies in their respective proxy groups to determine the cost recovery risk of the proxy group relative to Ameren Missouri. As a result,

there is no basis for these witnesses to make a conclusion regarding the relative risk of Ameren Missouri to the proxy group. Furthermore, as discussed in my Direct Testimony, I provide a comparison of the proxy group companies and Ameren Missouri across a number of risk factors including forecasted test years, year-end rate base, decoupling mechanisms, formula-based rates, capital cost recovery mechanisms, and construction work in progress ("CWIP") allowances within rate base.[4] When a proper analysis is conducted, as was done in my Direct Testimony, the conclusions regarding Ameren Missouri's relative risk are contrary to the unsupported opinions of Dr. Won and Mr. Murray. Ameren Missouri has greater risk on average than the proxy group warranting an ROE toward the higher end of the range of results.

11. Finally, both Dr. Won and Mr. Murray conclude that Ameren Missouri's natural gas operations do not face increased risk as a result of small size because the Company has electric operations which when combined with the natural gas operations make Ameren Missouri the largest utility in Missouri. However, the stand-alone principle of ratemaking holds that regulated rates should be based on the risks and benefits of the regulated utility, not its investors, parent or affiliates.[5] Since the stand-alone principle requires that Ameren Missouri's authorized cost of capital be based on the business and financial risk of the Company individually, it is necessary to establish a group of companies that are both publicly traded and comparable to Ameren Missouri in certain fundamental business and financial respects to serve as a "proxy" for determining the ROE. Since Ameren Missouri's natural gas operations are substantially smaller than

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[4] Direct Testimony of Ann Bulkley, at 63-65.
[5] *New Regulatory Finance*, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 215-216.

the companies contained in my proxy group, it is reasonable to conclude that Ameren Missouri has greater risk when compared to the proxy group due to its small size.

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

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

- In Section II, I respond to Staff witness Dr. Won's ROE analyses and recommendations and OPC witness Mr. Murray's ROE analyses and recommendations.
- Finally, in Section III, I summarize my conclusions and recommendations.

II. RETURN ON EQUITY

A. Proxy Group

Q. Please summarize Dr. Won's and Mr. Murray's position with respect to the proxy group that you relied on for Ameren Missouri.

A. Dr. Won contends that the results of my DCF analyses are overstated due to the criteria I employed to develop my proxy group. Specifically, Dr. Won opposes my criteria to exclude companies with a mean DCF result below 7 percent because a risk premium of 4.14 percent implied by a 7 percent return is consistent with the risk premium range of 3 percent to 6 percent accepted by the financial industry and is therefore not unreasonable.[6] Furthermore, Dr. Won argues that while I have accounted for the COE estimates of companies with unreasonably low results, I have not accounted for companies that have unreasonably high DCF results.[7] Specifically, Dr. Won points to my inclusion of the DCF result for South Jersey Industries, Inc. ("SJI") of 26.58%.

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[6] Rebuttal Testimony of Dr. Won, at 7-8.
[7] Rebuttal Testimony of Dr. Won, at 8.

Mr. Murray, while relying on an identical proxy group to calculate his COE analyses, suggests that I do not recognize or discuss that some of the companies contained in my proxy group have unregulated operations.[8] Specifically, Mr. Murray notes that while ONE Gas, Inc and Atmos Energy Corporation are 100 percent regulated, Northwest Natural Gas Company and Spire, Inc. have unregulated operations that increase the cost of equity. Mr. Murray believes that companies with unregulated operations have greater risk than Ameren Missouri. Therefore, Mr. Murray concludes that I have not accounted for the increased risk of unregulated operations when comparing the business risk of Ameren Missouri to the proxy group.[9]

Q. Do you agree with Dr. Won that your 7 percent risk premium screening criterion resulted in "inflated" COE estimates from your DCF model?

A. No, I do not. As I discuss in my Direct Testimony, the 7 percent risk premium screen did not result in the exclusion of any companies from my proxy group.[10] Since, the 7 percent risk premium did not affect my proxy group, it could not have affected my DCF results. Dr. Won seems to not have considered my Direct Testimony or my response to MPSC 0319.1 when he concludes that the 7 percent risk premium screen causes my DCF result to be overstated.

Q. Why did you consider a 7 percent risk premium screen when determining your proxy group?

A. As discussed in my response to MSPC 0380, an equity investment is considered riskier than a bond or debt investment due to the fact that equity investors are the residual

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[8] Rebuttal Testimony of David Murray, at 18.
[9] Rebuttal Testimony of David Murray, at 18.
[10] Direct Testimony of Ann Bulkley, at 32-33.

claimants on a utility's cash flows. Therefore, the return on an equity investment must be greater than the return on a bond/debt investment to compensate investors for the additional risk. The risk premium (i.e., the incremental return of an equity investment over the return on utility bonds) must be sufficient to compensate investors for the additional risk of an equity investment otherwise a utility's ability to attract capital could be affected. As noted in my Direct Testimony, I determined that a 7.00 percent equity return would not provide equity investors a sufficient return increment above the yield on A-rated utility bonds. While Dr. Won indicates that a typical risk premium is in the range of 3 to 6 percent, this risk premium range is inconsistent with the historical risk premium from 1926-2020 of 7.25 percent as reported by Duff and Phelps and the inverse relationship between interest rates and the market risk premium which indicates that as interest rates decline, the risk premium increases.[11] For example, since current interest rates are below the historical income-only return on government bonds of 4.91 percent used to calculate the historical risk premium, the inverse relationship would imply that the current risk premium should be well above the historical risk premium of 7.25 percent.[12] As a result, my conclusion that investors would not view a risk premium of 414 basis points above the yield on the Moody's A-rated utility bond as a sufficient return increment is reasonable.

Q. Do you agree with Dr. Won that you have not accounted for companies that have high DCF results?

A. No, I do not. Dr. Won appears to again have misinterpreted my Direct Testimony. I reviewed the growth rates that were the primary drivers of the high DCF results and addressed these growth rates using multiple approaches. It is important to recognize that

[11] Source: Duff &Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.
[12] Source: Duff &Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.

the high DCF results that Dr. Won references were due primarily the result of the reported projected earnings growth rate estimates for the companies. Since these are estimates of growth reported by Value Line, Yahoo! Finance and Zacks Investment Research, it is appropriate to include these estimates, absent an error, because it is likely that investors will consider the growth estimates reported by these reputable sources.

While the growth rates may reflect investor expectations, I did review the growth rates reported by these sources and adjusted my DCF methodology to account for projections of earnings growth that might be considered unsustainable over the long-term. For example, as discussed in my Direct Testimony, I accounted for an unreasonably high growth rate for Northwest Natural Gas Company ("NWN") as reported by Value Line by removing the effect of a one-time financial event that had a significant effect on the growth rate reported for NWN by Value Line.[13] Additionally, for instances where I was unable to review and adjust the growth rates because the reported growth rates were consensus estimates reported by either Yahoo! Finance or Zacks Investment Research, I considered two approaches for accounting for growth rates that might be considered unsustainable. The first approach was to select the median as the measure of central tendency for the Constant Growth DCF model since the median is not affected to a large degree by the presence of outliers. The second approach was to consider the results of a Multi-Stage form of the DCF model which enables the analyst to specify different growth rates over multiple stages. In particular, I noted in my Direct Testimony that I considered these two approaches to specifically account for the projected earnings growth rate from Yahoo! Finance and Zacks Investment Research for SJI.[14] Therefore, Dr. Won's conclusion that

[13] Direct Testimony of Ann Bulkley, at 39.
[14] Direct Testimony of Ann Bulkley, at 40.

I have not accounted for growth rates that could be considered unreasonably high is incorrect.

Q. Do you agree with Mr. Murray's position that unregulated operations result in greater risk for the proxy group companies?

A. No, I do not. First, as I discussed in my Direct Testimony, I applied a screening criterion that required a company derive at least 70 percent of their operating income from regulated operations.[15] Thus, the companies included in my proxy group have substantial regulated operations similar to Ameren Missouri. It is also important to note that Mr. Murray has relied on the same proxy group to estimate his COE analyses. Second, as shown in Figure 1 below, I compared the 30-day average Constant Growth DCF ("CGDCF") results as of August 31, 2021 contained in Schedule AEB-R1, Attachment 2 of my Rebuttal Testimony for the two companies (NWN and Spire, Inc.) noted by Mr. Murray as having unregulated operations to the remaining companies in my proxy group. As shown in Figure 1, the median Constant Growth DCF result excluding NWN and Spire, Inc. is 10.01 percent and the median Constant Growth DCF result including NWN and Spire, Inc. is 10.01 percent. Therefore, there was no discernible difference on the median CGDCF result if NWN and Spire, Inc. were either included or excluded. This provides further support that the operating risks of the two companies referenced by Mr. Murray are not perceived to be significantly greater than those of the regulated companies in the proxy group.

[15] Direct Testimony of Ann Bulkley, at 31.

Figure 1: Comparison of 30-Day CGDCF Results as of August 31, 2021

Company	Ticker	CGDCF Result
Atmos Energy Corporation	ATO	10.01%
NiSource Inc.	NI	10.01%
Northwest Natural Gas Company	NWN	9.05%
ONE Gas Inc.	OGS	8.75%
South Jersey Industries, Inc.	SJI	12.22%
Southwest Gas Corporation	SWX	9.29%
Spire, Inc.	SR	11.43%
Median Including SR and NWN		10.01%
Median Excluding SR and NWN		10.01%

B. DCF – Market Conditions

Q. Please summarize Mr. Murray's concern with your position on how market conditions affect the results of the DCF model.

A. Mr. Murray disagrees with my conclusion that the current valuations of utilities will decline over the near term as interest rates increase. According to Mr. Murray, this assumption violates the Efficient Market Hypothesis ("EMH") which states that stock prices reflect all current information.[16] Mr. Murray believes that investors have factored in expected market conditions into the current share prices of utilities. Further, Mr. Murray states that even if I was correct and the valuations of utilities were expected to decline, this would not lead to an increase in the cost of equity.[17] To support his conclusion, Mr. Murray references the Grinold-Kroner DCF model which he states assumes that a decline in the valuation of a utility as measured by the P/E ratio would result in a decline in the cost of equity.

[16] Rebuttal Testimony of David Murray, at 21.
[17] Rebuttal Testimony of David Murray, at 21-22.

Q. Do you agree with Mr. Murray that the market is always efficient?

A. No, I do not. While the EMH is an important part of financial theory, it is critical to understand that the theory relies on simplifying assumptions and is attempting to explain complex financial markets. For example, in its strongest form, the EMH assumes that all information is available equally to investors. However, information is not always available equally. Some firms have greater resources and are able to receive and analyze information more quickly and more completely than competitors. Additionally, the EMH assumes that investors process the information and arrive at similar conclusions regarding how the information impacts the valuation of a company. It is likely, however, that investors have different views regarding how financial information impacts the valuation of a company. It is also true that, as a group, investors may either underreact or overreact to new financial information.

Q. Have investors overreacted to information in the market in recent years?

A. Yes, they have. In response to the COVID-19 pandemic in 2020, volatility as measured by the VIX was at its highest levels since the Great Recession of 2008/09.[18] During 2020, investors were responding to information including the economic effects of the measures used to contain COVID-19 and the additional policy measures implemented by Congress and the Federal Reserve to stabilize the economy. The extreme volatility in 2020 shows that investors were reacting differently to different news stories, which results in wide swings in the market. This demonstrates that investors have overreacted to information in the market, including changes in the policies of the Federal Reserve, as well as increased uncertainty regarding the market and economic conditions in the U.S. and abroad.

[18] VIX data obtained from Bloomberg Professional.

Q. Have academics and investors commented on the EMH?

A. Yes, they have. In fact, Professor Aswath Damodaran and Warren Buffet, who Mr. Murray references in his Rebuttal Testimony, have both commented on the EMH and concluded that markets are not efficient. In an interview with Barron's, Professor Aswath Damodaran noted the following regarding the efficient market assumption:

> I'm not an academic. I'm a pragmatist. I don't believe that markets are efficient, but I also don't believe that much of active investing, at least as practiced now, has a prayer at finding and exploiting these inefficiencies for profit. But I do think that markets always convey messages. And if you ignore those messages, or you think you're bigger than the market, the market's going to take you down several notches. So I think that is my overriding message—get away from static to dynamic, from backward-looking to forward-looking. And that scares people.[19]

Similarly, Warren Buffet noted the following regarding efficiency in the market:

> I'm convinced that there is much inefficiency in the market. These Graham-and-Doddsville investors have successfully exploited gaps between price and value. When the price of a stock can be influenced by a "herd" on Wall Street with prices set at the margin by the most emotional person, or the greediest person, or the most depressed person, it is hard to argue that the market always prices rationally. In fact, market prices are frequently nonsensical.[20]

Q. How does the fact that markets are not always efficient affect the ROE estimation process for a utility?

A. In general, investors use the DCF model to develop return estimates for a company as of a specific date factoring in all the information available to them at the time of the estimation. However, for a regulated utility like Ameren Missouri, the cost of equity is being estimated for a future period when the utility's rates will be in effect. Therefore,

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[19] Root, Al. "Buying Tesla at $180 and Other Investing Nuggets From NYU Professor Aswath Damodaran." Barron's, 25 June 2020, www.barrons.com/articles/how-to-value-stocks-according-to-nyu-professor-aswath-damodaran-51593082800.

[20] Buffett, Warren. The Superinvestors of Graham-and-Doddsville. Columbia Business, 17 May 1984, www8.gsb.columbia.edu/articles/columbia-business/superinvestors.

investors' current valuations may be different than the valuations investors would calculate during the period that the Company's rates will be in effect. For this reason, it is important to review current and prospective capital market conditions and to determine whether current market conditions are expected to persist during the period that the Company's rates will be in effect. If prospective market conditions are expected to be different than current market conditions, the ROE models based on current market data will not produce reasonable estimates of the cost of equity during the period that Ameren Missouri's rates will be in effect.

As discussed in my Direct and Rebuttal Testimonies, the economy is in the recovery phase of the business cycle thus interest rates are expected to increase, and the utility sector is expected to underperform.[21] If the utility sector underperforms over the near term and share prices decline, then the dividend yields of those utilities will increase, resulting in increases in the ROE estimate produced by the DCF model. Given that we are estimating the cost of equity for the period that Ameren Missouri's rates will be in effect, this is an important factor that must be considered when relying on the results produced by the ROE estimation models.

Q. Did Mr. Murray conclude in his Direct Testimony that interest rates and the share prices of utilities are inversely related?

A. Yes, he did. Mr. Murray noted that the valuation levels of utility stocks are inversely related to bond yields which means that the valuation levels of utilities will decline (increase) as interest rates increase (decrease).[22]

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[21] Direct Testimony of Ann Bulkley, at 11-23. Rebuttal Testimony of Ann Bulkley, at 22-30.
[22] Direct Testimony of David Murray, at 10.

Q. Mr. Murray agrees that interest rates and utility share prices are inversely related. Does this position conflict with his criticism of your conclusion that the valuations of utilities will decline over the near term?

A. Yes, it does. As discussed in my Rebuttal Testimony, interest rates are expected to increase over the near term.[23] In fact, in a recent article, Barron's conducted its Big Money poll of professional investors regarding the outlook for the next twelve months. Approximately 60 percent of respondents projected the yield on the 10-year Treasury Bond will be 2.00 percent or greater at the end of the next twelve months which is an increase from the current 30-day average 10-year Treasury Bond yield as of September 30, 2021 of 1.35 percent.[24] Therefore, if interest rates increase as expected over the next twelve months, the inverse relationship between interest rates and utility share prices would indicate that the share prices of utilities will decline. This is most likely why the investors surveyed by Barron's also selected the utility sector as the sector which will perform the worst over the next twelve months.[25] Thus, Mr. Murray's conclusion in his Rebuttal Testimony that the Commission should rely on the DCF results calculated using current valuations contradicts his position in his Direct Testimony that interest rates and utility share prices are inversely related because interest rates are expected to increase.

Q. Do you agree with Mr. Murray's use of the Grinold-Kroner DCF model to note that a decline in the valuation of a utility will decrease the cost of equity?

A. No, I do not. Mr. Murray has misinterpreted my position. I have noted that the share prices of utility stocks are expected to decline as interest rates increase over the near-

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[23] Rebuttal Testimony of Ann Bulkley, at 22-30.
[24] Jasinski, Nicholas. Stocks Are Still the Place to Be, Our Exclusive Big Money Poll Finds. Barron's, 16 Oct. 2021, https://www.barrons.com/articles/stock-market-covid-economy-outlook-51634312012?mod=hpsubnav&tesla=y.
[25] *Ibid.*

term. Therefore, if we estimated the DCF model at a point in time during the period that Ameren Missouri rates will be in effect, the DCF results would likely be higher due to the decline in share prices. Mr. Murray's use of the Grinold-Kroner model shows that if an investor were to estimate the Grinold-Kroner DCF model today, the expected decline in the P/E ratio over the near-term would reduce the return the investor would expect to earn over the investment period. Therefore, Mr. Murray's use of the Grinold-Kroner model still relies on current market data to estimate the cost of equity during the period Ameren Missouri's rate will be in effect. This does not invalidate my point. In fact, it provides further support. Because, if an investor expects a lower return over the near-term due to an expected decline in the P/E ratio, they may not invest in the stock or sell the stock if the investor is a current owner of the stock. This would result in a decline in the stock price. As a result, it is likely that the results of the DCF model and the Grinold-Kroner model would be greater during the period that Ameren Missouri's rates are in effect.

Q. Do you have any other observations regarding Mr. Murray's s use of the Grinold-Kroner model to determine the ROE for Ameren Missouri?

A. While the Grinold-Kroner model may have some academic interest, I am unaware of any regulatory commission that has relied on this methodology to establish the ROE for a regulated utility company. Furthermore, this is yet another methodology proposed by Mr. Murray that results in ROE estimates that would be both inconsistent with his own equity cost recommendation and with the comparable return standard established in *Hope* and *Bluefield*. Based on his application of this model to the DCF results presented in my Direct Testimony, Mr. Murray suggests that the ROE for Ameren Missouri using the Grinold-Kroner model would be 7.23 percent assuming a contraction in the P/E ratio of 2.0x over the next five years. While consistent with the range of results of his multi-stage DCF analysis, since Mr. Murray dismissed those results to support an ROE range of 8.50

percent to 9.50 percent and a point estimate of 9.25 percent, I would assume that he is also disregarding the result of this model. Therefore, I am uncertain why Mr. Murray would suggest that this model offers any probative value as to the appropriate ROE for Ameren Missouri.

C. Constant Growth DCF – Growth Rates

Q. Please summarize Dr. Won and Mr. Murray's criticism of the Constant Growth DCF analysis you prepared in your Direct Testimony.

A. Staff witness Dr. Won and OPC witness Mr. Murray both object to the use of analysts' projected EPS growth rates in the Constant Growth DCF model, suggesting that the use of a constant growth form of the DCF model with projected EPS growth rates will overstate the ROE.

Q. How do you respond to these witnesses regarding the use of projected EPS growth rate in the Constant Growth DCF model?

A. First, as discussed in my Direct and Rebuttal Testimonies, I have not relied exclusively on the results of the Constant Growth DCF model. Rather, I have considered the results of multiple ROE estimation models in determining the range of ROEs that are appropriate to consider for Ameren Missouri. Furthermore, while each of these witnesses criticizes the use of analysts' projected EPS growth rates in the Constant Growth DCF model, their preferred specification of the DCF model produced ROE estimates that were below any recently authorized ROE for a natural gas utility and well below their own recommendations. Specifically, Mr. Murray's Multi-Stage DCF model relied on a 3.0% perpetual growth rate and resulted in a COE estimate for his natural gas proxy group of

approximately 7.50 percent.[26] In contrast, Mr. Murray proposes a range for the Company's ROE of 8.50 percent to 9.50 percent, recommending an ROE of 9.25 percent which is 175 basis points above the results of the DCF methodology that he suggests is more appropriate than the use of the Constant Growth DCF model with analysts' projected EPS growth rates.

Dr. Won relies on a Two-Stage DCF model using current market data and a Two-Stage DCF model using market data as of 2017 to reflect the COE at the time of Spire Missouri's last fully litigated rate case in File Nos. GR-2017-0215 and GR-2017-0216 – not for the purposes of relying on the model estimates, but rather to estimate a change in the cost of equity from 2017 to the current market, which he applies to the ROE of 9.80 percent that was authorized in the 2017 rate case for Spire Missouri. In performing this benchmarking exercise, Dr. Won also elects not to rely specifically on the results of his Two-Stage DCF model, which produced a result of 8.32 percent. Rather, Dr. Won is recommending 9.50 percent, which is approximately 120 basis points above the results of his model.

Considering that both of these witnesses demonstrate no confidence in the results of their own DCF models, it is unreasonable to suggest that the use of their DCF models is a more appropriate estimate of the ROE for Ameren Missouri than the Constant Growth DCF model developed in my Direct Testimony.

[26] Direct Testimony of Mr. David Murray, at 25.

D. Multi-Stage DCF – Long-Term Growth Rate

Q. Please summarize Dr. Won's concerns with the long-term growth rate you relied on in your Multi-Stage DCF analysis?

A. Dr. Won does not agree with the methodology that I used to estimate the GDP growth rate that I relied on in my Multi-Stage DCF analysis.[27] Further, Dr. Won suggests that this methodology results in a GDP growth rate that is higher than other "reliable" estimates of GDP, such as the CBO and the FOMC. Finally, Dr. Won estimates that had I relied on the projected nominal GDP growth rate from the CBO of 3.70 percent and FERC's weighting of short and long-term growth rates in its Two-Stage DCF analysis, my Constant Growth DCF model using 180-day average prices would decrease from 9.61 percent to 8.75 percent.[28]

Q. Do you agree with Dr. Won that it is "unusual" how you estimated your long-term GDP growth rate?[29]

A. No, I do not. It is important to note that while Dr. Won cites to Dr. Roger A. Morin's *New Regulatory Finance* for his multi-stage DCF methodology, the calculation for GDP growth that I have relied on is specifically based on Dr. Morin's methodology, as presented in the context of the Multi-Stage DCF analysis that Dr. Won cites. Specifically, Dr. Won referenced Dr. Roger A. Morin's *New Regulatory Finance* where Dr. Morin noted that all growth rates eventually converge to a level consistent with the growth in GDP.[30] However, Dr. Won fails to discuss and chooses not to rely on the methodology that Dr. Morin

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[27] Rebuttal Testimony of Dr. Won, at 10.
[28] Rebuttal Testimony of Dr. Won, at 11.
[29] Rebuttal Testimony of Dr. Won, at 10.
[30] Rebuttal Testimony of Dr. Won, at 9.

employs to estimate the long-term growth in GDP that he advocates using in his Multi-Stage DCF analysis.

Q. Is your calculation of GDP growth similar the calculation referenced by Dr. Won in Dr. Morin's text?

A. Yes. Dr. Morin relies on a methodology that is similar to the methodology that I rely on and discuss in my Direct Testimony.[31] To estimate the long-term growth rate in nominal GDP, Dr. Morin first calculates the growth rate in real GDP and then adds the expected inflation rate[32], a process that Dr. Won has called "unusual". The growth rate in real GDP is estimated by calculating the compound annual growth rate in real GDP from 1929 through the present. The expected inflation rate is estimated as the difference between the yield on the 20-year Treasury Bond and the yield on the 20-year Treasury Inflation Protected Bond. As Dr. Morin noted in *New Regulatory Finance*, this resulted in a long-term GDP growth rate of 6.5 percent in 2006.[33]

Q. Do you agree with the use of the nominal GDP growth rate projections cited by Dr. Won?

A. No, I do not. Dr. Won relied on the projected GDP growth rate of 3.70 percent reported by the CBO for the period of 2026-2031 as the estimate of long-term growth in his Two-Stage DCF model and to compare to the projected GDP growth rate that I have relied on in my Multi-Stage DCF analysis.[34] Therefore, while Dr. Won is relying on this forecast to represent long-term GDP growth, the CBO is only projecting growth for a five-year period.

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[31] Direct Testimony of Ann Bulkley, at 41-42.
[32] *New Regulatory Finance*, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 311.
[33] *Ibid.*
[34] Congressional Budget Office, "Additional Information About the Updated Budget and Economic Outlook: 2021 to 2031," July 2021, at 27.

In addition, as discussed in my Rebuttal Testimony, the CBO has advised that the forecasts should be used with caution given the uncertainty in forecasting process.[35]

The same issue arises with the FOMC forecast. While Dr. Won has also cited the projected nominal GDP growth rate of 3.80 percent as reported by the FOMC, it is unclear the period the FOMC is referring to when they state longer-term forecast. Furthermore, included in the FOMC's projections is a figure which reflects the "uncertainty and risk in the projections of GDP growth".[36] The figure depicts the range of possible outcomes for real GDP which appears to increase from 2021 to 2024. For example, in 2024, the 70 percent confidence interval for the growth rate in real GDP appears to range from 0 percent to 4 percent.[37] In addition, a majority of the forecasters indicated increased uncertainty in regard to forecasting GDP in the current market environment as compared to average levels of the past 20 years. This increased uncertainty means that similar to the forecasts provided by the CBO, the FOMC's forecasts should be used with caution.

Q. Can you provide any additional support as to why it is more appropriate to calculate GDP growth using historical real growth and projected inflation rather than relying on a projection of GDP growth from sources such as CBO, and FOMC?

A. Yes, I can. The use of historical real GDP growth is consistent with the approach relied upon by Morningstar, a leading provider of investment information, which previously published data on historical stock and bond returns from Ibbotson and Associates. According to Morningstar, GDP growth is measured as follows:

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[35] Rebuttal Testimony of Ann Bulkley, at 38-39
[36] Federal Reserve, Summary of Economic Projections, September 22, 2021, at 10.
[37] Federal Reserve, Summary of Economic Projections, September 22, 2021, at 10.

> Growth in real GDP (with only a few exceptions) has been reasonably stable over time; therefore, its historical performance is a good estimate of expected long-term future performance. By combining the inflation estimate with the real growth rate estimate, a long-term estimate of nominal growth is formed…[38]

Q. Did Dr. Won correctly apply the methodology relied on by FERC when he adjusted your 180-day average CGDCF analysis to reflect a Two-Stage DCF analysis?

A. No, he did not. Dr. Won references FERC's ROE methodology from Opinion No. 569, which involved the Midcontinent Independent System Operator, Inc. ("MISO") transmission owners as support for the use and weighting of the short-term and long-term growth rate in a Two-Stage DCF analysis.[39] Dr. Won contends that FERC applies a two-thirds weight to the short-term growth rate and a one-third weight to the long-term growth rate. However, FERC adjusted its application of the two-stage DCF model in Opinion No. 569-A. Specifically, FERC assigns 80 percent weight to the short-term earnings per share growth rate and 20 percent weight to the long-term GDP growth rate.[40] Therefore, Dr. Won has not adjusted my Constant Growth DCF analysis using the most recent precedent from FERC regarding the weighting of the short-term and long-term growth rates.

Q. Have you corrected Dr. Won's adjustment to your Constant Growth DCF analysis to reflect the correct methodology applied by FERC?

A. Yes, I have. I adjusted my 180-day average Constant Growth DCF analysis to: 1) reflect the correct weighting relied on by FERC for the short-term and long-term growth rates; and 2) rely on my estimate of the long-term projected nominal GDP growth rate. As shown in Schedule AEB-S1, Attachment 1, this increases the results of the analysis provided by

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[38] Ibbotson and Associates, Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook, at 52.
[39] Rebuttal Testimony of Dr. Won, at 11.
[40] FERC Opinion No. 569-A, issued May 21, 2020, at para 57.

Dr. Won by 69 basis points from 8.75 percent to 9.44 percent. Finally, if we consider that current estimates of the DCF model are understated due to the expected increase in interest rates over the near-term, this analysis provides further support that Dr. Won's recommended ROE of 9.50 percent would understate the COE for Ameren Missouri over the near term.

E. CAPM – Market Risk Premium

Q. Please summarize Dr. Won's and Mr. Murray's criticisms of your use of a projected market risk premium in the CAPM.

A. Dr. Won contends that my CAPM analysis is based on unreasonably high market risk premiums ("MRPs") which are the result of my estimated market return of 14.13 percent. Specifically, Dr. Won notes that my market return calculation has three "main faults": 1) I included companies in the calculation that do not pay a dividend; 2) I included companies with growth rates that are negative and companies with growth rates that exceed 20 percent; 3) I used only a short-term growth rate and did not also consider a long-term growth rate.[41] As support for his recommended adjustments, Dr. Won references the FERC's methodology for estimating the market return. Dr. Won then calculates an adjusted market return of 9.43 percent using what he claims is the FERC approach.[42] Finally, Dr. Won referenced a MRP range of 4.63 percent to 6.43 percent which he indicates represents the range of MRPs from Pablo Fernandez's risk premium survey, the American Appraisal Risk Premium Quarterly, Duff and Phelps, Value Line and Professor

[41] Rebuttal Testimony of Dr. Won, at 13-14.
[42] Rebuttal Testimony of Dr. Won, at 14.

Aswath Damodaran.[43] According to Dr. Won, my MRP range is unreasonable because it is outside of the MRP range of 4.63 percent to 6.43 percent.

Similarly, Mr. Murray criticizes the MRPs that I rely on in my CAPM analysis and contends that they are double the MRPs relied on by utility analysts to estimate the fair value of utility stocks.[44] Moreover, Mr. Murray indicates that he is unaware of any source which calculates the market return using a Constant Growth DCF model with projected earnings growth rates as the estimate of growth. According to Mr. Murray, the sources he reviewed recommended using a growth rate no higher than the growth rate of GDP when estimating the long-term return for the market.[45] Finally, Mr. Murray asserts that the Wilshire 5000, which is an index of the value of all American stocks traded in the United States, would be about 100 times the value of GDP in 50 years if the index grew at the 12.45 percent earnings growth rate that I relied on to calculate my market return.[46]

Q. Please explain why you disagree with Dr. Won's contention that he has relied on the FERC methodology.

A. It is important to note that while Dr. Won suggests he is following the methodology outlined by the FERC in Opinion 569, none of the witnesses in this case have attempted to rely on the methodology from that order or Opinion 569-B, which outlines the current FERC methodology for estimating the appropriate cost of equity for Ameren Missouri. If that were the intention, it would be necessary to weigh equally the results of the DCF, the CAPM,

[43] Rebuttal Testimony of Dr. Won, at 14.
[44] Rebuttal Testimony of David Murray, at 26.
[45] Rebuttal Testimony of David Murray, at 27.
[46] Rebuttal Testimony of David Murray, at 28.

and a Risk Premium approach. While Dr. Won suggests he is relying on the FERC in his calculation of the market return, he has misrepresented the FERC's approach.

Q. Please explain in more detail the errors in Dr. Won's calculation of the market return used in the CAPM.

A. Dr. Won correctly noted than when calculating the market return using the Constant Growth DCF model, FERC excludes: 1) companies that do not pay a dividend; 2) companies with growth rates that are negative; and 3) companies with growth rates that exceed 20 percent. However, Dr. Won incorrectly assumes that the FERC also considers a long-term growth estimate when estimating the market return. Specifically, the FERC noted the following in support of the use of the Constant Growth DCF model for the S&P 500 as opposed to the use of a Two-Step DCF model with GDP growth:

> [w]e also continue to find that the CAPM should use a one-step DCF for its risk premium. This is because the rationale for using a two-step DCF methodology for a specific group of utilities does not apply when conducting a DCF study of the dividend-paying companies in the S&P 500, as the Commission found in Opinion Nos. 531-B and 569.172 A long-term component is unnecessary because of the regular updates to the S&P 500, which allows it to continue to grow at a short-term growth rate and because S&P 500 companies include stocks that are both new and mature, the latter of which have a moderating effect on the short-term growth rates.[47]

Q. Have you performed a calculation that is consistent with the FERC methodology?

A. Yes, I have. I recalculated the market return that I filed in Schedule AEB-D2, Attachment 7 to reflect the methodology relied on by FERC to estimate the market return. Therefore, I relied on the Constant Growth DCF model excluding companies that: 1) do not pay a dividend; 2) have a growth rate less than 0 percent; and 3) have a growth rate greater than 20 percent. As shown in Schedule AEB-S1, Attachment 5, I estimated a market return

[47] FERC Docket No. EL-14-12-004, Opinion No. 569-A (May 21, 2020), at para. 85.

of 12.11 percent using the FERC methodology which is 268 basis points higher than the market return of 9.43 percent calculated by Dr. Won who incorrectly estimated the market return using the Two-Stage DCF Analysis.

Q. Have you updated the CAPM results presented in your Direct Testimony to reflect the FERC methodology for calculating the market return?

A. Yes, I have. As shown in Figure 2 below, (see also Schedules AEB-S1, Attachment 2 and Attachment 3), my traditional CAPM analysis produces a range of returns from 9.23 percent to 10.92 percent and my ECAPM analysis results range from 9.95 percent to 11.22 percent. Therefore, adjusting my estimate of the market return to reflect the methodology employed by the FERC results in a range of returns that continue to support the Company's requested ROE of 9.80 percent and my recommended range of 9.65 percent to 10.40 percent.

Figure 2: CAPM Results – FERC Methodology for Market Return

	Risk-Free Rate as of January 31, 2021 (1.77%)	Q2 2021 – Q2 2022 Projected Risk-Free Rate (2.06%)	2022-2026 Projected Risk-Free Rate (2.80%)
CAPM			
Value Line Beta	10.78%	10.82%	10.92%
Bloomberg Beta	9.99%	10.05%	10.20%
Long-term Avg. Beta	9.23%	9.31%	9.52%
ECAPM			
Value Line Beta	11.12%	11.15%	11.22%
Bloomberg Beta	10.52%	10.57%	10.68%
Long-term Avg. Beta	9.95%	10.01%	10.17%

Q. What is your response to Dr. Won's summary of the sources of survey data regarding the MRP?

A. While Dr. Won summarizes this information and relies on a similar MRP range in the development of his CAPM analysis, the fact remains that the results of his CAPM analyses are between 86 and 336 basis points below his final recommended ROE. Further, Dr. Won specifically states that the COE is within the range of 9.25 percent and 9.75 percent,[48] whereas the range of his CAPM results were 6.14 percent to 8.64 percent.[49] This demonstrates that Dr. Won abandons the results of his CAPM analyses in his final recommended ROE. Considering these facts, it is unclear to me how he can suggest that these assumptions more appropriately reflect the MRP than the assumptions relied upon in my analysis.

Q. Why do you specifically disagree with the MRP range of 4.63 percent to 6.43 percent referenced by Dr. Won?

A. Given the current low yields on Treasury bonds, and the inverse relationship between interest rates and the MRP that is shown in my Bond Yield Plus Risk Premium analysis, Dr. Won's cited MRP range of 4.63 percent to 6.43 percent is understated. Based on historical data from Duff & Phelps, the market risk premium from 1926-2020 is 7.25 percent.[50] The historical income-only return on government bonds used to calculate the historical MRP over the same period has been approximately 4.91 percent, while the 30-day average risk-free rate on long-term government bonds as of September 31, 2021 is

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[48] Direct Testimony of Dr. Won, at 28.
[49] Direct Testimony of Dr. Won, Schedule SJW-14.
[50] The market risk premium from 1926-2020 is calculated as the average return on large company stocks from 1926-2020 minus the average income only return on long-term government bonds from 1926-2020 (i.e., 12.16 percent – 4.91 percent = 7.25 percent). Source: Duff &Phelps, Valuation Handbook: Guide to Cost of Capital, 2021.

1.93 percent. Because interest rates on long-term government bonds are well below the historical average of 4.91 percent, the inverse relationship between interest rates and the MRP implies that the MRP should be well above the long-term historical average of 7.25 percent. The MRP range used by Dr. Won of 4.63 percent to 6.43 percent suggests that the expected MRP is currently 82 to 262 basis points lower than the historical average MRP of 7.25 percent.

Q. What MRP is suggested by the survey results referenced by Dr. Won?

A. The March 2020 survey by Pablo Fernandez reports a mean and median MRP for the U.S. of 5.6 percent and 5.4 percent, respectively. However, it is important to note that Dr. Fernandez collected data from 2,156 respondent regarding the MRP for the U.S., which resulted in a wide range of estimated MRPs from 2.0 percent to 13.4 percent. Given the wide dispersion of responses, investors' required returns can vary substantially. Thus, taking the average of a sample of investors' required returns may not be a reasonable assumption when calculating the required return of the market. In fact, Dr. Fernandez cautioned against this approach:

> We can find out the REP [Required Equity Premium] and the EEP [Expected Equity Premium] of an investor by asking him, although for many investors the REP is not an explicit parameter but, rather, it is implicit in the price they are prepared to pay for the shares. However, it is not possible to determine the REP for the market as a whole, because it does not exist: even if we knew the REPs of all the investors in the market, it would be meaningless to talk of a REP for the market as a whole. There is a distribution of REPs and we can only say that some percentage of investors have REPs contained in a range. The average of that distribution cannot be interpreted as the REP of the market nor as the REP of a representative investor.[51]

[51] Pablo Fernandez, Eduardo de Appellaniz, and Javier F. Acín, "Market Risk Premium and Risk-Free Rate used for 81 countries in 2020: a survey," IESE Business School, (March 2020), at 10.

Q. Are the implied market returns associated with the range of MRPs cited by Dr. Won consistent with Dr. Won's DCF results?

A. No, they are not. As discussed above, Dr. Won cites a range of MRPs from 4.63 percent to 6.43 percent. I calculated the implied market return for the range of MRPs cited by Dr. Won by adding to the cited MRP range the 30-day average yield on the 30-year Treasury Bond as of September 20, 2021. As shown in Figure 3, the implied market returns for the range of MRPs cited by Dr. Won range from 6.56 percent to 8.36 percent. These returns, while not only unreasonably low, are inconsistent with the results produced by Dr. Won's DCF analysis. As Dr. Won notes, the Constant Growth DCF result for his proxy group is 8.32 percent.[52] Since Dr. Won has acknowledged that his proxy group is less risky than the market by relying on a proxy group average Beta coefficient of 0.90 in his CAPM analysis, it would stand to reason that Dr. Won believes that the market return should be well above the results of his Two-Stage DCF results for a group of natural gas distribution companies. However, as shown in Figure 3, the market returns implied by the MRPs cited by Dr. Won range from 176 basis points below his Two-Stage DCF result to 4 basis points above his Two-Stage DCF result. This highlights an important inconsistency that the Commission should consider between the inputs used to calculate his Two-Stage DCF analysis and the MRP range he suggests is appropriately used in the CAPM analysis. The inconsistency is even more significant when you consider that Dr. Won recommended an ROE of 9.50 percent for Ameren Missouri which is significantly higher than the market returns implied by his MRP range.

[52] Schedule SJW-13.

Figure 3: Implied Market Returns cited by Dr. Won

Source	Implied MRP[53]	Risk-Free Rate[54]	Implied Market Return
Duff and Phelps	4.63%	1.93%	6.56%
Professor Damodaran	6.43%	1.93%	8.36%

Q. What is your response to Mr. Murray's contention that he is not "aware of any authoritative sources" that use your approach to estimating the market return?[55]

A. While I developed the estimate of the market return, the process I used to estimate the market return relies on data published by Bloomberg and Value Line and a prominent cost of equity model, the Constant Growth DCF. In addition to the FERC which I reference above, the Minnesota Public Utilities Commission ("Minnesota PUC") and the Maine Public Utilities Commission ("Maine PUC") have also relied on the Constant Growth DCF model to estimate the market return.

In Docket No. G-004/GR-19-511 for Great Plains Natural Gas Company, the Department of Commerce in Minnesota ("Minnesota DOC") relied on a Constant Growth DCF analysis for the S&P 500 to estimate the market return for the CAPM. Specifically, the Minnesota DOC relied on the dividend yield reported by S&P for the S&P 500 and the three-five year earnings growth estimate for the State Street Global Advisors S&P 500 exchange traded fund ("ETF") which resulted in a market return of 13.44 percent.[56] The Minnesota DOC has historically relied on the Constant Growth DCF model to estimate the market return

53 Rebuttal Testimony of Dr. Won, at 14.
54 Bloomberg Professional.
55 Rebuttal Testimony of David Murray, at 27.
56 Docket No. G-004/GR-19-511, In the Matter of the Petition By Great Plains Natural Gas Co., a Division of Montana-Dakota Utilities Co., for Authority to Increase Natural Gas Rates in Minnesota (March 3, 2020), at Ex. DER-9, CMA-S-8.

for the CAPM, which has in turn been considered by the Minnesota PUC in prior proceedings.[57]

The Staff of the Maine PUC have also supported the forward-looking market risk premium. In the Bench Analysis in Docket No. 2019-00092 for Northern Utilities, Inc., the Staff calculated the market return using the Constant Growth DCF model excluding companies that did not pay a dividend and companies that had a negative growth rate. This resulted in a market return of 11.33 percent using Bloomberg data and 13.49 percent using Value Line data.[58] Furthermore, the Maine PUC considered the CAPM results calculated by Staff as a check on the reasonableness of the DCF results and did not dispute the use of Constant Growth DCF model to calculate the market return.[59]

Q. How do you respond to Mr. Murray's comparison of the Wilshire 5000 Index to GDP?

A. Mr. Murray contends that if the market grew at a compound annual growth rate of 12.45 percent, then the Wilshire 5000 would be approximately 100 times the value of GDP in 50 years assuming a 4 percent long-term growth rate in GDP. However, it is important to note that the Wilshire 5000 had a ten-year annualized total return as of June 30, 2021, of 14.76 and a reported long-term EPS growth rate of 18.05 percent.[60] Therefore, the Wilshire 5000 had a total return over the past 10 years that is greater than my market return estimate of 14.13 percent. Finally, Mr. Murray's analysis is dependent on the selection of the GDP growth rate which he assumes is 4 percent. This growth rate is

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57 See Docket No. E017/GR-15-1033, Findings of Fact, Conclusions and Order, May 1, 2017, at 54-56; and Docket No. E015/GR-16-664, Findings of Fact, Conclusions and Order, March 12, 2018, at 60-61.

58 Northern Utilities, Inc. d/b/a Unitil Request for Approval of Rate Change, Docket No. 2019-00092, Bench Analysis, October 29, 2019, at 21.

59 Northern Utilities, Inc. d/b/a Unitil Request for Approval of Rate Change, Docket No. 2019-00092, Order Part II, April 1, 2020, at 58.

60 FT Wilshire 5000 Index Fact Sheet as of June 30, 2021.

significantly below the long-term GDP growth rate that I relied on in my Multi-Stage DCF analysis.

F. ECAPM

Q. Please summarize Dr. Won's stated criticism of the Empirical CAPM analysis.

A. Dr. Won notes that the ECAPM analysis is based on the findings of Dr. Morin who developed the model based on data between 1926 and 1984; therefore, Dr. Won asserts that there is no evidence that Dr. Morin's findings would still be relevant based on data after 1984.[61] Furthermore, Dr. Won contends that Dr. Morin presented other studies which produced estimates of alpha that ranged from -9.61 percent to 13.56 percent which according to Dr. Won means the CAPM overestimated the return in some instances.

Q. Do you agree with how Dr. Won presented the studies cited by Dr. Morin regarding the appropriate Alpha for the ECAPM?

A. No, I do not. Dr. Won combined the estimates of Alpha from eight separate studies that Dr. Morin cited into one combined range of Alpha. This is incorrect because the combined range can result in the incorrect conclusion that the consensus among the studies is that CAPM could equally overstate or understate the actual return. However, as shown in Figure 4, six out of the eight studies estimated positive values of Alpha which would indicate that the consensus among the studies is that the CAPM understates the observed return. Additionally, among the six studies which estimate only positive values of Alpha the range of Alpha was 1.63 percent to 13.56 percent. From this range, it is reasonable to conclude that Dr. Morin's estimate of Alpha of 2 percent is somewhat conservative. Finally, as I will discuss in more detail below, studies that I have reviewed which

[61] Rebuttal Testimony of Dr. Won, at 17.

specifically examined the utility industry have shown that the CAPM has historically understated the returns of utilities.

Figure 4: Empirical Evidence on the Alpha Factor[62]

Author	Range of Alpha
Fischer (1993)	-3.6% to 3.6%
Fischer, Jensen and Scholes (1972)	-9.61% to 12.24%
Fama and McBeth (1972)	4.08% to 9.36%
Fama and French (1992)	10.08% to 13.56%
Litzenberger and Ramaswamy (1979)	5.32% to 8.17%
Litzenberger, Ramaswamy and Sosin (1980)	1.63% to 5.04%
Pettengill, Sundaram and Mathur (1995)	4.6%
Morin (1989)	2.0%

Q. Do any of the studies cited by Dr. Morin examine the ability of the CAPM to estimate the return of utilities?

A. Yes. Robert Litzenberger, Krishna Ramaswamy, and Howard Sosin published an article titled "On the CAPM Approach to the Estimation of a Public Utility's Cost of Equity Capital," which studied the ability of the CAPM to estimate the returns for utilities.[63] The authors found that the CAPM tends to understate the return for stocks such as utilities, which have a Beta less than 1.0. To develop the analysis, Litzenberger, et al. utilized both adjusted and raw Beta. In both cases, the CAPM understated the return for utilities with Betas less than 1.0.

[62] *New Regulatory Finance*, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 190 (Table 6-2)
[63] Litzenberger, Robert, et al. "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital." The Journal of Finance, vol. 35, no. 2, 1980, pp. 369–383.

Q. What is your response to Dr. Won's contention that the ECAPM proposed by Dr. Morin may not be applicable if more recent market data is considered?

A. Dr. Won's claim is incorrect as there has been a study published after the publication of Dr. Morin's book, *New Regulatory Finance*, which considered the use of the ECAPM based on more recent market data. Stephane Chretien and Frank Coggins published a study in 2011 titled "Cost of Equity for Energy Utilities: Beyond the CAPM", where they studied the CAPM and its ability to estimate the risk premium for the utility industry in particular subgroups of utilities for a data set that included market data through the end of 2006. The article considered the CAPM, the Fama-French three-factor model and a model similar to the ECAPM used in my Direct Testimony. As Chretien and Coggins show, the ECAPM significantly outperformed the traditional CAPM at predicting the observed risk premium for the various utility subgroups.[64]

G. Bond Yield Plus Risk Premium

Q. Please summarize Dr. Won's and Mr. Murray's criticisms regarding the Risk Premium analysis presented in your Direct Testimony.

A. Dr. Won indicates that he does not have any significant disagreements with my risk premium analysis because the results of my analysis support his recommended ROE of 9.50 percent.[65]

Mr. Murray contends that my risk premium analysis will not allow for a decrease in the spread between authorized ROEs and the cost of equity because my analysis relies on

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[64] Chrétien, Stéphane, and Frank Coggins. "Cost Of Equity For Energy Utilities: Beyond The CAPM." Energy Studies Review, Vol. 18, No. 2, 2011.

[65] Rebuttal Testimony of Dr. Won, at 18.

authorized ROEs and regulators have been hesitant to reduce authorized ROEs by the amount indicated by lower interest rates.[66]

Q. How do you respond to Mr. Murray's concern that your risk premium analysis maintains the current wide spread between authorized ROEs and the cost of equity.

A. As explained in my Direct Testimony, the regression equation was developed from authorized ROEs from hundreds of rate case decisions since 1992 and the corresponding Treasury yield at the time of the rate case decision.[67] Therefore, the estimated regression coefficients take into consideration the different economic conditions that have occurred over the past 30 years and their effect on the relationship between interest rates and authorized ROEs. It is incorrect to conclude, as Mr. Murray has, that the risk premium analysis only considers current economic conditions and maintains the current spread between interest rates and authorized ROEs. I continue to believe that my Bond Yield Plus Risk Premium analysis, which relies on the regression equation to predict future return requirements based on the level of interest rates, is useful for the purpose of corroborating the results of other ROE estimation models.

Q. Do you agree with Dr. Won that your risk premium analysis supports his recommended ROE?

A. No, I do not. As shown in Schedule AEB-D2, Attachment 10 to my Direct Testimony, the low-end of the range of my risk premium analysis was 9.28 percent based on the 30-day average 30-year Treasury Bond yield as of January 31, 2021, of 1.77 percent. However, interest rates have increased since the time period used to develop the analyses in my Direct Testimony. As shown in Schedule AEB-R1, Attachment 9 to my Rebuttal

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[66] Rebuttal Testimony of David Murray, at 29.
[67] Direct Testimony of Ann E. Bulkley, at 52-53.

Testimony, the low-end of the range of my risk premium analysis increased to 9.33 percent based on the 30-day average 30-year Treasury Bond yield as of August 31, 2021, of 1.91 percent. The low-end of the range of my risk premium analysis included in my Rebuttal Testimony is only slightly below Dr. Won's recommendation of 9.50 percent. However, as I discuss above and in my Rebuttal Testimony, investors expect interest rates to continue to increase over the near-term. As shown in my Rebuttal Testimony, if investors' expectations about interest rates are correct, the return that results from the Risk Premium methodology will be in the range of 10.00 percent, which is greater than the Company's proposed ROE of 9.80 percent.[68] Therefore, my risk premium analysis provides support for the conclusion that Dr. Won's recommended ROE will understate the cost of equity during the period that Ameren Missouri's rates will be in effect.

H. Authorized Returns in Other Jurisdictions

Q. Please summarize Dr. Won's review of authorized ROEs for natural gas utilities.

A. Dr. Won asserts that the average authorized ROE for natural gas utilities in 2021 is 9.52 percent.[69] Therefore, considering recently authorized ROE for natural gas utilities, Dr. Won concludes that the Company's requested ROE of 9.80 percent is too high.[70]

Q. Do you agree with Dr. Won's calculation of the average authorized ROE for natural gas utilities in 2021?

A. No, I do not. There are several important considerations when relying on national authorized ROEs. Much like the development of a comparable proxy group from which to draw meaningful results about the cost of equity using traditional ROE estimation models,

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[68] Rebuttal Testimony of Ann Bulkley, Schedule AEB-R1, Attachment 1.
[69] Rebuttal Testimony of Dr. Won, at 6.
[70] Rebuttal Testimony of Dr. Won, at 6.

it is important to establish a comparable data set in reviewing authorized ROEs. Often, as is the case with Dr. Won, analysts do not analyze the data to develop a truly comparable subset of the data and instead rely on the simple average of returns nationwide. While the average result may have some appeal due to its simplicity, it is not as meaningful as refining the data to identify comparable operations and the reason for the authorized ROE. Therefore, applying the *Hope* and *Bluefield*[71] comparability standards which the Commission has acknowledged is the standard for measuring the reasonableness of a utility's allowed ROE[72], it would be reasonable to look at recently authorized ROEs for companies that are considered reasonably comparable to Ameren Missouri and jurisdictions that determine the authorized ROE using a similar approach as Missouri.

Q. Did Dr. Won include authorized ROEs in his average that may not be considered comparable to Ameren Missouri?

A. Yes, he did. As I discuss in my Rebuttal Testimony, the authorized ROEs that are established in New York State, recently set at 8.80 percent, are not comparable and should be excluded from the authorize ROE range because the returns are essentially applied state-wide without differentiation between the risk factors of the companies.[73] As shown in Schedule AEB S1, Attachment 6, Dr. Won included three rate cases in New York with an authorized ROE of 8.80 percent. The inclusion of the rate cases in New York which are not comparable to Ameren Missouri biases the results of Dr. Won's average downwards.

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[71] Hope, 320 U.S. 591 (1944); Bluefield, 262 U.S. 679 (1923).
[72] *In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service*, File No. ER-2014-0370, Report and Order (Sept. 15, 2015), at 11.
[73] Rebuttal Testimony of Ann E. Bulkley, at 17.

Q. Have you adjusted Dr. Won's calculation of the average authorized ROE for natural gas utilities?

A. Yes, I have. As shown in Schedule AEB-S1, Attachment 6, I excluded rate cases in New York from the calculation of the average. This resulted in an average authorized ROE in 2021 for natural gas utilities of 9.65 percent. Additionally, authorized ROEs for natural gas utilities in 2021 ranged from 9.25 percent to 10.24 percent. Therefore, the Company's requested ROE is only slightly above the average and well within the range of authorized ROEs for natural gas utilities in 2021. Furthermore, when considering prospective market conditions (i.e., the expectation that interest rates will increase) and the elevated business risk of Ameren Missouri, it is reasonable to authorize an ROE for the Company that is slightly above the average authorized ROE for other natural gas utilities across the U.S.

I. Business Risks

Q. Please summarize Dr. Won's and Mr. Murray's position regarding the Company's business risk and the effect on Ameren Missouri's allowed ROE?

A. Dr. Won contends that my consideration of the small size for Ameren Missouri is "meaningless" because while Ameren Missouri's natural gas operations may be small, Ameren Missouri is largest utility company in Missouri. According to Dr. Won who references the Rebuttal Testimony of Mr. Cassidy in File No. ER-2021-0240, the Commission has approved "many favorable regulatory mechanisms" that will protect the Company from extreme variability in expenses and revenues and mitigate the Company's small size risk.[74] Finally, Dr. Won disregards my comparison of the RRA jurisdictional rankings and the S&P Credit Supportive rankings because, as noted above, Ameren

[74] Rebuttal Testimony of Dr. Won, at 19.

Missouri has cost recovery mechanisms such as the Purchased Gas Adjustment ("PGA"), the Delivery Charge Adjustment ("DCA") and the Infrastructure System Replacement Surcharge ("ISRS") which mitigate the Company's business risk.[75]

Mr. Murray disagrees with my consideration of the small size of Ameren Missouri's natural gas operations because the analysis "pretends" that Ameren Missouri's natural gas operations are a stand-alone entity.[76] According to Mr. Murray, since I assumed Ameren Missouri's natural gas operations are a stand-alone entity, I should have also considered that natural gas utilities have a larger percentage of short-term debt in their capital structure to finance investments. Finally, he notes that he is "perplexed" as to why I recommended an ROE for Ameren Missouri's natural gas operations that is lower than my recommendation for Ameren's electric operations in File No. ER-2021-0240 considering my concern with the small size risk of the Company's natural gas operations.[77]

Q. Do you agree with Dr. Won's and Mr. Murray's conclusion that the Company does not face increased risk due to small size?

A. No, I do not. Both Dr. Won and Mr. Murray seem to conclude that Ameren Missouri's natural gas operations do not face increased risk as a result of small size because the Company has electric operations which when combined with the natural gas operations make Ameren Missouri the largest utility in Missouri. However, the stand-alone principle of ratemaking holds that regulated rates should be based on the risks and benefits of the regulated utility, not its investors, parent or affiliates.[78] Since the stand-alone principle requires that Ameren Missouri's authorized cost of capital be based on the business and

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[75] Rebuttal Testimony of Dr. Won, at 20.
[76] Rebuttal Testimony of David Murray, at 30.
[77] Rebuttal Testimony of David Murray, at 29-30.
[78] *New Regulatory Finance*, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 215-216.

financial risk of the Company or business line individually, it is necessary to establish a group of companies that are both publicly traded and comparable to Ameren Missouri's natural gas operations in certain fundamental business and financial respects to serve as a "proxy" for determining the ROE. Since Ameren Missouri's natural gas operations are substantially smaller than the companies contained in my proxy group, it is reasonable to conclude that Ameren Missouri has greater risk when compared to the proxy group due to its small size. Dr. Won's and Mr. Murray's consideration of the size of the electric and natural gas operations combined should not be considered in determining the ROE for Ameren Missouri's natural gas operations. The ROE for Ameren Missouri natural gas operations should be based on the financial and business risk of Ameren Missouri's natural gas operations as a stand-alone operation.

Q. What are your concerns with Mr. Murray's position that you have not considered that natural gas utilities have increased levels of short-term debt in their capital structure in your business risk analysis?

A. I have two primary concerns with Mr. Murray's position. First, the capital structure should match the nature of the Company's investment in plant and equipment. The Company's gas distribution system assets are long-lived assets that are financed with long-term debt and common equity. Therefore, while short-term debt may be used to meet seasonal working capital requirements, the permanent capital that is used to finance the rate base generally does not include short-term debt. In fact, the Company's proposed capital structure as of September 30, 2021, of 51.93 percent common equity, 47.34 percent long-term debt and 0.73 percent preferred equity does not include short-term debt. This is consistent with the Commission's decision in File No. GR-2017-0215 and File No. GR-2017-0216 for Spire Missouri, where the Commission determined that the reasonable

capital structure for ratemaking purposes did not include short-term debt.[79] It is therefore unclear why Mr. Murray's believes I should consider short-term debt in my analysis of the Company's business risks.

Second, as discussed in my Rebuttal Testimony and shown in Schedule DTS-R3 to the Rebuttal Testimony of Company Witness Darryl Sagel, the median authorized equity ratio for the companies contained in my proxy group as of 2020 was 55.00 percent which is greater than the equity ratio proposed by the Company of 51.93 percent.[80] Thus, the Company's proposed equity ratio is conservative when compared to the proxy group.

Q. Do you agree with Mr. Murray that your recommendation for Ameren Missouri's natural gas operations should have been higher than your recommendation for Ameren Missouri's electric operations due to your consideration of small size?

A. No, I do not. It is important to note that the requested 9.80 percent ROE in this case and the requested 9.90 percent ROE in File No. ER-2021-2040 for Ameren Missouri's electric operations were the Company's requests and were selected based on the range of reasonable ROEs that I developed in each case. Additionally, Mr. Murray is viewing Ameren Missouri's small size risk in isolation when suggesting that I should have recommended a higher ROE for the Company's natural gas operations than the electric operations. As I have noted in my Direct and Rebuttal Testimonies, I considered the business risks of the Company in their entirety including small size and regulatory risk as compared to the proxy group when determining the range of reasonable ROEs for Ameren Missouri's natural gas operations. It is incorrect to compare the requested ROEs for

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[79] *In the Matter of Laclede Gas Company's Request to increase its Revenues for Gas Service*, File No. GR-2017-0215 and File No. GR-2017-0216, Report and Order (Feb. 21, 2018), at 42-43.

[80] Rebuttal Testimony of Ann E. Bulkley, at 13-14.

Ameren Missouri's natural gas and electric operations based on one risk factor, Mr. Murray should have compared the entirety of the information and analyses presented in each case.

Q. Do you have any other concerns with Dr. Won's and Mr. Murray's conclusions regarding Ameren Missouri's business risk?

A. Yes. Dr. Won and Mr. Murray appear to conclude that Ameren Missouri has similar risk to their respective proxy groups. For example, Dr. Won concludes that Ameren Missouri could not have greater risk than the proxy group because the Company utilizes cost recovery mechanisms such as the PGA, DCA and ISRS. While I agree that timely recovery of costs will promote revenue stability and can decrease the operating risk of a utility, the use of a cost recovery mechanism does not imply that the ROE for the Company should be reduce nor does it provide any indication of the risk of the Company as compared to the proxy group. In this case, we are determining the authorized ROE for the Ameren Missouri based on a proxy group of companies that are deemed to be generally comparable to the Company. Therefore, the appropriate approach to assess business risk in the context of determining the authorized ROE is to compare the regulatory mechanisms authorized for the Company to the regulatory mechanisms for the companies of the proxy group being used to develop the ROE. This comparison will determine if the Company has greater regulatory risk than the proxy group. If the Company is determined to have greater risk than proxy group due to having fewer comprehensive regulatory mechanisms, then an ROE towards the higher end of the proxy group results may be warranted. This is because investors would require a higher return on equity for investing in a utility with limited ratemaking adjustment mechanisms. Neither Dr. Won nor Mr. Murray have reviewed the cost recovery mechanisms available to the companies in their respective proxy groups to determine the cost recovery risk of the proxy

group relative to Ameren Missouri. Absent a comparison to the proxy group, there is no basis to make a conclusion regarding the relative risk of Ameren Missouri to the proxy group employed to set the ROE.

Q. Do you agree with Dr. Won's reference to Mr. Cassidy's testimony in File No. ER-2021-0240 for a discussion of the regulatory mechanisms available to Ameren Missouri?

A. No, I do not. Mr. Cassidy provides a discussion of the regulatory mechanisms that are available to Ameren's electric operations. However, in this case, we are determining the ROE for Ameren Missouri's natural gas operations. Therefore, the regulatory mechanisms available to Ameren Missouri's electric operations have no effect on the business risk of Ameren Missouri's natural gas operations. As such, I do not believe the Commission should consider Mr. Cassidy's testimony in File No. ER-2021-2040 in determining the ROE for Ameren Missouri's natural gas operations.

Q. Do you agree with Dr. Won that your analysis to evaluate the regulatory environment in Missouri as compared to the jurisdictions in which the companies in your proxy group operate does not show that Ameren Missouri has greater risk relative to the proxy group?

A. No, I do not. Dr. Won indicates that it is unclear how I compared the regulatory environment of Ameren Missouri to the proxy group. This information was provided in my Direct Testimony and in Schedules D2, Attachment 13 and Attachment 14. For example, as discussed in my Direct Testimony, I considered the Regulatory Research Associates ("RRA") ranking of regulatory jurisdictions which assigns a ranking for each regulatory jurisdiction between "Above Average/1" to "Below Average/3," with nine total rankings between these categories. While RRA did increase the regulatory ranking of Missouri following the passage of Senate Bill 564 which established PISA, it is important to note

that Missouri's ranking only increased from "Below Average/1" to "Average/3". Therefore, even considering the current cost recovery mechanisms available to the utilities in Missouri, RRA noted that "Missouri regulation is somewhat more restrictive than average from an investor perspective".[81] Furthermore, as shown in Schedule AEB-D2 Attachment 13 to my Direct Testimony, my proxy group had an average RRA ranking between "Average/1" and "Average/2". Based on the RRA regulatory rankings, Ameren Missouri would have greater business risk than the proxy group as a result of operating in the state of Missouri.

Similarly, as discussed in my Direct Testimony, I also considered S&P's Credit Supportive rankings which classify the regulatory jurisdictions into five categories ranging from "Credit Supportive" to "Most Credit Supportive".[82] As shown in Schedule AEB-D2, Attachment 14, the proxy group is ranked between very credit supportive and highly credit supportive while the Missouri regulatory jurisdiction is only ranked as very credit supportive. Thus, similar to the results using the RRA regulatory rankings, Missouri is perceived as being below the average for the proxy group. Therefore, contrary to the opinion of Dr. Won, it seems very clear considering the jurisdictional rankings of S&P and RRA that Ameren Missouri has greater risk relative to the proxy group.

Q. Did you conduct a detailed review of Ameren Missouri's cost recovery mechanisms to the cost recovery mechanisms of the companies in your proxy group?

A. Yes, I did. As shown in Schedule AEB-D2 Attachment 12 to my Direct Testimony, I selected four mechanisms that are important to provide a regulated utility the opportunity

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[81] Direct Testimony of Ann Bulkley, at 65-66.
[82] Direct Testimony of Ann Bulkley, at 66-67.

to earn its authorized ROE: 1) test year convention (i.e., forecast vs. historical); 2) method for determining rate base (i.e., average vs. year-end); 3) use of either a revenue decoupling mechanism or other clauses that mitigate volumetric risk; and 4) prevalence of capital cost recovery between rate cases.[83] As discussed in my Direct Testimony, based on my review of these four mechanisms, I concluded that many of the companies in the proxy group had more timely cost recovery through forecasted test years, year-end rate base, decoupling mechanisms, formula-based rates, capital cost recovery mechanisms, and construction work in progress ("CWIP") allowances within rate base than Ameren Missouri had in Missouri.[84] For example, while Ameren Missouri has a partial decoupling mechanism and a capital tracking mechanism which makes the Company more similar to the proxy group, the Company utilizes a historical test year with known and measurable changes through a true-up period which indicates greater risk relative to the proxy group since a majority of the proxy group relies on a partial or fully forecasted test year. Therefore, while Dr. Won is correct that Ameren Missouri has cost recovery mechanisms, the recovery mechanism available to the Company are not as robust as those approved for the companies in the proxy group which increases the risk of Ameren Missouri relative to the proxy group.

III. SUMMARY AND RECOMMENDATIONS

Q. Please summarize your conclusions and recommendations regarding the appropriate ROE for Ameren Missouri in this proceeding.

A. I continue to support the analyses and recommendation contained in my Direct and Rebuttal Testimonies. Specifically, the range of reasonable ROE results for the proxy

[83] Direct Testimony of Ann Bulkley, at 63-65.
[84] Direct Testimony of Ann Bulkley, at 67.

group companies is between 9.65 percent and 10.40 percent. Therefore, the Company's requested ROE of 9.80 percent is reasonable. Nothing in the other ROE witnesses' rebuttal testimony has caused me to change my range of results or my support of the Company's requested ROE. An authorized ROE of 9.80 percent balances the interests of Ameren Missouri's customers and shareholders, is comparable to the authorized returns for similarly-situated natural gas utilities, maintains the Company's financial integrity, and enables Ameren Missouri to attract capital on reasonable terms and conditions.

Q. Does this conclude your Surrebuttal Testimony?

A. Yes, it does.

180-DAY CONSTANT GROWTH DCF -- MS. BULKLEY DIRECT TESTIMONY AS FILED

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] Average Growth Rate	[9] Mean ROE
Atmos Energy Corporation	ATO	$2.50	$97.67	2.56%	2.65%	7.00%	6.77%	7.10%	6.96%	9.61%
NiSource Inc.	NI	$0.84	$23.22	3.62%	3.74%	13.00%	1.65%	5.60%	6.75%	10.49%
Northwest Natural Gas Company	NWN	$1.92	$50.67	3.79%	3.87%	5.97%	3.10%	3.10%	4.06%	7.92%
ONE Gas Inc.	OGS	$2.16	$75.21	2.87%	2.96%	6.50%	5.00%	6.00%	5.83%	8.79%
South Jersey Industries, Inc.	SJI	$1.21	$22.81	5.30%	5.85%	12.50%	24.50%	24.50%	20.50%	26.35%
Southwest Gas Corporation	SWX	$2.28	$66.48	3.43%	3.53%	9.00%	4.00%	5.00%	6.00%	9.53%
Spire, Inc.	SR	$2.60	$62.13	4.18%	4.38%	5.50%	5.37%	16.50%	9.12%	13.50%
Median				3.62%	3.74%	7.00%	5.00%	6.00%	6.75%	9.61%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of January 31, 2021.
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [4] + [8]
[10] The Value Line Growth Rate for NWN was adjusted to exclude the negative EPS data for 2017 which resulted in an adjusted projected EPS growth rate of 5.97% (Source: Schedule AEB-D3, page 4). The growth rate for SJI published by Zacks and Yahoo! is a consensus estimate and therefore, can not be adjusted. As a result, the median was used as the measure of central tendency to account for the Zacks and Yahoo! earnings growth rate for SJI.

180-DAY TWO-STAGE DCF -- MS. BULKLEY'S GDP GROWTH RATE AND FERC GROWTH RATE WEIGHTING

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Projected GDP Growth - Long-term Growth	Weighted Average Growth Rate	Mean ROE
Atmos Energy Corporation	ATO	$2.50	$97.67	2.56%	2.65%	7.00%	6.77%	7.10%	6.96%	5.56%	6.68%	9.32%
NiSource Inc.	NI	$0.84	$23.22	3.62%	3.74%	13.00%	1.65%	5.60%	6.75%	5.56%	6.51%	10.25%
Northwest Natural Gas Company	NWN	$1.92	$50.67	3.79%	3.87%	5.97%	3.10%	3.10%	4.06%	5.56%	4.36%	8.23%
ONE Gas Inc.	OGS	$2.16	$75.21	2.87%	2.95%	6.50%	5.00%	6.00%	5.83%	5.56%	5.78%	8.73%
South Jersey Industries, Inc.	SJI	$1.21	$22.81	5.30%	5.77%	12.50%	24.50%	24.50%	20.50%	5.56%	17.51%	23.28%
Southwest Gas Corporation	SWX	$2.28	$66.48	3.43%	3.53%	9.00%	4.00%	5.00%	6.00%	5.56%	5.91%	9.44%
Spire, Inc.	SR	$2.60	$62.13	4.18%	4.36%	5.50%	5.37%	16.50%	9.12%	5.56%	8.41%	12.77%
Median				3.62%	3.74%	7.00%	5.00%	6.00%	6.75%	5.56%	6.51%	9.44%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 180-day average as of January 31, 2021.
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [10])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])
[9] Source: Schedule AEB-D2, Attachment 5
[10] Equals [8] x 0.8 + [9] x 0.2
[11] Equals [4] + [10]
[12] The Value Line Growth Rate for NWN was adjusted to exclude the negative EPS data for 2017 which resulted in an adjusted projected EPS growth rate of 5.97% (Source: Schedule AEE D3, page 4). The growth rate for SJI published by Zacks and Yahoo! is a consensus estimate and therefore, can not be adjusted. As a result, the median was used as the measure of central tendency to account for the Zacks and Yahoo! earnings growth rate for SJI.

Actual and Adjusted Calculation of Northwest Natural's Projected Earnings Growth Rate from Value Line

[1]		[2]	[3]
Actual Earnings Per Share		Projected Earnings Per Share (2023-2025)	Projected Earnings Growth Rate
2017	-1.94		
2018	2.33		
2019	2.19		
Mean (2017-2019)	0.86	3.2	24.48%
Mean (2018-2019)	2.26	3.2	5.97%

Notes:
[1] Source: Value Line, November 27, 2020
[2] Source: Value Line, November 27, 2020
[3] Equals ([2] / [1]) ^ (1/6) - 1

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta	Market Return	Market Risk Premium	CAPM ROE	ECAPM ROE
Atmos Energy Corporation	ATO	1.77%	0.80	12.11%	10.35%	10.05%	10.56%
NiSource Inc.	NI	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
Northwest Natural Gas Company	NWN	1.77%	0.80	12.11%	10.35%	10.05%	10.56%
ONE Gas Inc.	OGS	1.77%	0.80	12.11%	10.35%	10.05%	10.56%
South Jersey Industries, Inc.	SJI	1.77%	1.05	12.11%	10.35%	12.63%	12.50%
Southwest Gas Corporation	SWX	1.77%	0.95	12.11%	10.35%	11.60%	11.73%
Spire, Inc.	SR	1.77%	0.85	12.11%	10.35%	10.56%	10.95%
Mean						10.78%	11.12%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Value Line; dated November 27, 2020
[3] Source: Schedule AEB-S1, Attachment 5
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & VL BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q2 2021 - Q2 2022)	Beta	Market Return	Market Risk Premium	CAPM ROE	ECAPM ROE
Atmos Energy Corporation	ATO	2.06%	0.80	12.11%	10.05%	10.10%	10.61%
NiSource Inc.	NI	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
Northwest Natural Gas Company	NWN	2.06%	0.80	12.11%	10.05%	10.10%	10.61%
ONE Gas Inc.	OGS	2.06%	0.80	12.11%	10.05%	10.10%	10.61%
South Jersey Industries, Inc.	SJI	2.06%	1.05	12.11%	10.05%	12.62%	12.49%
Southwest Gas Corporation	SWX	2.06%	0.95	12.11%	10.05%	11.61%	11.74%
Spire, Inc.	SR	2.06%	0.85	12.11%	10.05%	10.61%	10.98%
Mean						10.82%	11.15%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 40, No. 2, February 1, 2021, at 2
[2] Source: Value Line; dated November 27, 2020
[3] Source: Schedule AEB-S1, Attachment 5
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2022 - 2026)	Beta	Market Return	Market Risk Premium	CAPM ROE	ECAPM ROE
Atmos Energy Corporation	ATO	2.80%	0.80	12.11%	9.31%	10.25%	10.72%
NiSource Inc.	NI	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
Northwest Natural Gas Company	NWN	2.80%	0.80	12.11%	9.31%	10.25%	10.72%
ONE Gas Inc.	OGS	2.80%	0.80	12.11%	9.31%	10.25%	10.72%
South Jersey Industries, Inc.	SJI	2.80%	1.05	12.11%	9.31%	12.58%	12.46%
Southwest Gas Corporation	SWX	2.80%	0.95	12.11%	9.31%	11.65%	11.77%
Spire, Inc.	SR	2.80%	0.85	12.11%	9.31%	10.72%	11.07%
Mean						10.92%	11.22%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 39, No. 12, December 1, 2020, at 14
[2] Source: Value Line; dated November 27, 2020
[3] Source: Schedule AEB-S1, Attachment 5
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta	Market Return	Market Risk Premium	CAPM ROE	ECAPM ROE
Atmos Energy Corporation	ATO	1.77%	0.75	12.11%	10.35%	9.51%	10.16%
NiSource Inc.	NI	1.77%	0.80	12.11%	10.35%	10.06%	10.58%
Northwest Natural Gas Company	NWN	1.77%	0.73	12.11%	10.35%	9.28%	9.99%
ONE Gas Inc.	OGS	1.77%	0.83	12.11%	10.35%	10.39%	10.82%
South Jersey Industries, Inc.	SJI	1.77%	0.84	12.11%	10.35%	10.44%	10.86%
Southwest Gas Corporation	SWX	1.77%	0.86	12.11%	10.35%	10.64%	11.01%
Spire, Inc.	SR	1.77%	0.76	12.11%	10.35%	9.62%	10.24%
Mean						9.99%	10.52%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional
[3] Source: Schedule AEB-S1, Attachment 5
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- NEAR-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q2 2021 - Q2 2022)	Beta	Market Return	Market Risk Premium	CAPM ROE	ECAPM ROE
Atmos Energy Corporation	ATO	2.06%	0.75	12.11%	10.05%	9.59%	10.22%
NiSource Inc.	NI	2.06%	0.80	12.11%	10.05%	10.12%	10.62%
Northwest Natural Gas Company	NWN	2.06%	0.73	12.11%	10.05%	9.36%	10.05%
ONE Gas Inc.	OGS	2.06%	0.83	12.11%	10.05%	10.44%	10.86%
South Jersey Industries, Inc.	SJI	2.06%	0.84	12.11%	10.05%	10.48%	10.89%
Southwest Gas Corporation	SWX	2.06%	0.86	12.11%	10.05%	10.68%	11.04%
Spire, Inc.	SR	2.06%	0.76	12.11%	10.05%	9.69%	10.30%
Mean						10.05%	10.57%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 40, No. 2, February 1, 2021, at 2
[2] Source: Bloomberg Professional
[3] Source: Schedule AEB-S1, Attachment 5
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2022 - 2026)	Beta	Market Return	Market Risk Premium	CAPM ROE	ECAPM ROE
Atmos Energy Corporation	ATO	2.80%	0.75	12.11%	9.31%	9.77%	10.36%
NiSource Inc.	NI	2.80%	0.80	12.11%	9.31%	10.27%	10.73%
Northwest Natural Gas Company	NWN	2.80%	0.73	12.11%	9.31%	9.56%	10.20%
ONE Gas Inc.	OGS	2.80%	0.83	12.11%	9.31%	10.56%	10.95%
South Jersey Industries, Inc.	SJI	2.80%	0.84	12.11%	9.31%	10.60%	10.98%
Southwest Gas Corporation	SWX	2.80%	0.86	12.11%	9.31%	10.79%	11.12%
Spire, Inc.	SR	2.80%	0.76	12.11%	9.31%	9.87%	10.43%
Mean						10.20%	10.68%

Notes:
[1] Source: Blue Chip Financial Forecasts, Vol. 39, No. 12, December 1, 2020, at 14
[2] Source: Bloomberg Professional
[3] Source: Schedule AEB-S1, Attachment 5
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL -- LONG-TERM AVERAGE BETA

CAPM: $K = R_f + \beta (R_m - R_f)$ / ECAPM: K = Rf + 0.25(Rm − Rf) + 0.75β (Rm − Rf)

	[4]	[5]	[6]	[7]	[8]	[9]
	Risk-Free Rate (R_f)	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	CAPM (K)	ECAPM (K)
Current 30-day average of 30-year U.S. Treasury bond yield [1]	1.77%	0.721	12.11%	10.35%	9.23%	9.95%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2021 - Q2 2022) [2]	2.06%	0.721	12.11%	10.05%	9.31%	10.01%
Projected 30-year U.S. Treasury bond yield (2022 - 2026) [3]	2.80%	0.721	12.11%	9.31%	9.52%	10.17%
				Average:	**9.35%**	**10.04%**

Notes:
[1] Source: Bloomberg Professional
[2] Source: Blue Chip Financial Forecasts, Vol. 40, No. 2, February 1, 2021, at 2
[3] Source: Blue Chip Financial Forecasts, Vol. 39, No. 12, December 1, 2020, at 14
[4] See Notes [1], [2], and [3]
[5] Source: Schedule AEB-S1, Attachment 4
[6] Source: Schedule AEB-S1, Attachment 5
[7] Equals [6] − [4]
[8] Equals [4] + [5] x [7]
[9] Equals [4] + 0.25 x ([7]) + 0.75 x ([5] x [7])

HISTORICAL BETA - 2011 - 2020

Company	Ticker	[1] 12/31/2011	[2] 12/31/2012	[3] 12/31/2013	[4] 12/31/2014	[5] 12/31/2015	[6] 12/31/2016	[7] 12/31/2017	[8] 12/31/2018	[9] 12/31/2019	[10] 12/31/2020	[11] Average
Atmos Energy Corporation	ATO	0.70	0.70	0.80	0.80	0.80	0.70	0.70	0.60	0.60	0.80	0.72
NiSource Inc.	NI	0.85	0.80	0.85	0.85	NMF	NMF	0.60	0.50	0.55	0.85	0.73
Northwest Natural Gas Company	NWN	0.60	0.55	0.65	0.70	0.65	0.60	0.70	0.60	0.60	0.80	0.65
ONE Gas Inc.	OGS	N/A	N/A	N/A	N/A	N/A	N/A	0.70	0.65	0.65	0.80	0.70
South Jersey Industries, Inc.	SJI	0.65	0.65	0.70	0.80	0.80	0.80	0.85	0.80	0.80	1.05	0.79
Southwest Gas Corporation	SWX	0.75	0.75	0.80	0.85	0.80	0.75	0.80	0.70	0.70	0.95	0.79
Spire, Inc.	SR	0.60	0.55	0.65	0.70	0.70	0.70	0.70	0.65	0.65	0.85	0.68
Mean		0.69	0.67	0.74	0.78	0.75	0.71	0.72	0.64	0.65	0.87	0.72

Notes:
[1] Value Line, dated December 9, 2011.
[2] Value Line, dated December 7, 2012.
[3] Value Line, dated December 6, 2013.
[4] Value Line, dated December 5, 2014.
[5] Value Line, dated December 4, 2015.
[6] Value Line, dated December 2, 2016.
[7] Value Line, dated December 1, 2017.
[8] Value Line, dated November 30, 2018.
[9] Value Line, dated November 29, 2019.
[10] Value Line, dated November 27, 2020.
[11] Average ([1] - [10])

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

[1] Estimated Weighted Average Dividend Yield	2.07%
[2] Estimated Weighted Average Long-Term Growth Rate	9.94%
[3] S&P 500 Estimated Required Market Return	12.11%

STANDARD AND POOR'S 500 INDEX

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Current Dividend Yield	Cap-Weighted Dividend Yield	Value Line Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	333.9	85.76	28,636.89	0.13%	4.90%	0.01%	3.50%	0.00%
American Express Co	AXP	805.0	116.26	93,589.30	0.42%	1.48%	0.01%	6.00%	0.02%
Verizon Communications Inc	VZ	4138.0	54.75	226,555.50	1.01%	4.58%	0.05%	4.00%	0.04%
Broadcom Inc	AVGO	406.7	450.5	183,224.21	0.81%	3.20%	0.03%	18.50%	0.15%
Boeing Co/The	BA	564.5	194.19	109,626.08		n/a		-1.50%	
Caterpillar Inc	CAT	543.3	182.84	99,329.29	0.44%	2.25%	0.01%	4.00%	0.02%
JPMorgan Chase & Co	JPM	3048.2	128.67	392,212.28	1.74%	2.80%	0.05%	5.50%	0.10%
Chevron Corp	CVX	1925.0	85.2	164,011.45	0.73%	6.06%	0.04%	10.50%	0.08%
Coca-Cola Co/The	KO	4297.4	48.15	206,921.50	0.92%	3.41%	0.03%	6.50%	0.06%
AbbVie Inc	ABBV	1765.5	102.48	180,925.78	0.80%	5.07%	0.04%	10.50%	0.08%
Walt Disney Co/The	DIS	1814.3	168.17	305,104.78		n/a		17.00%	
FleetCor Technologies Inc	FLT	83.4	242.75	20,245.84		n/a		14.00%	
Extra Space Storage Inc	EXR	131.4	113.79	14,947.23	0.07%	3.16%	0.00%	3.00%	0.00%
Exxon Mobil Corp	XOM	4228.2	44.84	189,594.01	0.84%	7.76%	0.07%	4.50%	0.04%
Phillips 66	PSX	436.8	67.8	29,615.04	0.13%	5.31%	0.01%	4.00%	0.01%
General Electric Co	GE	8759.9	10.68	93,555.44	0.42%	0.37%	0.00%	4.00%	0.02%
HP Inc	HPQ	1289.6	24.34	31,389.74	0.14%	3.18%	0.00%	10.00%	0.01%
Home Depot Inc/The	HD	1076.6	270.82	291,565.08	1.30%	2.22%	0.03%	8.50%	0.11%
International Business Machines Corp	IBM	891.1	119.11	106,133.80		5.47%		-0.50%	
Johnson & Johnson	JNJ	2632.5	163.13	429,446.74	1.91%	2.48%	0.05%	10.00%	0.19%
McDonald's Corp	MCD	745.1	207.84	154,863.87	0.69%	2.48%	0.02%	9.00%	0.06%
Merck & Co Inc	MRK	2530.0	77.07	194,989.72	0.87%	3.37%	0.03%	9.00%	0.08%
3M Co	MMM	576.8	175.66	101,324.55	0.45%	3.35%	0.02%	4.50%	0.02%
American Water Works Co Inc	AWK	181.3	159.02	28,825.87	0.13%	1.38%	0.00%	8.50%	0.01%
Bank of America Corp	BAC	8650.8	29.65	256,496.64	1.14%	2.43%	0.03%	4.00%	0.05%
Baker Hughes Co	BKR	685.8	20.09	13,778.06		3.58%		n/a	
Pfizer Inc	PFE	5558.4	35.9	199,546.45	0.89%	4.35%	0.04%	8.50%	0.08%
Procter & Gamble Co/The	PG	2462.5	128.21	315,714.05	1.40%	2.47%	0.03%	8.00%	0.11%
AT&T Inc	T	7126.0	28.63	204,017.38	0.91%	7.27%	0.07%	5.50%	0.05%
Travelers Cos Inc/The	TRV	252.4	136.3	34,402.12	0.15%	2.49%	0.00%	9.50%	0.01%
Raytheon Technologies Corp	RTX	1518.7	66.73	101,343.92		2.85%		-6.00%	
Analog Devices Inc	ADI	369.3	147.33	54,413.24	0.24%	1.68%	0.00%	8.50%	0.02%
Walmart Inc	WMT	2829.3	140.49	397,486.39	1.77%	1.54%	0.03%	8.00%	0.14%
Cisco Systems Inc/Delaware	CSCO	4221.0	44.58	188,172.18	0.84%	3.23%	0.03%	7.00%	0.06%
Intel Corp	INTC	4063.0	55.51	225,537.13	1.00%	2.50%	0.03%	7.00%	0.07%
General Motors Co	GM	1431.3	50.68	72,538.69		n/a		4.00%	
Microsoft Corp	MSFT	7542.2	231.96	1,749,492.42	7.77%	0.97%	0.08%	13.50%	1.05%
Dollar General Corp	DG	245.0	194.61	47,679.64	0.21%	0.74%	0.00%	13.00%	0.03%
Cigna Corp	CI	361.3	217.05	78,413.00	0.35%	1.84%	0.01%	11.50%	0.04%
Kinder Morgan Inc	KMI	2263.8	14.08	31,874.22	0.14%	7.46%	0.01%	18.50%	0.03%
Citigroup Inc	C	2082.0	57.99	120,732.86	0.54%	3.52%	0.02%	10.00%	0.05%
American International Group Inc	AIG	861.5	37.44	32,255.53		3.42%		28.50%	
Honeywell International Inc	HON	701.7	195.37	137,088.39	0.61%	1.90%	0.01%	8.00%	0.05%
Altria Group Inc	MO	1858.4	41.08	76,343.85	0.34%	8.37%	0.03%	6.50%	0.02%
HCA Healthcare Inc	HCA	338.4	162.48	54,979.17		n/a		11.00%	
Under Armour Inc	UAA	188.5	17.5	3,299.35		n/a		11.00%	
International Paper Co	IP	393.1	50.31	19,776.61	0.09%	4.07%	0.00%	6.50%	0.01%
Hewlett Packard Enterprise Co	HPE	1293.5	12.34	15,961.79	0.07%	3.89%	0.00%	2.50%	0.00%
Abbott Laboratories	ABT	1772.4	123.59	219,046.22	0.97%	1.46%	0.01%	12.00%	0.12%
Aflac Inc	AFL	702.4	45.18	31,736.47	0.14%	2.92%	0.00%	8.50%	0.01%
Air Products and Chemicals Inc	APD	221.0	266.76	58,967.03	0.26%	2.25%	0.01%	12.50%	0.03%
Royal Caribbean Cruises Ltd	RCL	224.3	65	14,582.04		n/a		-0.50%	
Hess Corp	HES	307.1	53.98	16,576.02		1.85%		n/a	
Archer-Daniels-Midland Co	ADM	556.4	50.01	27,825.01	0.12%	2.96%	0.00%	9.00%	0.01%
Automatic Data Processing Inc	ADP	428.1	165.12	70,687.87	0.31%	2.25%	0.01%	9.00%	0.03%
Verisk Analytics Inc	VRSK	162.6	183.5	29,835.27	0.13%	0.59%	0.00%	11.50%	0.02%
AutoZone Inc	AZO	22.8	1118.37	25,452.98		n/a		12.00%	
Avery Dennison Corp	AVY	83.4	150.87	12,585.27	0.06%	1.64%	0.00%	11.00%	0.01%
Enphase Energy Inc	ENPH	126.3	182.35	23,036.82		n/a		40.00%	
MSCI Inc	MSCI	82.6	395.3	32,651.78	0.15%	0.79%	0.00%	17.00%	0.02%
Ball Corp	BLL	327.1	88.02	28,792.40	0.13%	0.68%	0.00%	18.00%	0.02%
Carrier Global Corp	CARR	866.7	38.5	33,367.45		1.25%		n/a	
Bank of New York Mellon Corp/The	BK	886.8	39.83	35,319.81	0.16%	3.11%	0.00%	3.00%	0.00%
Otis Worldwide Corp	OTIS	433.2	64.65	28,006.06		1.24%		n/a	
Baxter International Inc	BAX	510.8	76.83	39,246.15	0.17%	1.28%	0.00%	9.00%	0.02%
Becton Dickinson and Co	BDX	290.9	261.79	76,142.15	0.34%	1.27%	0.00%	9.00%	0.03%
Berkshire Hathaway Inc	BRK/B	1371.0	227.87	312,398.83		n/a		6.00%	
Best Buy Co Inc	BBY	258.9	108.82	28,178.39	0.13%	2.02%	0.00%	9.00%	0.01%
Boston Scientific Corp	BSX	1431.9	35.44	50,747.28		n/a		12.50%	
Bristol-Myers Squibb Co	BMY	2259.8	61.43	138,816.57	0.62%	3.19%	0.02%	12.50%	0.08%
Fortune Brands Home & Security Inc	FBHS	138.9	86.25	11,982.63	0.05%	1.21%	0.00%	8.50%	0.00%
Brown-Forman Corp	BF/B	309.5	71.67	22,181.08	0.10%	1.00%	0.00%	12.00%	0.01%
Cabot Oil & Gas Corp	COG	398.6	18.33	7,305.97	0.03%	2.18%	0.00%	11.50%	0.00%
Campbell Soup Co	CPB	302.9	48.11	14,574.68	0.06%	3.08%	0.00%	4.00%	0.00%
Kansas City Southern	KSU	90.8	202.67	18,412.16	0.08%	0.87%	0.00%	11.50%	0.01%
Hilton Worldwide Holdings Inc	HLT	277.4	101.39	28,130.25		n/a		11.00%	
Carnival Corp	CCL	929.6	18.67	17,356.23		n/a		-10.00%	
Qorvo Inc	QRVO	114.1	170.88	19,489.55		n/a		37.00%	
Lumen Technologies Inc	LUMN	1097.1	12.38	13,582.48	0.06%	8.08%	0.00%	2.50%	0.00%
UDR Inc	UDR	294.5	38.45	11,322.79	0.05%	3.75%	0.00%	3.50%	0.00%
Clorox Co/The	CLX	126.1	209.46	26,402.43	0.12%	2.12%	0.00%	5.00%	0.01%
Paycom Software Inc	PAYC	58.5	379.74	22,219.73		n/a		23.00%	
CMS Energy Corp	CMS	286.3	56.88	16,286.68	0.07%	3.06%	0.00%	7.50%	0.01%
Newell Brands Inc	NWL	424.3	24.02	10,191.69	0.05%	3.83%	0.00%	4.50%	0.00%
Colgate-Palmolive Co	CL	857.2	78	66,859.18	0.30%	2.26%	0.01%	5.00%	0.01%
Comerica Inc	CMA	139.0	57.2	7,950.80	0.04%	4.76%	0.00%	0.50%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Current Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
IPG Photonics Corp	IPGP	53.3	223.43	11,909.04		n/a		10.00%	
Conagra Brands Inc	CAG	488.6	34.6	16,904.83	0.08%	3.18%	0.00%	5.50%	0.00%
Consolidated Edison Inc	ED	342.1	70.78	24,214.97	0.11%	4.38%	0.00%	3.00%	0.00%
SL Green Realty Corp	SLG	70.5	67.48	4,758.15		5.39%		-1.50%	
Corning Inc	GLW	765.0	35.87	27,440.55	0.12%	2.45%	0.00%	13.50%	0.02%
Cummins Inc	CMI	148.0	234.42	34,695.80	0.15%	2.30%	0.00%	4.00%	0.01%
Danaher Corp	DHR	711.0	237.84	169,104.24	0.75%	0.30%	0.00%	17.00%	0.13%
Target Corp	TGT	500.8	181.17	90,725.04	0.40%	1.50%	0.01%	13.00%	0.05%
Deere & Co	DE	314.4	288.8	90,804.78	0.40%	1.05%	0.00%	5.00%	0.02%
Dominion Energy Inc	D	815.8	72.89	59,465.05	0.26%	3.46%	0.01%	6.00%	0.02%
Dover Corp	DOV	144.1	116.49	16,786.56	0.07%	1.70%	0.00%	6.50%	0.00%
Alliant Energy Corp	LNT	249.8	48.65	12,150.87	0.05%	3.31%	0.00%	5.50%	0.00%
Duke Energy Corp	DUK	736.0	94	69,184.00	0.31%	4.11%	0.01%	5.00%	0.02%
Regency Centers Corp	REG	169.7	47.18	8,005.50	0.04%	5.04%	0.00%	14.50%	0.01%
Eaton Corp PLC	ETN	398.6	117.7	46,915.22	0.21%	2.48%	0.01%	4.00%	0.01%
Ecolab Inc	ECL	285.4	204.51	58,376.36	0.26%	0.94%	0.00%	8.50%	0.02%
PerkinElmer Inc	PKI	112.0	147.07	16,468.02	0.07%	0.19%	0.00%	17.50%	0.01%
Emerson Electric Co	EMR	598.0	79.35	47,454.39	0.21%	2.55%	0.01%	9.50%	0.02%
EOG Resources Inc	EOG	583.4	50.96	29,728.94	0.13%	2.94%	0.00%	7.50%	0.01%
Aon PLC	AON	228.6	203.1	46,431.91	0.21%	0.91%	0.00%	7.50%	0.02%
Entergy Corp	ETR	200.2	95.33	19,088.21	0.08%	3.99%	0.00%	3.00%	0.00%
Equifax Inc	EFX	121.6	177.11	21,544.19	0.10%	0.88%	0.00%	6.50%	0.01%
IQVIA Holdings Inc	IQV	191.7	177.8	34,088.88		n/a		11.00%	
Gartner Inc	IT	89.3	151.91	13,563.59		n/a		12.00%	
FedEx Corp	FDX	265.1	235.34	62,381.81	0.28%	1.10%	0.00%	8.50%	0.02%
FMC Corp	FMC	129.8	108.29	14,051.39	0.06%	1.77%	0.00%	11.50%	0.01%
Ford Motor Co	F	3907.6	10.53	41,146.76		n/a		11.50%	
NextEra Energy Inc	NEE	1959.1	80.87	158,430.31	0.70%	1.73%	0.01%	9.50%	0.07%
Franklin Resources Inc	BEN	505.9	26.29	13,300.06	0.06%	4.26%	0.00%	11.50%	0.01%
Freeport-McMoRan Inc	FCX	1452.9	26.91	39,096.68		n/a		23.00%	
Gap Inc/The	GPS	374.0	20.25	7,574.09	0.03%	4.79%	0.00%	2.50%	0.00%
DexCom Inc	DXCM	96.0	374.85	35,996.10		n/a		n/a	
General Dynamics Corp	GD	287.0	146.68	42,093.05	0.19%	3.00%	0.01%	6.00%	0.01%
General Mills Inc	GIS	611.4	58.1	35,524.49	0.16%	3.51%	0.01%	4.00%	0.01%
Genuine Parts Co	GPC	144.3	93.88	13,545.95	0.06%	3.37%	0.00%	7.00%	0.00%
Atmos Energy Corp	ATO	126.0	89	11,217.29	0.05%	2.81%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	53.7	364.39	19,556.08	0.09%	1.68%	0.00%	7.50%	0.01%
Halliburton Co	HAL	884.0	17.63	15,585.04	0.07%	1.02%	0.00%	1.50%	0.00%
L3Harris Technologies Inc	LHX	210.1	171.51	36,036.31		2.38%		n/a	
Healthpeak Properties Inc	PEAK	538.4	29.65	15,962.40		4.99%		-15.00%	
Catalent Inc	CTLT	164.7	115.05	18,948.50		n/a		21.00%	
Fortive Corp	FTV	337.2	66.08	22,281.91	0.10%	0.42%	0.00%	8.50%	0.01%
Hershey Co/The	HSY	147.5	145.44	21,456.76	0.10%	2.21%	0.00%	5.00%	0.00%
Synchrony Financial	SYF	584.0	33.65	19,651.60	0.09%	2.62%	0.00%	4.50%	0.00%
Hormel Foods Corp	HRL	539.9	46.86	25,300.56	0.11%	2.09%	0.00%	10.00%	0.01%
Arthur J Gallagher & Co	AJG	193.7	115.41	22,354.92	0.10%	1.66%	0.00%	13.00%	0.01%
Mondelez International Inc	MDLZ	1430.2	55.44	79,288.24	0.35%	2.27%	0.01%	8.00%	0.03%
CenterPoint Energy Inc	CNP	544.8	21.09	11,490.23	0.05%	3.03%	0.00%	5.00%	0.00%
Humana Inc	HUM	132.3	383.11	50,701.16	0.23%	0.65%	0.00%	10.50%	0.02%
Willis Towers Watson PLC	WLTW	128.9	202.94	26,159.98	0.12%	1.40%	0.00%	11.50%	0.01%
Illinois Tool Works Inc	ITW	316.5	194.21	61,471.35	0.27%	2.35%	0.01%	9.00%	0.02%
CDW Corp/DE	CDW	143.0	131.66	18,825.80	0.08%	1.22%	0.00%	11.00%	0.01%
Trane Technologies PLC	TT	240.1	143.35	34,421.92		1.48%		n/a	
Interpublic Group of Cos Inc/The	IPG	390.0	24.07	9,388.14	0.04%	4.24%	0.00%	10.00%	0.00%
International Flavors & Fragrances Inc	IFF	106.9	112.38	12,017.58	0.05%	2.74%	0.00%	6.00%	0.00%
Jacobs Engineering Group Inc	J	130.0	100.96	13,122.88	0.06%	0.83%	0.00%	14.50%	0.01%
Hanesbrands Inc	HBI	348.3	15.29	5,325.87	0.02%	3.92%	0.00%	3.50%	0.00%
Kellogg Co	K	343.7	58.94	20,258.44	0.09%	3.87%	0.00%	2.50%	0.00%
Broadridge Financial Solutions Inc	BR	115.6	141.31	16,338.12	0.07%	1.63%	0.00%	10.50%	0.01%
Perrigo Co PLC	PRGO	136.5	42.7	5,828.17	0.03%	2.11%	0.00%	3.50%	0.00%
Kimberly-Clark Corp	KMB	340.1	132.1	44,932.10	0.20%	3.45%	0.01%	6.50%	0.01%
Kimco Realty Corp	KIM	432.5	16.51	7,140.56	0.03%	3.88%	0.00%	5.00%	0.00%
Oracle Corp	ORCL	2944.0	60.43	177,907.97	0.79%	1.59%	0.01%	10.50%	0.08%
Kroger Co/The	KR	761.3	34.5	26,266.47	0.12%	2.09%	0.00%	7.50%	0.01%
Leggett & Platt Inc	LEG	132.5	41	5,433.28	0.02%	3.90%	0.00%	8.00%	0.00%
Lennar Corp	LEN	275.1	83.15	22,871.24	0.10%	1.20%	0.00%	9.50%	0.01%
Eli Lilly and Co	LLY	956.6	207.97	198,940.36	0.88%	1.63%	0.01%	10.00%	0.09%
L Brands Inc	LB	278.1	40.76	11,335.72		n/a		16.00%	
Charter Communications Inc	CHTR	193.7	607.56	117,703.21		n/a		36.50%	
Lincoln National Corp	LNC	193.3	45.49	8,791.62	0.04%	3.69%	0.00%	9.50%	0.00%
Loews Corp	L	274.9	45.29	12,449.00	0.06%	0.55%	0.00%	13.00%	0.01%
Lowe's Cos Inc	LOW	732.7	166.85	122,254.83	0.54%	1.44%	0.01%	14.50%	0.08%
Xerox Holdings Corp	XRX	198.4	21.03	4,172.04	0.02%	4.76%	0.00%	5.00%	0.00%
IDEX Corp	IEX	75.7	186.19	14,095.70	0.06%	1.07%	0.00%	7.50%	0.00%
Marsh & McLennan Cos Inc	MMC	507.2	109.91	55,745.36	0.25%	1.69%	0.00%	9.00%	0.02%
Masco Corp	MAS	261.7	54.31	14,211.62	0.06%	1.03%	0.00%	9.00%	0.01%
S&P Global Inc	SPGI	240.7	317	76,291.44	0.34%	0.97%	0.00%	8.50%	0.03%
Medtronic PLC	MDT	1346.0	111.33	149,852.41	0.67%	2.08%	0.01%	6.50%	0.04%
Viatris Inc	VTRS	1215.6	16.99	20,652.52		n/a		n/a	
CVS Health Corp	CVS	1308.9	71.65	93,783.62	0.42%	2.79%	0.01%	6.00%	0.02%
DuPont de Nemours Inc	DD	733.9	79.45	58,304.38		1.51%		n/a	
Micron Technology Inc	MU	1118.7	78.27	87,558.38		n/a		11.50%	
Motorola Solutions Inc	MSI	169.5	167.55	28,403.58	0.13%	1.70%	0.00%	8.00%	0.01%
Cboe Global Markets Inc	CBOE	108.0	91.73	9,910.69	0.04%	1.83%	0.00%	12.50%	0.01%
Laboratory Corp of America Holdings	LH	97.4	228.91	22,295.83		n/a		8.00%	
Newmont Corp	NEM	803.4	59.6	47,880.14	0.21%	2.68%	0.01%	19.50%	0.04%
NIKE Inc	NKE	1271.5	133.59	169,856.88		0.82%		27.00%	
NiSource Inc	NI	383.2	22.15	8,488.15	0.04%	3.97%	0.00%	13.00%	0.00%
Norfolk Southern Corp	NSC	252.1	236.62	59,650.72	0.26%	1.67%	0.00%	10.50%	0.03%
Principal Financial Group Inc	PFG	274.7	49.27	13,535.85	0.06%	4.55%	0.00%	5.50%	0.00%
Eversource Energy	ES	342.8	87.5	29,997.10	0.13%	2.59%	0.00%	5.50%	0.01%
Northrop Grumman Corp	NOC	166.7	286.61	47,783.05	0.21%	2.02%	0.00%	11.00%	0.02%
Wells Fargo & Co	WFC	4144.0	29.88	123,822.72	0.55%	1.34%	0.01%	5.00%	0.03%
Nucor Corp	NUE	301.9	48.73	14,713.00	0.07%	3.32%	0.00%	3.00%	0.00%
PVH Corp	PVH	71.1	85.26	6,061.99		n/a		3.50%	
Occidental Petroleum Corp	OXY	931.2	20.06	18,680.05	0.08%	0.20%	0.00%	14.50%	0.01%

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Omnicom Group Inc	OMC	215.0	62.38	13,410.02	0.06%	4.17%	0.00%	5.50%	0.00%
ONEOK Inc	OKE	444.4	39.83	17,700.33	0.08%	9.39%	0.01%	10.00%	0.01%
Raymond James Financial Inc	RJF	137.4	99.93	13,730.38	0.06%	1.56%	0.00%	6.00%	0.00%
Parker-Hannifin Corp	PH	128.8	264.61	34,081.77	0.15%	1.33%	0.00%	11.50%	0.02%
Rollins Inc	ROL	491.6	36.02	17,708.30	0.08%	0.89%	0.00%	12.00%	0.01%
PPL Corp	PPL	768.8	27.67	21,272.25	0.09%	6.00%	0.01%	2.50%	0.00%
ConocoPhillips	COP	1354.6	40.03	54,225.64	0.24%	4.30%	0.01%	10.50%	0.03%
PulteGroup Inc	PHM	268.1	43.5	11,662.09	0.05%	1.29%	0.00%	10.00%	0.01%
Pinnacle West Capital Corp	PNW	112.6	75.25	8,472.92	0.04%	4.41%	0.00%	4.50%	0.00%
PNC Financial Services Group Inc/The	PNC	423.7	143.52	60,809.57	0.27%	3.21%	0.01%	3.00%	0.01%
PPG Industries Inc	PPG	236.2	134.71	31,819.04	0.14%	1.60%	0.00%	3.00%	0.00%
Progressive Corp/The	PGR	585.2	87.19	51,023.59	0.23%	0.46%	0.00%	9.50%	0.02%
Public Service Enterprise Group Inc	PEG	505.8	56.43	28,545.00	0.13%	3.47%	0.00%	5.00%	0.01%
Robert Half International Inc	RHI	114.0	67.5	7,693.65	0.03%	2.01%	0.00%	6.00%	0.00%
Edison International	EIX	378.5	58.16	22,014.37	0.10%	4.56%	0.00%	12.00%	0.01%
Schlumberger NV	SLB	1392.3	22.21	30,923.56		2.25%		0.00%	
Charles Schwab Corp/The	SCHW	1797.2	51.54	92,628.31	0.41%	1.40%	0.01%	7.50%	0.03%
Sherwin-Williams Co/The	SHW	90.8	691.8	62,832.74	0.28%	0.77%	0.00%	10.00%	0.03%
West Pharmaceutical Services Inc	WST	73.9	299.49	22,140.40	0.10%	0.23%	0.00%	17.00%	0.02%
J M Smucker Co/The	SJM	114.1	116.41	13,281.57	0.06%	3.09%	0.00%	2.50%	0.00%
Snap-on Inc	SNA	54.2	179.99	9,758.16	0.04%	2.73%	0.00%	5.00%	0.00%
AMETEK Inc	AME	230.1	113.26	26,057.16	0.12%	0.64%	0.00%	12.50%	0.01%
Southern Co/The	SO	1056.2	58.92	62,233.78	0.28%	4.34%	0.01%	3.00%	0.01%
Truist Financial Corp	TFC	1349.0	47.98	64,723.15	0.29%	3.75%	0.01%	7.00%	0.02%
Southwest Airlines Co	LUV	590.5	43.94	25,945.43		n/a		0.00%	
W R Berkley Corp	WRB	177.8	62.14	11,050.05	0.05%	0.77%	0.00%	10.00%	0.00%
Stanley Black & Decker Inc	SWK	160.2	173.49	27,797.09	0.12%	1.61%	0.00%	7.50%	0.01%
Public Storage	PSA	174.8	227.62	39,792.98	0.18%	3.51%	0.01%	4.00%	0.01%
Arista Networks Inc	ANET	75.7	307.56	23,270.30		n/a		5.50%	
Sysco Corp	SYY	509.4	71.51	36,424.26	0.16%	2.52%	0.00%	11.50%	0.02%
Corteva Inc	CTVA	748.5	39.86	29,834.61		1.30%		n/a	
Texas Instruments Inc	TXN	917.9	165.69	152,093.81	0.68%	2.46%	0.02%	4.00%	0.03%
Textron Inc	TXT	228.9	45.26	10,358.88	0.05%	0.18%	0.00%	8.50%	0.00%
Thermo Fisher Scientific Inc	TMO	396.3	509.7	202,011.95	0.90%	0.17%	0.00%	17.00%	0.15%
TJX Cos Inc/The	TJX	1200.6	64.04	76,888.41	0.34%	1.62%	0.01%	12.00%	0.04%
Globe Life Inc	GL	104.7	90.39	9,460.40	0.04%	0.83%	0.00%	8.00%	0.00%
Johnson Controls International plc	JCI	720.3	49.82	35,883.95	0.16%	2.09%	0.00%	8.00%	0.01%
Ulta Beauty Inc	ULTA	56.3	279.76	15,761.40		n/a		7.00%	
Union Pacific Corp	UNP	673.9	197.47	133,068.91	0.59%	1.96%	0.01%	10.50%	0.06%
Keysight Technologies Inc	KEYS	186.1	141.59	26,347.78		n/a		17.00%	
UnitedHealth Group Inc	UNH	948.8	333.58	316,507.71	1.41%	1.50%	0.02%	12.00%	0.17%
Unum Group	UNM	203.7	23.23	4,731.07	0.02%	4.91%	0.00%	3.50%	0.00%
Marathon Oil Corp	MRO	789.4	7.24	5,715.20	0.03%	1.66%	0.00%	13.00%	0.00%
Varian Medical Systems Inc	VAR	91.4	175.57	16,039.20		n/a		13.50%	
Bio-Rad Laboratories Inc	BIO	24.7	573.77	14,195.64		n/a		11.50%	
Ventas Inc	VTR	374.6	46.07	17,256.49	0.08%	3.91%	0.00%	1.50%	0.00%
VF Corp	VFC	390.0	76.87	29,979.61	0.13%	2.55%	0.00%	6.00%	0.01%
Vornado Realty Trust	VNO	191.3	39.76	7,604.54		5.33%		-20.00%	
Vulcan Materials Co	VMC	132.5	149.14	19,762.69	0.09%	0.91%	0.00%	12.50%	0.01%
Weyerhaeuser Co	WY	747.4	31.19	23,310.94		2.18%		20.50%	
Whirlpool Corp	WHR	62.0	185.09	11,475.58	0.05%	2.70%	0.00%	5.00%	0.00%
Williams Cos Inc/The	WMB	1213.6	21.23	25,764.43	0.11%	7.72%	0.01%	12.00%	0.01%
WEC Energy Group Inc	WEC	315.4	88.9	28,042.17	0.12%	3.05%	0.00%	6.00%	0.01%
Adobe Inc	ADBE	478.7	458.77	219,613.20		n/a		14.00%	
AES Corp/The	AES	665.1	24.39	16,222.55		2.47%		24.00%	
Amgen Inc	AMGN	582.2	241.43	140,553.06	0.62%	2.92%	0.02%	6.50%	0.04%
Apple Inc	AAPL	16788.1	131.96	2,215,357.15	9.84%	0.62%	0.06%	16.00%	1.57%
Autodesk Inc	ADSK	219.9	277.43	61,003.81		n/a		n/a	
Cintas Corp	CTAS	105.0	318.12	33,412.14	0.15%	0.94%	0.00%	13.50%	0.02%
Comcast Corp	CMCSA	4565.9	49.57	226,330.62	1.01%	2.02%	0.02%	8.00%	0.08%
Molson Coors Beverage Co	TAP	200.3	50.16	10,046.90		n/a		5.50%	
KLA Corp	KLAC	154.5	280.07	43,259.61	0.19%	1.29%	0.00%	15.50%	0.03%
Marriott International Inc/MD	MAR	324.3	116.31	37,723.05		n/a		4.00%	
McCormick & Co Inc/MD	MKC	248.9	89.54	22,290.45	0.10%	1.52%	0.00%	6.50%	0.01%
PACCAR Inc	PCAR	346.6	91.22	31,616.85	0.14%	1.40%	0.00%	3.50%	0.00%
Costco Wholesale Corp	COST	443.0	352.43	156,110.63	0.69%	0.79%	0.01%	11.00%	0.08%
First Republic Bank/CA	FRC	173.9	144.99	25,220.00	0.11%	0.55%	0.00%	10.50%	0.01%
Stryker Corp	SYK	375.8	221.01	83,053.57	0.37%	1.14%	0.00%	11.00%	0.04%
Tyson Foods Inc	TSN	294.8	64.31	18,958.14	0.08%	2.77%	0.00%	6.50%	0.01%
Lamb Weston Holdings Inc	LW	146.4	74.7	10,932.72	0.05%	1.26%	0.00%	4.00%	0.00%
Applied Materials Inc	AMAT	917.7	96.68	88,719.47	0.39%	0.91%	0.00%	8.50%	0.03%
American Airlines Group Inc	AAL	605.0	17.17	10,387.83		n/a		-6.50%	
Cardinal Health Inc	CAH	293.4	53.73	15,765.51	0.07%	3.62%	0.00%	13.00%	0.01%
Cerner Corp	CERN	306.6	80.11	24,560.92	0.11%	1.10%	0.00%	9.00%	0.01%
Cincinnati Financial Corp	CINF	160.9	84.09	13,529.83	0.06%	3.00%	0.00%	10.50%	0.01%
ViacomCBS Inc	VIAC	565.0	48.5	27,401.53	0.12%	1.98%	0.00%	8.00%	0.01%
DR Horton Inc	DHI	363.7	76.8	27,932.31	0.12%	1.04%	0.00%	12.00%	0.01%
Flowserve Corp	FLS	130.3	35.56	4,632.15	0.02%	2.25%	0.00%	12.50%	0.00%
Electronic Arts Inc	EA	290.1	143.2	41,539.03	0.18%	0.47%	0.00%	9.50%	0.02%
Expeditors International of Washington Inc	EXPD	169.3	89.52	15,152.69	0.07%	1.16%	0.00%	6.50%	0.00%
Fastenal Co	FAST	574.2	45.59	26,175.95	0.12%	2.46%	0.00%	8.00%	0.01%
M&T Bank Corp	MTB	128.3	132.47	17,000.27	0.08%	3.32%	0.00%	4.00%	0.00%
Xcel Energy Inc	XEL	525.5	63.99	33,624.06	0.15%	2.69%	0.00%	6.00%	0.01%
Fiserv Inc	FISV	670.4	102.69	68,847.28		n/a		14.00%	

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Fifth Third Bancorp	FITB	712.8	28.93	20,620.15	0.09%	3.73%	0.00%	1.00%	0.00%
Gilead Sciences Inc	GILD	1253.5	65.6	82,231.44	0.37%	4.15%	0.02%	3.50%	0.01%
Hasbro Inc	HAS	137.0	93.82	12,856.25	0.06%	2.90%	0.00%	9.00%	0.01%
Huntington Bancshares Inc/OH	HBAN	1017.0	13.225	13,449.83	0.06%	4.54%	0.00%	2.50%	0.00%
Welltower Inc	WELL	417.3	60.6	25,288.68	0.11%	4.03%	0.00%	3.50%	0.00%
Biogen Inc	BIIB	153.9	282.61	43,488.59		n/a		7.00%	
Northern Trust Corp	NTRS	208.1	89.19	18,562.31	0.08%	3.14%	0.00%	4.50%	0.00%
Packaging Corp of America	PKG	94.8	134.46	12,750.98	0.06%	2.97%	0.00%	4.00%	0.00%
Paychex Inc	PAYX	360.6	87.32	31,490.30	0.14%	2.84%	0.00%	6.50%	0.01%
People's United Financial Inc	PBCT	424.7	13.66	5,801.13	0.03%	5.27%	0.00%	2.50%	0.00%
QUALCOMM Inc	QCOM	1135.8	156.28	177,495.64	0.79%	1.66%	0.01%	15.50%	0.12%
Roper Technologies Inc	ROP	104.9	392.91	41,205.26	0.18%	0.57%	0.00%	10.00%	0.02%
Ross Stores Inc	ROST	356.5	111.29	39,670.77		n/a		7.50%	
IDEXX Laboratories Inc	IDXX	85.3	478.68	40,831.40		n/a		15.00%	
Starbucks Corp	SBUX	1177.3	96.81	113,974.41	0.51%	1.86%	0.01%	13.50%	0.07%
KeyCorp	KEY	975.8	16.86	16,451.53	0.07%	4.39%	0.00%	4.50%	0.00%
Fox Corp	FOXA	337.5	31.18	10,524.59		1.48%		n/a	
Fox Corp	FOX	257.8	29.89	7,706.54		1.54%		n/a	
State Street Corp	STT	353.2	70	24,720.92	0.11%	2.97%	0.00%	5.00%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	315.6	22.65	7,148.77		n/a		-4.50%	
US Bancorp	USB	1507.0	42.85	64,574.95	0.29%	3.92%	0.01%	0.50%	0.00%
A O Smith Corp	AOS	135.4	54.3	7,353.85	0.03%	1.92%	0.00%	5.00%	0.00%
NortonLifeLock Inc	NLOK	591.9	21.07	12,470.70	0.06%	2.37%	0.00%	6.50%	0.00%
T Rowe Price Group Inc	TROW	228.0	156.48	35,677.44	0.16%	2.30%	0.00%	8.00%	0.01%
Waste Management Inc	WM	422.6	111.32	47,044.50	0.21%	1.96%	0.00%	7.50%	0.02%
Constellation Brands Inc	STZ	170.0	210.93	35,864.22	0.16%	1.42%	0.00%	7.50%	0.01%
Xilinx Inc	XLNX	245.3	130.57	32,025.82		n/a		7.50%	
DENTSPLY SIRONA Inc	XRAY	218.6	53.49	11,690.51	0.05%	0.75%	0.00%	5.50%	0.00%
Zions Bancorp NA	ZION	164.0	44.14	7,239.49	0.03%	3.08%	0.00%	6.50%	0.00%
Alaska Air Group Inc	ALK	123.7	48.83	6,038.51		n/a		0.50%	
Invesco Ltd	IVZ	459.3	20.59	9,457.71	0.04%	3.01%	0.00%	2.50%	0.00%
Linde PLC	LIN	523.3	245.4	128,427.64		1.73%		n/a	
Intuit Inc	INTU	262.7	361.23	94,911.74	0.42%	0.65%	0.00%	15.50%	0.07%
Morgan Stanley	MS	1809.2	67.05	121,306.73	0.54%	2.09%	0.01%	7.50%	0.04%
Microchip Technology Inc	MCHP	260.4	136.11	35,439.78	0.16%	1.08%	0.00%	9.00%	0.01%
Chubb Ltd	CB	451.4	145.67	65,751.21	0.29%	2.14%	0.01%	9.50%	0.03%
Hologic Inc	HOLX	257.7	79.73	20,543.39		n/a		20.50%	
Citizens Financial Group Inc	CFG	427.1	36.44	15,562.54	0.07%	4.28%	0.00%	12.00%	0.01%
O'Reilly Automotive Inc	ORLY	72.4	425.47	30,824.45		n/a		14.00%	
Allstate Corp/The	ALL	304.1	107.18	32,590.01	0.14%	2.02%	0.00%	9.00%	0.01%
FLIR Systems Inc	FLIR	131.2	52.05	6,826.51	0.03%	1.31%	0.00%	8.00%	0.00%
Equity Residential	EQR	372.3	61.64	22,945.67	0.10%	3.91%	0.00%	1.00%	0.00%
BorgWarner Inc	BWA	244.5	41.99	10,267.35	0.05%	1.62%	0.00%	4.00%	0.00%
Host Hotels & Resorts Inc	HST	705.3	13.55	9,557.22		n/a		-9.00%	
Incyte Corp	INCY	219.0	89.75	19,654.89		n/a		n/a	
Simon Property Group Inc	SPG	328.1	92.93	30,492.94		5.60%		-1.00%	
Eastman Chemical Co	EMN	135.5	98.35	13,323.28	0.06%	2.81%	0.00%	5.00%	0.00%
Twitter Inc	TWTR	795.4	50.53	40,189.04		n/a		29.00%	
AvalonBay Communities Inc	AVB	139.6	163.67	22,849.81	0.10%	3.89%	0.00%	1.00%	0.00%
Prudential Financial Inc	PRU	396.0	78.28	30,998.88	0.14%	5.62%	0.01%	5.00%	0.01%
United Parcel Service Inc	UPS	715.2	155	110,858.64	0.49%	2.61%	0.01%	8.00%	0.04%
Walgreens Boots Alliance Inc	WBA	864.0	50.25	43,418.11	0.19%	3.72%	0.01%	6.00%	0.01%
STERIS PLC	STE	85.4	187.11	15,970.21	0.07%	0.86%	0.00%	10.00%	0.01%
McKesson Corp	MCK	160.6	174.47	28,013.60	0.12%	0.96%	0.00%	9.00%	0.01%
Lockheed Martin Corp	LMT	280.1	321.82	90,142.75	0.40%	3.23%	0.01%	8.50%	0.03%
AmerisourceBergen Corp	ABC	204.6	104.2	21,320.88	0.09%	1.69%	0.00%	7.00%	0.01%
Capital One Financial Corp	COF	459.0	104.26	47,855.34	0.21%	0.38%	0.00%	5.50%	0.01%
Waters Corp	WAT	62.0	264.67	16,422.24		n/a		6.00%	
Dollar Tree Inc	DLTR	235.2	101.66	23,909.62		n/a		8.50%	
Darden Restaurants Inc	DRI	130.3	116.89	15,234.04	0.07%	1.27%	0.00%	7.50%	0.01%
Domino's Pizza Inc	DPZ	39.4	370.76	14,607.94	0.06%	0.84%	0.00%	14.00%	0.01%
NVR Inc	NVR	3.7	4446.48	16,434.19		n/a		9.50%	
NetApp Inc	NTAP	223.4	66.44	14,841.70	0.07%	2.89%	0.00%	6.00%	0.00%
Citrix Systems Inc	CTXS	123.1	133.31	16,413.66	0.07%	1.11%	0.00%	9.00%	0.01%
DXC Technology Co	DXC	254.4	28.2	7,174.42		n/a		2.50%	
Old Dominion Freight Line Inc	ODFL	117.3	194	22,762.21	0.10%	0.31%	0.00%	9.00%	0.01%
DaVita Inc	DVA	112.0	117.37	13,145.44		n/a		13.00%	
Hartford Financial Services Group Inc/The	HIG	358.3	48.02	17,207.01	0.08%	2.71%	0.00%	8.50%	0.01%
Iron Mountain Inc	IRM	288.2	33.67	9,702.72	0.04%	7.35%	0.00%	8.50%	0.00%
Estee Lauder Cos Inc/The	EL	226.5	236.65	53,610.22	0.24%	0.90%	0.00%	12.00%	0.03%
Cadence Design Systems Inc	CDNS	278.9	130.39	36,369.81		n/a		13.00%	
Tyler Technologies Inc	TYL	40.3	422.79	17,049.85		n/a		10.50%	
Universal Health Services Inc	UHS	77.7	124.68	9,690.63		n/a		11.00%	
Skyworks Solutions Inc	SWKS	164.9	169.25	27,909.33	0.12%	1.18%	0.00%	11.50%	0.01%
NOV Inc	NOV	388.3	12.38	4,806.71		n/a		n/a	
Quest Diagnostics Inc	DGX	134.8	129.15	17,405.03	0.08%	1.73%	0.00%	9.00%	0.01%
Activision Blizzard Inc	ATVI	772.9	91	70,329.99	0.31%	0.45%	0.00%	14.50%	0.05%
Rockwell Automation Inc	ROK	116.2	248.53	28,868.00	0.13%	1.72%	0.00%	7.00%	0.01%
Kraft Heinz Co/The	KHC	1222.6	33.51	40,970.10		4.77%		-0.50%	
American Tower Corp	AMT	444.2	227.36	100,996.27	0.45%	2.13%	0.01%	7.50%	0.03%
HollyFrontier Corp	HFC	162.0	28.46	4,611.00		4.92%		n/a	
Regeneron Pharmaceuticals Inc	REGN	104.9	503.84	52,831.15		n/a		10.50%	
Amazon.com Inc	AMZN	501.8	3206.2	1,608,714.06		n/a		35.50%	
Jack Henry & Associates Inc	JKHY	76.3	144.79	11,049.79	0.05%	1.19%	0.00%	10.50%	0.01%
Ralph Lauren Corp	RL	48.2	101.05	4,872.93		n/a		6.50%	
Boston Properties Inc	BXP	155.7	91.27	14,212.47	0.06%	4.29%	0.00%	4.00%	0.00%
Amphenol Corp	APH	299.2	124.88	37,358.48	0.17%	0.93%	0.00%	11.00%	0.02%
Howmet Aerospace Inc	HWM	433.6	24.58	10,657.99		n/a		12.00%	
Pioneer Natural Resources Co	PXD	216.1	120.9	26,127.58	0.12%	1.82%	0.00%	10.50%	0.01%
Valero Energy Corp	VLO	407.8	56.43	23,011.53	0.10%	6.95%	0.01%	2.50%	0.00%
Synopsys Inc	SNPS	153.0	255.45	39,092.02		n/a		13.50%	
Western Union Co/The	WU	411.1	22.27	9,155.66	0.04%	4.04%	0.00%	6.00%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Current Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Value Line Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Etsy Inc	ETSY	126.1	199.09	25,103.46		n/a		32.00%	
CH Robinson Worldwide Inc	CHRW	135.9	85.56	11,631.54	0.05%	2.38%	0.00%	8.00%	0.00%
Accenture PLC	ACN	661.1	241.92	159,941.78	0.71%	1.46%	0.01%	8.00%	0.06%
TransDigm Group Inc	TDG	54.4	553.28	30,118.35		n/a		8.00%	
Yum! Brands Inc	YUM	301.7	101.49	30,616.29	0.14%	1.85%	0.00%	10.50%	0.01%
Prologis Inc	PLD	738.6	103.2	76,221.66	0.34%	2.25%	0.01%	6.00%	0.02%
FirstEnergy Corp	FE	542.6	30.76	16,690.07	0.07%	5.07%	0.00%	8.50%	0.01%
VeriSign Inc	VRSN	114.1	194.07	22,145.33		n/a		9.50%	
Quanta Services Inc	PWR	138.9	70.47	9,785.53	0.04%	0.34%	0.00%	12.50%	0.01%
Henry Schein Inc	HSIC	142.8	65.85	9,401.80		n/a		5.00%	
Ameren Corp	AEE	246.7	72.72	17,942.71	0.08%	2.83%	0.00%	6.00%	0.00%
ANSYS Inc	ANSS	85.9	354.37	30,434.71		n/a		10.00%	
NVIDIA Corp	NVDA	619.0	519.59	321,626.21	1.43%	0.12%	0.00%	13.50%	0.19%
Sealed Air Corp	SEE	155.2	42.27	6,558.32		1.51%		26.00%	
Cognizant Technology Solutions Corp	CTSH	534.6	77.95	41,675.27	0.19%	1.13%	0.00%	5.00%	0.01%
SVB Financial Group	SIVB	51.9	437.78	22,715.53		n/a		19.50%	
Intuitive Surgical Inc	ISRG	117.6	747.64	87,888.82		n/a		12.50%	
Take-Two Interactive Software Inc	TTWO	115.0	200.45	23,056.16		n/a		16.50%	
Republic Services Inc	RSG	318.7	90.52	28,850.99	0.13%	1.88%	0.00%	9.00%	0.01%
eBay Inc	EBAY	689.3	56.51	38,954.55	0.17%	1.13%	0.00%	18.50%	0.03%
Goldman Sachs Group Inc/The	GS	344.1	271.17	93,300.92	0.41%	1.84%	0.01%	6.50%	0.03%
SBA Communications Corp	SBAC	111.1	268.67	29,853.27		0.69%		36.50%	
Sempra Energy	SRE	289.3	123.76	35,798.82	0.16%	3.38%	0.01%	11.00%	0.02%
Moody's Corp	MCO	187.8	266.26	50,003.63	0.22%	0.84%	0.00%	9.50%	0.02%
Booking Holdings Inc	BKNG	41.0	1944.33	79,630.04		n/a		7.00%	
F5 Networks Inc	FFIV	61.6	195.95	12,077.18		n/a		7.00%	
Akamai Technologies Inc	AKAM	162.8	111.03	18,075.02		n/a		15.00%	
MarketAxess Holdings Inc	MKTX	38.0	540.76	20,528.87	0.09%	0.49%	0.00%	17.00%	0.02%
Devon Energy Corp	DVN	673.1	16.46	11,079.34		2.67%		n/a	
Alphabet Inc	GOOGL	300.6	1827.36	549,384.82		n/a		n/a	
Teleflex Inc	TFX	46.6	377.63	17,585.10	0.08%	0.36%	0.00%	15.00%	0.01%
Allegion plc	ALLE	92.0	107.01	9,849.09	0.04%	1.20%	0.00%	9.00%	0.00%
Netflix Inc	NFLX	442.9	532.39	235,792.87		n/a		24.00%	
Agilent Technologies Inc	A	306.9	120.17	36,874.16	0.16%	0.65%	0.00%	10.50%	0.02%
Trimble Inc	TRMB	250.2	65.91	16,489.10		n/a		14.50%	
Anthem Inc	ANTM	248.7	296.98	73,860.11	0.33%	1.52%	0.00%	14.00%	0.05%
CME Group Inc	CME	359.0	181.74	65,242.30	0.29%	1.87%	0.01%	2.50%	0.01%
Juniper Networks Inc	JNPR	329.7	24.42	8,052.15	0.04%	3.28%	0.00%	5.50%	0.00%
BlackRock Inc	BLK	152.5	701.26	106,949.86	0.48%	2.36%	0.01%	9.50%	0.05%
DTE Energy Co	DTE	192.1	118.72	22,806.71	0.10%	3.66%	0.00%	6.00%	0.01%
Celanese Corp	CE	116.9	122.15	14,278.72	0.06%	2.23%	0.00%	5.50%	0.00%
Nasdaq Inc	NDAQ	164.0	135.27	22,189.42	0.10%	1.45%	0.00%	7.00%	0.01%
Philip Morris International Inc	PM	1557.3	79.65	124,040.22	0.55%	6.03%	0.03%	5.00%	0.03%
Ingersoll Rand Inc	IR	417.7	41.84	17,474.73		n/a		n/a	
salesforce.com Inc	CRM	917.7	225.56	207,004.08		n/a		46.50%	
Huntington Ingalls Industries Inc	HII	40.5	157.33	6,370.76	0.03%	2.90%	0.00%	7.00%	0.00%
MetLife Inc	MET	899.9	48.15	43,332.54	0.19%	3.82%	0.01%	6.50%	0.01%
Under Armour Inc	UA	231.7	14.97	3,468.31		n/a		n/a	
Tapestry Inc	TPR	277.4	31.62	8,771.55		n/a		4.00%	
CSX Corp	CSX	764.8	85.755	65,583.28	0.29%	1.21%	0.00%	9.00%	0.03%
Edwards Lifesciences Corp	EW	623.2	82.58	51,467.82		n/a		13.50%	
Ameriprise Financial Inc	AMP	118.0	197.87	23,344.31	0.10%	2.10%	0.00%	12.00%	0.01%
Zebra Technologies Corp	ZBRA	53.3	387.83	20,677.54		n/a		11.00%	
TechnipFMC PLC	FTI	449.5	7.9531	3,574.65		1.63%		n/a	
Zimmer Biomet Holdings Inc	ZBH	207.3	153.67	31,852.41	0.14%	0.62%	0.00%	6.00%	0.01%
CBRE Group Inc	CBRE	335.5	60.98	20,456.11		n/a		7.50%	
Mastercard Inc	MA	987.0	316.29	312,178.23	1.39%	0.56%	0.01%	12.00%	0.17%
CarMax Inc	KMX	162.5	117.78	19,144.08		n/a		8.50%	
Intercontinental Exchange Inc	ICE	561.3	110.35	61,937.69	0.28%	1.09%	0.00%	9.50%	0.03%
Fidelity National Information Services Inc	FIS	620.5	123.46	76,608.04		1.13%		28.00%	
Chipotle Mexican Grill Inc	CMG	28.0	1480	41,410.40		n/a		15.50%	
Wynn Resorts Ltd	WYNN	107.9	99.53	10,736.40		n/a		27.00%	
Live Nation Entertainment Inc	LYV	217.1	66.45	14,427.42		n/a		n/a	
Assurant Inc	AIZ	58.8	135.47	7,960.08	0.04%	1.95%	0.00%	11.50%	0.00%
NRG Energy Inc	NRG	244.2	41.41	10,113.19		3.14%		-1.50%	
Monster Beverage Corp	MNST	527.9	86.83	45,839.03		n/a		12.50%	
Regions Financial Corp	RF	960.4	17.01	16,337.15	0.07%	3.64%	0.00%	8.50%	0.01%
Mosaic Co/The	MOS	379.1	25.96	9,841.18		0.77%		21.00%	
Expedia Group Inc	EXPE	135.9	124.1	16,869.91		n/a		12.00%	
Evergy Inc	EVRG	226.7	53.73	12,178.39	0.05%	3.98%	0.00%	7.50%	0.00%
Discovery Inc	DISCA	161.8	41.42	6,700.39		n/a		15.50%	
CF Industries Holdings Inc	CF	213.9	41.38	8,851.84		2.90%		24.00%	
Leidos Holdings Inc	LDOS	142.3	106.06	15,094.57	0.07%	1.28%	0.00%	10.50%	0.01%
Alphabet Inc	GOOG	329.9	1835.74	605,550.05		n/a		14.50%	
TE Connectivity Ltd	TEL	330.9	120.4	39,839.04	0.18%	1.59%	0.00%	5.50%	0.01%
Cooper Cos Inc/The	COO	49.1	364.04	17,890.02	0.08%	0.02%	0.00%	14.50%	0.01%
Discover Financial Services	DFS	307.0	83.54	25,646.78	0.11%	2.11%	0.00%	5.50%	0.01%
Visa Inc	V	1696.1	193.25	327,774.03	1.46%	0.66%	0.01%	15.00%	0.22%
Mid-America Apartment Communities Inc	MAA	114.4	132.75	15,182.62	0.07%	3.09%	0.00%	1.00%	0.00%
Xylem Inc/NY	XYL	180.2	96.59	17,408.61	0.08%	1.08%	0.00%	8.50%	0.01%
Marathon Petroleum Corp	MPC	650.7	43.16	28,082.10	0.12%	5.38%	0.01%	3.00%	0.00%
Advanced Micro Devices Inc	AMD	1211.3	85.64	103,734.02		n/a		27.00%	
Tractor Supply Co	TSCO	116.5	141.74	16,512.28	0.07%	1.47%	0.00%	10.50%	0.01%
ResMed Inc	RMD	145.5	201.57	29,330.25	0.13%	0.77%	0.00%	8.50%	0.01%
Mettler-Toledo International Inc	MTD	23.8	1168.1	27,794.94		n/a		11.00%	
Copart Inc	CPRT	236.1	109.75	25,915.60		n/a		12.00%	
Fortinet Inc	FTNT	162.3	144.75	23,497.56		n/a		21.00%	
Albemarle Corp	ALB	106.5	162.66	17,316.30	0.08%	0.95%	0.00%	4.00%	0.00%
Apache Corp	APA	377.5	14.28	5,390.39	0.02%	0.70%	0.00%	8.50%	0.00%
Essex Property Trust Inc	ESS	65.2	239.61	15,623.77	0.07%	3.47%	0.00%	1.00%	0.00%
Realty Income Corp	O	373.4	59.06	22,051.70	0.10%	4.76%	0.00%	6.50%	0.01%
Seagate Technology PLC	STX	236.7	66.12	15,649.41	0.07%	4.05%	0.00%	4.00%	0.00%

STANDARD AND POOR'S 500 INDEX

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Westrock Co	WRK	263.1	41.43	10,899.82	0.05%	1.93%	0.00%	6.50%	0.00%
IHS Markit Ltd	INFO	396.6	87.08	34,535.23	0.15%	0.92%	0.00%	12.00%	0.02%
Westinghouse Air Brake Technologies Corp	WAB	190.3	74.21	14,124.09	0.06%	0.65%	0.00%	10.50%	0.01%
Pool Corp	POOL	40.2	354.18	14,223.51	0.06%	0.66%	0.00%	17.50%	0.01%
Western Digital Corp	WDC	304.2	56.43	17,168.55		n/a		1.00%	
PepsiCo Inc	PEP	1382.0	136.57	188,733.73	0.84%	2.99%	0.03%	6.00%	0.05%
Diamondback Energy Inc	FANG	158.0	56.69	8,955.55	0.04%	2.65%	0.00%	0.50%	0.00%
Maxim Integrated Products Inc	MXIM	268.0	87.71	23,509.88		n/a		7.00%	
ServiceNow Inc	NOW	195.1	543.16	105,970.52		n/a		46.00%	
Church & Dwight Co Inc	CHD	248.5	84.43	20,976.63	0.09%	1.20%	0.00%	8.50%	0.01%
Duke Realty Corp	DRE	372.0	39.56	14,714.38		2.58%		-3.00%	
Federal Realty Investment Trust	FRT	75.6	87.56	6,623.65		4.84%		-0.50%	
MGM Resorts International	MGM	494.7	28.56	14,128.55		0.04%		25.00%	
American Electric Power Co Inc	AEP	496.4	80.91	40,162.91	0.18%	3.66%	0.01%	6.00%	0.01%
Vontier Corp	VNT	168.5	32.43	5,464.36		n/a		n/a	
JB Hunt Transport Services Inc	JBHT	105.7	134.66	14,230.73	0.06%	0.83%	0.00%	6.50%	0.00%
Lam Research Corp	LRCX	143.2	483.95	69,304.06	0.31%	1.07%	0.00%	12.50%	0.04%
Mohawk Industries Inc	MHK	71.2	143.6	10,224.18		n/a		-1.50%	
Pentair PLC	PNR	166.3	54.46	9,059.20	0.04%	1.47%	0.00%	5.50%	0.00%
Vertex Pharmaceuticals Inc	VRTX	260.0	229.08	59,569.51		n/a		32.00%	
Amcor PLC	AMCR	1568.5	10.94	17,159.19		4.30%		n/a	
Facebook Inc	FB	2405.4	258.33	621,399.38		n/a		15.50%	
T-Mobile US Inc	TMUS	1241.2	126.08	156,488.86		n/a		9.50%	
United Rentals Inc	URI	72.2	243.01	17,545.08		n/a		7.00%	
Alexandria Real Estate Equities Inc	ARE	145.4	167.11	24,300.47	0.11%	2.61%	0.00%	14.50%	0.02%
ABIOMED Inc	ABMD	45.2	348.25	15,749.61		n/a		9.50%	
Delta Air Lines Inc	DAL	637.7	37.96	24,208.38		n/a		5.00%	
United Airlines Holdings Inc	UAL	311.8	39.99	12,470.68		n/a		2.00%	
News Corp	NWS	199.6	18.88	3,769.01		1.06%		n/a	
Centene Corp	CNC	579.8	60.3	34,961.82		n/a		13.00%	
Martin Marietta Materials Inc	MLM	62.3	287.41	17,898.17	0.08%	0.79%	0.00%	8.50%	0.01%
Teradyne Inc	TER	166.1	113.48	18,844.03	0.08%	0.35%	0.00%	14.50%	0.01%
PayPal Holdings Inc	PYPL	1171.7	234.31	274,539.15		n/a		19.00%	
Tesla Inc	TSLA	947.9	793.53	752,187.88		n/a		n/a	
DISH Network Corp	DISH	287.5	29.02	8,344.15		n/a		3.00%	
Alexion Pharmaceuticals Inc	ALXN	218.7	153.33	33,536.49		n/a		19.50%	
Dow Inc	DOW	741.1	51.9	38,464.18		5.39%		n/a	
Everest Re Group Ltd	RE	40.0	211.08	8,436.02	0.04%	2.94%	0.00%	10.50%	0.00%
Teledyne Technologies Inc	TDY	37.0	357.01	13,192.59		n/a		8.00%	
News Corp	NWSA	391.0	19.4	7,584.53		1.03%		n/a	
Exelon Corp	EXC	973.9	41.56	40,476.53	0.18%	3.68%	0.01%	3.50%	0.01%
Global Payments Inc	GPN	299.3	176.52	52,838.97	0.23%	0.44%	0.00%	11.50%	0.03%
Crown Castle International Corp	CCI	431.3	159.26	68,688.52	0.31%	3.34%	0.01%	12.50%	0.04%
Aptiv PLC	APTV	270.0	133.6	36,075.34		n/a		9.50%	
Advance Auto Parts Inc	AAP	67.9	149.14	10,119.89	0.04%	0.67%	0.00%	11.00%	0.00%
Align Technology Inc	ALGN	78.9	525.38	41,426.21		n/a		17.00%	
Illumina Inc	ILMN	146.0	426.44	62,260.24		n/a		9.50%	
LKQ Corp	LKQ	304.3	35.09	10,679.47		n/a		10.00%	
Nielsen Holdings PLC	NLSN	357.7	22.33	7,986.95		1.07%		n/a	
Garmin Ltd	GRMN	191.2	114.86	21,965.48	0.10%	2.12%	0.00%	10.50%	0.01%
Zoetis Inc	ZTS	475.3	154.25	73,310.09	0.33%	0.65%	0.00%	12.00%	0.04%
Digital Realty Trust Inc	DLR	280.2	143.95	40,329.75	0.18%	3.11%	0.01%	7.00%	0.01%
Equinix Inc	EQIX	89.1	739.96	65,931.92	0.29%	1.44%	0.00%	14.50%	0.04%
Las Vegas Sands Corp	LVS	763.8	48.09	36,732.49		n/a		5.50%	
Discovery Inc	DISCK	324.2	35.03	11,355.78		n/a		n/a	

Notes:
[1] Equals Sum ([9])
[2] Equals Sum ([11])
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Source: Bloomberg Professional as of January 31, 2021
[5] Source: Bloomberg Professional as of January 31, 2021
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Pays Dividend and Growth Rate >0% and <20%
[8] Source: Bloomberg Professional as of January 31, 2021
[9] Equals [7] x [8]
[10] Source: Value Line
[11] Equals [7] x [10]

Natural Gas Utility Authorized ROEs - January 1, 2021 - August 25, 2021 (Dr. Won's Data Set)

State	Company	Docket	Rate Case Service Type	Case Type	Date	Decision Type	Return on Equity (%)
California	Southwest Gas Corp.	A-19-08-015 (SoCal)	Natural Gas	Distribution	03/25/2021	Settled	10.00
California	Southwest Gas Corp.	A-19-08-015 (NoCal)	Natural Gas	Distribution	03/25/2021	Settled	10.00
California	Southwest Gas Corp.	A-19-08-015 (LkTah)	Natural Gas	Distribution	03/25/2021	Settled	10.00
District of Columbia	Washington Gas Light Co.	FC-1162	Natural Gas	Distribution	02/24/2021	Settled	9.25
Delaware	Delmarva Power & Light Co.	D-20-0150	Natural Gas	Distribution	01/06/2021	Settled	9.60
Illinois	Ameren Illinois	D-20-0308	Natural Gas	Distribution	01/13/2021	Fully Litigated	9.67
Kentucky	Louisville Gas & Electric Co.	C-2020-00350 (gas)	Natural Gas	Distribution	06/30/2021	Settled	9.43
Maryland	Washington Gas Light Co.	C-9651	Natural Gas	Distribution	04/09/2021	Fully Litigated	9.70
North Dakota	MDU Resources Group	C-PU-20-379	Natural Gas	Distribution	05/05/2021	Settled	9.30
Nebraska	Black Hills Nebraska Gas LLC	D-NG-109	Natural Gas	Distribution	01/26/2021	Settled	9.50
New Hampshire	Liberty Utilities EnergyNorth	D-DG-20-105	Natural Gas	Distribution	07/30/2021	Settled	9.30
New York	Brooklyn Union Gas Co.	C-19-G-0309	Natural Gas	Distribution	08/12/2021	Settled	8.80
New York	Corning Natural Gas Corp.	C-20-G-0101	Natural Gas	Distribution	05/19/2021	Fully Litigated	8.80
New York	KeySpan Gas East Corp.	C-19-G-0310	Natural Gas	Distribution	08/12/2021	Settled	8.80
Oregon	Cascade Natural Gas Corp.	D-UG 390	Natural Gas	Distribution	01/06/2021	Settled	9.40
Pennsylvania	Columbia Gas of Pennsylvania	D-R-2020-3018835	Natural Gas	Distribution	02/19/2021	Fully Litigated	9.86
Pennsylvania	PECO Energy Co.	D-R-2020-3018929	Natural Gas	Distribution	06/17/2021	Fully Litigated	10.24
Tennessee	Piedmont Natural Gas Co.	D-20-00086	Natural Gas	Distribution	02/16/2021	Settled	9.80
Washington	Cascade Natural Gas Corp.	D-UG-200568	Natural Gas	Distribution	05/18/2021	Fully Litigated	9.40
West Virginia	Hope Gas Inc.	C-20-0746-G-42T	Natural Gas	Distribution	07/27/2021	Fully Litigated	9.54
						Mean	9.52
						Min Excluding New York	9.25
						Mean Excluding New York	9.65
						Max Excluding New York	10.24

Source: S&P Capital IQ Pro.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company	)	
d/b/a Ameren Missouri's Tariffs to Adjust	)	Case No. GR-2021-0241
Its Revenues for Gas Service.	)	

AFFIDAVIT OF ANN E. BULKLEY

COMMONWEALTH OF MASSACHUSETTS	**)**
	) ss
TOWN OF SHREWSBURY	**)**

Ann E. Bulkley, being first duly sworn on her oath, states:

My name is Ann E. Bulkley, and on her oath declare that she is of sound mind and lawful age; that she has prepared the foregoing *Surrebuttal Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

/s/ Ann E. Bulkley
Ann E. Bulkley

Sworn to me this 4th day of November, 2021.