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Proceeding: 2023 Cost of Capital
Application: A.22-04-012
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**PREPARED REBUTTAL TESTIMONY OF
JAMES M. COYNE - RETURN ON EQUITY
ON BEHALF OF
SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



August 22, 2022

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**PREPARED REBUTTAL TESTIMONY
OF JAMES M. COYNE
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SAND DIEGO GAS & ELECTRIC COMPANY**

I. INTRODUCTION AND SUMMARY

Q. Please state your name and business address.

A. My name is James M. Coyne, and I am employed by Concentric Energy Advisors, Inc. (“Concentric”) as a Senior Vice President. My business address is 293 Boston Post Road West, Suite 500, Marlborough, MA 01752.

Q. Did you previously file testimony in this proceeding?

A. Yes. I submitted direct testimony to the California Public Utilities Commission (“CPUC” or the “Commission”) on behalf San Diego Gas & Electric Company (“SDG&E” or the “Company”), on April 20, 2022.

Q. What is the purpose of your rebuttal testimony?

A. My rebuttal testimony on behalf SDG&E addresses the direct testimony of intervenors submitted on August 8, 2022, including the testimony of witnesses J. Randall Woolridge on behalf of Public Advocates Office of the California Public Utilities Commission (“Cal Advocates”), Kevin W. O’Donnell on behalf of Federal Executive Agencies (“FEA”), Michael P. Gorman on behalf of the Energy Producers & Users Coalition (“EPUC”), Indicated Shippers (“IS”), and The Utility Reform Network (“TURN”), Richard McCann on behalf of Environmental Defense Fund (“EDF”), Marlon F. Griffing and Karl Richard Pavlovic on behalf of Utility Consumers’ Action Network (“UCAN”), Alex J. Kronauer on behalf of Walmart Inc. (“Walmart”), Mark E. Ellis on behalf of the Protect Our Communities Foundation (“PCF”), and Aaron L. Rothschild on behalf of Wild Tree

1 Foundation (“Wild Tree”) as it relates to the appropriate return on equity (“ROE”) and
2 capital structure for SDG&E. I collectively refer to these individual witnesses as
3 “Intervenor Witnesses,” or “Witnesses.”

4 **Q. Are you sponsoring any exhibits as part of your rebuttal testimony?**

5 A. Yes. I am sponsoring the following exhibits:

6 Rebuttal Exhibit JMC-1 – Comprehensive Summary of ROE Results

7 Rebuttal Exhibit JMC-2 – Constant Growth DCF Analysis

8 Rebuttal Exhibit JMC-3.1 – Market Risk Premium

9 Rebuttal Exhibit JMC-3.2 – CAPM Analysis

10 Rebuttal Exhibit JMC-4 – Risk Premium Analysis

11 Rebuttal Exhibit JMC-5 – Expected Earnings Analysis

12 Rebuttal Exhibit JMC-6 – Dr. Woolridge’s Replicated DCF Analysis Applying Estimated
13 EPS Growth Estimates

14 Rebuttal Exhibit JMC-7 – Detailed View of Mr. Rothschild’s Forward Beta CAPM
15 Analysis

16 **Q. How is the remainder of your rebuttal testimony organized?**

17 A. My rebuttal testimony is organized by topic/issue, starting in Section II with an overview
18 and summary of the results and recommendations presented by the various ROE
19 witnesses in this proceeding. Section III presents the results of my updated ROE
20 analyses based on market data through July 29, 2022. Section IV discusses economic and
21 capital market conditions and how those conditions are affecting the various models used
22 to estimate the cost of equity for SDG&E. In Section V, I respond to certain intervenor
23 witnesses with respect to the composition of a risk-comparable proxy group for SDG&E

1 in this proceeding. In Section VI, I address the proper application of the Discounted
2 Cash Flow (“DCF”) model, and I discuss areas of disagreement in the application of the
3 DCF model and the relevance of its results under current market conditions. In Section
4 VII, I discuss areas of disagreement in the application of the Capital Asset Pricing Model
5 (“CAPM”), and in particular the appropriate inputs to that model. In Section VIII, I
6 respond to comments and concerns with regard to my application of the Bond Yield Plus
7 Risk Premium (“Risk Premium”) model. In Section IX, I address concerns regarding the
8 use of an Expected Earnings model to estimate the cost of equity for SDG&E. In Section
9 X, I discuss the unique business risks of SDG&E and how those risks differentiate the
10 Company from the proxy group, and I respond to comments concerning the credit ratings
11 of SDG&E relative to those for the proxy group companies. In Section XI, I respond to
12 concerns raised by certain witnesses with respect to SDG&E’s proposed capital structure,
13 and I explain why that capital structure is reasonable by comparison to the proxy group
14 and given the business risks of SDG&E. Lastly, in Section XII, I summarize my key
15 conclusions and recommendations.

16 **II. EXECUTIVE SUMMARY**

17 **Q. What are your key conclusions regarding the analysis and recommendations**
18 **provided by the Intervenor Witnesses regarding the appropriate ROE and capital**
19 **structure for SDG&E?**

20 **A.** My key conclusions are as follows:

21 (1) The Intervenor Witnesses’ analyses contain flaws and inconsistencies that
22 produce some results that are more than 370 basis points below any return
23 authorized for any electric utility in at least 40 years. ROE recommendations of

1 8.90 percent and below are lower than 99 percent of ROE authorizations over that
2 same period.

3 (2) Several of the Intervenor Witnesses' ROE recommendations are unreasonably
4 low and well below the average ROEs authorized for other electric utilities. Yet
5 none of the Intervenor Witnesses demonstrate that SDG&E's risk profile is lower
6 than the average electric utility to support such a significant departure from the
7 returns available to other utilities. As explained in my Direct Testimony (Exhibit
8 SDG&E-04) and Valerie Bille (Exhibit SDG&E-01) and Ari Beer's testimonies
9 (Exhibit SDG&E-03), SDG&E's higher risk profile differs from its utility peer
10 group.

11 (3) The cost of equity for regulated utility companies is being affected by several
12 key factors in the current and prospective capital markets, including the interest rate
13 environment and central bank monetary policy as well as current inflationary
14 pressure and the longer-term outlook for inflation. While the models used to
15 estimate the cost of equity reflect current investor expectations, those expectations
16 with regard to inflation have been changing rapidly throughout the first half of
17 2022. Inflation has escalated to levels not seen since the early 1980s, interest rates
18 across the yield spectrum have increased, and capital market volatility has increased
19 from its previously elevated state. These circumstances also reinforce the
20 importance of considering the results of multiple models, as I have with the CAPM,
21 DCF, Risk Premium, and Expected Earnings approaches.

22 (4) All models are subject to certain limiting assumptions. However, in market
23 conditions where ROE estimation models are producing return estimates as low as
24 the current cost of debt (e.g., Mr. Ellis' CAPM), utility regulators recognize that
25 such low returns are not compensatory for investors. Rather than endorsing the

1 results of a specific methodology, the Commission should consider how current
2 market conditions affect the risks for equity investors as well as take into account
3 the results of a broader range of ROE estimation methodologies.

4 (5) Based on my updated DCF, CAPM, Bond Yield Plus Risk Premium, and
5 Expected Earnings analyses, I continue to find a reasonable range of ROE for
6 SDG&E to be in the range of 10.40 percent to 11.40 percent and the Company's
7 requested ROE of 10.55 percent to be fair and appropriate. In addition, I support
8 SDG&E's actual financial capital structure of 54.0 percent common equity and 46.0
9 percent long-term debt as reasonable.

10 **Q. Please summarize the cost of capital recommendations presented by the various**
11 **witnesses in this proceeding.**

12 A. The Intervenor Witnesses who perform an ROE analysis (Dr. Woolridge, Mr. Gorman,
13 Dr. Griffing, Mr. O'Donnell, Mr. Ellis, Dr. McCann, and Mr. Rothschild) recommend an
14 authorized ROE for SDG&E between 5.50 percent and 9.70 percent. Other Witnesses
15 (Dr. McCann, Mr. Pavlovic, and Mr. Kronauer) do not perform their own ROE analysis,
16 and instead adjust certain inputs in my analyses or reference authorized returns for
17 electric utilities in other jurisdictions and argue that SDG&E's authorized ROE should be
18 set at or below those national levels. As it relates to capital structure, Dr. Woolridge, Mr.
19 Gorman, Dr. Griffing, Mr. O'Donnell, and Mr. Rothschild recommend the Commission
20 reject the Company's proposed capital structure and SDG&E's currently authorized
21 capital structure. They propose that the Commission authorize a hypothetical capital
22 structure consisting of 52.00 percent common equity and 48.00 long-term debt.

23 As is evident, there are a broad array of recommendations from multiple
24 witnesses. Notably, recommendations as low as 5.50 percent are below any authorized

1 return for any electric utility in the last 40 years and almost as low as the cost of debt.¹

2 Some are supported by analytical approaches while others are more judgmental or based
3 on decisions from other jurisdictions. I submit that the appropriate method for
4 determining the cost of capital is through the application of rigorous analysis using
5 financial models and market data from reliable sources, coupled with a comprehensive
6 risk assessment of the regulated utility relative to comparable utilities nationwide.

7 **Q. Please provide an overview of the Intervenor Witnesses' analytical results in this**
8 **proceeding.**

9 A. As shown in Figure 1, the Intervenor Witnesses base their recommendations on analyses
10 that range from a low of 4.93 percent to a high of 11.45 percent.

¹ Source: S&P Capital IQ Pro, Regulatory Research Associates. 8.70 percent is the lowest authorized ROE for an electric utility since 1980, excluding cases for limited-issue riders, formula-based rate plans, and ROEs that include penalties.

1

Figure 1: ROE Ranges and Recommendations of the Intervenor Witnesses

	Cal Advocates Dr. Woolridge²	EPUC-IS-TURN Mr. Gorman³	FEA Mr. O'Donnell⁴	UCAN Dr. Griffing⁵	PCF Mr. Ellis⁶	EDF Dr. McCann⁷	Wild Tree Mr. Rothschild⁸
DCF Results	8.90%	7.81%-9.20%	8.50%-9.50%	9.34%-9.39%	6.00%	8.80%	7.92%-8.74%
CAPM Results	7.70%	9.76%-10.79%	6.25%-8.25%	10.89%-11.45%	4.93%	NA	7.10%-8.99%
Risk Premium Results	NA	9.07%-9.48%	NA	9.84%	NA	NA	NA
Comparable Earnings Results	NA	NA	9.25%-10.25%	NA	NA	NA	NA
ROE Recommendation (Range)	8.90%	9.50% (9.20%-9.80%)	9.50%	9.70%	5.50%	8.90% (Electric) 8.70% (Gas) ⁹	7.81% (7.15%-8.48%)

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There are a number of flaws and inconsistencies with the analyses conducted by the Intervenor Witnesses. I address each analytical approach and recommend appropriate

² Direct Testimony of J. Randall Woolridge, at 57, 71, 73.

³ Direct Testimony of Michael P. Gorman, at VIII-25, 38, 30, 38-39.

⁴ Direct Testimony of Kevin W. O'Donnell, at 70, 72, 71, 73.

⁵ Direct Testimony of Marlon F. Griffing, at 30, 36, 38, 43.

⁶ Direct Testimony of Mark E. Ellis, at 10.

⁷ Direct Testimony of Richard McCann, at 47.

⁸ Direct Testimony of Aaron L. Rothschild, at 11, 137.

⁹ As noted in Valerie Bille's Rebuttal Testimony, SDG&E-06 at VAB-14 n.58, EDF's recommendation to provide different ROEs for SDG&E's electric and gas operations is outside the scoping of this proceeding pursuant to the Scoping Memo and should thus be disregarded.

1 revisions where justified. At the outset, one must question analyses producing results
2 that are more than 370 basis points below any return authorized for any electric utility in
3 at least 40 years. Further, recommendations as low as 8.90 percent (or even below that),
4 which is below 99 percent of the ROEs authorized for electric utilities since at least 1980,
5 must also be questioned.¹⁰

6 **Q. Please describe the legal standards that must be met to establish the authorized**
7 **ROE for a regulated public utility such as SDG&E.**

8 A. As discussed in my direct testimony, the standards for a just and reasonable return
9 established by the United States Supreme Court in the *Hope* and *Bluefield* cases are:

10 (1) Financial integrity: the return must be adequate to ensure the company's
11 financial soundness and support credit quality;

12 (2) Capital attraction: the return must be sufficient to enable the company to attract
13 capital on reasonable terms and conditions; and

14 (3) Comparable return: the return must be comparable to those available to
15 investors in firms with commensurate risk.

16 **Q. Several of the Intervenor Witnesses (Woolridge, O'Donnell, Gorman, Kronauer)**
17 **reference authorized ROEs for electric utilities in other jurisdictions. Do you agree**

¹⁰ Source: S&P Capital IQ Pro, Regulatory Research Associates. 8.70 percent is the lowest authorized ROE for an electric utility since 1980, excluding cases for limited-issue riders, formula-based rate plans, and ROEs that include penalties.

1 **with their characterization of the trend in authorized ROEs and the relevance of the**
2 **trend on SDG&E’s cost of equity?**

3 A. National average returns must be placed in the proper context in order to be useful.

4 While I agree that investors consider authorized returns in other states in assessing the
5 reasonableness of the authorized ROE for SDG&E, I have several concerns with the
6 nationwide average ROE information presented by the Intervenor Witnesses. First,
7 market conditions at the time the authorized returns were established are very different
8 than conditions going forward. For example, equity returns set when interest rates were
9 very low in 2020 are not a reasonable basis of comparison for evaluating the authorized
10 ROE for 2023 when bond yields have increased and are projected to continue increasing
11 as the economy recovers and the Federal Reserve moves to a more neutral monetary
12 policy. After the decline in interest rates in 2020-2021 driven by the Federal Reserve’s
13 unprecedented actions to respond to the COVID-19 pandemic, interest rates have now
14 increased by 86 to 143 basis points since SDG&E’s ROE of 10.20 percent was authorized
15 in December 2019.¹¹ Although state utility commissions mitigated ROE reductions in
16 2020-2021 due to the knowledge that interest rates were being artificially suppressed due
17 to the Federal Reserve’s actions,¹² the use of prior decisions during that time period

¹¹ The average 30-year Treasury bond yield was 2.30 percent in December 2019. The current 30-day average on the 30-year Treasury bond yield was 3.16 percent as of July 29, 2022. The A-rated Utility bond yield was 3.40 percent in December 2019 and was 4.83 percent for the 30-day average as of July 29, 2022.

¹² S&P, The Big Picture: 2022 Electric, Natural Gas and Water Utilities Outlook (Oct 2021) (“S&P Oct. 2021”) at 5 (finding that the spread between authorized ROE and interest rates increased because state utility commissions “recognized that long-term bond yields have been artificially suppressed due to the Fed[eral] Reserve’s unprecedent intervention in the

1 which set ROEs under previously lower levels understates the forward-looking cost of
2 equity and the very different rising interest rate environment that we are now
3 experiencing.¹³

4 In addition, certain of the Intervenor Witnesses' recommendations (Woolridge,
5 Ellis, McCann, and Rothschild) are unjustifiably well below the national averages for
6 electric utilities. As shown as in Figure 2, below, several recommendations substantially
7 depart from these benchmarks. To support such a significant departure from the returns
8 available to other electric utilities, the Intervenor Witnesses would have to demonstrate
9 that SDG&E's risk profile is meaningfully lower than the average electric utility.

10 However, the Intervenor Witnesses have not demonstrated that SDG&E's risk profile is
11 lower than the average electric utility. My Direct Testimony¹⁴ and Ms. Bille and Mr.
12 Beer's Direct Testimonies¹⁵ explain why the company's risk profile is above average risk
13 as compared to the proxy group companies. The risks discussed in my testimony, as well

capital markets.”; *see also* RRA, Major Energy Rate Case Decisions in the US—January-
June 2022 (July 27, 2022) (“RRA July 27, 2022”). at 6 (“the gap between authorized ROEs
and interest rates widened somewhat over this period, largely as a result of regulators’ often-
unstated understanding that the drop in interest rates caused by Federal Reserve intervention
was unusual.”).

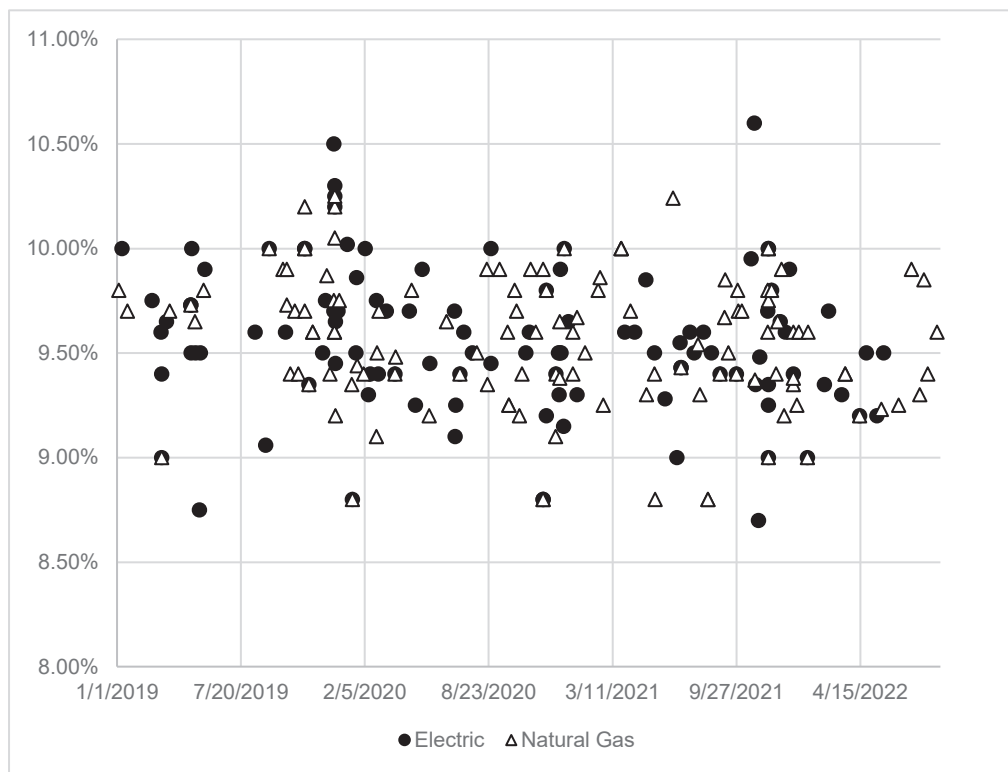
¹³ RRA July 27, 2022 at 7 (with interest rates on the rise “the average authorized returns for full
year 2022 and 2023 may edge higher”); *accord id.* at 4 (“Authorized returns may edge
slightly higher going forward as the U.S. Federal Reserve continues efforts to tamp down
soaring inflation via a series of interest rate hikes, the first of which was announced in
March.”); Direct Testimony of Aaron L. Rothschild at 26 (“[h]igher interest rates, all else
equal, generally indicate a higher cost of equity for electric utility companies because fixed
income investments become relatively more attractive when they start paying a higher rate.”).

¹⁴ Exhibit SDG&E-04, Direct Testimony of James M. Coyne, at JMC-48 – JMC-66.

¹⁵ *See* Exhibit SDG&E-01, Direct Testimony of Valerie Bille at 7-17; Exhibit SDG&E-03,
Direct Testimony of Ari Beer, Sections II (Wildfire and Weather Risks), III (Political and
Regulatory Risks), IV (Risks of Rising Rate Pressures) at AB-3 – AB-33.

1 as in Ms. Bille’s and Mr. Beer’s testimonies, support the requested ROE that will allow
2 SDG&E to continue to attract funds as it carries out its obligation to provide safe,
3 reliable, and resilient energy service to Southern California, mitigate wildfire safety risks,
4 and support California’s clean energy goals. On that basis, I conclude that the returns
5 recommended by these witnesses do not satisfy the requirements for a just and reasonable
6 return for SDG&E, as outlined in the *Hope* and *Bluefield* decisions.

7 **Figure 2: Authorized ROEs 2019-2022¹⁶**



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9
¹⁶ Source: S&P Capital IQ Pro, Regulatory Research Associates. 8.70 percent is the lowest authorized ROE for an electric utility since 1980, excluding cases for limited-issue riders, formula-based rate plans, and ROEs that include penalties.

1 **III. UPDATED ROE RESULTS**

2 **Q. Have you updated your ROE analyses?**

3 A. Yes, I have updated the results of the financial models used to estimate the cost of equity
4 for SDG&E in my direct testimony (data as of February 26) to include market data
5 through July 29, 2022. I have used the same proxy group of 20 electric utility companies.
6 The results of those updated analyses are shown in Figure 3 and Rebuttal Schedules
7 JMC-2 to JMC-6.

8 **Figure 3: Updated ROE Results¹⁷**

	Feb 28 data		July 29 data	
	Current Interest Rates	Projected Interest Rates	Current Interest Rates	Projected Interest Rates
DCF	8.81%	8.81%	8.85%	8.85%
CAPM	13.99%	14.13%	13.10%	13.20%
Risk Premium	9.47%	9.99%	9.87%	10.15%
Expected Earnings	10.72%	10.72%	10.85%	10.85%
Average ROE	10.72%	10.89%	10.67%	10.76%
Range	8.81%- 13.99%	8.81%- 14.13%	8.85%- 13.00%	8.85%- 13.20%

9

¹⁷ The CAPM and Risk Premium model results are shown based on both current (30 day average) and projected (2024-2028) interest rates.

1 **Q. How do these updated results compare with those presented in your Direct**
2 **Testimony?**

3 A. The updated results are generally in line with those presented in my direct testimony. In
4 particular, the average of the four models is 10.67 percent to 10.76 percent, which is
5 slightly lower as compared with 10.72 percent to 10.89 percent as of February 28, 2022,
6 but above the Company's requested ROE of 10.55 percent. The mean DCF results have
7 increased by 4 basis points, the CAPM results have decreased by 89 to 93 basis points
8 due to lower projected market returns, the average Risk Premium results have increased
9 by 16 to 40 basis points due to the higher current and projected Treasury bond yields, as
10 have the mean Expected Earnings results that increased by 13 basis points. Moreover,
11 there is no evidence that Beta coefficients for the proxy group of electric utilities have
12 meaningfully declined since February 2022. Betas from both Value Line and Bloomberg
13 remain near 0.85, which is substantially higher than at any time in the last 20 years,
14 except during the financial crisis of 2008/2009. This indicates a sustained upward shift in
15 the market's evaluation of the risks for electric utilities.

16 **Q. What is your recommendation regarding a fair ROE for SDG&E based on these**
17 **updated results?**

18 A. I continue to find a reasonable range of ROE for SDG&E to be in the range of 10.40
19 percent to 11.40 percent and the Company's requested ROE of 10.55 percent to be fair
20 and appropriate.

1 **IV. CAPITAL MARKET CONDITIONS**

2 **Q. Have economic and financial market conditions changed over the past several**
3 **months since you submitted your Direct Testimony?**

4 A. Yes, since April 2022 several changes have occurred, some of which were signaled
5 earlier, and others emerging. It is important to consider current and expected conditions
6 in the general economy and financial markets because the authorized ROE for a public
7 utility should allow the utility to attract investor capital at a reasonable cost under a
8 variety of economic and financial market conditions.

9 **Q. What changes have occurred over the past several months?**

10 A. Three primary changes have occurred: inflation has escalated to levels not seen since the
11 early 1980s, interest rates across the yield spectrum have increased, and capital market
12 volatility has increased from its previously elevated state.

13 **Q. Please discuss these changes and root causes of these shifts in capital market**
14 **conditions?**

15 A. Inflation has been both the greatest surprise and cause for concern among both
16 policymakers and investors. As illustrated below, inflation levels have moved within a
17 relative narrow band over the past twenty years (other than during the Great Recession of
18 2007/08). Starting with the initial stages of the COVID-19 pandemic in 2020, inflation
19 levels have been driven higher, reaching 8.5 percent in July of 2022. Inflation is being
20 driven by strong consumer demand and supply constraints, some of which have been
21 exacerbated by COVID-19 related government stimulus programs in the U.S. and
22 international lockdowns. More recently, the war in Ukraine, which began in February, is

1 constraining the world's supply of food and fuel, pushing overall inflation higher and
2 feeding into the cost of other products and services.

3 **Figure 4: Consumer Price Index – All Urban, Not Seasonally Adjusted¹⁸**



4
5 As a result of these substantially higher inflation rates, the Federal Reserve has
6 been left little choice but to pull back on its COVID-19-related monetary policies and
7 battle inflation with its only effective tool: higher interest rates. In response to the
8 economic effects of COVID-19, the Federal Reserve had decreased the federal funds rate
9 in March 2020 to a target range of 0.00 percent to 0.25 percent (which remained in effect
10 until March 2022) in addition to other stimulus measures which increased the supply of
11 money in the economy. Since I prepared my ROE analysis provided in Direct Testimony
12 (with market data updated through February 28, 2022), the Federal Reserve has begun
13 unwinding its quantitative easing policy and increased the target rate four times,

¹⁸ Source: Trading Economics, United States Inflation Rate, available at <https://tradingeconomics.com/united-states/inflation-cpi>.

1 beginning with 25 basis points on March 17, another 50 basis points on May 5, 75 basis
2 points on June 16, and 75 basis points on July 27 to a target range of 2.25-2.50 percent.
3 Expectations are for further increases this year, bringing the target rate to 3.25 – 3.50
4 percent by the end of 2022.¹⁹ This demonstrates the level of Federal Reserve action
5 necessary to reel in inflation. The Fed is willing to risk substantially higher interest rates
6 and a slowdown in the economy, and it is clear that the era of record low interest rates
7 and moderate inflation has closed. The 10-year bond which closed out February at 1.83
8 percent is now at 2.88 percent, and the 30-year yield which closed out February at 2.17
9 percent is now at 3.05 percent, both up substantially since I developed my analysis
10 (current data as of 7/22/22).

11 Equity markets have also been affected. The Chicago Board Options Exchange
12 (“CBOE”) Volatility Index (“VIX”) climbed higher, from 25.7 in February to 28.1 in
13 June, although it has recently settled back in the 23 range.²⁰ For context, the VIX
14 averaged 16.86 percent from 2010-2019, indicating increased levels of market volatility
15 (and risk) for equity investors today. This is confirmed by broader market indicators.
16 The S&P 500 Index is down 19.0 percent YTD through July 15, but the S&P Utilities
17 Index is only down 2.5 percent YTD, indicating a recent flight to the relative safety of

¹⁹ Reuters, Fed's to lift rates by 75 basis points in July, 50 bps in September – Reuters poll (July 21, 2022) available at <https://www.reuters.com/markets/europe/fed-lift-rates-by-75-basis-points-july-50-bps-september-2022-06-22/>.

²⁰ The VIX Index is a calculation designed to produce a measure of constant, 30-day expected volatility of the U.S. stock market, derived from real-time, mid-quote prices of S&P 500® Index (SPXSM) call and put options. On a global basis, it is one of the most recognized measures of volatility—widely reported by financial media and closely followed by a variety of market participants as a daily market indicator. Source: CBOE.com.

1 utilities amid broader market instability. However, utility stock prices continue to lag the
2 broader market compared to pre-pandemic levels.

3 **Q. Are conditions expected to stabilize in the near-term?**

4 A. No. While difficult to predict in the long-term, capital market conditions remain highly
5 uncertain. The economy and capital markets remain in a tenuous state with ongoing
6 global supply constraints and expectations of weaker consumer demand in the face of
7 persistent inflation and higher interest rates. Interest rates may not fully reflect the
8 effects of inflation because no one knows exactly how high interest rates must go before
9 inflation returns to more acceptable levels. The Federal Reserve has been targeting
10 inflation of around 2.0 percent for many years, as compared with current annualized
11 inflation of 8.5 percent at the consumer level for the 12-month period ending in July
12 2022.

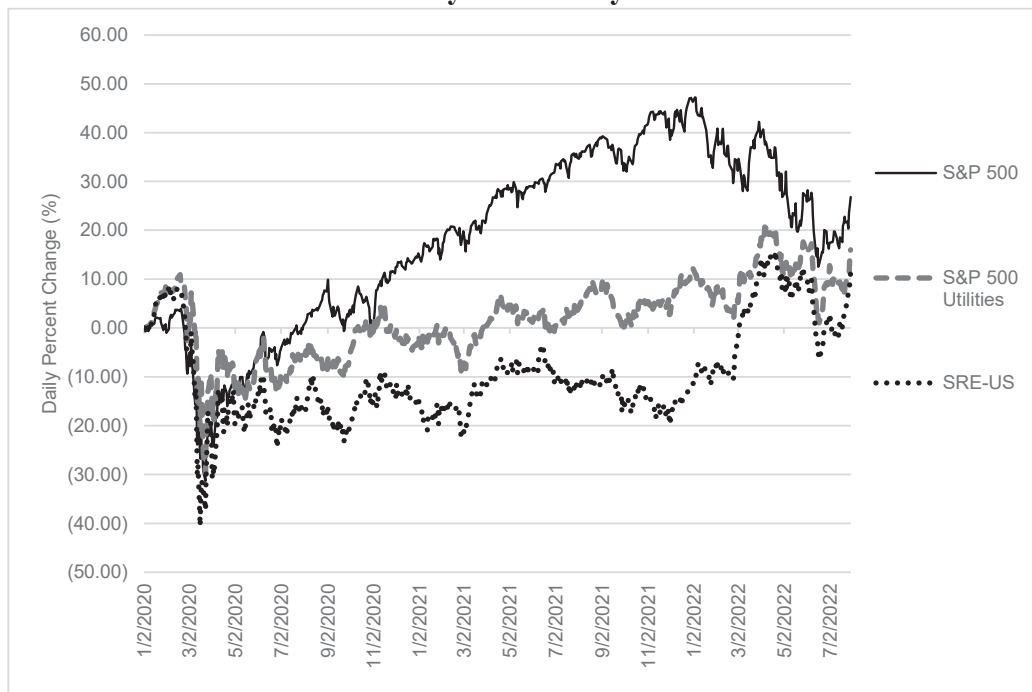
13 Looking forward, the inflation risks in the market are twofold: 1) either inflation
14 becomes embedded in the economy if the Federal Reserve does not move aggressively
15 enough in tightening monetary policy, or 2) the Federal Reserve responds to inflationary
16 pressure by raising short-term interest rates to a level that causes a slowdown in
17 economic growth or a recession. The August 2022 issue of Blue Chip Financial
18 Forecasts (“Blue Chip”) reports the results of a survey of leading economists and market
19 analysts taken in July 2022. Blue Chip reports that 36 percent of those surveyed indicate
20 that central bank policy is the biggest factor influencing their U.S. inflation forecast over
21 the next 12 months, with other factors being energy and commodity prices (24 percent),
22 supply-chain bottlenecks (21 percent), and overall economic growth (18 percent). In
23 addition, 50 percent think that by removing monetary accommodation, the Federal

1 Reserve will be successful in slowing inflation in the U.S. without causing a recession,
2 while 50 percent believe that monetary tightening will precipitate a U.S. recession.²¹

3 **Q. How have utilities performed relative to the broader market in recent months?**

4 A. As shown in Figure 5 below (an update to Figure 5 from my Direct Testimony), the S&P
5 Utilities Index and Sempra Energy's stock price continue to lag the broader market
6 compared to pre-pandemic levels. While utility stocks have overperformed the broader
7 market in recent months (including the period since the start of the war in Ukraine),
8 overall they have not surpassed the broader market for the period January 1, 2020
9 through July 29, 2022.

10 **Figure 5: Relative Performance of Utilities and the S&P 500,**
11 **January 2020 – July 2022**



12 As shown in Figure 6 below (an update to Figure 4 of my Direct Testimony), Beta
13 coefficients for the proxy group and Sempra Energy remain elevated.
14

²¹ Blue Chip Financial Forecast, Vol. 41, Issue No. 8, August 1, 2022, at 14.

Figure 6: Beta Coefficients for Proxy Group and Sempra Energy

	January 2020	February 2022	July 2022
<i>Proxy Group Average</i>			
Value Line Beta	0.56	0.88	0.86
Bloomberg Beta	0.532	0.873	0.854
<i>Sempra Energy</i>			
Value Line Beta	0.70	0.95	0.95
Bloomberg Beta	0.633	0.912	0.899

Q. Have you factored these circumstances into your updated cost of equity estimates for SDG&E, and what conclusions do you draw?

A. Yes. I have utilized the most recent market data and forecasts available to me in my updated analysis. Long-term interest rates have increased substantially since the historic lows of 2020 and are expected to continue to increase as the Federal Reserve unwinds its pandemic response measures and focuses on inflation. This supports the use of both current and forecast bond yields in the CAPM and Risk Premium models. These circumstances also reinforce the importance of considering the results of multiple models, as I have with the CAPM, DCF, Risk Premium, and Expected Earnings approaches. By contrast, several of the Intervenor Witnesses have focused on one or two models, leading to an unnecessarily narrow view, especially under current market conditions that impact the models differently. My updated results have not, however, changed materially since I prepared my Direct Testimony, and do not change my recommendation.

1 **V. PROXY GROUP COMPOSITION**

2 **Q. Certain Witnesses have developed their own proxy group of companies. Please**
3 **summarize those proxy groups.**

4 A. Mr. Gorman²² and Mr. Ellis adopt²³ my proxy group, although Mr. Gorman excludes
5 American Electric Power Company, Inc. (“AEP”). Dr. Woolridge develops his own
6 proxy group consisting of 23 electric utilities based on a different set of screening
7 criteria.²⁴ Dr. Griffing also develops his own proxy group using screening criteria that
8 are similar to my own. However, he relies on a particularly narrow credit rating screen
9 requiring all companies to be within one notch of SDG&E.²⁵ Mr. Rothschild develops his
10 own proxy group consisting of 26 electric utilities but does not screen for the amount of
11 unregulated operations held by each of his proxy companies.²⁶ Dr. McCann and Mr.
12 Kronauer do not develop their own ROE analyses but rely primarily on other financial
13 analyses and authorized returns in other jurisdictions as a benchmark of reasonableness
14 for the ROE requested by SDG&E in this proceeding.

15 **Q. Do you have any concerns with any of the Intervenor Witnesses’ proxy groups?**

16 A. Yes. My primary concern is that Dr. Griffing’s credit rating screen is overly restrictive
17 by eliminating companies that have a credit rating that is more than one notch from
18 SDG&E’s BBB+ credit rating. Dr Griffing has provided no evidence that investment

²² Direct Testimony of Michael P. Gorman, at VIII-10-11.

²³ Direct Testimony of Mark E. Ellis, at 50.

²⁴ Direct Testimony of J. Randall Woolridge, at 24-25.

²⁵ Direct Testimony of Marlon F. Griffing, at 15.

²⁶ Direct Testimony of Aaron L. Rothschild, at 55-56.

1 grade companies with credit ratings more than one notch below the subject company
2 have a higher cost of equity. Rather, it is reasonable to assume that utilities with
3 investment grade credit ratings are generally comparable. As I discuss in more detail in
4 Section X, credit ratings are assessments of the likelihood a company could default on its
5 debt, whereas, the topic of the current proceeding is to determine the riskiness and cost of
6 the Company's equity. While credit ratings provide investors with relevant information
7 with respect to a given company's risk-level, it is important to remember that the
8 intended application of credit ratings intended to measure the likelihood that a company
9 will meet is debt-payment obligations. By placing too much emphasis on credit ratings
10 analysis, Dr. Griffing has eliminated several companies from his proxy group that are
11 reasonably comparable to SDG&E for the purpose of estimating the cost of equity.

12 **Q. Please comment on Mr. Rothschild's proxy groups.**

13 A. Mr. Rothschild uses somewhat different screening criteria to develop his proxy group,
14 which results in a larger proxy group consisting of 26 utility companies, including
15 Sempra Energy, the parent company of SDG&E. I disagree with the inclusion of the
16 subject company's parent company in the proxy group due to the resulting circularity. In
17 addition, I disagree with Mr. Rothschild's inclusion of companies such as Otter Tail
18 Corporation ("Otter Tail") with substantial unregulated operations. For example, in 2021
19 approximately 57 percent of Otter Tail's operating income was derived from its
20 manufacturing and plastics operations compared to 43 percent derived from its electric
21 utility operations.²⁷ To exclude such companies with substantial unregulated operations,

²⁷ Otter Tail Corporation, SEC Form 10-K, for the calendar-year ended December 31, 2021 at 45-47, available at <https://www.ottertail.com/investors/sec-filings/default.aspx>.

1 I included a screening criterion that regulated revenue and net operating income make up
2 more than 80 percent of the consolidated company’s revenue and net operating income.

3 **Q. What is your conclusion with regard to the various proxy groups considered by the**
4 **Intervenor Witnesses?**

5 A. In spite of this disagreement, my conclusion is that differences in our respective proxy
6 groups do not account for the more substantial differences in our respective analyses or
7 ROE recommendations.

8 **VI. DCF MODEL**

9 **Q. Dr. Woolridge and Dr. McCann base their ROE recommendations primarily on the**
10 **results of his DCF analysis, while Mr. Gorman sets the lower boundary of his range**
11 **of results based on his DCF model. Do you agree that it is appropriate to place this**
12 **degree of reliance on the DCF model?**

13 A. No, I do not. As discussed in my Direct Testimony, while many U.S. utility regulators
14 have used the DCF model to establish the authorized ROE, several regulators, including
15 FERC, have recognized the challenges associated with relying solely on the DCF to
16 establish the authorized ROE for regulated utilities in recent years.²⁸ For that reason,
17 other federal and state regulators—including this Commission—have relied on the results
18 of multiple methodologies both to test the reasonableness of the DCF results and to
19 establish a cost of equity that reflects investors’ required return on a going-forward
20 basis.²⁹

²⁸ SDG&E-04, Direct Testimony of James M. Coyne, at JMC-35 – JMC-36.

²⁹ D.19-12-056 at 20 (“The financial models commonly used in ROE proceedings are the [CAPM], Risk Premium Model (RPM), and [DCF] model.”).

1 **Q. Please elaborate on your concerns with the DCF model under current market**
2 **conditions.**

3 A. Although I have included the DCF model in my analyses, I have concerns with the ability
4 of the DCF model to produce reliable results under current market conditions. This
5 concern is amplified with an ROE analysis or recommendation relying exclusively on the
6 DCF model. As explained in my Direct Testimony, high utility valuations are expected
7 to decline as utilities underperform the broader market and, under these circumstances,
8 the results of the DCF model would understate the forward-looking cost of equity
9 because the dividend yield is calculated using historical average stock prices which do
10 not fully reflect these expectations.³⁰

11 Both Dr. Woolridge and Mr. Gorman observe the high valuations of electric
12 utilities, with Dr. Woolridge citing the higher than average market-to-book ratios and Mr.
13 Gorman referencing the higher than average P/E ratios. However, they disregard the
14 effect of those high valuations on the results of the DCF model, in particular the dividend
15 yield component. Exhibit JRW-2 demonstrates the decline in dividend yields over the
16 past decade. This indicates that investors are paying more for a dollar of earnings from
17 electric utilities than they did 10 years ago. As interest rates increase from historic lows,
18 this is expected to place pressure on these high valuations. As a result, my conclusion is
19 that the DCF model is understating the forward-looking cost of equity for regulated
20 utilities such as SDG&E because the model is based on average historical stock prices
21 that are based on unsustainable valuation levels.

³⁰ SDG&E-04, Direct Testimony of James M. Coyne, at JMC-27 – JMC-28.

1 In response to comments from Dr. Woolridge,³¹ Dr. McCann,³² and Mr.
2 Rothschild³³ regarding high market-to-book (“M/B”) ratios being a sign that authorized
3 ROEs for regulated utilities are higher than the investor required cost of equity, I
4 performed an analysis that examines the correlation between government bond yields and
5 the market-to-book ratios for electric utilities since 1980, using data provided in Chapter
6 VIII Exhibits MPG-11 and MPG-14 to Mr. Gorman’s Direct Testimony. As shown in
7 Figure 7, the R² for this analysis is approximately 0.72, indicating a strong linear
8 relationship between M/B ratios and interest rates. This relationship indicates that utility
9 M/B ratios have increased not because authorized returns were higher than the true cost
10 of equity, but because interest rates on government bonds have steadily declined for the
11 past four decades. Low interest rates are favorable for capital-intensive industries such as
12 utilities, while increasing interest rates are not.

³¹ Direct Testimony of J. Randall Woolridge, at 35-37.

³² Direct Testimony of Richard McCann, at 31-33.

³³ Direct Testimony of Aaron L. Rothschild, at 72.

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Figure 7: Market-to-Book Ratios and Interest Rates



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A. Growth Rates in the DCF Model

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Q. Do you agree with the use of growth rates in the DCF model other than forecast earnings per share growth rates from equity analysts?

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A. No, I do not. Dr. Woolridge and Mr. O’Donnell, consider a variety of growth rates including both historical and projected earnings per share, dividends per share, and book value per share. Dr. Woolridge, Mr. O’Donnell, Mr. Rothschild, and Mr. Gorman also present a DCF model using “sustainable” growth rates. In response to Dr. Woolridge’s use of historical growth rates and forecast growth rates other than earnings per share (“EPS”), I agree with Mr. Gorman’s statement that “[a]s predictors of future returns, securities analysts’ growth estimates have been shown to be more accurate than growth rates derived from historical data.”³⁴ As explained in my Direct Testimony, over the long

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³⁴ Direct testimony of Michael P. Gorman, at VIII-13 (citation omitted).

1 term, dividend growth can only be sustained by earnings growth,³⁵ while dividend growth
2 can depend on management decisions regarding the dividend payout ratio over the near-
3 term which do not reflect the long-term growth prospects of the company. As shown in
4 Exhibit JMC-6, if Dr. Woolridge had relied only on analysts' projected EPS growth rates
5 in his Constant Growth DCF analysis, the mean results for his proxy group of 23 electric
6 utilities would be 9.12 percent. Although these results are well below a reasonable cost
7 of equity for SDG&E, they are 22 basis points higher than Dr. Woolridge's ROE
8 recommendation of 8.90 percent.

9 I also agree with Mr. Gorman's decision to essentially discard the results of his
10 Constant Growth DCF analysis that uses sustainable growth rates. I also note that Dr.
11 Woolridge's, Mr. O'Donnell's, Mr. Rothschild's, and Mr. Gorman's sustainable growth
12 rate calculation rely on Value Line's projected ROE data for the proxy group companies.
13 Those projected ROEs are substantially higher than the results of the DCF model using
14 sustainable growth rates presented by any of the Intervenor Witnesses, and demonstrate
15 the fact that investors are expecting to earn higher returns on equity from the proxy group
16 companies than what is shown by the DCF model using sustainable growth rates
17 calculated from the same source, Value Line. This is an inherent inconsistency in their
18 sustainable growth approach to the DCF.

19 **Q. Dr. Woolridge, Mr. Rothschild,³⁶ and Mr. O'Donnell³⁷ express concerns that**
20 **analysts' projected EPS growth rates are "overly-optimistic and upwardly**

³⁵ SDG&E-04, Direct Testimony of James M. Coyne, at JMC-34.

³⁶ Direct Testimony of Aaron L. Rothschild, at 17.

³⁷ Direct Testimony of Kevin W. O'Donnell, at 74-76.

1 **biased,”³⁸ while Mr. Gorman claims that long-term GDP growth serves as a cap on**
2 **long-term EPS growth rates and suggests that short-term EPS growth rates are too**
3 **high.³⁹ Do you share those concerns about analysts’ projected EPS growth rates?**

4 A. No, this is a familiar refrain, but unsubstantiated for utilities. The 2003 Global Analysts
5 Research Settlement (the “Global Settlement”) served to significantly reduce the bias
6 referred to by Dr. Woolridge, Mr. Rothschild, and Mr. O’Donnell. In fact, the Global
7 Settlement required financial institutions to insulate investment banking from analysis,
8 prohibited analysts from participating in “road shows,” and required the settling financial
9 institutions to fund independent third-party research.

10 A 2010 article in Financial Analysts Journal found that analyst forecast bias
11 declined significantly or disappeared entirely after the Global Settlement:

12 Introduced in 2002, the Global Settlement and related regulations had an
13 even bigger impact than Reg FD on analyst behavior. After the Global
14 Settlement, the mean forecast bias declined significantly, whereas the
15 median forecast bias essentially disappeared. Although disentangling the
16 impact of the Global Settlement from that of related rules and regulations
17 aimed at mitigating analysts’ conflicts of interest is impossible, forecast
18 bias clearly declined around the time the Global Settlement was
19 announced. These results suggest that the recent efforts of regulators have
20 helped neutralize analysts’ conflicts of interest.⁴⁰

21 In addition, analysts covering the common stock of the proxy companies certify
22 that their analyses and recommendations are not related, either directly or indirectly, to

³⁸ Direct Testimony of J. Randall Woolridge, at 51.

³⁹ Direct Testimony of Michael P. Gorman, at VIII-15.

⁴⁰ Armen Hovakimian and Ekkachai Saenyasiri, *Conflicts of Interest and Analyst Behavior: Evidence from Recent Changes in Regulation*, Financial Analysts Journal, Volume 66, Number 4, July/August 2010 at 195.

1 their compensation. Thus, it is unclear why investors would assume that the proxy
2 companies are susceptible to a continuing upward bias in earnings projections, especially
3 given the fact that electric utilities operate in the mature stage of a stable industry with a
4 very high degree of financial transparency due to their regulation. Further, to the extent
5 Dr. Woolridge, Mr. Rothschild, and Mr. O'Donnell believe that investors are well aware
6 of these optimistic or biased growth rates, that suggests that utility stock prices already
7 reflect that information.

8 Likewise, actual earnings data belie Mr. Gorman's position that projected GDP
9 growth represents a cap on long-term EPS growth. The suggestion that equity earnings
10 are limited by future growth in GDP may hold for aggregate corporate earnings in a
11 closed economy but these are not realistic assumptions for an individual firm nor for
12 utilities in general.⁴¹ To illustrate this point, I have compared the actual historical EPS
13 and dividend per share ("DPS") growth rates (to the extent data was available through
14 Value Line) of all U.S. electric utilities and the companies in my proxy group from 2011-
15 2021 to historical and projected GDP growth rates from Blue Chip, the Energy
16 Information Administration, and the Social Security Administration. The results are
17 shown in Figure 8.

⁴¹ See MSCI Barra Research Bulletin, *Is There a Link Between GDP Growth and Equity Returns?* (May 2010) available at <https://www.msci.com/documents/10199/a134c5d5-dca0-420d-875d-06adb948f578>.

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Figure 8: Analysis of EPS, DPS and GDP Growth Rates

		[1] <i>Historical</i> 2011 - 2021		[2] <i>Historical</i> 2011 - 2021		[3] <i>Projected</i>	% Historical Difference		% Historical Multiple	
	No. of Companies	EPS Growth	DPS Growth	GDP Growth	GDP Growth		EPS vs GDP	DPS vs GDP	EPS vs GDP	DPS vs GDP
U.S. All Electric Companies [4]	36	4.43%	5.57%	4.15%	4.24%		0.29%	1.42%	1.1	1.3
SDG&E Proxy Group	20	4.69%	6.30%	4.15%	4.24%		0.54%	2.15%	1.1	1.5
AVERAGE		4.56%	5.93%	4.15%	4.24%		0.42%	1.79%	1.1	1.4

Notes

[1] TTM EPS/DPS % CAGR over the time period 2011 Q1 - 2021 Q4 (latest reported quarter). Companies with negative or zero EPS or DPS in 2021, or negative values in the starting year as reported by Bloomberg Professional, were excluded from this calculation.

[2] Source: Bureau of Economic Analysis, June 24, 2021, nominal GDP % CAGR over the time period 2011 Q1 - 2021 Q4.

[3] Source: Blue Chip Financial Forecasts, Energy Information Administration, and Social Security Administration, as of 2022 Q1.

[4] As covered by Value Line at 2022 Q1. FirstEnergy was excluded from the analysis due to declines as a result of anomalous events.

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As shown above, the EPS and DPS growth rates of utilities can, and do, exceed GDP growth for sustained periods. Specifically, for the SDG&E proxy group, historical EPS has exceeded historical GDP growth by 0.54 percent from 2011-2021 and historical DPS has exceeded historical GDP growth by 2.15 percent over the same period. This rate of growth is 10-50 percent greater than GDP over this same period. My conclusion is that it is not unreasonable to rely on analyst EPS growth projections, as I and other experts commonly do, just because they exceed GDP growth.

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No company, or investor, would be satisfied with growth that simply tracks the broader economy. Investors would shift capital to more attractive investments. Companies are constantly searching for new avenues of growth and have levers such as capital resource allocation to achieve growth greater than GDP. There is no reason to expect that an individual corporation competing for capital as a going concern will limit earnings or dividend growth to GDP. In my opinion, limiting growth in the DCF model to long-term GDP is an unfounded constraint. Therefore, I do not share Mr. Gorman's concern that analysts' projected EPS growth rates are too high. The average EPS growth rate that Mr. Gorman uses in his Constant Growth DCF model (5.19 percent) is almost

1 exactly the same as that used in my updated Constant Growth DCF analysis (5.27
2 percent).

3 Furthermore, I note that Mr. Gorman relies on analyst's projected EPS growth
4 rates in his Constant Growth DCF model, which forms the lower boundary of his range of
5 results, while discarding the results of his Multi-Stage DCF model results that include
6 projected GDP growth in the terminal stage.

7 **Q. Please describe the issue with the application of sustainable growth or retention**
8 **growth in the Constant Growth DCF model.**

9 A. The sustainable growth rate or retention growth rate calculation assumes that future
10 earnings will increase as the retention ratio increases. However, this relationship may not
11 hold for a given company based on management decisions associated with the dividend
12 payout rate. This conclusion is supported by two articles published in the *Financial*
13 *Analysts Journal* that discussed the theory that high dividend payouts (*i.e.*, low retention
14 ratios) are associated with low future earnings growth.⁴² Each of those articles cited to a
15 2003 study by Arnott and Asness⁴³ that found, over the course of 130 years of data, future
16 earnings growth is associated with high, rather than low payout ratios.⁴⁴ Specifically,
17 Arnott and Asness concluded:

⁴² Ping Zhou, William Ruland, *Dividend Payout and Future Earnings Growth*, *Financial Analysts Journal*, Vol. 62, No. 3, 2006. See also Owain ap Gwilym, James Seaton, Karina Suddason, Stephen Thomas, *International Evidence on the Payout Ratio, Earnings, Dividends and Returns*, *Financial Analysts Journal*, Vol. 62, No. 1, 2006.

⁴³ Robert Arnott, Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*, *Financial Analysts Journal*, Vol. 59, No. 1, January/February 2003.

⁴⁴ Since the payout ratio is the inverse of the retention ratio, the authors found that future earnings growth is negatively related to the retention ratio.

1 Unlike optimistic new-paradigm advocates, we found that low payout
2 ratios (high retention rates) historically precede low earnings growth. This
3 relationship is statistically strong and robust. We found that the empirical
4 facts conform to a world in which managers possess private information
5 that causes them to pay out a large share of earnings when they are
6 optimistic that dividend cuts will not be necessary and to pay out a small
7 share when they are pessimistic, perhaps so that they can be confident of
8 maintaining the dividend payouts. Alternatively, the facts also fit a world
9 in which low payout ratios lead to, or come with, inefficient empire
10 building and the funding of less than-ideal projects and investments,
11 leading to poor subsequent growth, whereas high payout ratios lead to
12 more carefully chosen projects. The empire-building story also fits the
13 initial macroeconomic evidence quite well. At this point, these
14 explanations are conjectures; more work on discriminating among
15 competing stories is appropriate.⁴⁵

16 Given that all three studies found that there is a negative relationship between earnings
17 growth and retention ratios, the application of retention growth rates in the DCF model is
18 not appropriate.

19 **B. Multi-Stage DCF Approach**

20 **Q. Intervenor Witnesses have also presented the results of a Multi-Stage DCF model.⁴⁶**

21 **Do you agree that the results and weight placed on those analyses are reasonable?**

22 A. No, I do not. Mr. Gorman presents the results of a Multi-Stage DCF analysis but then
23 once again elects not to rely on those results in setting his range or recommendation for
24 SDG&E, presumably because he views the results as being too low.⁴⁷ Mr. Ellis also
25 presents the results of a multi-stage DCF model, but unlike Mr. Gorman, he relies on

⁴⁵ Robert Arnott, Clifford Asness, *Surprise: Higher Dividends = Higher Earnings Growth*, Financial Analysts Journal, Vol. 59, No. 1, January/February 2003.

⁴⁶ See, for example, Direct Testimony of Michael P. Gorman, at VIII-17-24, Direct Testimony of Mark E. Ellis, at 50; Direct Testimony of Richard McCann at 47.

⁴⁷ Direct Testimony of Michael P. Gorman, at VIII-25, VIII-38-39.

1 those results for his ROE recommendation, even though his multi-stage DCF result of
2 6.00 percent is more than 400 basis points lower than SDG&E's current authorized ROE
3 and below any ROE authorized for any electric utility in at least the last 40 years. Dr.
4 McCann relies exclusively on a Multi-Stage DCF analysis, but it is unclear what
5 assumptions he uses. Since there is no explanation of his inputs and assumptions
6 included in his Multi-Stage DCF analysis, his results should be disregarded.

7 The Multi-Stage DCF model suffers from the same concerns I have with the
8 Constant Growth DCF model (i.e., unsustainably high utility valuations and low dividend
9 yields) and produces even lower ROE estimates when a projected GDP growth rate of
10 4.45 percent is used in the terminal stage (in the case of Mr. Gorman) or an inflation rate
11 of 1.83 percent (in the case of Mr. Ellis). The GDP growth rates themselves are not
12 unreasonable; it is their use as a limit on the earnings growth of utilities that have
13 exhibited stronger growth historically. Use of an inflation rate as a proxy for earnings
14 growth has no reasonable basis of support.

15 **VII. CAPM ANALYSIS**

16 **Q. Before responding to the Intervenor Witnesses' criticisms of your CAPM analysis,**
17 **are there areas of agreement with respect to your respective CAPM analyses?**

18 A. Yes, there are. First, Dr. Woolridge, Mr. Gorman, Mr. O'Donnell, Dr. Griffing, Mr.
19 Ellis, and I agree that the 30-year Treasury bond yield is appropriate to use as the risk-
20 free rate.⁴⁸ Second, although certain of the Intervenor Witnesses disagree with the use of

⁴⁸ Direct Testimony of J. Randall Woolridge, at 59-60; Direct Testimony of Michael P. Gorman, at VIII-32; Direct Testimony of Kevin W. O'Donnell at 91-92; Direct Testimony of Marlon F. Griffing at 33; Direct Testimony of Mark E. Ellis, at 70.

1 projected interest rates, Mr. Gorman includes a projection of the 30-year Treasury in his
2 analysis, suggesting he believes that the current rate underestimates the expected risk-free
3 rate.⁴⁹ Third, Dr. Woolridge, Mr. O'Donnell, and Dr. Griffing each rely on Value Line
4 Beta coefficients.⁵⁰

5 **Q. Are CAPM results developed by certain Intervenor Witnesses reasonable?**

6 A. No, they are not. Dr. Woolridge's CAPM result (7.70 percent), Mr. Ellis' CAPM result
7 (4.93 percent), the lower end of Mr. Rothschild's CAPM range (7.10 percent), and the
8 lower end of Mr. O'Donnell's CAPM range (6.25 percent) are below the lowest
9 authorized ROE for any electric utility in the last 40 years.⁵¹ Estimates as low as 4.93
10 percent are below the reported cost of debt for utilities in July 2022.⁵² Debt investors
11 require a return commensurate with the risk that the company will fail to meet that
12 obligation. However, equity investors bear the residual risk associated with ownership,
13 and have a claim on cash flows only after debt holders are paid. As such, equity holders
14 bear greater risk and therefore require a higher return. The fact that Mr. Ellis' and Mr.
15 O'Donnell's CAPM analyses produce results that are more in-line with debt returns than
16 they are with equity returns demonstrates Mr. Ellis' and Mr. O'Donnell's inputs are
17 unreasonable and their results should be disregarded.

⁴⁹ Direct Testimony of Michael P. Gorman, at VIII-32.

⁵⁰ Direct Testimony of J. Randall Woolridge, at 61-62; Direct Testimony of Kevin W. O'Donnell at 71; Direct Testimony of Marlon F. Griffing at 34.

⁵¹ Source: S&P Capital IQ Pro, Regulatory Research Associates.

⁵² The Moody's Utility Bond Index for Baa-rated Utility debt was as high as 5.34 percent on July 8, 2022 (Source: Bloomberg Professional).

1 **A. Risk-free rate**

2 **Q. Some Intervenor Witnesses question the accuracy of interest rate forecasts**
3 **(Woolridge, O’Donnell, Rothschild) and object to your use of a projected 30-year**
4 **Treasury bond yield as the risk-free rate.⁵³ How do you respond?**

5 **A.** As explained earlier in this Rebuttal Testimony and in my Direct Testimony, I believe the
6 use of projected 30-year Treasury bond yields as the risk-free rate in the CAPM analysis
7 is appropriate because interest rates are expected to increase from current levels. It is not
8 reasonable to use the current average 30-year Treasury bond yield of 3.16 percent as the
9 risk-free rate when investors are expecting that Treasury bonds will yield 3.80 percent
10 over the period from 2024-2028, according to Blue Chip’s June 2022 long-term outlook.
11 In addition, I do not share Dr. Woolridge’s, Mr. O’Donnell’s, and Mr. Rothschild’s
12 concerns with the accuracy of projected bond yields. This is because the cost of equity
13 depends on what investors expect, not what actually happens. Nonetheless neither Dr.
14 Woolridge, Mr. O’Donnell, nor Mr. Rothschild have presented any evidence that current
15 interest rates are any more accurate at predicting future interest rates.

16 Further, even though I do not agree with the exclusive reliance on the current
17 average Treasury bond yield as the risk-free rate, I note using current bond yields in the
18 CAPM model produces results (shown in Rebuttal Exhibit JMC-3.2) well above the DCF
19 model results and much higher than the CAPM results put forth by Dr. Woolridge, Mr.
20 Gorman, Mr. O’Donnell, Dr. Griffing, Mr. Ellis and Mr. Rothschild. My conclusion is

⁵³ See, e.g., Direct testimony of Direct Testimony of J. Randall Woolridge, at 60; Direct Testimony of Kevin W. O’Donnell at 78; Direct Testimony of Aaron L. Rothschild at 130-131.

1 that it is reasonable and appropriate to use the projected 30-year Treasury bond yield as
2 the risk-free rate under current market conditions and the use of a current risk-free rate
3 understates the forward-looking cost of equity estimate from the CAPM analysis.

4 **Q. Do you have any additional concerns with Mr. Rothschild's estimates of the risk-**
5 **free rate?**

6 A. Yes, I do. I disagree with Mr. Rothschild's application of 3-month Treasury bills as an
7 estimate of the risk-free rate. Mr. Rothschild's claim that "The value of short-term U.S.
8 Treasury bills has a relatively low exposure to swings in the overall market,"⁵⁴ is
9 demonstrably false given change over the course of 2022. On January 3, 2022, the yield
10 on 3-month Treasury bill was 0.08 percent compared to 2.72 percent as of August 15,
11 2022.⁵⁵ Moreover, the use of a short-term interest rate is inappropriate for the risk-free
12 rate in this application of the CAPM. In determining the security most relevant to the
13 application of the CAPM, it is important to select the term that best matches the life of
14 the underlying investment. As noted by Morningstar:

15 The traditional thinking regarding the time horizon of the chosen Treasury
16 security is that it should match the time horizon of whatever is being
17 valued... Note that the horizon is a function of the investment, not the
18 investor. If an investor plans to hold stock in a company for only five
19 years, the yield on a five-year Treasury note would not be appropriate
20 since the company will continue to exist beyond those five years.⁵⁶

⁵⁴ Direct Testimony of Aaron L. Rothschild, at 77.

⁵⁵ Federal Reserve H15 Selected Interest Rates, available at <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H15> .

⁵⁶ Morningstar Inc., Ibbotson SBBI 2013 Valuation Yearbook, at 44.

1 Since utility assets are long-duration investments, it is appropriate to use yields on long-
2 term Treasury bonds as the risk-free rate component of the CAPM. The 30-year Treasury
3 bond is the appropriate security for that purpose.

4 **B. Beta**

5 **Q. How do the Intervenor Witnesses estimate Beta?**

6 A. As discussed above, Dr. Woolridge, Mr. O'Donnell, and Dr. Griffing each rely on Value
7 Line Beta coefficients.⁵⁷ Mr. Gorman considered Value Line Beta coefficients before
8 ultimately relying on a long-term historical average of Value Line Beta coefficients.⁵⁸
9 Mr. Ellis relies on Zacks and Yahoo! Finance estimates of Beta that are calculated based
10 on monthly returns, rather than the weekly convention used by Value Line and
11 Bloomberg. Mr. Rothschild relies on two measures of Beta: a "forward beta" and a
12 "hybrid beta." Mr. Rothschild's "forward Beta" is an unconventional "option-implied"
13 estimate that he has calculated based on market prices for stock options. Mr.
14 Rothschild's "hybrid beta" is a weighted average of his "forward beta" and three
15 historical measures of beta, also calculated by Mr. Rothschild.

16 **Q. Please describe Mr. Rothschild's "forward beta" approach.**

17 A. Mr. Rothschild introduced an unconventional measure of "option-implied" Beta
18 coefficients. Mr. Rothschild cites an article in support of his methodology, Chang,
19 Christoffersen, Jacobs, and Vainberg who regard the approach as a "radically different

⁵⁷ Direct Testimony of J. Randall Woolridge, at 61-62; Direct Testimony of Kevin W. O'Donnell, at 71; Direct Testimony of Marlon F. Griffing, at 34.

⁵⁸ Direct Testimony of Michael P. Gorman, at VIII-33, 38.

1 approach,” and note “much remains to be done” in terms of further research.⁵⁹ As such,
2 it is appropriate to give caution in applying this approach. However, Mr. Rothschild
3 failed to address some of the fundamental concerns cited in the research surrounding
4 option-implied Betas. In another article referenced by Mr. Rothschild as support for the
5 methodology, titled “Forward-Looking Betas,” Christoffersen, Jacobs and Vainberg
6 suggest that six months may not be the appropriate time-period to use when estimating
7 the cost of capital. Specifically, Christoffersen, Jacobs and Vainberg note that:

8 [T]he main focus in this paper has been on forecasting 180-day ex-post
9 betas, which are relevant for certain applications such as abnormal returns.
10 **For other applications, such as cost of capital calculations, longer-**
11 **horizon betas may be needed.** We plan to investigate the performance of
12 option implied betas in this context by using LEAPS as well as option
13 contracts with longer maturities traded on non-U.S markets. Indeed, our
14 option-implied beta approach allows for the computation of a complete
15 term structure of beta for each company so long as the options data is
16 available.⁶⁰

17 Mr. Rothschild’s option-implied Beta calculations are based on options data for the next
18 six months. Specifically, with regards to estimating the cost of capital, given that Mr.
19 Rothschild did not address one of the fundamental concerns cited by the authors that
20 developed option-implied Betas, this “radically different approach” should be
21 disregarded.

⁵⁹ Direct Testimony of Aaron L. Rothschild, at 79 n.62 (citing to Bo-Young Chang & Peter Christoffersen & Kris Jacobs & Gregory Vainberg, (2011) Option-Implied Measures of Equity Risk, *Review of Finance* 16: 385-428.).

⁶⁰ Direct Testimony of Aaron L. Rothschild, at 161 n.151 (citing Peter Christoffersen, Kris Jacobs, and Gregory Vainberg, “Forward-Looking Betas”, April 25, 2008, at 24.) (Emphasis added).

1 **Q. Are you aware of any publication that produces estimates of option-implied Betas?**

2 A. No, I am not. More importantly, Mr. Rothschild provides no evidence that investors rely
3 on option-implied Betas. While the underlying options that Mr. Rothschild is relying on
4 are certainly market-based, there is no evidence that the Beta calculations that Mr.
5 Rothschild performs reflect investor expectations.

6 **Q. What is the range of results for the proxy companies included in Mr. Rothschild's**
7 **CAPM analysis?**

8 A. Exhibit ALR-4, page 3 provides the proxy group average Beta coefficients from March
9 29, 2022 through June 28, 2022. But Mr. Rothschild did not present the individual
10 CAPM results for each of the proxy companies over the same time period in his exhibits.
11 However, the results can be derived from the more than 17,000 Excel files contained in
12 Mr. Rothschild's workpapers that were used in support of his CAPM calculations. As
13 shown in Rebuttal Exhibit JMC-7, to derive the proxy group average forward beta of
14 0.58, the individual proxy company option-implied betas range from *negative* 0.45 to
15 0.91, and there are no results available for 88 of the 276 observations (32 percent). This is
16 an uncharacteristically wide range and incomplete data set for the proxy companies.

17 Mr. Rothschild's average CAPM result of 7.10 percent is derived from a range of
18 individual proxy company CAPM results that range from *negative* 3.12 percent to 10.34
19 percent. And Mr. Rothschild's average CAPM result of 7.83 percent is derived from a
20 range of individual proxy company CAPM results that range from *negative* 0.58 percent
21 to 10.50 percent. Relying on beta coefficients that estimate a negative cost of equity for
22 proxy companies raises significant questions about the reliability of the methodology.

1 Similarly, the week-to-week volatility of the methodology is also concerning. As
2 shown in Figure 9 below, the proxy group average CAPM estimate can change by more
3 than 100 basis points on a week-to-week basis. From April 19, 2022 to April 26, 2022,
4 Mr. Rothschild's proxy group average CAPM result (using the 30-year Treasury for the
5 risk-free rate) declined 102 basis points from 7.80 percent to 6.78 percent. The following
6 week, May 3, 2022, Mr. Rothschild's CAPM result increased 99 basis points to 7.77
7 percent. While weekly swings of more than 100 basis points are unlikely for utility
8 companies outside of extraordinary circumstances, the individual proxy company results
9 were more volatile. As shown in Rebuttal Exhibit JMC-7, Otter Tail's cost of equity
10 declined from 7.25 percent on May 3, 2022 to *negative* 0.58 percent on May 10, 2022 in
11 Mr. Rothschild's CAPM analysis. There was no result available on May 17, 2022, but
12 the cost of equity increased to 9.31 percent on May 24, 2022. I am not aware of any
13 event involving Otter Tail that would cause investors to change their return requirements
14 to the significant degree suggested by Mr. Rothschild's CAPM analysis. Nonetheless, all
15 of these estimates were incorporated in Mr. Rothschild's final CAPM result.

Figure 9: Weekly Results from Mr. Rothschild's CAPM Analysis⁶¹

Date	Mr. Rothschild's CAPM (3-Mo. Treasury)		Mr. Rothschild's CAPM (30-Yr. Treasury)	
	CAPM Result	Weekly Change	CAPM Result	Weekly Change
03/29/2022	6.92%		7.68%	
04/05/2022	6.81%	-0.11%	7.59%	-0.09%
04/12/2022	6.87%	0.06%	7.64%	0.05%
04/19/2022	7.06%	0.19%	7.80%	0.16%
04/26/2022	5.82%	-1.24%	6.78%	-1.02%
05/03/2022	7.03%	1.21%	7.77%	0.99%
05/10/2022	5.85%	-1.18%	6.80%	-0.97%
05/17/2022	6.81%	0.96%	7.59%	0.79%
05/24/2022	7.29%	0.48%	7.98%	0.39%
05/31/2022	6.69%	-0.60%	7.49%	-0.49%
06/07/2022	7.68%	0.99%	8.30%	0.81%
06/14/2022	7.39%	-0.29%	8.07%	-0.23%
06/21/2022	7.70%	0.31%	8.32%	0.25%
06/28/2022	7.25%	-0.45%	7.95%	-0.37%
Average	6.94%		7.70%	
Time Avg.	7.10%		7.83%	

⁶¹ See Rebuttal Exhibit JMC-7, Detailed Composition of Mr. Rothschild's CAPM.

1 **Q. What is your conclusion with regard to Mr. Rothschild’s CAPM analysis?**

2 A. Mr. Rothschild has relied on a “radically different approach” to produce his CAPM
3 estimates, and the results are significantly outside the range of any return authorized for
4 any electric utility in at least 40 years. Given Mr. Rothschild’s unconventional
5 specification of the CAPM, and results that are more in-line with debt returns than equity
6 returns, his CAPM results should be disregarded.

7 **Q. Dr. Woolridge and Mr. Gorman observe that current Beta coefficients from Value
8 Line are higher than the historical average for the electric utility industry.⁶² Do you
9 view this as a reason to adjust the current Beta coefficients?**

10 A. No, I do not. Beta is the measure of relative risk in the CAPM analysis. The utility
11 industry has typically had lower than average Beta coefficients because utilities generally
12 tend to be less volatile than the broad market. However, as discussed in my direct
13 testimony,⁶³ that was not the case during the market dislocation that occurred in response
14 to the COVID-19 pandemic. Five-year Beta coefficients from both Value Line and
15 Bloomberg increased substantially in February and March 2020 to levels not seen since
16 the financial crisis of 2008/2009 and have remained at those elevated levels ever since.⁶⁴
17 In my view, there is no reason to use the longer-term average Beta coefficients, as
18 suggested by Mr. Gorman, because both Value Line and Bloomberg Beta coefficients are
19 calculated using five years of weekly return data against a broad market index (either the

⁶² Direct Testimony of J. Randall Woolridge, at 61-62; Direct Testimony of Michael P. Gorman, at VIII-33-34.

⁶³ SDG&E-04, Direct testimony of James M. Coyne, at 17-19.

⁶⁴ *Id.* at 30-31 and 50.

1 S&P 500 or the NYSE Composite). This five year period pre-dates the COVID-19
2 period by 2.5 years, which suggests that the proxy group Beta coefficients are being
3 affected by factors other than the pandemic.

4 As discussed in my Direct Testimony, electric utilities have not served as a safe
5 haven for investors during the recent economic downturn.⁶⁵ Beta coefficients for electric
6 utilities remain at elevated levels. This shift may also be attributable to the market's
7 recognition of the complex challenges facing the industry in response to climate change,
8 transitioning to a lower carbon generation mix, grid modernization, and shifting
9 consumer preferences.

10 I do not agree with Dr. Woolridge's concerns with Value Line's methodology for
11 calculating Beta coefficients, including the time period over which Betas are calculated,
12 the market index that is used to compute weekly returns for the broader market, and the
13 Blume adjustment that is intended to take into account the tendency of Beta to regress to
14 the market mean of 1.0 over time. I note that Beta is a measure of relative risk in the
15 CAPM analysis. While utilities have underperformed the broader market since January
16 2020, Beta coefficients demonstrate that utilities have traded more in line with the broad
17 market than they have historically, suggesting that the view of utilities as a low-risk,
18 defensive sector is moderated by structural shifts affecting the industry. In the end, Dr.
19 Woolridge relies on Value Line's Beta coefficients, as does Mr. O'Donnell and Dr.
20 Griffing.

⁶⁵ *Id.* at 6.

1 **C. Market Risk Premium**

2 **Q. Some Witnesses challenge the forward-looking market risk premium you have used**
3 **in your CAPM analysis.⁶⁶ Can you please respond to their concerns?**

4 A. The use of a forward-looking or projected market risk premium (“MRP”) is appropriate
5 because the use of historical market return data does not reflect the inverse relationship
6 between interest rates and the equity risk premium. The Ibbotson data that is used to
7 calculate the historical MRP of 7.46 percent indicates that the long-term average return
8 on large company stocks from 1926-2021 was 12.33 percent, while the average income-
9 only return on government bonds was 4.87 percent over the same period.⁶⁷ It is therefore
10 not reasonable to use the historical MRP when the current average yield on the 30-year
11 Treasury bond is 3.16 percent, or approximately 171 basis points *lower* than the bond
12 yield used to calculate the historical MRP. With interest rates at these levels, the
13 forward-looking MRP should be *higher* than 7.46 percent.

14 Second, the method I have used to calculate the forward-looking MRP is
15 consistent with the methodology used by FERC in Opinion No. 531-B.⁶⁸ Specifically,
16 the forward-looking MRP in my CAPM analysis is derived by calculating the expected
17 total return for the companies in the S&P 500 Index less the projected risk-free rate.

18 While Dr. Griffing also relies upon FERC’s methodology for calculating the MRP, it is

⁶⁶ Direct Testimony of J. Randall Woolridge, at 95-106; Direct Testimony of Michael P. Gorman, at VIII-46; Direct Testimony of Kevin W. O’Donnell, at 77-80; Direct Testimony of Marlon F. Griffing, at 53-55.

⁶⁷ Source: Duff & Phelps

⁶⁸ See *MISO Transmission Owners, et al. v. FERC*, No. 16-1325 (Aug. 9, 2022) (slip op.) at 17-24 (upholding FERC’s CAPM methodology).

1 appropriate to include growth rates for non-dividend paying companies because when
2 investors purchase the Index or a mutual fund or exchange traded fund that mirrors the
3 Index, their total return is based on the returns for all 500 companies in the Index, not
4 only those companies that pay dividends, or those with positive EPS growth rates or
5 growth rates less than 20 percent. Further, my MRP calculation is internally consistent
6 because the Betas used in my CAPM analysis are calculated against all companies in the
7 S&P 500 Index or the NYSE Composite Index, not just against those companies that pay
8 dividends or have positive growth rates or growth rates less than 20 percent.

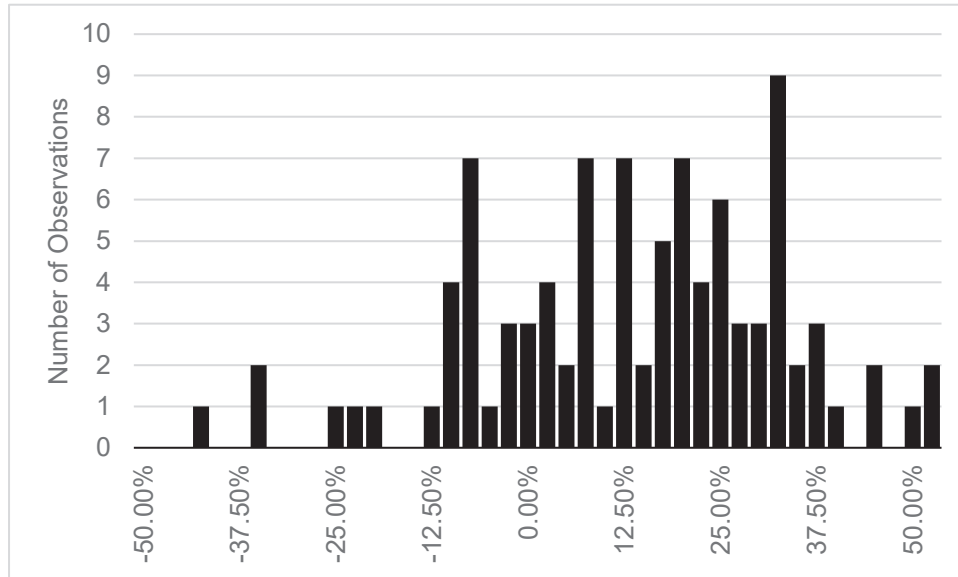
9 Dr. Wooldridge refers to the compounded annual return for the broad market as
10 being about 10.0 percent,⁶⁹ while Mr. O'Donnell observes that the geometric mean and
11 arithmetic mean return on large company stocks from 1972 – 2020 is 10.8 percent and
12 12.3 percent, respectively.⁷⁰ Both witnesses argue that the total market return used in my
13 forward-looking MRP calculation is not reasonable on that basis. However, these
14 averages obscure the wide distribution in realized equity returns from year to year. I have
15 analyzed the annual performance of the S&P 500 from 1926-2021. As shown in Figure
16 10 below, the actual return on the S&P 500 Index has exceeded 15 percent in 50 percent
17 (48 out of 96) of the years from 1926-2021. These data demonstrate that actual total
18 returns for the broad market greater than 15 percent are not uncommon, as alleged by Dr.
19 Woolridge and Mr. O'Donnell.

⁶⁹ Direct Testimony of J. Randall Woolridge, at 94.

⁷⁰ Direct Testimony of Kevin W. O'Donnell, at 42.

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Figure 10: Total Returns of S&P 500 Index – 1926-2021⁷¹



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In my updated results, my estimated total market return has declined from 15.62 as estimated in my Direct Testimony to 14.76 percent. This produces a MRP of 10.96 percent (applying the projected risk-free rate) based on EPS growth rates for the S&P 500 companies from S&P, Bloomberg, and Value Line.

7

Q. Dr. Woolridge, Mr. O’Donnell, and Mr. Gorman apply market risk premia based on historical data or surveys.⁷² How do you respond?

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A. The use of a historical market risk premium is not appropriate under current market conditions because it does not reflect the inverse relationship between interest rates and the equity risk premium, nor the earnings growth for today’s S&P 500 companies. When the current average yield on U.S. Treasury bonds is well below the long-term historical

⁷¹ Source: Duff & Phelps, 2021 SBBI Yearbook, Appendix A-1.

⁷² See, e.g., Direct Testimony of J. Randall Woolridge, at 107-108; Direct Testimony of Michael P. Gorman, at VIII-50-52; Direct Testimony of Kevin W. O’Donnell, at 80-81; Direct Testimony of Marlon F. Griffing, at 51.

1 average yield, it is reasonable to expect that the MRP would be well above the historical
2 average market risk premium. Consequently, the long-term average historical market
3 risk premium would be appropriate only if the expected risk-free rate was consistent with
4 the long-term historical risk-free rate.

5 Moreover, the long-term historical average market risk premium Mr. O'Donnell
6 calculates is incorrect because he subtracts an average *total* return on long-term
7 government bonds from an average total return on large capitalization stocks rather than
8 the average *income-only* return on long-term government bonds. As noted in Duff &
9 Phelps' 2021 SBBI Yearbook:

10 Another point to keep in mind when calculating the equity risk premium is
11 that the income return on the appropriate-horizon Treasury security, rather
12 than the total return, is used in the calculation. The total return comprises
13 three return components: the income return, the capital appreciation
14 return, and the reinvestment return. The income return is defined as the
15 portion of the total return that results from a periodic cash flow, or in this
16 case, the bond coupon payment. The capital appreciation return results
17 from the price change of a bond over a specific period. Bond prices
18 generally change in reaction to unexpected fluctuations in yields.
19 Reinvestment return is the return on a given month's investment income
20 when reinvested into the same asset class in the subsequent months of the
21 year. The income return is thus used in the estimation of the equity risk
22 premium because it represents the truly riskless portion of the return.⁷³

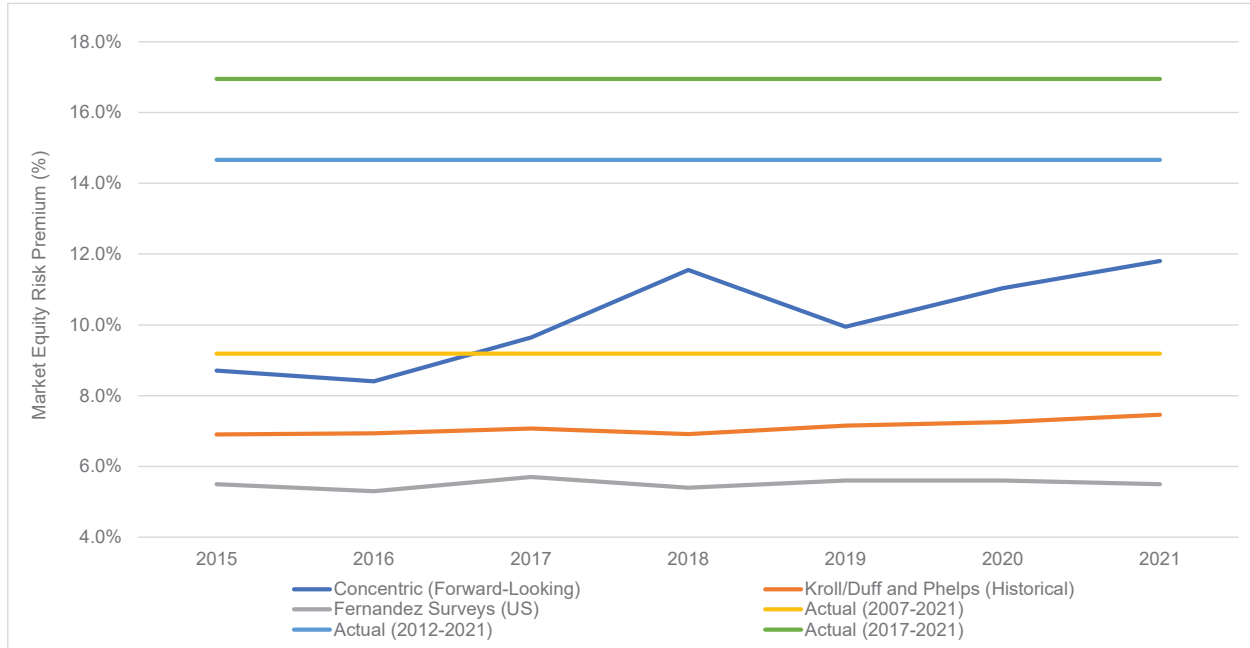
23 **Q. Do you agree with Dr. Woolridge's reliance on surveys of expected returns?**

24 A. No, I do not. As a case in point, Figure 11 below demonstrates just how far off the
25 surveys have been over the past seven years in relation to the forward-looking approach I
26 have used. The survey-based returns have substantially underestimated market
27 performance, and even the forward-looking approach is less than actual returns.

⁷³ Duff & Phelps, 2021 SBBI Yearbook, at 10-22.

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Figure 11: Market Equity Risk Premium Methods



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Dr. Woolridge points to surveys of *expected* returns, which are not the same as *required* returns. The task of estimating the cost of equity is to estimate the investors' *required* return, not investors' *expected* returns. Therefore, the Commission should not rely on surveys to measure the expected market return applied in the CAPM.

7

Q. What is your conclusion with regard to the CAPM?

8

A. My conclusion is that using reasonable forward-looking inputs for the risk-free rate and MRP, along with current Betas from Value Line and Bloomberg, the CAPM is producing results that should be considered along with the results from the DCF, Risk Premium and Expected Earnings models.

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1 **VIII. RISK PREMIUM MODEL**

2 **Q. Several of the Intervenor Witnesses challenge the use of a Risk Premium model such**
3 **as the one you have presented, or they contend that your application of the Risk**
4 **Premium model is not reasonable.⁷⁴ How do you respond to their concerns?**

5 A. Dr. Woolridge has expressed three primary concerns regarding my Risk Premium
6 analysis: (1) that I have used historical authorized ROEs and Treasury yields and applied
7 the resulting risk premium to projected Treasury yields; (2) that the analysis is a gauge of
8 regulatory commission behavior not investor behavior, and (3) that my methodology
9 produces an inflated required rate of return because utilities have been selling at M/B
10 ratios well in excess of 1.0 for many years.⁷⁵

11 With regard to Dr. Woolridge's first concern, my Risk Premium analysis
12 determines the appropriate risk premium based on the relationship between historic
13 authorized ROEs for electric utilities and Treasury bonds yields. FERC has adopted a
14 similar approach in one of its approved methodologies for setting ROEs for electric
15 transmission companies.⁷⁶ I disagree with Dr. Woolridge that it is incorrect to apply the
16 historical risk premium from this analysis to current and projected Treasury yields in
17 order to estimate the ROE at specified interest rates. As shown in Rebuttal Exhibit JMC-

⁷⁴ See, e.g., Direct Testimony of J. Randall Woolridge, at 107-108; Direct Testimony of Michael P. Gorman, at VIII-50-52; Direct Testimony of Kevin W. O'Donnell, at 80-81; Direct Testimony of Marlon F. Griffing, at 51.

⁷⁵ Direct Testimony of J. Randall Woolridge, at 107-108.

⁷⁶ Federal Energy Regulatory Commission, Opinion No. 569-A, Order on Rehearing, issued May 21, 2020, at para. 105-106 and 108-109. On August 9, 2022 the U.S. Court of Appeals vacated the FERC Order 569 decisions that related to its risk premium model and remanded the case to FERC to reopen proceedings. It is unclear as to how FERC will proceed with respect to the Risk Premium approach.

1 4, my Risk Premium analysis is supported by a regression equation that evaluates the
2 relationship between Treasury bond yields and the equity risk premium over time. The
3 regression equation has an R^2 of 0.82, meaning that it can be used to predict the equity
4 risk premium at differing levels of interest rates. In other words, my Risk Premium
5 analysis is designed to do exactly what Dr. Woolridge suggests it cannot – that is, use the
6 historical relationship between bond yields and equity risk premia to predict how
7 investors will react to changes in interest rates as a result of monetary policy and
8 economic conditions.

9 In response to Dr. Woolridge's second concern, while my Risk Premium analysis
10 is based on authorized ROEs and the corresponding Treasury yields at the time the
11 regulatory decisions were issued, I believe that investors are informed by allowed ROEs
12 from hundreds of rate case decisions to frame their return expectations. A fundamental
13 principle in setting a just and reasonable return is that the return must be comparable to
14 returns available to investors in companies with commensurate risk. In that regard, the
15 returns that have been authorized for other electric utility companies is one relevant
16 consideration for investors. This analysis must, however, reflect interest rates that
17 prevailed when these ROEs were set and adjusted for current or projected rates to be
18 valid. This analysis shows what those returns are in relation to the risk-free rate, so that it
19 is possible to use historical returns to estimate future returns given current and projected
20 Treasury yields.

21 In response to Dr. Woolridge's third concern, I have previously addressed this in
22 the capital markets section of this Rebuttal testimony. As demonstrated there, utility M/B
23 ratios have increased not because authorized returns were higher than the true cost of

1 equity, but because interest rates on government bonds have steadily declined for the past
2 four decades. Low interest rates are favorable for capital-intensive industries such as
3 utilities, while increasing interest rates are not.

4 Mr. Gorman also expresses several concerns with my Risk Premium analysis,
5 including: 1) he disputes the inverse relationship between interest rates and risk premia;
6 2) he claims that, while academic studies have shown that in the past there was such an
7 inverse relationship, the relationship has changed over time, particularly since interest
8 rate volatility is not as extreme as it was in the 1980s; and 3) he contends that I have
9 ignored investment risk differentials in my regression analyses, and that my adjustment to
10 the equity risk premium is based exclusively on changes in nominal interest rates.⁷⁷

11 In response to Mr. Gorman's first concern, there is a large body of research in
12 addition to my own statistical analyses that supports the inverse relationship between
13 interest rates and equity risk premia, including the March 1998 article published by Dr. S.
14 Keith Berry, which came to similar conclusions regarding the inverse relationship
15 between interest rates and the risk premia.⁷⁸ Several other studies were published after
16 those that Mr. Gorman cites as evidence that this inverse relationship is a relic of the
17 1980s. As summarized in Dr. Roger Morin's *New Regulatory Finance*, two of these

⁷⁷ Direct Testimony of Michael P. Gorman, at VIII-50-52.

⁷⁸ See e.g., S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates.

1 studies were published in 2005, demonstrating that the inverse relationship between
2 interest rates and the equity risk premium are contemporary concepts in finance:

3 Published studies by Brigham, Shome, and Vinson (1985), Harris (1986),
4 Harris and Marston (1992, 1993), Carleton, Chambers, and Lakonishok
5 (1983), Morin (2005), and McShane (2005), and others demonstrate that,
6 beginning in 1980, risk premiums varied inversely with the level of
7 interest rates—rising when rates fell and declining when interest rates
8 rose. The reason for this relationship is that when interest rates rise,
9 bondholders suffer a capital loss. This is referred to as interest rate risk....
10 Conversely in low interest rate environments, when bondholders' interest
11 rate fears subside and shareholders' fears of loss of earning power
12 dominate, the risk differential will widen and hence the risk premium will
13 increase.⁷⁹

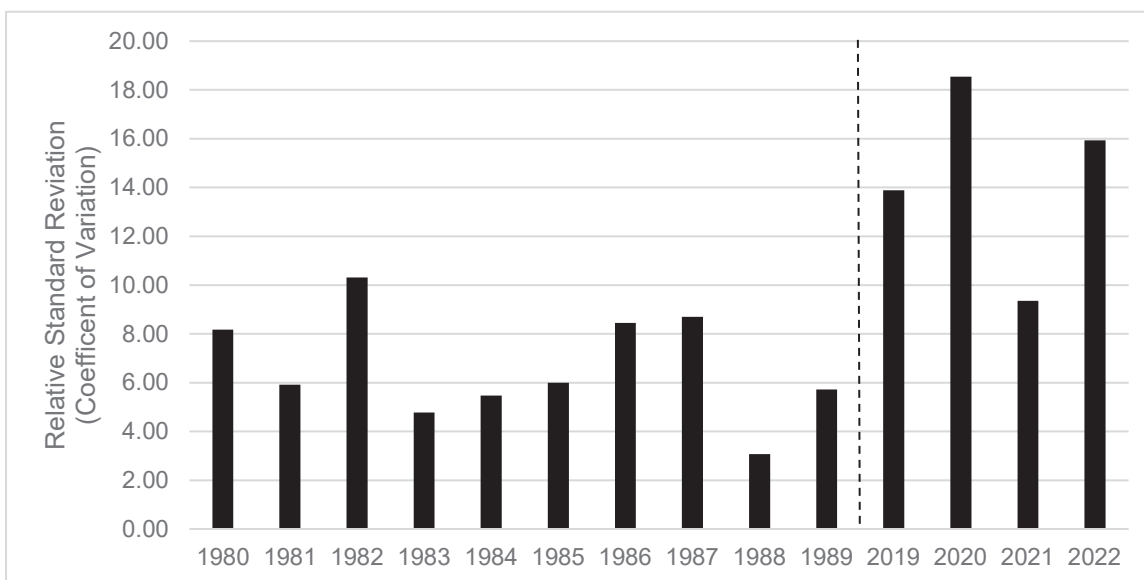
14 Furthermore, as discussed previously, my Risk Premium analysis has an R^2 of
15 approximately 0.82, which indicates that there is a high degree of correlation between the
16 equity risk premium and changes in interest rates.

17 With regard to Mr. Gorman's statement that interest rate volatility was more
18 extreme in the 1980s than it is today, I conducted an analysis that compares the volatility
19 in 30-year Treasury bond yields in each year during the 1980s to the volatility from 2019
20 to present. As shown in Figure 12, the relative standard deviation of Treasury bond
21 yields is substantially higher in 2022 than it was during any year in the 1980s, indicating
22 that interest rate volatility is higher in recent years than it was in the 1980s, and has been
23 higher since 2019 than all but one year during the 1980s (i.e., 1982).

⁷⁹ New Regulatory Finance, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 128.

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Figure 12: Treasury Bond Yield Volatility⁸⁰



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In response to Mr. Gorman’s third concern, he contends that I have ignored investment risk differentials in my regression analyses, and that my adjustment to the equity risk premium is based exclusively on changes in nominal interest rates. I agree that my analysis is based solely on the relationship to interest rates. But with an R² of 0.82, the relationship to interest rates accounts for 82 percent of the change in awarded ROEs, which is quite strong. In addition, the inclusion of 859 rate cases over a 30-year period provides a broad perspective on case-specific issues. To the extent that shifts in industry risk are left out of this equation, the recent increases in utility betas would suggest that the Risk Premium results are biased downwards, and would likely understate the cost of equity. This relationship is picked up directly, however, in the CAPM model, and these results are meaningfully higher. Therefore, I believe the model is useful as a

⁸⁰ Source: Bloomberg Professional.

1 method to estimate the cost of equity for electric utilities like SDG&E, along with the
2 results from the DCF, CAPM, and Expected Earnings models.

3 **IX. EXPECTED EARNINGS ANALYSIS**

4 **Q. Before responding to the criticisms of your Expected Earnings analysis, do any of**
5 **the Intervenor Witnesses perform a similar analysis?**

6 A. Yes, Mr. O'Donnell's Comparable Earnings Analysis ("CEA") is based on historical and
7 forecasted earned returns on book value for the same proxy group of companies that I use
8 as well as for Sempra Energy. I note that because the cost of equity is forward looking,
9 only Mr. O'Donnell's projected results should be given any weight. I further note that
10 his 2025-2027 proxy group projected CEA results of 10.5 percent are reasonably
11 consistent with my Expected Earnings results presented in Rebuttal Exhibit JMC-5 that
12 range from 10.38 percent (median) to 10.85 percent (mean).

13 **Q. Some Intervenor Witnesses disagree with the use of an Expected Earnings analysis**
14 **to estimate the cost of equity for SDG&E in this proceeding.⁸¹ What is your**
15 **response?**

16 A. Dr. Woolridge contends that there are a number of issues with the Expected Earnings
17 approach, claiming: 1) it does not measure the market cost of equity capital; 2) changes in
18 ROE ratios do not track capital market conditions; 3) the approach is circular; 4) the
19 proxy companies' projected ROEs reflect earnings on business activities that are not
20 representative of SDG&E's rate-regulated electric utility operations; and 5) the Value

⁸¹ See, e.g., Direct Testimony of J. Randall Woolridge, at 108-112; Direct Testimony of Michael P. Gorman, at VIII-53-55; Direct Testimony of Marlon F. Griffing, at 52.

1 Line data used to develop the Expected Earnings analysis is biased upward and reflects
2 the views of only one analyst.⁸² I do not agree with these contentions.

3 In response to Dr. Woolridge's concerns, the *Hope* and *Bluefield* standards
4 establish that a utility should be granted the opportunity to earn a return that is
5 commensurate with the return on other investments of similar risk. Therefore, it is
6 reasonable to consider the returns that investors expect to earn on the common equity of
7 the electric utility companies in the proxy group as a benchmark for a just and reasonable
8 return because that is the expected earned ROE that an investor will consider in
9 determining whether to purchase shares in the company or to seek alternative investments
10 with a better risk/reward profile. As Dr. Morin notes:

11 The Comparable Earnings standard has a long and rich history in
12 regulatory proceedings, and finds its origins in the fair return doctrine
13 enunciated by the U.S. Supreme Court in the landmark *Hope* case. The
14 governing principle for setting a fair return decreed in *Hope* is that the
15 allowable return on equity should be commensurate with returns on
16 investments in other firms having comparable risks, and that the allowed
17 return should be sufficient to assure confidence in the financial integrity of
18 the firm, in order to maintain creditworthiness and ability to attract capital
19 on reasonable terms. Two distinct standards emerge from this basic
20 premise: a standard of Capital Attraction and a standard of Comparable
21 Earnings. The Capital Attraction standard focuses on investors' return
22 requirements, and is applied through market value methods described in
23 prior chapters, such as DCF, CAPM, or Risk Premium. The Comparable
24 Earnings standard uses the return earned on book equity investment by
25 enterprises of comparable risks as the measure of fair return.⁸³

26 Dr. Woolridge fails to note in his critique of the Expected Earnings analysis that the
27 authorized ROE that is established in this case will be applied to the net book value of the

⁸² Direct Testimony of J. Randall Woolridge, at 108-112.

⁸³ New Regulatory Finance, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 381.

1 Company's authorized rate base (subject to certain regulatory adjustments). In this
2 regard, the Expected Earnings approach provides valuable insight into the opportunity
3 cost of investing in SDG&E's electric utility operations. If investors devote capital to the
4 Company (which would offer a return of only 8.90 percent on book value if Dr.
5 Woolridge's recommendation were adopted), they forgo the opportunity for that same
6 capital to earn a potentially greater return on book value through investment in the proxy
7 companies. As a result, the Expected Earnings approach is informative because it
8 provides a measure of the return on book value that is available to investors through other
9 investments with comparable risk to SDG&E.

10 **Q. Please comment on Dr. Woolridge's references to Dr. Morin's statements in *New***
11 ***Regulatory Finance* as it pertains to the Expected Earnings analysis.⁸⁴**

12 A. Dr. Woolridge references Dr. Morin, who does discuss some of the weaknesses of the
13 Expected Earnings analysis. However, in *New Regulatory Finance*, Dr. Morin discusses
14 the strengths and weaknesses of each of the methodologies used to compute the cost of
15 equity including the DCF and CAPM analyses. Additionally, Dr. Woolridge fails to
16 mention Dr. Morin's conclusion regarding the Expected Earnings analysis. Specifically,
17 Dr. Morin stated:

18 The Comparable Earnings approach is far more meaningful in the
19 regulatory arena than in the sphere of competitive firms. Unlike industrial
20 companies the earnings requirement of utilities is determined by applying
21 a percentage rate of return to the book value of a utility's investment, and
22 not on the market value of that investment. Therefore, it stands to reason
23 that a different percentage rate of return than the market cost of capital be
24 applied when the investment base is stated in book value terms rather than
25 market value terms. In a competitive market, investment decisions are

⁸⁴ Direct testimony of Dr. J. Randall Woolridge, at 108-109.

1 taken on the basis of market prices, market values, and market cost of
2 capital. **If regulation's role was to duplicate the competitive result**
3 **perfectly, then the market cost of capital would be applied to the**
4 **current market value of rate base assets employed by utilities to**
5 **provide service. But because the investment base for ratemaking**
6 **purposes is expressed in book value terms, a rate of return on book**
7 **value, as is the case with Comparable Earnings, is highly**
8 **meaningful.**⁸⁵

9 Therefore, contrary to Dr. Woolridge's views, Dr. Morin believes that the Expected
10 Earnings approach is highly meaningful in a regulatory setting similar to the one being
11 used to set the cost of equity for SDG&E.

12 **Q. Please summarize Mr. Gorman's position regarding your Expected Earnings**
13 **analysis.**

14 A. Mr. Gorman argues that my Expected Earnings analysis "should be rejected because this
15 approach does not measure the market required return appropriate for the investment risk
16 of SDG&E. Rather, it measures the book accounting return."⁸⁶ In addition, Mr. Gorman
17 contends that "the earned return on book equity is simply not an accurate or legitimate
18 basis upon which to determine a fair and reasonable return on equity for both investors
19 and customers."⁸⁷

⁸⁵ New Regulatory Finance, Roger A. Morin Ph.D., Public Utility Reports, 2006, at 394-395 (emphasis added).

⁸⁶ Direct Testimony of Michael P. Gorman, at VIII-53.

⁸⁷ *Id.* at 98.

1 **Q. What is your response to Mr. Gorman’s concerns related to the Expected Earnings**
2 **approach?**

3 A. The Expected Earnings approach provides an expected return for like-risk companies,
4 which is a core strength of the model and consistent with the basic tenets of *Hope*, which
5 requires that “the return to the equity owner should be commensurate with returns on
6 investments in other enterprises having corresponding risks.” Arguably, an investor
7 would consider both current market valuations in deciding between companies of like
8 risk and the value of the expected return on book value. Lastly, in developing his
9 sustainable growth rates for the DCF model, Mr. Gorman assumes the reasonableness of
10 the projected returns on equity from Value Line for the proxy group companies, which
11 are the same returns that he dismisses as unreliable in the Expected Earnings analysis.

12 Although the FERC has not included the Expected Earnings analysis in its most
13 recent orders setting its ROE methodology (i.e., Opinion Nos. 569-A and 569-B) for
14 electric transmission companies, FERC has left the door open for presentation of an
15 Expected Earnings analysis on a case-by-case basis.⁸⁸ In my view, the Expected
16 Earnings analysis provides a more stable picture of the returns that investors are
17 expecting for companies in the Electric Utility sector based on Value Line data. This
18 stability is due to Value Line’s analysis and projections which change when updated, in
19 contrast to the CAPM and DCF results which shift with more volatile market data.
20 Moreover, as explained in this section, the use of accounting returns is appropriate
21 because the authorized ROE is being applied to an accounting rate base in order to

⁸⁸ Federal Energy Regulatory Commission, Opinion No. 569-A, Order on Rehearing, issued May 21, 2020, at para. 132.

1 determine the net income a company is authorized to recover in rates. For all of these
2 reasons, I continue to support the use of an Expected Earnings analysis as one model to
3 estimate the cost of equity for SDG&E in this proceeding.

4 **X. BUSINESS RISK**

5 **Q. Do you agree with the Intervenor Witnesses (Woolridge, Gorman, Pavlovic) who**
6 **contend that credit ratings take into account all business and financial risks that are**
7 **relevant to investors?**

8 A. Credit ratings, while important, are not the only consideration in assessing business or
9 financial risk, and the risks for equity investors are not the same as the risks for
10 bondholders. Credit ratings are assessments of the likelihood a company could default on
11 its *debt*, whereas, the purpose of setting and ROE is to determine the riskiness and cost of
12 the Company's *equity*. Equity investors are more concerned with earnings and rate base
13 growth, regulatory support for recovery of prudently-incurred costs, the strength of the
14 local economy and housing markets, capital spending, changes in interest rates, changes
15 in long-term weather patterns, and more recently exposure and opportunities related to
16 decarbonization of the industry. Bondholders focus more on stability and predictability
17 of cash flows and timeliness of cost recovery.

18 As discussed in my Direct Testimony, SDG&E has unique business risks that
19 differentiate it from the proxy group. These risks include wildfire risks, elevated capital
20 spending, the magnitude of California's clean energy mandates, and regulatory risk.⁸⁹

21 S&P likewise states that it puts a negative ratings modifier on SDG&E and ranks the

⁸⁹ SDG&E-04, Direct Testimony of James M. Coyne, at JMC-48 – JMC-65.

1 Company at the lower end of S&P's range for the excellent business risk category based
2 upon SDG&E's wildfire and wildfire liability risks compared to its peers, indicating that
3 credit rating agencies likewise distinguish risks among utilities with the same credit
4 ratings.⁹⁰ Further, while I have considered these business risks, it is important to
5 recognize that I did not make an adjustment to my ROE recommendation for business
6 risk even though my testimony demonstrates that SDG&E has higher business risk than
7 the proxy group on certain important factors. Instead, I relied on the mean results of the
8 four financial models I used to estimate the cost of equity for SDG&E.

9 **Q. Several Intervenor Witnesses argue that the Company's rate structures mitigate**
10 **SDG&E's risk.⁹¹ What is your response?**

11 A. It is important to remember that the cost of equity is a comparative exercise. As such, the
12 relevant point of comparison is the Company's risk relative to its peers. As explained in
13 my Direct Testimony and shown in Exhibit JMC-9, a substantial majority of the proxy
14 group companies employ a variety of rate structures and mechanisms to mitigate
15 regulatory lag. As demonstrated in my direct testimony, the regulatory structures
16 available to SDG&E are no different from the perspective of the investment community
17 than those in place at the proxy companies.⁹² As a result, SDG&E is no less risky than
18 the proxy companies on account of its regulatory mechanisms. Therefore, contrary to
19 these Intervenor Witnesses, my testimony and recommendation accounts for SDG&E's
20 regulatory mechanisms.

⁹⁰ S&P, *San Diego Gas & Electric Company*, July 29, 2022 at 2, 4.

⁹¹ *See, e.g.*, Direct Testimony of Richard McCann at 19.

⁹² SDG&E-04, Direct Testimony of James M. Coyne, at JMC-65.

1 **XI. CAPITAL STRUCTURE**

2 **Q. Some Intervenor Witnesses (Woolridge, O'Donnell, Gorman, Rothschild) present**
3 **capital structure analyses of the proxy group companies at the holding company**
4 **level,⁹³ and disagree with SDG&E's proposed capital structure. What is your**
5 **response?**

6 A. Dr. Woolridge's, Mr. Gorman's, Mr. O'Donnell's, and Mr. Rothchild's analyses do not
7 provide an apples-to-apples assessment. Because capital at the parent holding company
8 level may finance unregulated operations, comparisons to the parent company capital
9 structure may lead to flawed and misleading conclusions. The Intervenor Witnesses'
10 comparisons of the Company's requested capital structure to the proxy group holding
11 company capital structure that reflects both regulated and unregulated operations lead to
12 their erroneous conclusion that the Company's financial risk is lower than the proxy group.

13 The capital structure analysis presented in Exhibit JMC-10 of my Direct Testimony
14 calculates the actual capital structures in place only for the proxy companies' regulated
15 utility operations. It therefore provides an apples-to-apples assessment of the
16 reasonableness of SDG&E's requested capital structure. As shown in Exhibit JMC-10, the
17 Company's requested equity ratio of 54.00 percent is within the range of the proxy group's
18 operating utilities' actual equity ratios, demonstrating SDG&E's requested capital structure
19 is consistent with those in place at the proxy group, and is therefore reasonable and should
20 be approved.

⁹³ Direct Testimony of J. Randall Woolridge, at 30-31; Direct Testimony of Michael P. Gorman, Chapter VIII, Exhibit MPG-3; Direct Testimony of Aaron L. Rothschild, Exhibit ALR-5, page 5; Direct Testimony of Kevin W. O'Donnell, at 65.

1 **Q. Mr. O'Donnell compares SDG&E's requested equity ratio with the national average**
2 **authorized capital structure for electric utilities.⁹⁴ Please comment on that**
3 **comparison.**

4 A. As explained previously, SDG&E has unique business and operating risks that
5 distinguish the Company from the average electric utility and warrant a higher authorized
6 equity ratio than the industry average. In addition, the range of authorized equity ratios
7 since 2016 has been from 40.25 percent to 58.18 percent.⁹⁵ SDG&E proposed equity
8 ratio of 54.00 percent is well within this range. Notably, Mr. O'Donnell's Chart 4 shows
9 a clear upward trend in the average authorized equity ratio in the last fifteen years.
10 Particularly important is the increase since 2016, in part to somewhat mitigate the effects
11 of the Tax Cuts and Jobs Act on utilities' cash flows and their credit profiles.

12 **XII. CONCLUSIONS**

13 **Q. What is your conclusion regarding a fair ROE for SDG&E?**

14 A. My key conclusions and recommendations are as follows:

15 1) The Commission has been presented with a broad array of recommendations
16 from multiple witnesses. Some include proposed analytical approaches, while others are
17 more judgmental or based on decisions from other jurisdictions.

18 2) The only reliable method for determining the cost of capital is through the
19 application of rigorous analysis using financial models and market data from reliable
20 sources, coupled with a comprehensive risk assessment of the regulated utility.

⁹⁴ Direct Testimony of Kevin W. O'Donnell, at 26-28.

⁹⁵ Source: S&P Capital IQ Pro, Regulatory Research Associates. I have excluded decisions in Arkansas, Florida, Indiana, and Michigan, which include zero cost capital items that are not part of investor-provided capital.

1 3) The Commission's cost of capital determination should consider the general
2 economic and capital market environment and the influence capital market conditions exert
3 over the results of the ROE estimation models.

4 4) Interest rates on government, corporate, and utility bonds have increased
5 substantially in 2022 and projections suggest a continued upward pressure in the coming
6 years. This increase in the cost of capital, and other risk factors indicate that the uncertainty
7 and volatility in financial markets have caused equity investors to require a higher rate of
8 return and specifically for electric utilities.

9 **Q. What is your conclusion regarding a fair ROE for SDG&E?**

10 A. Based on my updated DCF, CAPM, Bond Yield Plus Risk Premium, and Expected
11 Earnings analyses, I continue to find a reasonable range of ROE for SDG&E to be in the
12 range of 10.40 percent to 11.40 percent and the Company's requested ROE of 10.55
13 percent to be fair and appropriate.

14 **Q. What is your recommendation with regard to the capital structure for SDG&E in
15 this proceeding?**

16 A. I support SDG&E's actual financial capital structure of 54.0 percent common equity and
17 46.0 percent long-term debt as reasonable relative risk profile of SDG&E and the to the
18 range of actual capital structures for the operating companies held by the proxy group
19 companies.

20 **Q. Does this conclude your rebuttal testimony?**

21 A. Yes, it does.

REBUTTAL EXHIBIT JMC-1

COMPREHENSIVE SUMMARY OF ROE RESULTS ANALYSIS

COMBINED DCF, CAPM, RISK PREMIUM AND EXPECTED EARNINGS RESULTS - CURRENT INTEREST RATES

Company	30-Day DCF	90-Day DCF	180-Day DCF	CAPM VL Beta	CAPM BB Beta	AVG DCF	AVG CAPM	Risk Premium	Expected Earnings	4-model Average
Alliant Energy Corporation										
Ameren Corporation										
American Electric Power Company, Inc.										
Avista Corporation										
Black Hills Corporation										
CMS Energy Corporation										
Consolidated Edison, Inc.										
Duke Energy Corporation										
Edison International										
Energy Corporation										
Evergy, Inc.										
Eversource Energy										
IDACORP, Inc.										
NorthWestern Corporation										
OGE Energy Corporation										
Pinnacle West Capital Corporation										
Portland General Electric Company										
Southern Company										
Wisconsin Energy Corporation										
Xcel Energy Inc.										
LNT	8.75%	8.63%	8.66%	12.44%	13.08%	8.68%	12.76%	9.87%	11.79%	10.78%
AEE	9.50%	9.39%	9.46%	12.44%	12.43%	9.45%	12.44%	9.87%	10.39%	10.54%
AEP	9.77%	9.63%	9.81%	11.86%	12.60%	9.74%	12.23%	9.87%	11.40%	10.81%
AVA	9.24%	9.13%	9.15%	13.60%	12.11%	9.18%	12.86%	9.87%	8.24%	10.04%
BKH	9.06%	8.94%	9.09%	14.18%	14.33%	9.03%	14.26%	9.87%	10.37%	10.88%
CMS	10.61%	10.49%	10.59%	11.86%	12.48%	10.56%	12.17%	9.87%	13.42%	11.51%
ED	7.36%	7.29%	7.50%	11.86%	11.25%	7.39%	11.56%	9.87%	8.19%	9.25%
DUK	9.79%	9.66%	9.78%	13.02%	12.31%	9.74%	12.67%	9.87%	9.12%	10.35%
EIX	12.61%	12.30%	12.37%	14.18%	13.95%	12.43%	14.06%	9.87%	13.40%	12.44%
ETR	9.36%	9.17%	9.29%	13.60%	14.05%	9.27%	13.83%	9.87%	11.85%	11.21%
EVRG	9.51%	9.36%	9.42%	13.60%	13.19%	9.43%	13.39%	9.87%	10.16%	10.72%
ES	9.44%	9.29%	9.32%	13.60%	13.36%	9.35%	13.48%	9.87%	9.77%	10.62%
IDA	6.10%	6.02%	6.02%	12.44%	12.83%	6.04%	12.63%	9.87%	9.71%	9.57%
NWE	7.78%	7.62%	7.67%	14.18%	14.16%	7.69%	14.17%	9.87%	8.22%	9.99%
OGE	8.33%	8.19%	8.33%	14.76%	14.72%	8.29%	14.74%	9.87%	12.87%	11.44%
PNW	5.10%	4.89%	5.05%	13.60%	13.60%	5.01%	13.60%	9.87%	9.14%	9.41%
POR	7.83%	7.72%	7.67%	13.02%	12.77%	7.74%	12.89%	9.87%	9.65%	10.04%
SO	9.47%	9.37%	9.56%	13.60%	13.32%	9.47%	13.46%	9.87%	14.81%	11.90%
WEC	9.08%	9.01%	9.12%	12.44%	12.37%	9.07%	12.40%	9.87%	13.25%	11.15%
XEL	9.39%	9.28%	9.37%	12.44%	12.50%	9.35%	12.47%	9.87%	11.31%	10.75%
PROXY GROUP MEAN	8.90%	8.77%	8.86%	13.14%	13.07%	8.85%	13.10%	9.87%	10.85%	10.67%
PROXY GROUP MEDIAN	9.30%	9.15%	9.22%	13.31%	12.95%	9.22%	12.88%	9.87%	10.38%	10.73%
Range - Low	5.10%	4.89%	5.05%	11.86%	11.25%	5.01%	11.56%	9.87%	8.19%	9.25%
Range - High	12.61%	12.30%	12.37%	14.76%	14.72%	12.43%	14.74%	9.87%	14.81%	12.44%

COMBINED DCF, CAPM, RISK PREMIUM AND EXPECTED EARNINGS RESULTS - PROJECTED INTEREST RATES

Company	30-Day DCF	90-Day DCF	180-Day DCF	CAPM VL Beta	CAPM BB Beta	AVG DCF	AVG CAPM	Risk Premium	Expected Earnings	4-model Average
Alliant Energy Corporation										
Ameren Corporation										
American Electric Power Company, Inc.										
Avista Corporation										
Black Hills Corporation										
CMS Energy Corporation										
Consolidated Edison, Inc.										
Duke Energy Corporation										
Edison International										
Energy Corporation										
Evergy, Inc.										
Eversource Energy										
IDACORP, Inc.										
NorthWestern Corporation										
OGE Energy Corporation										
Pinnacle West Capital Corporation										
Portland General Electric Company										
Southern Company										
Wisconsin Energy Corporation										
Xcel Energy Inc.										
LNT	8.75%	8.63%	8.66%	12.57%	13.17%	8.68%	12.87%	10.15%	11.79%	10.87%
AEE	9.50%	9.39%	9.46%	12.57%	12.56%	9.45%	12.56%	10.15%	10.39%	10.64%
AEP	9.77%	9.63%	9.81%	12.02%	12.72%	9.74%	12.37%	10.15%	11.40%	10.92%
AVA	9.24%	9.13%	9.15%	13.67%	12.26%	9.18%	12.96%	10.15%	8.24%	10.13%
BKH	9.06%	8.94%	9.09%	14.21%	14.36%	9.03%	14.29%	10.15%	10.37%	10.96%
CMS	10.61%	10.49%	10.59%	12.02%	12.60%	10.56%	12.31%	10.15%	13.42%	11.61%
ED	7.36%	7.29%	7.50%	12.02%	11.44%	7.39%	11.73%	10.15%	8.19%	9.37%
DUK	9.79%	9.66%	9.78%	13.12%	12.45%	9.74%	12.78%	10.15%	9.12%	10.45%
EIX	12.61%	12.30%	12.37%	14.21%	13.99%	12.43%	14.10%	10.15%	13.40%	12.52%
ETR	9.36%	9.17%	9.29%	13.67%	14.09%	9.27%	13.88%	10.15%	11.85%	11.29%
EVRG	9.51%	9.36%	9.42%	13.67%	13.27%	9.43%	13.47%	10.15%	10.16%	10.80%
ES	9.44%	9.29%	9.32%	13.67%	13.44%	9.35%	13.55%	10.15%	9.77%	10.71%
IDA	6.10%	6.02%	6.02%	12.57%	12.94%	6.04%	12.75%	10.15%	9.71%	9.66%
NWE	7.78%	7.62%	7.67%	14.21%	14.19%	7.69%	14.20%	10.15%	8.22%	10.07%
OGE	8.33%	8.19%	8.33%	14.76%	14.72%	8.29%	14.74%	10.15%	12.87%	11.51%
PNW	5.10%	4.89%	5.05%	13.67%	13.66%	5.01%	13.67%	10.15%	9.14%	9.49%
POR	7.83%	7.72%	7.67%	13.12%	12.88%	7.74%	13.00%	10.15%	9.65%	10.14%
SO	9.47%	9.37%	9.56%	13.67%	13.40%	9.47%	13.53%	10.15%	14.81%	11.99%
WEC	9.08%	9.01%	9.12%	12.57%	12.50%	9.07%	12.54%	10.15%	13.25%	11.25%
XEL	9.39%	9.28%	9.37%	12.57%	12.63%	9.35%	12.60%	10.15%	11.31%	10.85%
PROXY GROUP MEAN	8.90%	8.77%	8.86%	13.23%	13.16%	8.85%	13.20%	10.15%	10.85%	10.76%
PROXY GROUP MEDIAN	9.30%	9.15%	9.22%	13.39%	13.05%	9.22%	12.98%	10.15%	10.38%	10.83%
Range - Low	5.10%	4.89%	5.05%	12.02%	11.44%	5.01%	11.73%	10.15%	8.19%	9.37%
Range - High	12.61%	12.30%	12.37%	14.76%	14.72%	12.43%	14.74%	10.15%	14.81%	12.52%

REBUTTAL EXHIBIT JMC-2
CONSTANT GROWTH DCF ANALYSIS

30-DAY CONSTANT GROWTH DCF

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Alliant Energy Corporation	\$1.71	\$57.62	2.97%	3.05%	6.00%	5.40%	5.70%	5.70%	8.45%	8.75%	9.06%
Ameren Corporation	\$2.36	\$87.59	2.69%	2.78%	6.50%	6.46%	7.20%	6.72%	9.24%	9.50%	9.99%
American Electric Power Company, Inc.	\$3.12	\$94.16	3.31%	3.42%	6.50%	6.35%	6.20%	6.35%	9.62%	9.77%	9.92%
Avista Corporation	\$1.76	\$41.86	4.20%	4.31%	3.00%	5.90%	5.90%	4.93%	7.27%	9.24%	10.23%
Black Hills Corporation	\$2.38	\$71.94	3.31%	3.40%	6.00%	4.67%	6.30%	5.66%	8.06%	9.06%	9.71%
CMS Energy Corporation	\$1.84	\$65.59	2.81%	2.91%	6.50%	8.48%	8.10%	7.69%	9.40%	10.61%	11.40%
Consolidated Edison, Inc.	\$3.16	\$92.86	3.40%	3.47%	4.50%	5.17%	2.00%	3.89%	5.44%	7.36%	8.66%
Duke Energy Corporation	\$3.94	\$105.44	3.74%	3.85%	6.00%	5.82%	6.00%	5.94%	9.67%	9.79%	9.85%
Edison International	\$2.80	\$62.19	4.50%	4.68%	16.00%	5.00%	2.80%	7.93%	7.37%	12.61%	20.86%
Energy Corporation	\$4.04	\$109.93	3.68%	3.78%	4.00%	6.04%	6.70%	7.93%	7.75%	9.36%	10.50%
Energy, Inc.	\$2.29	\$64.37	3.56%	3.66%	7.50%	4.95%	5.10%	5.85%	8.60%	9.51%	11.19%
Eversource Energy	\$2.55	\$83.46	3.06%	3.15%	6.00%	6.67%	6.20%	6.29%	9.15%	9.44%	9.83%
IDACORP, Inc.	\$3.00	\$105.05	2.86%	2.90%	4.00%	2.80%	2.80%	3.20%	5.70%	6.10%	6.91%
NorthWestern Corporation	\$2.52	\$56.70	4.44%	4.52%	3.00%	4.50%	2.30%	3.27%	6.80%	7.78%	9.04%
OGE Energy Corporation	\$1.64	\$38.33	4.28%	4.36%	6.50%	1.90%	3.50%	3.97%	6.22%	8.33%	10.92%
Pinnacle West Capital Corporation	\$3.40	\$70.95	4.79%	4.80%	0.50%	0.10%	n/a	0.30%	4.89%	5.10%	5.30%
Portland General Electric Company	\$1.81	\$48.76	3.71%	3.79%	4.50%	3.23%	4.40%	4.04%	7.00%	7.83%	8.30%
Southern Company	\$2.72	\$71.17	3.82%	3.93%	6.50%	6.12%	4.00%	5.54%	7.90%	9.47%	10.45%
Wisconsin Energy Corporation	\$2.91	\$98.56	2.95%	3.04%	6.00%	6.01%	6.10%	6.04%	9.04%	9.08%	9.14%
Xcel Energy Inc.	\$1.95	\$69.09	2.82%	2.91%	6.00%	7.04%	6.40%	6.48%	8.91%	9.39%	9.96%
PROXY GROUP MEAN			3.55%	3.64%	5.78%	5.13%	5.14%	5.27%	7.82%	8.90%	10.06%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 30-day average as of July 29, 2022
- [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 [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
- [10] Equals [4] + [8]
- [11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

90-DAY CONSTANT GROWTH DCF

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Alliant Energy Corporation	\$1.71	\$59.96	2.85%	2.93%	6.00%	5.40%	5.70%	5.70%	8.33%	8.63%	8.94%
Ameren Corporation	\$2.36	\$91.50	2.58%	2.67%	6.50%	6.46%	7.20%	6.72%	9.12%	9.39%	9.87%
American Electric Power Company, Inc.	\$3.12	\$98.05	3.18%	3.28%	6.50%	6.35%	6.20%	6.35%	9.48%	9.63%	9.79%
Avista Corporation	\$1.76	\$42.95	4.10%	4.20%	3.00%	5.90%	5.90%	4.93%	7.16%	9.13%	10.12%
Black Hills Corporation	\$2.38	\$74.49	3.20%	3.29%	6.00%	4.67%	6.30%	5.66%	7.94%	8.94%	9.60%
CMS Energy Corporation	\$1.84	\$68.40	2.69%	2.79%	6.50%	8.48%	8.10%	7.69%	9.28%	10.49%	11.28%
Consolidated Edison, Inc.	\$3.16	\$94.62	3.34%	3.40%	4.50%	5.17%	2.00%	3.89%	5.37%	7.29%	8.60%
Duke Energy Corporation	\$3.94	\$109.18	3.61%	3.72%	6.00%	5.82%	6.00%	5.94%	9.53%	9.66%	9.72%
Edison International	\$2.80	\$66.66	4.20%	4.37%	16.00%	5.00%	2.80%	7.93%	7.06%	12.30%	20.54%
Energy Corporation	\$4.04	\$115.79	3.49%	3.59%	4.00%	6.04%	6.70%	5.58%	7.56%	9.17%	10.31%
Energy, Inc.	\$2.29	\$67.12	3.41%	3.51%	7.50%	4.95%	5.10%	5.85%	8.45%	9.36%	11.04%
Eversource Energy	\$2.55	\$87.63	2.91%	3.00%	6.00%	6.67%	6.20%	6.29%	9.00%	9.29%	9.68%
IDACORP, Inc.	\$3.00	\$108.18	2.77%	2.82%	4.00%	2.80%	2.80%	3.20%	5.61%	6.02%	6.83%
NorthWestern Corporation	\$2.52	\$58.81	4.29%	4.36%	3.00%	4.50%	2.30%	3.27%	6.63%	7.62%	8.88%
OGE Energy Corporation	\$1.64	\$39.59	4.14%	4.22%	6.50%	1.90%	3.50%	3.97%	6.08%	8.19%	10.78%
Pinnacle West Capital Corporation	\$3.40	\$74.11	4.59%	4.59%	0.50%	0.10%	n/a	0.30%	4.69%	4.89%	5.10%
Portland General Electric Company	\$1.81	\$50.16	3.61%	3.68%	4.50%	3.23%	4.40%	4.04%	6.90%	7.72%	8.19%
Southern Company	\$2.72	\$72.94	3.73%	3.83%	6.50%	6.12%	4.00%	5.54%	7.80%	9.37%	10.35%
Wisconsin Energy Corporation	\$2.91	\$100.76	2.89%	2.98%	6.00%	6.01%	6.10%	6.04%	8.97%	9.01%	9.08%
Xcel Energy Inc.	\$1.95	\$71.94	2.71%	2.80%	6.00%	7.04%	6.40%	6.48%	8.79%	9.28%	9.85%
PROXY GROUP MEAN			3.41%	3.50%	5.78%	5.13%	5.14%	5.27%	7.69%	8.77%	9.93%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 90-day average as of July 29, 2022
- [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 [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
- [10] Equals [4] + [8]
- [11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Company	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low DCF ROE	Mean DCF ROE	High DCF ROE
Alliant Energy Corporation	\$1.71	\$59.37	2.88%	2.96%	6.00%	5.40%	5.70%	5.70%	8.36%	8.66%	8.97%
Ameren Corporation	\$2.36	\$89.09	2.65%	2.74%	6.50%	6.46%	7.20%	6.72%	9.19%	9.46%	9.94%
American Electric Power Company, Inc.	\$3.12	\$93.08	3.35%	3.46%	6.50%	6.35%	6.20%	6.35%	9.66%	9.81%	9.96%
Avista Corporation	\$1.76	\$42.74	4.12%	4.22%	3.00%	5.90%	5.90%	4.93%	7.18%	9.15%	10.14%
Black Hills Corporation	\$2.38	\$71.32	3.34%	3.43%	6.00%	4.67%	6.30%	5.66%	8.09%	9.09%	9.74%
CMS Energy Corporation	\$1.84	\$65.92	2.79%	2.90%	6.50%	8.48%	8.10%	7.69%	9.38%	10.59%	11.39%
Consolidated Edison, Inc.	\$3.16	\$89.18	3.54%	3.61%	4.50%	5.17%	2.00%	3.89%	5.58%	7.50%	8.80%
Duke Energy Corporation	\$3.94	\$105.77	3.73%	3.84%	6.00%	5.82%	6.00%	5.94%	9.65%	9.78%	9.84%
Edison International	\$2.80	\$65.56	4.27%	4.44%	16.00%	5.00%	2.80%	7.93%	7.13%	12.37%	20.61%
Energy Corporation	\$4.04	\$111.89	3.61%	3.71%	4.00%	6.04%	6.70%	5.58%	7.68%	9.29%	10.43%
Energy, Inc.	\$2.29	\$66.05	3.47%	3.57%	7.50%	4.95%	5.10%	5.85%	8.50%	9.42%	11.10%
Eversource Energy	\$2.55	\$86.75	2.94%	3.03%	6.00%	6.67%	6.20%	6.29%	9.03%	9.32%	9.71%
IDACORP, Inc.	\$3.00	\$108.23	2.77%	2.82%	4.00%	2.80%	2.80%	3.20%	5.61%	6.02%	6.83%
NorthWestern Corporation	\$2.52	\$58.17	4.33%	4.40%	3.00%	4.50%	2.30%	3.27%	6.68%	7.67%	8.93%
OGE Energy Corporation	\$1.64	\$38.29	4.28%	4.37%	6.50%	1.90%	3.50%	3.97%	6.22%	8.33%	10.92%
Pinnacle West Capital Corporation	\$3.40	\$71.75	4.74%	4.75%	0.50%	0.10%	n/a	0.30%	4.84%	5.05%	5.25%
Portland General Electric Company	\$1.81	\$50.93	3.55%	3.63%	4.50%	3.23%	4.40%	4.04%	6.84%	7.67%	8.13%
Southern Company	\$2.72	\$69.56	3.91%	4.02%	6.50%	6.12%	4.00%	5.54%	7.99%	9.56%	10.54%
Wisconsin Energy Corporation	\$2.91	\$97.09	3.00%	3.09%	6.00%	6.01%	6.10%	6.04%	9.09%	9.12%	9.19%
Xcel Energy Inc.	\$1.95	\$69.69	2.80%	2.89%	6.00%	7.04%	6.40%	6.48%	8.88%	9.37%	9.94%
PROXY GROUP MEAN			3.50%	3.59%	5.78%	5.13%	5.14%	5.27%	7.78%	8.86%	10.02%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 180-day average as of July 29, 2022
- [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 [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
- [10] Equals [4] + [8]
- [11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

REBUTTAL EXHIBIT JMC-3.1

MARKET RISK PREMIUM

MARKET RISK PREMIUM DERIVED FROM S&P EARNINGS AND ESTIMATE REPORT

[1] S&P's estimate of the S&P 500 Dividend Yield	1.59%
[2] S&P's estimate of the S&P 500 Growth Rate	13.63%
[3] S&P 500 Estimated Required Market Return	15.32%

Notes:

[1] Source: S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report, August 4, 2022

[2] Source: S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report, August 4, 2022

[3] Equals $([7] \times (1 + (0.5 \times [8]))) + [8]$

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

[4] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.59%
[5] Cap. Weighted Estimate of the S&P 500 Growth Rate	11.61%
[6] Cap. Weighted S&P 500 Estimated Required Market Return	13.30%

Notes:

- [4] Source: Bloomberg Professional, as of July 29, 2022
- [5] Source: Bloomberg Professional, as of July 29, 2022
- [6] Equals (([4] x (1 + (0.5 x [5]))) + [5])

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	326.21	89.12	5.34	25.00	29,071.48	0.08%	0.44%	2.05%
Signature Bank/New York NY	SBNY	62.93	185.57	1.21	12.25	11,677.73	0.03%	0.04%	0.40%
American Express Co	AXP	749.75	154.02	1.35	20.18	115,476.19	0.33%	0.44%	6.57%
Verizon Communications Inc	VZ	4199.72	46.19	5.54	1.29	193,984.84	0.55%	3.03%	0.71%
Broadcom Inc	AVGO	403.82	535.48	3.06	14.76	216,236.46	0.61%	1.87%	9.00%
Boeing Co/The	BA	593.81	159.31	n/a	-18.62	94,600.03	0.27%		-4.97%
Caterpillar Inc	CAT	533.37	198.25	2.42	11.40	105,741.40	0.30%	0.72%	3.40%
JPMorgan Chase & Co	JPM	2937.05	115.36	3.47	-1.65	338,818.09	0.96%	3.31%	-1.58%
Chevron Corp	CVX	1964.81	163.78	3.47	12.76	321,797.07	0.91%	3.15%	11.58%
Coca-Cola Co/The	KO	4324.63	64.17	2.74	6.71	277,511.44	0.78%	2.15%	5.25%
AbbVie Inc	ABBV	1767.11	143.51	3.93	-2.63	253,597.96	0.72%	2.81%	-1.88%
Walt Disney Co/The	DIS	1821.48	106.10	n/a	37.10	193,259.45	0.54%		20.22%
FleetCor Technologies Inc	FLT	77.34	220.09	n/a	16.18	17,021.98	0.05%		0.78%
Extra Space Storage Inc	EXR	134.28	189.52	3.17	6.61	25,448.75	0.07%	0.23%	0.47%
Exxon Mobil Corp	XOM	4212.54	96.93	3.63	20.76	408,321.79	1.15%	4.18%	23.90%
Phillips 66	PSX	481.05	89.00	4.36	15.06	42,813.54	0.12%	0.53%	1.82%
General Electric Co	GE	1096.55	73.91	0.43	18.97	81,046.23	0.23%	0.10%	4.33%
HP Inc	HPQ	1034.14	33.39	2.99	1.70	34,529.87	0.10%	0.29%	0.17%
Home Depot Inc/The	HD	1027.76	300.94	2.53	5.54	309,292.59	0.87%	2.20%	4.83%
Monolithic Power Systems Inc	MPWR	46.64	464.72	0.65	25.50	21,675.93	0.06%	0.04%	1.56%
International Business Machines Corp	IBM	903.18	130.79	5.05	8.49	118,126.91	0.33%	1.68%	2.83%
Johnson & Johnson	JNJ	2629.18	174.52	2.59	4.12	458,844.49	1.29%	3.35%	5.33%
McDonald's Corp	MCD	739.55	263.37	2.10	7.47	194,774.49	0.55%	1.15%	4.10%
Merck & Co Inc	MRK	2528.81	89.34	3.09	12.28	225,923.44	0.64%	1.97%	7.82%
3M Co	MMM	569.60	143.24	4.16	6.93	81,590.08	0.23%	0.96%	1.60%
American Water Works Co Inc	AWK	181.79	155.44	1.69	7.55	28,256.82	0.08%	0.13%	0.60%
Bank of America Corp	BAC	8035.24	33.81	2.60	6.00	271,671.43	0.77%	1.99%	4.60%
Pfizer Inc	PFE	5610.90	50.51	3.17	-2.20	283,406.36	0.80%	2.53%	-1.75%
Procter & Gamble Co/The	PG	2399.30	138.91	2.63	4.71	333,286.35	0.94%	2.47%	4.43%
AT&T Inc	T	7126.00	18.78	5.91	1.20	133,826.28	0.38%	2.23%	0.45%
Travelers Cos Inc/The	TRV	237.31	158.70	2.34	5.02	37,661.57	0.11%	0.25%	0.53%
Raytheon Technologies Corp	RTX	1476.51	93.21	2.36	11.32	137,625.87	0.39%	0.92%	4.39%
Analog Devices Inc	ADI	519.81	171.96	1.77	10.00	89,385.84	0.25%	0.45%	2.52%
Walmart Inc	WMT	2741.15	132.05	1.70	6.97	361,968.86	1.02%	1.73%	7.11%
Cisco Systems Inc	CSCO	4140.96	45.37	3.35	7.07	187,875.54	0.53%	1.77%	3.74%
Intel Corp	INTC	4106.00	36.31	4.02	4.38	149,088.86	0.42%	1.69%	1.84%
General Motors Co	GM	1458.05	36.26	n/a	11.94	52,868.86	0.15%		1.78%
Microsoft Corp	MSFT	7457.89	280.74	0.88	13.89	2,093,728.60	5.90%	5.22%	82.00%
Dollar General Corp	DG	227.00	248.43	0.89	13.16	56,392.86	0.16%	0.14%	2.09%
Cigna Corp	CI	317.27	275.36	1.63	10.95	87,364.29	0.25%	0.40%	2.70%
Kinder Morgan Inc	KMI	2253.00	17.99	6.17	0.85	40,531.49	0.11%	0.71%	0.10%
Citigroup Inc	C	1937.00	51.90	3.93	-7.63	100,530.30	0.28%	1.11%	-2.16%
American International Group Inc	AIG	792.19	51.77	2.47	-5.10	41,011.78	0.12%	0.29%	-0.59%
Altria Group Inc	MO	1800.82	43.86	8.21	1.15	78,984.10	0.22%	1.83%	0.26%
HCA Healthcare Inc	HCA	295.48	212.42	1.05	7.71	62,766.71	0.18%	0.19%	1.37%
International Paper Co	IP	362.02	42.77	4.33	11.90	15,483.47	0.04%	0.19%	0.52%
Hewlett Packard Enterprise Co	HPE	1299.33	14.24	3.37	3.13	18,502.46	0.05%	0.18%	0.16%
Abbott Laboratories	ABT	1750.94	108.84	1.73	4.17	190,572.53	0.54%	0.93%	2.24%
Aflac Inc	AFL	644.17	57.30	2.79	n/a	0.00	0.00%	0.00%	
Air Products and Chemicals Inc	APD	221.77	248.23	2.61	13.50	55,050.71	0.16%	0.41%	2.10%
Royal Caribbean Cruises Ltd	RCL	255.06	38.71	n/a	-164.40	9,873.33	0.03%		-4.58%
Hess Corp	HES	311.26	112.47	1.33	18.71	35,007.75	0.10%	0.13%	1.85%
Archer-Daniels-Midland Co	ADM	560.56	82.77	1.93	6.96	46,397.72	0.13%	0.25%	0.91%
Automatic Data Processing Inc	ADP	416.10	241.12	1.73	13.20	100,330.03	0.28%	0.49%	3.73%
Verisk Analytics Inc	VRSK	157.90	190.25	0.65	9.49	30,040.86	0.08%	0.06%	0.80%
AutoZone Inc	AZO	19.49	2137.39	n/a	12.40	41,653.46	0.12%		1.46%
Avery Dennison Corp	AVY	81.71	190.46	1.58	7.20	15,563.25	0.04%	0.07%	0.32%
Enphase Energy Inc	ENPH	135.46	284.18	n/a	42.53	38,494.17	0.11%		4.62%
MSCI Inc	MSCI	80.50	481.34	1.04	12.60	38,749.31	0.11%	0.11%	1.38%
Ball Corp	BALL	319.79	73.42	1.09	6.35	23,478.91	0.07%	0.07%	0.42%
Ceridian HCM Holding Inc	CDAY	152.65	54.77	n/a	58.80	8,360.37	0.02%		1.39%
Carrier Global Corp	CARR	841.58	40.53	1.48	8.33	34,109.36	0.10%	0.14%	0.80%
Bank of New York Mellon Corp/The	BK	808.10	43.46	3.41	6.55	35,120.16	0.10%	0.34%	0.65%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a	% of Total Market Cap	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Otis Worldwide Corp	OTIS	420.23	78.17	1.48	8.77	32,849.54	0.09%	0.14%	0.81%
Baxter International Inc	BAX	503.61	58.66	1.98	8.86	29,541.82	0.08%	0.16%	0.74%
Becton Dickinson and Co	BDX	285.07	244.31	1.42	6.45	69,644.23	0.20%	0.28%	1.27%
Berkshire Hathaway Inc	BRK/B	1285.75	300.60	n/a	n/a	0.00	0.00%		
Best Buy Co Inc	BBY	225.17	76.99	4.57	9.16	17,335.68	0.05%	0.22%	0.45%
Boston Scientific Corp	BSX	1429.57	41.05	n/a	9.81	58,683.89	0.17%		1.62%
Bristol-Myers Squibb Co	BMJ	2135.26	73.78	2.93	5.90	157,539.11	0.44%	1.30%	2.62%
Fortune Brands Home & Security Inc	FBHS	129.32	69.68	1.61	8.52	9,010.81	0.03%	0.04%	0.22%
Brown-Forman Corp	BF/B	309.90	74.22	1.02	12.30	23,000.78	0.06%	0.07%	0.80%
Coterra Energy Inc	CTRA	805.81	30.59	1.96	19.38	24,649.57	0.07%	0.14%	1.35%
Campbell Soup Co	CPB	300.58	49.35	3.00	2.46	14,833.43	0.04%	0.13%	0.10%
Hilton Worldwide Holdings Inc	HLT	274.29	128.07	0.47	43.56	35,127.94	0.10%	0.05%	4.31%
Carnival Corp	CCL	1096.76	9.06	n/a	-4.47	9,936.61	0.03%		-0.13%
Qorvo Inc	QRVO	103.73	104.07	n/a	6.91	10,794.87	0.03%		0.21%
Lumen Technologies Inc	LUMN	1033.06	10.89	9.18	-6.00	11,249.97	0.03%	0.29%	-0.19%
UDR Inc	UDR	324.92	48.40	3.14	9.05	15,726.27	0.04%	0.14%	0.40%
Clorox Co/The	CLX	123.08	141.84	3.33	-5.00	17,457.67	0.05%	0.16%	-0.25%
Paycom Software Inc	PAYC	60.25	330.49	n/a	25.95	19,913.34	0.06%		1.46%
CMS Energy Corp	CMS	290.20	68.73	2.68	7.73	19,945.17	0.06%	0.15%	0.43%
Newell Brands Inc	NWL	413.50	20.21	4.55	n/a	0.00	0.00%		
Colgate-Palmolive Co	CL	834.12	78.74	2.39	4.78	65,678.61	0.19%	0.44%	0.89%
EPAM Systems Inc	EPAM	57.15	349.25	n/a	17.20	19,959.99	0.06%		0.97%
Comerica Inc	CMA	130.82	77.77	3.50	18.04	10,173.87	0.03%	0.10%	0.52%
Conagra Brands Inc	CAG	480.09	34.21	3.86	7.15	16,423.95	0.05%	0.18%	0.33%
Consolidated Edison Inc	ED	354.30	99.27	3.18	5.00	35,170.86	0.10%	0.32%	0.50%
Corning Inc	GLW	845.32	36.76	2.94	6.49	31,073.89	0.09%	0.26%	0.57%
Cummins Inc	CMJ	141.10	221.31	2.84	8.47	31,226.40	0.09%	0.25%	0.75%
Caesars Entertainment Inc	CZR	214.37	45.69	n/a	n/a	0.00	0.00%		
Danaher Corp	DHR	727.45	291.47	0.34	18.19	212,028.39	0.60%	0.21%	10.87%
Target Corp	TGT	463.70	163.38	2.64	12.24	75,758.65	0.21%	0.56%	2.61%
Deere & Co	DE	305.64	343.18	1.32	13.97	104,888.16	0.30%	0.39%	4.13%
Dominion Energy Inc	D	811.27	81.98	3.26	6.67	66,507.91	0.19%	0.61%	1.25%
Dover Corp	DOV	143.55	133.68	1.50	11.50	19,189.63	0.05%	0.08%	0.62%
Alliant Energy Corp	LNT	250.81	60.93	2.81	5.71	15,282.10	0.04%	0.12%	0.25%
Duke Energy Corp	DUK	770.00	109.93	3.66	5.36	84,646.10	0.24%	0.87%	1.28%
Regency Centers Corp	REG	172.36	64.43	3.88	4.35	11,105.28	0.03%	0.12%	0.14%
Eaton Corp PLC	ETN	399.00	148.39	2.18	11.13	59,207.61	0.17%	0.36%	1.86%
Ecolab Inc	ECL	285.66	165.17	1.24	15.07	47,181.64	0.13%	0.16%	2.00%
PerkinElmer Inc	PKI	126.15	153.17	0.18	25.28	19,322.09	0.05%	0.01%	1.38%
Emerson Electric Co	EMR	594.00	90.07	2.29	10.97	53,501.58	0.15%	0.35%	1.65%
EOG Resources Inc	EOG	585.71	111.22	2.70	11.82	65,143.00	0.18%	0.50%	2.17%
Aon PLC	AON	210.93	291.04	0.77	11.55	61,387.90	0.17%	0.13%	2.00%
Entergy Corp	ETR	203.37	115.13	3.51	6.41	23,414.45	0.07%	0.23%	0.42%
Equifax Inc	EFX	122.40	208.91	0.75	13.34	25,570.58	0.07%	0.05%	0.96%
IQVIA Holdings Inc	IQV	186.51	240.27	n/a	17.26	44,812.28	0.13%		2.18%
Gartner Inc	IT	80.54	265.48	n/a	11.00	21,381.49	0.06%		0.66%
FedEx Corp	FDX	259.85	233.09	1.97	12.43	60,567.50	0.17%	0.34%	2.12%
FMC Corp	FMC	125.94	111.10	1.91	9.00	13,991.82	0.04%	0.08%	0.36%
Brown & Brown Inc	BRO	282.45	65.10	0.63	n/a	0.00	0.00%	0.00%	
Ford Motor Co	F	3949.39	14.69	4.08	29.20	58,016.47	0.16%	0.67%	4.78%
NextEra Energy Inc	NEE	1964.78	84.49	2.01	10.78	166,004.18	0.47%	0.94%	5.05%
Franklin Resources Inc	BEN	498.36	27.45	4.23	n/a	0.00	0.00%	0.00%	
Garmin Ltd	GRMN	192.86	97.62	2.99	9.00	18,826.51	0.05%	0.16%	0.48%
Freight-McMoRan Inc	FCX	1449.26	31.55	1.90	-12.34	45,724.22	0.13%	0.25%	-1.59%
Dexcom Inc	DXCM	392.58	82.08	n/a	20.87	32,223.13	0.09%		1.90%
General Dynamics Corp	GD	274.25	226.67	2.22	10.23	62,163.34	0.18%	0.39%	1.79%
General Mills Inc	GIS	597.16	74.79	2.89	6.70	44,661.45	0.13%	0.36%	0.84%
Genuine Parts Co	GPC	141.43	152.87	2.34	10.26	21,620.56	0.06%	0.14%	0.63%
Atmos Energy Corp	ATO	139.02	121.39	2.24	7.87	16,875.03	0.05%	0.11%	0.37%
WW Grainger Inc	GWW	50.87	543.53	1.27	12.05	27,649.91	0.08%	0.10%	0.94%
Halliburton Co	HAL	906.94	29.30	1.64	50.21	26,573.46	0.07%	0.12%	3.76%
L3Harris Technologies Inc	LHX	191.35	239.97	1.87	5.00	45,918.98	0.13%	0.24%	0.65%
Healthpeak Properties Inc	PEAK	539.56	27.63	4.34	5.32	14,907.96	0.04%	0.18%	0.22%
Catalent Inc	CTLT	179.21	113.10	n/a	15.83	20,268.99	0.06%		0.90%
Fortive Corp	FTV	355.70	64.45	0.43	10.23	22,924.67	0.06%	0.03%	0.66%
Hershey Co/The	HSY	146.87	227.96	1.82	10.00	33,480.49	0.09%	0.17%	0.94%
Synchrony Financial	SYF	481.76	33.48	2.75	-8.80	16,128.29	0.05%	0.12%	-0.40%
Hormel Foods Corp	HRL	546.06	49.34	2.11	6.37	26,942.40	0.08%	0.16%	0.48%
Arthur J Gallagher & Co	AJG	210.30	178.99	1.14	12.50	37,641.60	0.11%	0.12%	1.33%
Mondelez International Inc	MDLZ	1370.57	64.04	2.40	6.01	87,771.05	0.25%	0.60%	1.49%
CenterPoint Energy Inc	CNP	629.43	31.69	2.27	4.97	19,946.70	0.06%	0.13%	0.28%
Humana Inc	HUM	126.55	482.00	0.65	13.88	60,999.03	0.17%	0.11%	2.39%
Willis Towers Watson PLC	WTW	109.97	206.94	1.59	-29.83	22,756.36	0.06%	0.10%	-1.91%
Illinois Tool Works Inc	ITW	311.44	207.76	2.35	9.90	64,705.40	0.18%	0.43%	1.81%
CDW Corp/DE	CDW	135.12	181.53	1.10	13.10	24,527.61	0.07%	0.08%	0.91%
Trane Technologies PLC	TT	233.86	146.99	1.82	10.14	34,375.08	0.10%	0.18%	0.98%
Interpublic Group of Cos Inc/The	IPG	391.03	29.87	3.88	1.93	11,680.01	0.03%	0.13%	0.06%
International Flavors & Fragrances Inc	IFF	254.84	124.05	2.55	14.12	31,612.65	0.09%	0.23%	1.26%
Jacobs Engineering Group Inc	J	128.63	137.30	0.67	12.89	17,660.49	0.05%	0.03%	0.64%
Generac Holdings Inc	GNRC	63.83	268.30	n/a	12.50	17,125.59	0.05%		0.60%
NXP Semiconductors NV	NXPI	262.60	183.88	1.84	19.20	48,286.52	0.14%	0.25%	2.61%
Kellogg Co	K	337.87	73.92	3.19	3.59	24,975.57	0.07%	0.22%	0.25%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a	% of Total Market Cap	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Broadridge Financial Solutions Inc	BR	117.23	160.55	1.59	12.10	18,820.79	0.05%	0.08%	0.64%
Kimberly-Clark Corp	KMB	337.62	131.79	3.52	7.63	44,495.20	0.13%	0.44%	0.96%
Kimco Realty Corp	KIM	618.48	22.11	3.98	3.91	13,674.64	0.04%	0.15%	0.15%
Oracle Corp	ORCL	2664.93	77.84	1.64	13.15	207,437.84	0.58%	0.96%	7.69%
Kroger Co/The	KR	715.56	46.44	2.24	8.94	33,230.61	0.09%	0.21%	0.84%
Lennar Corp	LEN	254.99	85.00	1.76	2.39	21,673.90	0.06%	0.11%	0.15%
Eli Lilly & Co	LLY	950.16	329.69	1.19	16.28	313,258.25	0.88%	1.05%	14.38%
Bath & Body Works Inc	BBWI	228.74	35.54	2.25	3.93	8,129.28	0.02%	0.05%	0.09%
Charter Communications Inc	CHTR	160.66	432.10	n/a	30.39	69,419.03	0.20%		5.95%
Lincoln National Corp	LNC	171.95	51.34	3.51	15.98	8,827.76	0.02%	0.09%	0.40%
Loews Corp	L	246.11	58.25	0.43	n/a	0.00	0.00%	0.00%	
Lowe's Cos Inc	LOW	639.13	191.53	2.19	10.37	122,412.38	0.35%	0.76%	3.58%
IDEX Corp	IEX	75.48	208.75	1.15	13.93	15,755.62	0.04%	0.05%	0.62%
Marsh & McLennan Cos Inc	MMC	499.02	163.96	1.44	7.51	81,818.99	0.23%	0.33%	1.73%
Masco Corp	MAS	225.52	55.38	2.02	11.63	12,489.30	0.04%	0.07%	0.41%
S&P Global Inc	SPGI	339.90	376.93	0.90	17.30	128,118.51	0.36%	0.33%	6.25%
Medtronic PLC	MDT	1328.71	92.52	2.94	7.54	122,932.16	0.35%	1.02%	2.61%
Viatis Inc	VTRS	1212.33	9.69	4.95	0.13	11,747.45	0.03%	0.16%	0.00%
CVS Health Corp	CVS	1311.31	95.68	2.30	7.24	125,466.05	0.35%	0.81%	2.56%
DuPont de Nemours Inc	DD	508.53	61.23	2.16	7.82	31,137.11	0.09%	0.19%	0.69%
Micron Technology Inc	MU	1103.15	61.86	0.74	13.75	68,240.55	0.19%	0.14%	2.65%
Motorola Solutions Inc	MSI	167.30	238.59	1.32	11.10	39,915.39	0.11%	0.15%	1.25%
Cboe Global Markets Inc	CBOE	106.06	123.38	1.56	n/a	0.00	0.00%	0.00%	
Laboratory Corp of America Holdings	LH	93.18	262.19	1.10	-1.70	24,429.82	0.07%	0.08%	-0.12%
Newmont Corp	NEM	793.68	45.28	4.86	-3.00	35,937.83	0.10%	0.49%	-0.30%
NIKE Inc	NKE	1263.65	114.92	1.06	11.14	145,219.00	0.41%	0.43%	4.56%
NiSource Inc	NI	405.80	30.40	3.09	7.28	12,336.26	0.03%	0.11%	0.25%
Norfolk Southern Corp	NSC	234.87	251.17	1.97	9.18	58,993.30	0.17%	0.33%	1.53%
Principal Financial Group Inc	PGF	252.68	66.94	3.82	4.61	16,914.67	0.05%	0.18%	0.22%
Eversource Energy	ES	344.88	88.22	2.89	6.43	30,425.14	0.09%	0.25%	0.55%
Northrop Grumman Corp	NOC	154.71	478.90	1.44	0.56	74,091.10	0.21%	0.30%	0.12%
Wells Fargo & Co	WFC	3790.35	43.87	2.74	5.66	166,282.74	0.47%	1.28%	2.65%
Nucor Corp	NUE	266.00	135.80	1.47	n/a	0.00	0.00%	0.00%	
PVH Corp	PVH	66.96	61.92	0.24	6.92	4,146.23	0.01%	0.00%	0.08%
Occidental Petroleum Corp	OXY	937.19	65.75	0.79	-3.05	61,620.31	0.17%	0.14%	-0.53%
Omnicom Group Inc	OMC	204.84	69.84	4.01	2.41	14,306.24	0.04%	0.16%	0.10%
ONEOK Inc	OKE	446.62	59.74	6.26	9.35	26,680.84	0.08%	0.47%	0.70%
Raymond James Financial Inc	RJF	215.50	98.47	1.38	10.30	21,220.29	0.06%	0.08%	0.62%
Parker-Hannifin Corp	PH	128.37	289.09	1.84	12.95	37,111.06	0.10%	0.19%	1.36%
Rollins Inc	ROL	492.42	38.57	1.04	10.30	18,992.52	0.05%	0.06%	0.55%
PPL Corp	PPL	735.90	29.08	3.09	12.23	21,400.06	0.06%	0.19%	0.74%
ConocoPhillips	COP	1293.45	97.43	1.89	6.50	126,020.83	0.36%	0.67%	2.31%
PulteGroup Inc	PHM	231.50	43.62	1.38	0.05	10,097.94	0.03%	0.04%	0.00%
Pinnacle West Capital Corp	PNW	113.00	73.47	4.63	-3.33	8,302.18	0.02%	0.11%	-0.08%
PNC Financial Services Group Inc/The	PNC	413.58	165.94	3.62	13.25	68,629.63	0.19%	0.70%	2.56%
PPG Industries Inc	PPG	235.00	129.29	1.92	9.54	30,382.76	0.09%	0.16%	0.82%
Progressive Corp/The	PGR	584.90	115.06	0.35	24.65	67,298.59	0.19%	0.07%	4.68%
Public Service Enterprise Group Inc	PEG	499.26	65.67	3.29	5.01	32,786.34	0.09%	0.30%	0.46%
Robert Half International Inc	RHI	110.51	79.14	2.17	-2.03	8,746.08	0.02%	0.05%	-0.05%
Edison International	EIX	381.43	67.77	4.13	3.71	25,849.65	0.07%	0.30%	0.27%
Schlumberger NV	SLB	1414.39	37.03	1.89	26.40	52,374.79	0.15%	0.28%	3.90%
Charles Schwab Corp/The	SCHW	1817.06	69.05	1.27	20.23	125,467.79	0.35%	0.45%	7.16%
Sherwin-Williams Co/The	SHW	259.18	241.94	0.99	11.33	62,706.74	0.18%	0.18%	2.00%
West Pharmaceutical Services Inc	WST	74.05	343.56	0.21	27.22	25,439.93	0.07%	0.02%	1.95%
J.M. Smucker Co/The	SJM	106.56	132.32	3.08	3.28	14,099.75	0.04%	0.12%	0.13%
Snap-on Inc	SNA	53.27	224.05	2.54	6.64	11,934.70	0.03%	0.09%	0.22%
AMETEK Inc	AME	230.91	123.50	0.71	11.46	28,517.39	0.08%	0.06%	0.92%
Southern Co/The	SO	1062.53	76.89	3.54	4.05	81,697.55	0.23%	0.81%	0.93%
Truist Financial Corp	TFC	1331.41	50.47	4.12	8.63	67,196.46	0.19%	0.78%	1.64%
Southwest Airlines Co	LUV	592.96	38.12	n/a	70.84	22,603.48	0.06%		4.51%
W R Berkley Corp	WRB	265.27	62.53	0.64	8.90	16,587.52	0.05%	0.03%	0.42%
Stanley Black & Decker Inc	SWK	147.82	97.33	3.29	-9.00	14,386.93	0.04%	0.13%	-0.37%
Public Storage	PSA	175.53	326.41	2.45	8.56	57,294.42	0.16%	0.40%	1.38%
Arista Networks Inc	ANET	308.26	116.63	n/a	16.31	35,952.83	0.10%		1.65%
Sysco Corp	SY	509.48	84.90	2.31	14.95	43,254.51	0.12%	0.28%	1.82%
Corteva Inc	CTVA	725.32	57.55	1.04	11.72	41,742.17	0.12%	0.12%	1.38%
Texas Instruments Inc	TXN	913.71	178.89	2.57	8.25	163,453.05	0.46%	1.19%	3.80%
Textron Inc	TXT	211.53	65.64	0.12	14.76	13,884.96	0.04%	0.00%	0.58%
Thermo Fisher Scientific Inc	TMO	391.46	598.41	0.20	9.40	234,254.78	0.66%	0.13%	6.21%
TJX Cos Inc/The	TJX	1171.64	61.16	1.93	11.05	71,657.26	0.20%	0.39%	2.23%
Globe Life Inc	GL	98.60	100.73	0.82	n/a	0.00	0.00%	0.00%	
Johnson Controls International plc	JCI	695.67	53.91	2.60	16.87	37,503.52	0.11%	0.27%	1.78%
Ulta Beauty Inc	ULTA	51.82	388.91	n/a	28.51	20,152.54	0.06%		1.62%
Union Pacific Corp	UNP	624.48	227.30	2.29	10.45	141,944.08	0.40%	0.92%	4.18%
Keysight Technologies Inc	KEYS	179.95	162.60	n/a	10.37	29,259.22	0.08%		0.86%
UnitedHealth Group Inc	UNH	938.17	542.34	1.22	12.39	508,808.20	1.43%	1.75%	17.78%
Marathon Oil Corp	MRO	707.69	24.80	1.29	-6.90	17,550.74	0.05%	0.06%	-0.34%
Bio-Rad Laboratories Inc	BIO	24.63	563.26	n/a	8.40	13,875.35	0.04%		0.33%
Ventas Inc	VTR	399.70	53.78	3.35	7.42	21,495.65	0.06%	0.20%	0.45%
VF Corp	VFC	388.48	44.68	4.48	1.34	17,357.29	0.05%	0.22%	0.07%
Vornado Realty Trust	VNO	191.74	30.39	6.98	-22.88	5,827.07	0.02%	0.11%	-0.38%
Vulcan Materials Co	VMC	132.90	165.33	0.97	15.51	21,971.70	0.06%	0.06%	0.96%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Weyerhaeuser Co	WY	744.50	36.32	1.98	n/a	0.00	0.00%	0.00%	
Whirlpool Corp	WHR	54.51	172.87	4.05	-0.54	9,422.80	0.03%	0.11%	-0.01%
Williams Cos Inc/The	WMB	1218.01	34.09	4.99	6.40	41,522.03	0.12%	0.58%	0.75%
Constellation Energy Corp	CEG	326.66	66.10	0.85	36.37	21,592.49	0.06%	0.05%	2.21%
WEC Energy Group Inc	WEC	315.44	103.81	2.80	6.49	32,745.31	0.09%	0.26%	0.60%
Adobe Inc	ADBE	468.00	410.12	n/a	14.53	191,936.16	0.54%		7.86%
AES Corp/The	AES	667.86	22.22	2.84	7.44	14,839.85	0.04%	0.12%	0.31%
Amgen Inc	AMGN	534.20	247.47	3.14	7.18	132,198.47	0.37%	1.17%	2.68%
Apple Inc	AAPL	16070.75	162.51	0.57	10.90	2,611,657.91	7.36%	4.17%	80.27%
Autodesk Inc	ADSK	217.27	216.32	n/a	24.34	47,000.28	0.13%		3.23%
Cintas Corp	CTAS	101.19	425.49	1.08	9.66	43,054.48	0.12%	0.13%	1.17%
Comcast Corp	CMCSA	4403.79	37.52	2.88	10.62	165,230.35	0.47%	1.34%	4.95%
Molson Coors Beverage Co	TAP	200.53	59.75	2.54	3.95	11,981.49	0.03%	0.09%	0.13%
KLA Corp	KLAC	149.24	383.54	1.10	10.83	57,237.59	0.16%	0.18%	1.75%
Marriott International Inc/MD	MAR	327.30	158.82	0.76	34.36	51,981.47	0.15%	0.11%	5.04%
McCormick & Co Inc/MD	MKC	250.47	87.35	1.69	3.93	21,878.73	0.06%	0.10%	0.24%
PACCAR Inc	PCAR	347.70	91.52	1.49	11.05	31,821.50	0.09%	0.13%	0.99%
Costco Wholesale Corp	COST	442.96	541.30	0.67	9.91	239,775.87	0.68%	0.45%	6.70%
First Republic Bank/CA	FRC	179.68	162.71	0.66	7.38	29,236.38	0.08%	0.05%	0.61%
Stryker Corp	SYK	378.32	214.75	1.29	9.14	81,244.43	0.23%	0.30%	2.09%
Tyson Foods Inc	TSN	291.54	88.01	2.09	1.08	25,658.35	0.07%	0.15%	0.08%
Lamb Weston Holdings Inc	LW	143.75	79.66	1.23	19.61	11,450.97	0.03%	0.04%	0.63%
Applied Materials Inc	AMAT	869.95	105.98	0.98	8.05	92,196.98	0.26%	0.26%	2.09%
American Airlines Group Inc	AAL	649.85	13.71	n/a	n/a	0.00	0.00%		
Cardinal Health Inc	CAH	272.43	59.56	3.33	10.29	16,225.75	0.05%	0.15%	0.47%
Cincinnati Financial Corp	CINF	159.20	97.34	2.84	n/a	0.00	0.00%	0.00%	
Paramount Global	PARA	608.40	23.65	4.06	0.75	14,388.54	0.04%	0.16%	0.03%
DR Horton Inc	DHI	347.48	78.03	1.15	11.08	27,113.94	0.08%	0.09%	0.85%
Electronic Arts Inc	EA	279.31	131.23	0.58	15.95	36,653.33	0.10%	0.06%	1.65%
Expeditors International of Washington Inc	EXPD	167.75	106.25	1.26	4.30	17,823.86	0.05%	0.06%	0.22%
Fastenal Co	FAST	574.68	51.36	2.41	11.30	29,515.51	0.08%	0.20%	0.94%
M&T Bank Corp	MTB	175.97	177.45	2.70	9.70	31,225.70	0.09%	0.24%	0.85%
Xcel Energy Inc	XEL	546.99	73.18	2.66	6.68	40,028.80	0.11%	0.30%	0.75%
Fiserv Inc	FISV	639.58	105.68	n/a	13.67	67,591.24	0.19%		2.61%
Fifth Third Bancorp	FITB	686.15	34.12	3.52	13.85	23,411.51	0.07%	0.23%	0.91%
Gilead Sciences Inc	GILD	1254.31	59.75	4.89	-2.86	74,945.20	0.21%	1.03%	-0.61%
Hasbro Inc	HAS	138.09	78.72	3.56	7.10	10,870.52	0.03%	0.11%	0.22%
Huntington Bancshares Inc/OH	HBAN	1442.19	13.29	4.67	6.62	19,166.76	0.05%	0.25%	0.36%
Welltower Inc	WELL	453.97	86.34	2.83	26.35	39,195.60	0.11%	0.31%	2.91%
Biogen Inc	BIIB	145.11	215.06	n/a	-3.90	31,208.00	0.09%		-0.34%
Northern Trust Corp	NTRS	208.39	99.78	3.01	8.80	20,792.85	0.06%	0.18%	0.52%
Packaging Corp of America	PKG	93.70	140.61	3.56	3.00	13,175.30	0.04%	0.13%	0.11%
Paychex Inc	PAYX	359.91	128.28	2.46	8.00	46,168.87	0.13%	0.32%	1.04%
QUALCOMM Inc	QCOM	1123.00	145.06	2.07	16.25	162,902.38	0.46%	0.95%	7.46%
Roper Technologies Inc	ROP	105.91	436.67	0.57	12.35	46,249.03	0.13%	0.07%	1.61%
Ross Stores Inc	ROST	349.93	81.26	1.53	9.70	28,434.99	0.08%	0.12%	0.78%
IDEXX Laboratories Inc	IDXX	84.01	399.18	n/a	9.49	33,533.91	0.09%		0.90%
Starbucks Corp	SBUX	1146.90	84.78	2.31	10.75	97,234.18	0.27%	0.63%	2.95%
KeyCorp	KEY	932.40	18.30	4.26	6.04	17,062.88	0.05%	0.21%	0.29%
Fox Corp	FOXA	311.68	33.11	1.45	8.67	10,319.86	0.03%	0.04%	0.25%
Fox Corp	FOX	245.07	30.90	1.55	8.67	7,572.51	0.02%	0.03%	0.19%
State Street Corp	STT	367.62	71.04	3.55	9.19	26,115.65	0.07%	0.26%	0.68%
Norwegian Cruise Line Holdings Ltd	NCLH	419.10	12.15	n/a	n/a	0.00	0.00%		
US Bancorp	USB	1486.00	47.20	3.90	2.40	70,139.20	0.20%	0.77%	0.47%
A.O. Smith Corp	AOS	128.48	63.27	1.77	10.00	8,128.74	0.02%	0.04%	0.23%
NortonLifeLock Inc	NLOK	571.37	24.53	2.04	5.90	14,015.68	0.04%	0.08%	0.23%
T Rowe Price Group Inc	TROW	225.69	123.47	3.89	-6.68	27,866.19	0.08%	0.31%	-0.52%
Waste Management Inc	WM	413.34	164.56	1.58	13.06	68,018.57	0.19%	0.30%	2.50%
Constellation Brands Inc	STZ	159.34	246.31	1.30	9.46	39,245.80	0.11%	0.14%	1.05%
DENTSPLY SIRONA Inc	XRAY	215.45	36.16	1.38	5.16	7,790.74	0.02%	0.03%	0.11%
Zions Bancorp NA	ZION	150.47	54.55	3.01	2.12	8,208.19	0.02%	0.07%	0.05%
Alaska Air Group Inc	ALK	126.76	44.33	n/a	71.60	5,619.27	0.02%		1.13%
Invesco Ltd	IVZ	454.90	17.74	4.23	-6.07	8,069.93	0.02%	0.10%	-0.14%
Linde PLC	LIN	498.37	302.00	1.55	12.20	150,506.53	0.42%	0.66%	5.18%
Intuit Inc	INTU	282.08	456.17	0.60	20.40	128,675.07	0.36%	0.22%	7.40%
Morgan Stanley	MS	1749.28	84.30	3.68	1.07	147,464.64	0.42%	1.53%	0.44%
Microchip Technology Inc	MCHP	552.48	68.86	1.60	7.29	38,044.05	0.11%	0.17%	0.78%
Chubb Ltd	CB	417.64	188.64	1.76	13.00	78,783.80	0.22%	0.39%	2.89%
Hologic Inc	HOLX	249.65	71.38	n/a	1.35	17,820.23	0.05%		0.07%
Citizens Financial Group Inc	CFG	495.45	37.97	4.42	-1.51	18,812.08	0.05%	0.23%	-0.08%
O'Reilly Automotive Inc	ORLY	63.75	703.59	n/a	10.31	44,855.97	0.13%		1.30%
Allstate Corp/The	ALL	274.98	116.97	2.91	2.32	32,164.76	0.09%	0.26%	0.21%
Equity Residential	EQR	376.12	78.39	3.19	17.14	29,483.89	0.08%	0.27%	1.42%
BorgWarner Inc	BWA	239.58	38.46	1.77	19.16	9,214.05	0.03%	0.05%	0.50%
Keurig Dr Pepper Inc	KDP	1416.07	38.74	1.94	6.50	54,858.55	0.15%	0.30%	1.01%
Organon & Co	OGN	253.64	31.72	3.53	-3.30	8,045.37	0.02%	0.08%	-0.07%
Host Hotels & Resorts Inc	HST	714.78	17.81	1.35	n/a	0.00	0.00%	0.00%	
Incyte Corp	INCY	221.51	77.68	n/a	26.39	17,206.51	0.05%		1.28%
Simon Property Group Inc	SPG	328.64	108.64	6.26	6.17	35,703.34	0.10%	0.63%	0.62%
Eastman Chemical Co	EMN	128.95	95.93	3.17	10.69	12,370.17	0.03%	0.11%	0.37%
Twitter Inc	TWTR	765.25	41.61	n/a	n/a	0.00	0.00%		
AvalonBay Communities Inc	AVB	139.82	213.94	2.97	14.14	29,912.66	0.08%	0.25%	1.19%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Prudential Financial Inc	PRU	375.00	99.99	4.80	-1.48	37,496.25	0.11%	0.51%	-0.16%
United Parcel Service Inc	UPS	734.44	194.89	3.12	5.21	143,134.62	0.40%	1.26%	2.10%
Walgreens Boots Alliance Inc	WBA	864.26	39.62	4.85	0.47	34,241.86	0.10%	0.47%	0.05%
STERIS PLC	STE	100.08	225.65	0.83	5.10	22,583.05	0.06%	0.05%	0.32%
McKesson Corp	MCK	143.58	341.58	0.63	7.07	49,044.40	0.14%	0.09%	0.98%
Lockheed Martin Corp	LMT	265.15	413.81	2.71	5.90	109,722.55	0.31%	0.84%	1.82%
AmerisourceBergen Corp	ABC	209.46	145.93	1.26	8.57	30,567.08	0.09%	0.11%	0.74%
Capital One Financial Corp	COF	383.82	109.83	2.19	20.26	42,154.73	0.12%	0.26%	2.41%
Waters Corp	WAT	60.24	364.03	n/a	9.36	21,927.35	0.06%	0.58%	n/a
Nordson Corp	NDSN	57.51	230.99	0.88	12.27	13,284.70	0.04%	0.03%	0.46%
Dollar Tree Inc	DLTR	224.56	165.36	n/a	17.29	37,132.58	0.10%	n/a	1.81%
Darden Restaurants Inc	DRI	123.95	124.49	3.89	8.83	15,430.04	0.04%	0.17%	0.38%
Match Group Inc	MTCH	285.59	73.31	n/a	57.21	20,936.82	0.06%	n/a	3.38%
Domino's Pizza Inc	DPZ	35.89	392.11	1.12	10.60	14,070.87	0.04%	0.04%	0.42%
NVR Inc	NVR	3.28	4393.10	n/a	16.00	14,426.94	0.04%	n/a	0.65%
NetApp Inc	NTAP	219.74	71.33	2.80	8.79	15,673.70	0.04%	0.12%	0.39%
Citrix Systems Inc	CTXS	126.89	101.41	n/a	8.30	12,867.41	0.04%	n/a	0.30%
DXC Technology Co	DXC	229.66	31.60	n/a	20.37	7,257.10	0.02%	n/a	0.42%
Old Dominion Freight Line Inc	ODFL	113.35	303.51	0.40	13.35	34,404.07	0.10%	0.04%	1.30%
DaVita Inc	DVA	94.60	84.16	n/a	10.43	7,961.54	0.02%	n/a	0.23%
Hartford Financial Services Group Inc/The	HIG	323.14	64.47	2.39	7.00	20,832.96	0.06%	0.14%	0.41%
Iron Mountain Inc	IRM	290.56	48.49	5.10	n/a	0.00	0.00%	0.00%	n/a
Estee Lauder Cos Inc/The	EL	231.81	273.10	0.88	11.50	63,305.95	0.18%	0.16%	2.05%
Cadence Design Systems Inc	CDNS	273.87	186.08	n/a	17.22	50,961.73	0.14%	n/a	2.47%
Tyler Technologies Inc	TYL	41.58	399.00	n/a	14.80	16,590.82	0.05%	n/a	0.69%
Universal Health Services Inc	UHS	67.13	112.47	0.71	5.15	7,549.89	0.02%	0.02%	0.11%
Skyworks Solutions Inc	SWKS	160.93	108.88	2.06	7.77	17,521.62	0.05%	0.10%	0.38%
Quest Diagnostics Inc	DGX	116.61	136.57	1.93	-8.99	15,924.88	0.04%	0.09%	-0.40%
Activision Blizzard Inc	ATVI	781.88	79.95	0.59	8.57	62,511.39	0.18%	0.10%	1.51%
Rockwell Automation Inc	ROK	115.44	255.28	1.75	9.95	29,468.25	0.08%	0.15%	0.83%
Kraft Heinz Co/The	KHC	1225.44	36.83	4.34	3.74	45,132.96	0.13%	0.55%	0.48%
American Tower Corp	AMT	465.59	270.83	2.11	10.59	126,094.93	0.36%	0.75%	3.76%
Regeneron Pharmaceuticals Inc	REGN	108.03	581.69	n/a	-2.94	62,838.81	0.18%	n/a	-0.52%
Amazon.com Inc	AMZN	10187.56	134.95	n/a	21.54	1,374,810.55	3.88%	n/a	83.52%
Jack Henry & Associates Inc	JKHY	72.86	207.77	0.94	11.15	15,138.54	0.04%	0.04%	0.48%
Ralph Lauren Corp	RL	44.83	98.63	3.04	4.77	4,421.39	0.01%	0.04%	0.06%
Boston Properties Inc	BXP	156.73	91.16	4.30	-1.52	14,287.14	0.04%	0.17%	-0.06%
Amphenol Corp	APH	594.83	77.13	1.04	10.31	45,879.08	0.13%	0.13%	1.33%
Howmet Aerospace Inc	HWM	417.91	37.13	0.22	32.00	15,517.15	0.04%	0.01%	1.40%
Pioneer Natural Resources Co	PXD	241.96	236.95	12.46	1.40	57,332.19	0.16%	2.01%	0.23%
Valero Energy Corp	VLO	393.97	110.77	3.54	19.64	43,640.06	0.12%	0.44%	2.42%
Synopsys Inc	SNPS	152.97	367.50	n/a	18.62	56,216.48	0.16%	n/a	2.95%
Etsy Inc	ETSY	126.61	103.72	n/a	20.10	13,131.89	0.04%	n/a	0.74%
CH Robinson Worldwide Inc	CHRW	123.88	110.70	1.99	9.30	13,713.85	0.04%	0.08%	0.36%
Accenture PLC	ACN	664.19	306.26	1.27	10.90	203,414.22	0.57%	0.73%	6.25%
TransDigm Group Inc	TDG	54.61	622.34	n/a	25.31	33,983.50	0.10%	n/a	2.43%
Yum! Brands Inc	YUM	285.16	122.54	1.86	10.02	34,944.00	0.10%	0.18%	0.99%
Prologis Inc	PLD	739.75	132.56	2.38	11.90	98,060.60	0.28%	0.66%	3.29%
FirstEnergy Corp	FE	571.40	41.10	3.80	2.35	23,484.33	0.07%	0.25%	0.16%
VersiSign Inc	VRSN	107.28	189.16	n/a	8.60	20,293.65	0.06%	n/a	0.49%
Quanta Services Inc	PWR	143.71	138.73	0.20	14.00	19,936.75	0.06%	0.01%	0.79%
Henry Schein Inc	HSIC	138.05	78.83	n/a	6.95	10,882.56	0.03%	n/a	0.21%
Ameren Corp	AEE	258.09	93.12	2.53	7.70	24,033.53	0.07%	0.17%	0.52%
ANSYS Inc	ANSS	86.99	278.99	n/a	8.26	24,269.34	0.07%	n/a	0.56%
FactSet Research Systems Inc	FDS	37.98	429.68	0.83	11.25	16,319.25	0.05%	0.04%	0.52%
NVIDIA Corp	NVDA	2500.00	181.63	0.09	26.95	454,075.00	1.28%	0.11%	34.51%
Sealed Air Corp	SEE	146.08	61.12	1.31	7.41	8,928.65	0.03%	0.03%	0.19%
Cognizant Technology Solutions Corp	CTSH	517.79	67.96	1.59	9.18	35,188.67	0.10%	0.16%	0.91%
SVB Financial Group	SIVB	59.08	403.55	n/a	7.00	23,842.14	0.07%	n/a	0.47%
Intuitive Surgical Inc	ISRG	357.11	230.17	n/a	12.61	82,196.24	0.23%	n/a	2.92%
Take-Two Interactive Software Inc	TTWO	166.49	132.73	n/a	48.16	22,098.08	0.06%	n/a	3.00%
Republic Services Inc	RSG	315.89	138.66	1.43	8.59	43,801.45	0.12%	0.18%	1.06%
eBay Inc	EBAY	559.84	48.63	1.81	3.06	27,225.12	0.08%	0.14%	0.24%
Goldman Sachs Group Inc/The	GS	343.45	333.39	3.00	-3.85	114,501.80	0.32%	0.97%	-1.24%
SBA Communications Corp	SBAC	107.83	335.79	0.85	8.00	36,207.90	0.10%	0.09%	0.82%
Sempra Energy	SRE	314.31	165.80	2.76	5.71	52,111.77	0.15%	0.41%	0.84%
Moody's Corp	MCO	183.50	310.25	0.90	11.40	56,930.88	0.16%	0.14%	1.83%
ON Semiconductor Corp	ON	434.51	66.78	n/a	16.05	29,016.31	0.08%	n/a	1.31%
Booking Holdings Inc	BKNG	40.62	1935.69	n/a	28.35	78,633.53	0.22%	n/a	6.29%
F5 Inc	FFIV	59.56	167.36	n/a	4.69	9,967.29	0.03%	n/a	0.13%
Akamai Technologies Inc	AKAM	160.31	96.22	n/a	24.50	15,424.55	0.04%	n/a	1.07%
Charles River Laboratories International Inc	CRL	50.81	250.54	n/a	14.95	12,728.68	0.04%	n/a	0.54%
MarketAxess Holdings Inc	MKTX	37.64	270.78	1.03	14.00	10,192.16	0.03%	0.03%	0.40%
Devon Energy Corp	DVN	660.00	62.85	8.08	21.62	41,481.00	0.12%	0.95%	2.53%
Bio-Techne Corp	TECH	39.23	385.28	0.33	21.73	15,116.08	0.04%	0.01%	0.93%
Alphabet Inc	GOOGL	5996.00	116.32	n/a	13.36	697,454.72	1.97%	n/a	26.27%
Teleflex Inc	TFX	46.91	240.46	0.57	6.45	11,278.78	0.03%	0.02%	0.21%
Netflix Inc	NFLX	444.71	224.90	n/a	22.50	100,014.38	0.28%	n/a	6.35%
Allegion plc	ALLE	87.84	105.70	1.55	9.43	9,284.48	0.03%	0.04%	0.25%
Agilent Technologies Inc	A	298.71	134.10	0.63	11.65	40,056.74	0.11%	0.07%	1.32%
Warner Bros Discovery Inc	WBD	2426.84	15.00	n/a	4.41	36,402.66	0.10%	n/a	0.45%
Elevance Health Inc	ELV	240.00	477.10	1.07	11.84	114,504.48	0.32%	0.35%	3.82%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Trimble Inc	TRMB	250.14	69.43	n/a	n/a	0.00	0.00%		
CME Group Inc	CME	359.42	199.48	2.01	6.20	71,696.70	0.20%	0.41%	1.25%
Juniper Networks Inc	JNPR	322.61	28.03	3.00	8.17	9,042.73	0.03%	0.08%	0.21%
BlackRock Inc	BLK	151.50	669.18	2.92	6.60	101,382.78	0.29%	0.83%	1.89%
DTE Energy Co	DTE	193.74	130.30	2.72	6.03	25,244.58	0.07%	0.19%	0.43%
Nasdaq Inc	NDAQ	164.68	180.90	0.44	8.00	29,790.25	0.08%	0.04%	0.67%
Celanese Corp	CE	108.35	117.51	2.31	8.66	12,732.09	0.04%	0.08%	0.31%
Philip Morris International Inc	PM	1550.16	97.15	5.15	4.34	150,598.34	0.42%	2.19%	1.84%
Salesforce Inc	CRM	995.00	184.02	n/a	22.85	183,099.90	0.52%		11.80%
Ingersoll Rand Inc	IR	405.93	49.80	0.16	14.85	20,215.31	0.06%	0.01%	0.85%
Huntington Ingalls Industries Inc	HII	40.05	216.84	2.18	25.25	8,683.79	0.02%	0.05%	0.62%
MetLife Inc	MET	813.21	63.25	3.16	2.26	51,435.28	0.15%	0.46%	0.33%
Tapestry Inc	TPR	251.80	33.63	2.97	14.13	8,468.10	0.02%	0.07%	0.34%
CSX Corp	CSX	2141.24	32.33	1.24	9.23	69,226.32	0.20%	0.24%	1.80%
Edwards Lifesciences Corp	EW	619.94	100.54	n/a	13.50	62,329.07	0.18%		2.37%
Ameriprise Financial Inc	AMP	109.90	269.92	1.85	8.40	29,665.29	0.08%	0.15%	0.70%
Zebra Technologies Corp	ZBRA	52.51	357.69	n/a	11.40	18,783.73	0.05%		0.60%
Zimmer Biomet Holdings Inc	ZBH	209.58	110.39	0.87	4.28	23,135.21	0.07%	0.06%	0.28%
CBRE Group Inc	CBRE	326.86	85.62	n/a	7.20	27,985.84	0.08%		0.57%
Camden Property Trust	CPT	106.53	141.10	2.66	8.99	15,031.10	0.04%	0.11%	0.38%
Mastercard Inc	MA	958.68	353.79	0.55	23.13	339,169.98	0.96%	0.53%	22.12%
CarMax Inc	KMX	159.17	99.54	n/a	13.20	15,843.38	0.04%		0.59%
Intercontinental Exchange Inc	ICE	558.27	101.99	1.49	2.40	56,937.55	0.16%	0.24%	0.38%
Fidelity National Information Services Inc	FIS	607.95	102.16	1.84	14.86	62,107.76	0.18%	0.32%	2.60%
Chipotle Mexican Grill Inc	CMG	27.77	1564.22	n/a	28.75	43,430.57	0.12%		3.52%
Wynn Resorts Ltd	WYNN	115.97	63.48	n/a	-165.68	7,361.46	0.02%		-3.44%
Live Nation Entertainment Inc	LYV	228.06	93.99	n/a	n/a	0.00	0.00%		
Assurant Inc	AIZ	54.09	175.78	1.55	17.31	9,507.06	0.03%	0.04%	0.46%
NRG Energy Inc	NRG	237.28	37.75	3.71	2.87	8,957.47	0.03%	0.09%	0.07%
Regions Financial Corp	RF	934.50	21.18	3.78	1.67	19,792.71	0.06%	0.21%	0.09%
Monster Beverage Corp	MNST	529.67	99.62	n/a	11.16	52,765.83	0.15%		1.66%
Mosaic Co/The	MOS	361.99	52.66	1.14	-16.13	19,062.55	0.05%	0.06%	-0.87%
Baker Hughes Co	BKR	1011.75	25.69	2.80	25.78	25,991.96	0.07%	0.21%	1.89%
Expedia Group Inc	EXPE	151.57	106.05	n/a	32.25	16,074.42	0.05%		1.46%
Evergy Inc	EVERG	229.48	68.26	3.35	4.42	15,664.17	0.04%	0.15%	0.20%
CF Industries Holdings Inc	CF	208.60	95.49	1.68	5.05	19,919.40	0.06%	0.09%	0.28%
Leidos Holdings Inc	LDOS	136.66	107.00	1.35	6.46	14,622.83	0.04%	0.06%	0.27%
APA Corp	APA	338.23	37.17	1.35	15.12	12,572.08	0.04%	0.05%	0.54%
Alphabet Inc	GOOG	6163.00	116.64	n/a	13.36	718,852.32	2.03%		27.08%
TE Connectivity Ltd	TEL	319.84	133.73	1.68	9.83	42,772.07	0.12%	0.20%	1.19%
Cooper Cos Inc/The	COO	49.34	327.00	0.02	8.50	16,132.87	0.05%	0.00%	0.39%
Discover Financial Services	DFS	273.17	101.00	2.38	24.69	27,590.27	0.08%	0.18%	1.92%
Visa Inc	V	1635.02	212.11	0.71	17.76	346,803.03	0.98%	0.69%	17.37%
Mid-America Apartment Communities Inc	MAA	115.44	185.73	2.69	n/a	0.00	0.00%	0.00%	
Xylem Inc/NY	XYL	180.09	92.03	1.30	13.70	16,573.96	0.05%	0.06%	0.64%
Marathon Petroleum Corp	MPC	541.00	91.66	2.53	25.88	49,587.60	0.14%	0.35%	3.62%
Tractor Supply Co	TSCO	111.88	191.48	1.92	10.46	21,423.17	0.06%	0.12%	0.63%
Advanced Micro Devices Inc	AMD	1620.51	94.47	n/a	20.30	153,089.39	0.43%		8.76%
ResMed Inc	RMD	146.29	240.52	0.70	16.25	35,184.47	0.10%	0.07%	1.61%
Mettler-Toledo International Inc	MTD	22.51	1349.73	n/a	11.91	30,378.37	0.09%		1.02%
VICI Properties Inc	VICI	963.09	34.19	4.21	7.06	32,928.15	0.09%	0.39%	0.66%
Copart Inc	CPRT	237.67	128.10	n/a	n/a	0.00	0.00%		
Albemarle Corp	ALB	117.11	244.31	0.65	39.33	28,611.88	0.08%	0.05%	3.17%
Fortinet Inc	FTNT	802.64	59.65	n/a	21.18	47,877.24	0.14%		2.86%
Moderna Inc	MRNA	397.76	164.09	n/a	-98.07	65,268.44	0.18%		-18.05%
Essex Property Trust Inc	ESS	65.12	286.53	3.07	8.42	18,659.98	0.05%	0.16%	0.44%
Realty Income Corp	O	601.60	73.99	4.01	4.07	44,512.24	0.13%	0.50%	0.51%
Westrock Co	WRK	254.85	42.36	2.36	13.48	10,795.53	0.03%	0.07%	0.41%
Westinghouse Air Brake Technologies Corp	WAB	182.65	93.47	0.64	10.81	17,072.11	0.05%	0.03%	0.52%
Pool Corp	POOL	39.59	357.70	1.12	10.60	14,161.70	0.04%	0.04%	0.42%
Western Digital Corp	WDC	313.17	49.10	n/a	2.96	15,376.55	0.04%		0.13%
PepsiCo Inc	PEP	1380.09	174.96	2.63	7.38	241,459.67	0.68%	1.79%	5.02%
Diamondback Energy Inc	FANG	173.63	128.02	9.53	8.31	22,227.60	0.06%	0.60%	0.52%
ServiceNow Inc	NOW	202.00	446.66	n/a	30.70	90,225.32	0.25%		7.81%
Church & Dwight Co Inc	CHD	242.91	87.97	1.19	6.83	21,368.70	0.06%	0.07%	0.41%
Duke Realty Corp	DRE	384.82	62.56	1.79	7.47	24,074.34	0.07%	0.12%	0.51%
Federal Realty OP LP	FRT	79.42	105.61	4.05	9.32	8,387.55	0.02%	0.10%	0.22%
MGM Resorts International	MGM	426.05	32.73	0.03	-16.80	13,944.68	0.04%	0.00%	-0.66%
American Electric Power Co Inc	AEP	513.73	98.56	3.17	6.07	50,633.62	0.14%	0.45%	0.87%
SolarEdge Technologies Inc	SEDG	55.39	360.13	n/a	32.58	19,946.52	0.06%		1.83%
PTC Inc	PTC	116.98	123.38	n/a	11.73	14,432.50	0.04%		0.48%
JB Hunt Transport Services Inc	JBHT	103.81	183.27	0.87	22.37	19,025.81	0.05%	0.05%	1.20%
Lam Research Corp	LRCX	136.98	500.51	1.20	10.12	68,557.36	0.19%	0.23%	1.96%
Mohawk Industries Inc	MHK	63.53	128.48	n/a	13.74	8,162.85	0.02%		0.32%
Pentair PLC	PNR	164.46	48.89	1.72	8.32	8,040.45	0.02%	0.04%	0.19%
Vertex Pharmaceuticals Inc	VRTX	255.76	280.41	n/a	9.36	71,716.54	0.20%		1.89%
Amcor PLC	AMCR	1502.77	12.95	3.71	7.80	19,460.83	0.05%	0.20%	0.43%
Meta Platforms Inc	META	2280.67	159.10	n/a	4.30	362,854.92	1.02%		4.40%
T-Mobile US Inc	TMUS	1254.04	143.06	n/a	32.86	179,403.11	0.51%		16.62%
United Rentals Inc	URI	69.99	322.67	n/a	14.32	22,582.06	0.06%		0.91%
ABIOMED Inc	ABMD	45.63	293.01	n/a	n/a	0.00	0.00%		
Honeywell International Inc	HON	673.69	192.46	2.04	10.10	129,658.76	0.37%	0.74%	3.69%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED BLOOMBERG GROWTH RATES

Name	Ticker	Shares Out/g	Price	Dividend Yield	Bloomberg Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Alexandria Real Estate Equities Inc	ARE	163.17	165.78	2.85	-2.04	27,049.99	0.08%	0.22%	-0.16%
Delta Air Lines Inc	DAL	641.20	31.80	n/a	108.27	20,390.10	0.06%		6.22%
Seagate Technology Holdings PLC	STX	214.84	79.98	3.50	1.64	17,183.22	0.05%	0.17%	0.08%
United Airlines Holdings Inc	UAL	326.73	36.75	n/a	-1,118.15	12,007.29	0.03%		-37.86%
News Corp	NWS	197.27	17.28	1.16	10.65	3,408.88	0.01%	0.01%	0.10%
Centene Corp	CNC	580.07	92.97	n/a	13.82	53,929.20	0.15%		2.10%
Martin Marietta Materials Inc	MLM	62.37	352.08	0.69	13.77	21,980.64	0.06%	0.04%	0.85%
Teradyne Inc	TER	160.20	100.89	0.44	8.47	16,162.88	0.05%	0.02%	0.39%
PayPal Holdings Inc	PYPL	1158.04	86.53	n/a	14.79	100,205.20	0.28%		4.18%
Tesla Inc	TSLA	1044.49	891.45	n/a	36.70	931,110.61	2.63%		96.36%
DISH Network Corp	DISH	291.56	17.37	n/a	-8.52	5,064.40	0.01%		-0.12%
Dow Inc	DOW	718.17	53.21	5.26	10.57	38,213.67	0.11%	0.57%	1.14%
Penn National Gaming Inc	PENN	166.80	34.55	n/a	5.66	5,763.04	0.02%		0.09%
Everest Re Group Ltd	RE	39.20	261.35	2.53	14.19	10,244.92	0.03%	0.07%	0.41%
Teledyne Technologies Inc	TDY	46.84	391.40	n/a	10.12	18,334.35	0.05%		0.52%
News Corp	NWSA	388.47	17.14	1.17	10.65	6,658.36	0.02%	0.02%	0.20%
Exelon Corp	EXC	980.14	46.49	2.90	4.03	45,566.57	0.13%	0.37%	0.52%
Global Payments Inc	GPN	281.54	122.32	0.82	16.77	34,437.97	0.10%	0.08%	1.63%
Crown Castle International Corp	CCI	433.00	180.66	3.25	10.05	78,225.78	0.22%	0.72%	2.22%
Aptiv PLC	APTIV	270.93	104.89	n/a	24.19	28,417.95	0.08%		1.94%
Advance Auto Parts Inc	AAP	60.64	193.62	3.10	12.38	11,741.12	0.03%	0.10%	0.41%
Align Technology Inc	ALGN	78.81	280.97	n/a	4.32	22,142.12	0.06%		0.27%
Illumina Inc	ILMN	157.10	216.68	n/a	20.10	34,040.43	0.10%		1.93%
LKQ Corp	LKQ	276.60	54.84	1.82	4.27	15,168.74	0.04%	0.08%	0.18%
Nielsen Holdings PLC	NLSN	359.83	23.95	1.00	n/a	0.00	0.00%	0.00%	
Zoetis Inc	ZTS	470.63	182.55	0.71	11.67	85,913.32	0.24%	0.17%	2.83%
Equinix Inc	EQIX	91.08	703.74	1.76	9.86	64,093.12	0.18%	0.32%	1.78%
Digital Realty Trust Inc	DLR	284.73	132.45	3.68	14.53	37,713.02	0.11%	0.39%	1.55%
Las Vegas Sands Corp	LVS	764.16	37.69	n/a	n/a	0.00	0.00%		
Molina Healthcare Inc	MOH	58.10	327.72	n/a	16.41	19,040.53	0.05%		0.88%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

[7] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.59%
[8] Cap. Weighted Estimate of the S&P 500 Growth Rate	13.97%
[9] Cap. Weighted S&P 500 Estimated Required Market Return	15.67%

Notes:

- [7] Source: Bloomberg Professional, as of July 29, 2022
- [8] Source: Bloomberg Professional, as of July 29, 2022, and Value Line, as of July 29, 2022
- [9] Equals $([7] \times (1 + (0.5 \times [8]))) + [8]$

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	326.21	89.12	5.34	3.50	29,071.48	0.09%	0.46%	0.30%
Signature Bank/New York NY	SBNY	62.93	185.57	1.21	21.50	11,677.73	0.03%	0.04%	0.74%
American Express Co	AXP	749.75	154.02	1.35	10.00	115,476.19	0.34%	0.46%	3.41%
Verizon Communications Inc	VZ	4199.72	46.19	5.54	3.00	193,984.84	0.57%	3.18%	1.72%
Broadcom Inc	AVGO	403.82	535.48	3.06	23.00	216,236.46	0.64%	1.96%	14.70%
Boeing Co/The	BA	593.81	159.31	n/a	0.00	0.00	0.00%	0.00%	0.00%
Caterpillar Inc	CAT	533.37	198.25	2.42	8.00	105,741.40	0.31%	0.76%	2.50%
JPMorgan Chase & Co	JPM	2937.05	115.36	3.47	5.00	338,818.09	1.00%	3.47%	5.01%
Chevron Corp	CVX	1964.81	163.78	3.47	26.00	321,797.07	0.95%	3.30%	24.72%
Coca-Cola Co/The	KO	4324.63	64.17	2.74	7.50	277,511.44	0.82%	2.25%	6.15%
AbbVie Inc	ABBV	1767.11	143.51	3.93	4.50	253,597.96	0.75%	2.94%	3.37%
Walt Disney Co/The	DIS	1821.48	106.10	n/a	30.50	193,259.45	0.57%	0.00%	17.42%
FleetCor Technologies Inc	FLT	77.34	220.09	n/a	10.50	17,021.98	0.05%	0.00%	0.53%
Extra Space Storage Inc	EXR	134.28	189.52	3.17	4.00	25,448.75	0.08%	0.24%	0.30%
Exxon Mobil Corp	XOM	4212.54	96.93	3.63	0.00	0.00	0.00%	0.00%	0.00%
Phillips 66	PSX	481.05	89.00	4.36	85.00	42,813.54	0.13%	0.55%	10.75%
General Electric Co	GE	1096.55	73.91	0.43	14.00	81,046.23	0.24%	0.10%	3.35%
HP Inc	HPQ	1034.14	33.39	2.99	12.50	34,529.87	0.10%	0.31%	1.28%
Home Depot Inc/The	HD	1027.76	300.94	2.53	9.00	309,292.59	0.91%	2.31%	8.22%
Monolithic Power Systems Inc	MPWR	46.64	464.72	0.65	18.00	21,675.93	0.06%	0.04%	1.15%
International Business Machines Corp	IBM	903.18	130.79	5.05	3.00	118,126.91	0.35%	1.76%	1.05%
Johnson & Johnson	JNJ	2629.18	174.52	2.59	8.00	458,844.49	1.36%	3.51%	10.85%
McDonald's Corp	MCD	739.55	263.37	2.10	10.50	194,774.49	0.58%	1.21%	6.04%
Merck & Co Inc	MRK	2528.81	89.34	3.09	8.00	225,923.44	0.67%	2.06%	5.34%
3M Co	MMM	569.60	143.24	4.16	6.50	81,590.08	0.24%	1.00%	1.57%
American Water Works Co Inc	AWK	181.79	155.44	1.69	3.00	28,256.82	0.08%	0.14%	0.25%
Bank of America Corp	BAC	8035.24	33.81	2.60	8.50	271,671.43	0.80%	2.09%	6.82%
Pfizer Inc	PFE	5610.90	50.51	3.17	6.50	283,406.36	0.84%	2.65%	5.44%
Procter & Gamble Co/The	PG	2399.30	138.91	2.63	6.50	333,286.35	0.98%	2.59%	6.40%
AT&T Inc	T	7126.00	18.78	5.91	0.50	133,826.28	0.40%	2.34%	0.20%
Travelers Cos Inc/The	TRV	237.31	158.70	2.34	8.00	37,661.57	0.11%	0.26%	0.89%
Raytheon Technologies Corp	RTX	1476.51	93.21	2.36	7.50	137,625.87	0.41%	0.96%	3.05%
Analog Devices Inc	ADI	519.81	171.96	1.77	14.00	89,385.84	0.26%	0.47%	3.70%
Walmart Inc	WMT	2741.15	132.05	1.70	7.50	361,968.86	1.07%	1.81%	8.02%
Cisco Systems Inc	CSCO	4140.96	45.37	3.35	8.00	187,875.54	0.56%	1.86%	4.44%
Intel Corp	INTC	4106.00	36.31	4.02	6.00	149,088.86	0.44%	1.77%	2.64%
General Motors Co	GM	1458.05	36.26	n/a	11.00	52,868.86	0.16%	0.00%	1.72%
Microsoft Corp	MSFT	7457.89	280.74	0.88	16.50	2,093,728.60	6.19%	5.46%	102.08%
Dollar General Corp	DG	227.00	248.43	0.89	10.00	56,392.86	0.17%	0.15%	1.67%
Cigna Corp	CI	317.27	275.36	1.63	10.00	87,364.29	0.26%	0.42%	2.58%
Kinder Morgan Inc	KMI	2253.00	17.99	6.17	19.00	40,531.49	0.12%	0.74%	2.28%
Citigroup Inc	C	1937.00	51.90	3.93	5.50	100,530.30	0.30%	1.17%	1.63%
American International Group Inc	AIG	792.19	51.77	2.47	0.00	0.00	0.00%	0.00%	0.00%
Altria Group Inc	MO	1800.82	43.86	8.21	5.50	78,984.10	0.23%	1.92%	1.28%
HCA Healthcare Inc	HCA	295.48	212.42	1.05	12.50	62,766.71	0.19%	0.20%	2.32%
International Paper Co	IP	362.02	42.77	4.33	12.50	15,483.47	0.05%	0.20%	0.57%
Hewlett Packard Enterprise Co	HPE	1299.33	14.24	3.37	7.50	18,502.46	0.05%	0.18%	0.41%
Abbott Laboratories	ABT	1750.94	108.84	1.73	8.00	190,572.53	0.56%	0.97%	4.50%
Aflac Inc	AFL	644.17	57.30	2.79	9.00	36,910.65	0.11%	0.30%	0.98%
Air Products and Chemicals Inc	APD	221.77	248.23	2.61	12.00	55,050.71	0.16%	0.42%	1.95%
Royal Caribbean Cruises Ltd	RCL	255.06	38.71	n/a	0.00	0.00	0.00%	0.00%	0.00%
Hess Corp	HES	311.26	112.47	1.33	0.00	0.00	0.00%	0.00%	0.00%
Archer-Daniels-Midland Co	ADM	560.56	82.77	1.93	13.00	46,397.72	0.14%	0.27%	1.78%
Automatic Data Processing Inc	ADP	416.10	241.12	1.73	10.00	100,330.03	0.30%	0.51%	2.96%
Verisk Analytics Inc	VRSK	157.90	190.25	0.65	10.50	30,040.86	0.09%	0.06%	0.93%
AutoZone Inc	AZO	19.49	2137.39	n/a	14.00	41,653.46	0.12%	0.00%	1.72%
Avery Dennison Corp	AVY	81.71	190.46	1.58	12.00	15,563.25	0.05%	0.07%	0.55%
Enphase Energy Inc	ENPH	135.46	284.18	n/a	26.50	38,494.17	0.11%	0.00%	3.01%
MSCI Inc	MSCI	80.50	481.34	1.04	14.50	38,749.31	0.11%	0.12%	1.66%
Ball Corp	BALL	319.79	73.42	1.09	21.50	23,478.91	0.07%	0.08%	1.49%
Ceridian HCM Holding Inc	CDAY	152.65	54.77	n/a	0.00	0.00	0.00%	0.00%	0.00%
Carrier Global Corp	CARR	841.58	40.53	1.48	0.00	0.00	0.00%	0.00%	0.00%
Bank of New York Mellon Corp/The	BK	808.10	43.46	3.41	6.00	35,120.16	0.10%	0.35%	0.62%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Otis Worldwide Corp	OTIS	420.23	78.17	1.48		0.00	0.00%	0.00%	
Baxter International Inc	BAX	503.61	58.66	1.98	10.00	29,541.82	0.09%	0.17%	0.87%
Becton Dickinson and Co	BDX	285.07	244.31	1.42	5.50	69,644.23	0.21%	0.29%	1.13%
Berkshire Hathaway Inc	BRK/B	1285.75	300.60	n/a	6.00	386,496.75	1.14%		6.85%
Best Buy Co Inc	BBY	225.17	76.99	4.57	9.50	17,335.68	0.05%	0.23%	0.49%
Boston Scientific Corp	BSX	1429.57	41.05	n/a	16.00	58,683.89	0.17%		2.77%
Bristol-Myers Squibb Co	BMJ	2135.26	73.78	2.93		0.00	0.00%	0.00%	
Fortune Brands Home & Security Inc	FBHS	129.32	69.68	1.61	10.00	9,010.81	0.03%	0.04%	0.27%
Brown-Forman Corp	BF/B	309.90	74.22	1.02	14.00	23,000.78	0.07%	0.07%	0.95%
Coterra Energy Inc	CTRA	805.81	30.59	1.96		0.00	0.00%	0.00%	
Campbell Soup Co	CPB	300.58	49.35	3.00	5.00	14,833.43	0.04%	0.13%	0.22%
Hilton Worldwide Holdings Inc	HLT	274.29	128.07	0.47		0.00	0.00%	0.00%	
Carnival Corp	CCL	1096.76	9.06	n/a		0.00	0.00%		
Qorvo Inc	QRVO	103.73	104.07	n/a	14.50	10,794.87	0.03%		0.46%
Lumen Technologies Inc	LUMN	1033.06	10.89	9.18	3.50	11,249.97	0.03%	0.31%	0.12%
UDR Inc	UDR	324.92	48.40	3.14	10.50	15,726.27	0.05%	0.15%	0.49%
Clorox Co/The	CLX	123.08	141.84	3.33	4.50	17,457.67	0.05%	0.17%	0.23%
Paycom Software Inc	PAYC	60.25	330.49	n/a	21.00	19,913.34	0.06%		1.24%
CMS Energy Corp	CMS	290.20	68.73	2.68	6.50	19,945.17	0.06%	0.16%	0.38%
Newell Brands Inc	NWL	413.50	20.21	4.55		0.00	0.00%	0.00%	
Colgate-Palmolive Co	CL	834.12	78.74	2.39	6.50	65,678.61	0.19%	0.46%	1.26%
EPAM Systems Inc	EPAM	57.15	349.25	n/a	20.50	19,959.99	0.06%		1.21%
Comerica Inc	CMA	130.82	77.77	3.50	6.00	10,173.87	0.03%	0.11%	0.18%
Conagra Brands Inc	CAG	480.09	34.21	3.86	4.00	16,423.95	0.05%	0.19%	0.19%
Consolidated Edison Inc	ED	354.30	99.27	3.18	4.50	35,170.86	0.10%	0.33%	0.47%
Corning Inc	GLW	845.32	36.76	2.94	17.50	31,073.89	0.09%	0.27%	1.61%
Cummins Inc	CMI	141.10	221.31	2.84	8.00	31,226.40	0.09%	0.26%	0.74%
Caesars Entertainment Inc	CZR	214.37	45.69	n/a		0.00	0.00%		
Danaher Corp	DHR	727.45	291.47	0.34	17.00	212,028.39	0.63%	0.21%	10.65%
Target Corp	TGT	463.70	163.38	2.64	13.00	75,758.65	0.22%	0.59%	2.91%
Deere & Co	DE	305.64	343.18	1.32	15.00	104,888.16	0.31%	0.41%	4.65%
Dominion Energy Inc	D	811.27	81.98	3.26	14.00	66,507.91	0.20%	0.64%	2.75%
Dover Corp	DOV	143.55	133.68	1.50	9.00	19,189.63	0.06%	0.08%	0.51%
Alliant Energy Corp	LNT	250.81	60.93	2.81	6.00	15,282.10	0.05%	0.13%	0.27%
Duke Energy Corp	DUK	770.00	109.93	3.66	6.00	84,646.10	0.25%	0.91%	1.50%
Regency Centers Corp	REG	172.36	64.43	3.88	12.50	11,105.28	0.03%	0.13%	0.41%
Eaton Corp PLC	ETN	399.00	148.39	2.18	12.00	59,207.61	0.17%	0.38%	2.10%
Ecolab Inc	ECL	285.66	165.17	1.24	10.50	47,181.64	0.14%	0.17%	1.46%
PerkinElmer Inc	PKI	126.15	153.17	0.18	5.00	19,322.09	0.06%	0.01%	0.29%
Emerson Electric Co	EMR	594.00	90.07	2.29	10.00	53,501.58	0.16%	0.36%	1.58%
EOG Resources Inc	EOG	585.71	111.22	2.70	18.00	65,143.00	0.19%	0.52%	3.46%
Aon PLC	AON	210.93	291.04	0.77	6.50	61,387.90	0.18%	0.14%	1.18%
Entergy Corp	ETR	203.37	115.13	3.51	4.00	23,414.45	0.07%	0.24%	0.28%
Equifax Inc	EFX	122.40	208.91	0.75	10.00	25,570.58	0.08%	0.06%	0.76%
IQVIA Holdings Inc	IQV	186.51	240.27	n/a	14.50	44,812.28	0.13%		1.92%
Gartner Inc	IT	80.54	265.48	n/a	15.50	21,381.49	0.06%		0.98%
FedEx Corp	FDX	259.85	233.09	1.97	13.00	60,567.50	0.18%	0.35%	2.33%
FMC Corp	FMC	125.94	111.10	1.91	11.00	13,991.82	0.04%	0.08%	0.45%
Brown & Brown Inc	BRO	282.45	65.10	0.63	8.00	18,387.76	0.05%	0.03%	0.43%
Ford Motor Co	F	3949.39	14.69	4.08	33.50	58,016.47	0.17%	0.70%	5.74%
NextEra Energy Inc	NEE	1964.78	84.49	2.01	12.50	166,004.18	0.49%	0.99%	6.13%
Franklin Resources Inc	BEN	498.36	27.45	4.23	9.00	13,679.90	0.04%	0.17%	0.36%
Garmin Ltd	GRMN	192.86	97.62	2.99	8.00	18,826.51	0.06%	0.17%	0.45%
Freeport-McMoRan Inc	FCX	1449.26	31.55	1.90	29.00	45,724.22	0.14%	0.26%	3.92%
Dexcom Inc	DXCM	392.58	82.08	n/a		0.00	0.00%		
General Dynamics Corp	GD	274.25	226.67	2.22	8.00	62,163.34	0.18%	0.41%	1.47%
General Mills Inc	GIS	597.16	74.79	2.89	3.50	44,661.45	0.13%	0.38%	0.46%
Genuine Parts Co	GPC	141.43	152.87	2.34	8.50	21,620.56	0.06%	0.15%	0.54%
Atmos Energy Corp	ATO	139.02	121.39	2.24	7.50	16,875.03	0.05%	0.11%	0.37%
WW Grainger Inc	GWW	50.87	543.53	1.27	7.00	27,649.91	0.08%	0.10%	0.57%
Halliburton Co	HAL	906.94	29.30	1.64	31.00	26,573.46	0.08%	0.13%	2.43%
L3Harris Technologies Inc	LHX	191.35	239.97	1.87	18.50	45,918.98	0.14%	0.25%	2.51%
Healthpeak Properties Inc	PEAK	539.56	27.63	4.34	17.00	14,907.96	0.04%	0.19%	0.75%
Catalent Inc	CTLT	179.21	113.10	n/a	21.00	20,268.99	0.06%		1.26%
Fortive Corp	FTV	355.70	64.45	0.43	12.00	22,924.67	0.07%	0.03%	0.81%
Hershey Co/The	HSY	146.87	227.96	1.82	6.50	33,480.49	0.10%	0.18%	0.64%
Synchrony Financial	SYF	481.76	33.48	2.75	9.50	16,129.29	0.05%	0.13%	0.45%
Hormel Foods Corp	HRL	546.06	49.34	2.11	6.00	26,942.40	0.08%	0.17%	0.48%
Arthur J Gallagher & Co	AJG	210.30	178.99	1.14	17.50	37,641.60	0.11%	0.13%	1.95%
Mondelez International Inc	MDLZ	1370.57	64.04	2.40	9.50	87,771.05	0.26%	0.62%	2.46%
CenterPoint Energy Inc	CNP	629.43	31.69	2.27	6.50	19,946.70	0.06%	0.13%	0.38%
Humana Inc	HUM	126.55	482.00	0.65	11.00	60,999.03	0.18%	0.12%	1.98%
Willis Towers Watson PLC	WTW	109.97	206.94	1.59	8.50	22,756.36	0.07%	0.11%	0.57%
Illinois Tool Works Inc	ITW	311.44	207.76	2.35	11.00	64,705.40	0.19%	0.45%	2.10%
CDW Corp/DE	CDW	135.12	181.53	1.10	8.50	24,527.61	0.07%	0.08%	0.62%
Trane Technologies PLC	TT	233.86	146.99	1.82		0.00	0.00%	0.00%	
Interpublic Group of Cos Inc/The	IPG	391.03	29.87	3.88	10.00	11,680.01	0.03%	0.13%	0.35%
International Flavors & Fragrances Inc	IFF	254.84	124.05	2.55	7.50	31,612.65	0.09%	0.24%	0.70%
Jacobs Engineering Group Inc	J	128.63	137.30	0.67	15.00	17,660.49	0.05%	0.03%	0.78%
Generac Holdings Inc	GNRC	63.83	268.30	n/a	23.50	17,125.59	0.05%		1.19%
NXP Semiconductors NV	NXPI	262.60	183.88	1.84	12.00	48,286.52	0.14%	0.26%	1.71%
Kellogg Co	K	337.87	73.92	3.19	3.50	24,975.57	0.07%	0.24%	0.26%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line		Market Cap Excl. n/a	% of Total Market Cap	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
					Long-Term Growth Estimate	Market Cap Growth				
Broadridge Financial Solutions Inc	BR	117.23	160.55	1.59	9.00	18,820.79	0.06%	0.09%	0.50%	
Kimberly-Clark Corp	KMB	337.62	131.79	3.52	5.50	44,495.20	0.13%	0.46%	0.72%	
Kimco Realty Corp	KIM	618.48	22.11	3.98	8.50	13,674.64	0.04%	0.16%	0.34%	
Oracle Corp	ORCL	2664.93	77.84	1.64	9.00	207,437.84	0.61%	1.01%	5.52%	
Kroger Co/The	KR	715.56	46.44	2.24	5.50	33,230.61	0.10%	0.22%	0.54%	
Lennar Corp	LEN	254.99	85.00	1.76	9.00	21,673.90	0.06%	0.11%	0.58%	
Eli Lilly & Co	LLY	950.16	329.69	1.19	11.50	313,258.25	0.93%	1.10%	10.64%	
Bath & Body Works Inc	BBWI	228.74	35.54	2.25	26.50	8,129.28	0.02%	0.05%	0.64%	
Charter Communications Inc	CHTR	160.66	432.10	n/a	21.50	69,419.03	0.21%		4.41%	
Lincoln National Corp	LNC	171.95	51.34	3.51	11.50	8,827.76	0.03%	0.09%	0.30%	
Loews Corp	L	246.11	58.25	0.43	18.50	14,335.79	0.04%	0.02%	0.78%	
Lowe's Cos Inc	LOW	639.13	191.53	2.19	12.50	122,412.38	0.36%	0.79%	4.52%	
IDEX Corp	IEX	75.48	208.75	1.15	11.00	15,755.62	0.05%	0.05%	0.51%	
Marsh & McLennan Cos Inc	MMC	499.02	163.96	1.44	12.00	81,818.99	0.24%	0.35%	2.90%	
Masco Corp	MAS	225.52	55.38	2.02	8.50	12,489.30	0.04%	0.07%	0.31%	
S&P Global Inc	SPGI	339.90	376.93	0.90	9.50	128,118.51	0.38%	0.34%	3.60%	
Medtronic PLC	MDT	1328.71	92.52	2.94	8.50	122,932.16	0.36%	1.07%	3.09%	
Viatis Inc	VTRS	1212.33	9.69	4.95		0.00	0.00%	0.00%		
CVS Health Corp	CVS	1311.31	95.68	2.30	6.00	125,466.05	0.37%	0.85%	2.22%	
DuPont de Nemours Inc	DD	508.53	61.23	2.16	10.00	31,137.11	0.09%	0.20%	0.92%	
Micron Technology Inc	MU	1103.15	61.86	0.74	24.00	68,240.55	0.20%	0.15%	4.84%	
Motorola Solutions Inc	MSI	167.30	238.59	1.32	8.00	39,915.39	0.12%	0.16%	0.94%	
Cboe Global Markets Inc	CBOE	106.06	123.38	1.56		0.00	0.00%	0.00%		
Laboratory Corp of America Holdings	LH	93.18	262.19	1.10	6.00	24,429.82	0.07%	0.08%	0.43%	
Newmont Corp	NEM	793.68	45.28	4.86	9.50	35,937.83	0.11%	0.52%	1.01%	
NIKE Inc	NKE	1263.65	114.92	1.06	24.00	145,219.00	0.43%	0.46%	10.30%	
NiSource Inc	NI	405.80	30.40	3.09	9.50	12,336.26	0.04%	0.11%	0.35%	
Norfolk Southern Corp	NSC	234.87	251.17	1.97	10.00	58,993.30	0.17%	0.34%	1.74%	
Principal Financial Group Inc	PFJ	252.68	66.94	3.82	6.00	16,914.67	0.05%	0.19%	0.30%	
Eversource Energy	ES	344.88	88.22	2.89	6.00	30,425.14	0.09%	0.26%	0.54%	
Northrop Grumman Corp	NOC	154.71	478.90	1.44	7.50	74,091.10	0.22%	0.32%	1.64%	
Wells Fargo & Co	WFC	3790.35	43.87	2.74	11.50	166,282.74	0.49%	1.34%	5.65%	
Nucor Corp	NUE	266.00	135.80	1.47	10.00	36,122.80	0.11%	0.16%	1.07%	
PVH Corp	PVH	66.96	61.92	0.24	13.50	4,146.23	0.01%	0.00%	0.17%	
Occidental Petroleum Corp	OXY	937.19	65.75	0.79		0.00	0.00%	0.00%		
Omnicon Group Inc	OMC	204.84	69.84	4.01	6.50	14,306.24	0.04%	0.17%	0.27%	
ONEOK Inc	OKE	446.62	59.74	6.26	11.00	26,680.84	0.08%	0.49%	0.87%	
Raymond James Financial Inc	RJF	215.50	98.47	1.38	10.50	21,220.29	0.06%	0.09%	0.66%	
Parker-Hannifin Corp	PH	128.37	289.09	1.84	13.50	37,111.06	0.11%	0.20%	1.48%	
Rollins Inc	ROL	492.42	38.57	1.04	10.50	18,992.52	0.06%	0.06%	0.59%	
PPL Corp	PPL	735.90	29.08	3.09		0.00	0.00%	0.00%		
ConocoPhillips	COP	1293.45	97.43	1.89	20.00	126,020.83	0.37%	0.70%	7.45%	
PulteGroup Inc	PHM	231.50	43.62	1.38	11.00	10,097.94	0.03%	0.04%	0.33%	
Pinnacle West Capital Corp	PNW	113.00	73.47	4.63	0.50	8,302.18	0.02%	0.11%	0.01%	
PNC Financial Services Group Inc/The	PNC	413.58	165.94	3.62	12.00	68,629.63	0.20%	0.73%	2.43%	
PPG Industries Inc	PPG	235.00	129.29	1.92	4.00	30,382.76	0.09%	0.17%	0.36%	
Progressive Corp/The	PGR	584.90	115.06	0.35	4.50	67,298.59	0.20%	0.07%	0.89%	
Public Service Enterprise Group Inc	PEG	499.26	65.67	3.29	4.00	32,786.34	0.10%	0.32%	0.39%	
Robert Half International Inc	RHI	110.51	79.14	2.17	7.50	8,746.08	0.03%	0.06%	0.19%	
Edison International	EIX	381.43	67.77	4.13		0.00	0.00%	0.00%		
Schlumberger NV	SLB	1414.39	37.03	1.89	23.00	52,374.79	0.15%	0.29%	3.56%	
Charles Schwab Corp/The	SCHW	1817.06	69.05	1.27	9.00	125,467.79	0.37%	0.47%	3.34%	
Sherwin-Williams Co/The	SHW	259.18	241.94	0.99	11.50	62,706.74	0.19%	0.18%	2.13%	
West Pharmaceutical Services Inc	WST	74.05	343.56	0.21	17.00	25,439.93	0.08%	0.02%	1.28%	
J M Smucker Co/The	SJM	106.56	132.32	3.08	4.00	14,099.75	0.04%	0.13%	0.17%	
Snap-on Inc	SNA	53.27	224.05	2.54	4.50	11,934.70	0.04%	0.09%	0.16%	
AMETEK Inc	AME	230.91	123.50	0.71	10.00	28,517.39	0.08%	0.06%	0.84%	
Southern Co/The	SO	1062.53	76.89	3.54	6.50	81,697.55	0.24%	0.85%	1.57%	
Truist Financial Corp	TFC	1331.41	50.47	4.12	6.50	67,196.46	0.20%	0.82%	1.29%	
Southwest Airlines Co	LUV	592.96	38.12	n/a	29.50	22,603.48	0.07%		1.97%	
W R Berkley Corp	WRB	265.27	62.53	0.64	15.50	16,587.52	0.05%	0.03%	0.76%	
Stanley Black & Decker Inc	SWK	147.82	97.33	3.29	6.00	14,386.93	0.04%	0.14%	0.26%	
Public Storage	PSA	175.53	326.41	2.45	8.00	57,294.42	0.17%	0.41%	1.35%	
Arista Networks Inc	ANET	308.26	116.63	n/a	8.50	35,952.83	0.11%		0.90%	
Sysco Corp	SYF	509.48	84.90	2.31	16.50	43,254.51	0.13%	0.30%	2.11%	
Corteva Inc	CTVA	725.32	57.55	1.04	16.50	41,742.17	0.12%	0.13%	2.04%	
Texas Instruments Inc	TXN	913.71	178.89	2.57	9.00	163,453.05	0.48%	1.24%	4.35%	
Textron Inc	TXT	211.53	65.64	0.12	8.50	13,884.96	0.04%	0.01%	0.35%	
Thermo Fisher Scientific Inc	TMO	391.46	598.41	0.20	15.50	234,254.78	0.69%	0.14%	10.73%	
TJX Cos Inc/The	TJX	1171.64	61.16	1.93	20.00	71,657.26	0.21%	0.41%	4.23%	
Globe Life Inc	GL	98.60	100.73	0.82	8.00	9,931.98	0.03%	0.02%	0.23%	
Johnson Controls International plc	JCI	695.67	53.91	2.60	12.50	37,503.52	0.11%	0.29%	1.39%	
Ulta Beauty Inc	ULTA	51.82	388.91	n/a	15.00	20,152.54	0.06%		0.89%	
Union Pacific Corp	UNP	624.48	227.30	2.29	9.50	141,944.08	0.42%	0.96%	3.98%	
Keysight Technologies Inc	KEYS	179.95	162.60	n/a	13.00	29,259.22	0.09%		1.12%	
UnitedHealth Group Inc	UNH	938.17	542.34	1.22	12.00	508,808.20	1.50%	1.83%	18.04%	
Marathon Oil Corp	MRO	707.69	24.80	1.29		0.00	0.00%	0.00%		
Bio-Rad Laboratories Inc	BIO	24.63	563.26	n/a	11.50	13,875.35	0.04%		0.47%	
Ventas Inc	VTR	399.70	53.78	3.35	10.50	21,495.65	0.06%	0.21%	0.67%	
VF Corp	VFC	388.48	44.68	4.48	9.50	17,357.29	0.05%	0.23%	0.49%	
Vornado Realty Trust	VNO	191.74	30.39	6.98	-20.50	5,827.07	0.02%	0.12%	-0.35%	
Vulcan Materials Co	VMC	132.90	165.33	0.97	8.50	21,971.70	0.06%	0.06%	0.55%	

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line		Market Cap Excl. n/a	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
					Growth Estimate	Growth				
Weyerhaeuser Co	WY	744.50	36.32	1.98	6.00	27,040.17	0.08%	0.16%	0.48%	
Whirlpool Corp	WHR	54.51	172.87	4.05	6.00	9,422.80	0.03%	0.11%	0.17%	
Williams Cos Inc/The	WMB	1218.01	34.09	4.99	8.50	41,522.03	0.12%	0.61%	1.04%	
Constellation Energy Corp	CEG	326.66	66.10	0.85		0.00	0.00%	0.00%		
WEC Energy Group Inc	WEC	315.44	103.81	2.80	6.00	32,745.31	0.10%	0.27%	0.58%	
Adobe Inc	ADBE	468.00	410.12	n/a	14.50	191,936.16	0.57%		8.22%	
AES Corp/The	AES	667.86	22.22	2.84	14.00	14,839.85	0.04%	0.12%	0.61%	
Amgen Inc	AMGN	534.20	247.47	3.14	5.50	132,198.47	0.39%	1.22%	2.15%	
Apple Inc	AAPL	16070.75	162.51	0.57	14.00	2,611,657.91	7.72%	4.37%	108.03%	
Autodesk Inc	ADSK	217.27	216.32	n/a	14.00	47,000.28	0.14%		1.94%	
Cintas Corp	CTAS	101.19	425.49	1.08	13.50	43,054.48	0.13%	0.14%	1.72%	
Comcast Corp	CMCSA	4403.79	37.52	2.88	9.50	165,230.35	0.49%	1.41%	4.64%	
Molson Coors Beverage Co	TAP	200.53	59.75	2.54	49.50	11,981.49	0.04%	0.09%	1.75%	
KLA Corp	KLAC	149.24	383.54	1.10	21.00	57,237.59	0.17%	0.19%	3.55%	
Marriott International Inc/MD	MAR	327.30	158.82	0.76	17.50	51,981.47	0.15%	0.12%	2.69%	
McCormick & Co Inc/MD	MKC	250.47	87.35	1.69	5.50	21,878.73	0.06%	0.11%	0.36%	
PACCAR Inc	PCAR	347.70	91.52	1.49	5.00	31,821.50	0.09%	0.14%	0.47%	
Costco Wholesale Corp	COST	442.96	541.30	0.67	10.50	239,775.87	0.71%	0.47%	7.44%	
First Republic Bank/CA	FRC	179.68	162.71	0.66	11.50	29,236.38	0.09%	0.06%	0.99%	
Stryker Corp	SYK	378.32	214.75	1.29	8.50	81,244.43	0.24%	0.31%	2.04%	
Tyson Foods Inc	TSN	291.54	88.01	2.09	6.00	25,658.35	0.08%	0.16%	0.45%	
Lamb Weston Holdings Inc	LW	143.75	79.66	1.23	5.00	11,450.97	0.03%	0.04%	0.17%	
Applied Materials Inc	AMAT	869.95	105.98	0.98	14.50	92,196.98	0.27%	0.27%	3.95%	
American Airlines Group Inc	AAL	649.85	13.71	n/a		0.00	0.00%			
Cardinal Health Inc	CAH	272.43	59.56	3.33	5.00	16,225.75	0.05%	0.16%	0.24%	
Cincinnati Financial Corp	CINF	159.20	97.34	2.84	7.00	15,496.43	0.05%	0.13%	0.32%	
Paramount Global	PARA	608.40	23.65	4.06	4.50	14,388.54	0.04%	0.17%	0.19%	
DR Horton Inc	DHI	347.48	78.03	1.15	13.00	27,113.94	0.08%	0.09%	1.04%	
Electronic Arts Inc	EA	279.31	131.23	0.58	11.50	36,653.33	0.11%	0.06%	1.25%	
Expeditors International of Washington Inc	EXPD	167.75	106.25	1.26	10.00	17,823.86	0.05%	0.07%	0.53%	
Fastenal Co	FAST	574.68	51.36	2.41	8.50	29,515.51	0.09%	0.21%	0.74%	
M&T Bank Corp	MTB	175.97	177.45	2.70	8.00	31,225.70	0.09%	0.25%	0.74%	
Xcel Energy Inc	XEL	546.99	73.18	2.66	6.00	40,028.80	0.12%	0.32%	0.71%	
Fiserv Inc	FISV	639.58	105.68	n/a	11.00	67,591.24	0.20%		2.20%	
Fifth Third Bancorp	FITB	686.15	34.12	3.52	11.00	23,411.51	0.07%	0.24%	0.76%	
Gilead Sciences Inc	GILD	1254.31	59.75	4.89	13.50	74,945.20	0.22%	1.08%	2.99%	
Hasbro Inc	HAS	138.09	78.72	3.56	11.50	10,870.52	0.03%	0.11%	0.37%	
Huntington Bancshares Inc/OH	HBAN	1442.19	13.29	4.67	12.50	19,166.76	0.06%	0.26%	0.71%	
Welltower Inc	WELL	453.97	86.34	2.83	3.50	39,195.60	0.12%	0.33%	0.41%	
Biogen Inc	BIIB	145.11	215.06	n/a	-10.50	31,208.00	0.09%		-0.97%	
Northern Trust Corp	NTRS	208.39	99.78	3.01	8.00	20,792.85	0.06%	0.18%	0.49%	
Packaging Corp of America	PKG	93.70	140.61	3.56	11.00	13,175.30	0.04%	0.14%	0.43%	
Paychex Inc	PAYX	359.91	128.28	2.46	10.00	46,168.87	0.14%	0.34%	1.36%	
QUALCOMM Inc	QCOM	1123.00	145.06	2.07	19.00	162,902.38	0.48%	1.00%	9.15%	
Roper Technologies Inc	ROP	105.91	436.67	0.57	8.50	46,249.03	0.14%	0.08%	1.16%	
Ross Stores Inc	ROST	349.93	81.26	1.53	14.00	28,434.99	0.08%	0.13%	1.18%	
IDEXX Laboratories Inc	IDXX	84.01	399.18	n/a	12.00	33,533.91	0.10%		1.19%	
Starbucks Corp	SBUX	1146.90	84.78	2.31	16.50	97,234.18	0.29%	0.66%	4.74%	
KeyCorp	KEY	932.40	18.30	4.26	9.00	17,062.88	0.05%	0.21%	0.45%	
Fox Corp	FOXA	311.68	33.11	1.45	11.00	10,319.86	0.03%	0.04%	0.34%	
Fox Corp	FOX	245.07	30.90	1.55		0.00	0.00%	0.00%		
State Street Corp	STT	367.62	71.04	3.55	9.50	26,115.65	0.08%	0.27%	0.73%	
Norwegian Cruise Line Holdings Ltd	NCLH	419.10	12.15	n/a		0.00	0.00%			
US Bancorp	USB	1486.00	47.20	3.90	6.00	70,139.20	0.21%	0.81%	1.24%	
A O Smith Corp	AOS	128.48	63.27	1.77	11.50	8,128.74	0.02%	0.04%	0.28%	
NortonLifeLock Inc	NLOK	571.37	24.53	2.04	9.50	14,015.68	0.04%	0.08%	0.39%	
T Rowe Price Group Inc	TROW	225.69	123.47	3.89	9.50	27,866.19	0.08%	0.32%	0.78%	
Waste Management Inc	WM	413.34	164.56	1.58	6.50	68,018.57	0.20%	0.32%	1.31%	
Constellation Brands Inc	STZ	159.34	246.31	1.30	5.00	39,245.80	0.12%	0.15%	0.58%	
DENTSPLY SIRONA Inc	XRAY	215.45	36.16	1.38	12.00	7,790.74	0.02%	0.03%	0.28%	
Zions Bancorp NA	ZION	150.47	54.55	3.01	6.50	8,208.19	0.02%	0.07%	0.16%	
Alaska Air Group Inc	ALK	126.76	44.33	n/a		0.00	0.00%			
Invesco Ltd	IVZ	454.90	17.74	4.23	14.00	8,069.93	0.02%	0.10%	0.33%	
Linde PLC	LIN	498.37	302.00	1.55	12.00	150,506.53	0.44%	0.69%	5.34%	
Intuit Inc	INTU	282.08	456.17	0.60	17.50	128,675.07	0.38%	0.23%	6.65%	
Morgan Stanley	MS	1749.28	84.30	3.68	10.50	147,464.64	0.44%	1.60%	4.58%	
Microchip Technology Inc	MCHP	552.48	68.86	1.60	10.00	38,044.05	0.11%	0.18%	1.12%	
Chubb Ltd	CB	417.64	188.64	1.76	11.00	78,783.80	0.23%	0.41%	2.56%	
Hologic Inc	HOLX	249.65	71.38	n/a	25.00	17,820.23	0.05%		1.32%	
Citizens Financial Group Inc	CFG	495.45	37.97	4.42	9.00	18,812.08	0.06%	0.25%	0.50%	
O'Reilly Automotive Inc	ORLY	63.75	703.59	n/a	13.00	44,855.97	0.13%		1.72%	
Allstate Corp/The	ALL	274.98	116.97	2.91	4.50	32,164.76	0.10%	0.28%	0.43%	
Equity Residential	EQR	376.12	78.39	3.19	-6.00	29,483.89	0.09%	0.28%	-0.52%	
BorgWarner Inc	BWA	239.58	38.46	1.77	9.50	9,214.05	0.03%	0.05%	0.26%	
Keurig Dr Pepper Inc	KDP	1416.07	38.74	1.94	11.50	54,858.55	0.16%	0.31%	1.86%	
Organon & Co	OGN	253.64	31.72	3.53		0.00	0.00%	0.00%		
Host Hotels & Resorts Inc	HST	714.78	17.81	1.35	57.00	12,730.18	0.04%	0.05%	2.14%	
Incyte Corp	INCY	221.51	77.68	n/a	25.50	17,205.51	0.05%		1.30%	
Simon Property Group Inc	SPG	328.64	108.64	6.26	3.00	35,703.34	0.11%	0.66%	0.32%	
Eastman Chemical Co	EMN	128.95	95.93	3.17	9.50	12,370.17	0.04%	0.12%	0.35%	
Twitter Inc	TWTR	765.25	41.61	n/a		0.00	0.00%			
AvalonBay Communities Inc	AVB	139.82	213.94	2.97	6.50	29,912.66	0.09%	0.26%	0.57%	

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line		Market Cap Excl. n/a	% of Total Market Cap	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
					Long-Term Growth Estimate	Market Cap Growth				
Prudential Financial Inc	PRU	375.00	99.99	4.80	5.50	37,496.25	0.11%	0.53%	0.61%	
United Parcel Service Inc	UPS	734.44	194.89	3.12	11.50	143,134.62	0.42%	1.32%	4.86%	
Walgreens Boots Alliance Inc	WBA	864.26	39.62	4.85	7.50	34,241.86	0.10%	0.49%	0.76%	
STERIS PLC	STE	100.08	225.65	0.83	11.50	22,583.05	0.07%	0.06%	0.77%	
McKesson Corp	MCK	143.58	341.58	0.63	10.00	49,044.40	0.14%	0.09%	1.45%	
Lockheed Martin Corp	LMT	265.15	413.81	2.71	7.00	109,722.55	0.32%	0.88%	2.27%	
AmerisourceBergen Corp	ABC	209.46	145.93	1.26	8.50	30,567.08	0.09%	0.11%	0.77%	
Capital One Financial Corp	COF	383.82	109.83	2.19		0.00	0.00%	0.00%		
Waters Corp	WAT	60.24	364.03	n/a	6.00	21,927.35	0.06%		0.39%	
Nordson Corp	NDSN	57.51	230.99	0.88	12.00	13,284.70	0.04%	0.03%	0.47%	
Dollar Tree Inc	DLTR	224.56	165.36	n/a	12.00	37,132.58	0.11%		1.32%	
Darden Restaurants Inc	DRI	123.95	124.49	3.89	19.50	15,430.04	0.05%	0.18%	0.89%	
Match Group Inc	MTCH	285.59	73.31	n/a	21.00	20,936.82	0.06%		1.30%	
Domino's Pizza Inc	DPZ	35.89	392.11	1.12	15.50	14,070.87	0.04%	0.05%	0.64%	
NVR Inc	NVR	3.28	4393.10	n/a	5.50	14,426.94	0.04%		0.23%	
NetApp Inc	NTAP	219.74	71.33	2.80	8.00	15,673.70	0.05%	0.13%	0.37%	
Citrix Systems Inc	CTXS	126.89	101.41	n/a	9.00	12,867.41	0.04%		0.34%	
DXC Technology Co	DXC	229.66	31.60	n/a	12.00	7,257.10	0.02%		0.26%	
Old Dominion Freight Line Inc	ODFL	113.35	303.51	0.40	12.00	34,400.07	0.10%	0.04%	1.22%	
DaVita Inc	DVA	94.60	84.16	n/a	12.00	7,961.54	0.02%		0.28%	
Hartford Financial Services Group Inc/The	HIG	323.14	64.47	2.39	6.50	20,832.96	0.06%	0.15%	0.40%	
Iron Mountain Inc	IRM	290.56	48.49	5.10	11.00	14,089.35	0.04%	0.21%	0.46%	
Estee Lauder Cos Inc/The	EL	231.81	273.10	0.88	14.00	63,305.95	0.19%	0.16%	2.62%	
Cadence Design Systems Inc	CDNS	273.87	186.08	n/a	12.00	50,961.73	0.15%		1.81%	
Tyler Technologies Inc	TYL	41.58	399.00	n/a	12.00	16,590.82	0.05%		0.59%	
Universal Health Services Inc	UHS	67.13	112.47	0.71	9.00	7,549.89	0.02%	0.02%	0.20%	
Skyworks Solutions Inc	SWKS	160.93	108.88	2.06	15.50	17,521.62	0.05%	0.11%	0.80%	
Quest Diagnostics Inc	DGX	116.61	136.57	1.93	7.00	15,924.88	0.05%	0.09%	0.33%	
Activision Blizzard Inc	ATVI	781.88	79.95	0.59	14.00	62,511.39	0.18%	0.11%	2.59%	
Rockwell Automation Inc	ROK	115.44	255.28	1.75	9.50	29,468.25	0.09%	0.15%	0.83%	
Kraft Heinz Co/The	KHC	1225.44	36.83	4.34	5.50	45,132.96	0.13%	0.58%	0.73%	
American Tower Corp	AMT	465.59	270.83	2.11	9.00	126,094.93	0.37%	0.79%	3.35%	
Regeneron Pharmaceuticals Inc	REGN	108.03	581.69	n/a	3.00	62,838.81	0.19%		0.56%	
Amazon.com Inc	AMZN	10187.56	134.95	n/a	26.50	1,374,810.55	4.06%		107.65%	
Jack Henry & Associates Inc	JKHY	72.86	207.77	0.94	9.00	15,138.54	0.04%	0.04%	0.40%	
Ralph Lauren Corp	RL	44.83	98.63	3.04	12.50	4,421.39	0.01%	0.04%	0.16%	
Boston Properties Inc	BXP	156.73	91.16	4.30	-1.00	14,287.14	0.04%	0.18%	-0.04%	
Amphenol Corp	APH	594.83	77.13	1.04	12.50	45,879.08	0.14%	0.14%	1.69%	
Howmet Aerospace Inc	HWM	417.91	37.13	0.22	12.00	15,517.15	0.05%	0.01%	0.55%	
Pioneer Natural Resources Co	PXD	241.96	236.95	12.46	21.00	57,332.19	0.17%	2.11%	3.56%	
Valero Energy Corp	VLO	393.97	110.77	3.54	11.00	43,640.06	0.13%	0.46%	1.42%	
Synopsys Inc	SNPS	152.97	367.50	n/a	12.50	56,216.48	0.17%		2.08%	
Etsy Inc	ETSY	126.61	103.72	n/a	24.50	13,131.89	0.04%		0.95%	
CH Robinson Worldwide Inc	CHRW	123.88	110.70	1.99	8.00	13,713.85	0.04%	0.08%	0.32%	
Accenture PLC	ACN	664.19	306.26	1.27	12.50	203,414.22	0.60%	0.76%	7.51%	
TransDigm Group Inc	TDG	54.61	622.34	n/a	18.00	33,983.50	0.10%		1.81%	
Yum! Brands Inc	YUM	285.16	122.54	1.86	10.50	34,944.00	0.10%	0.19%	1.08%	
Prologis Inc	PLD	739.75	132.56	2.38	6.00	98,060.60	0.29%	0.69%	1.74%	
FirstEnergy Corp	FE	571.40	41.10	3.80	7.50	23,484.33	0.07%	0.26%	0.52%	
VersiSign Inc	VRSN	107.28	189.16	n/a	11.00	20,293.65	0.06%		0.66%	
Quanta Services Inc	PWR	143.71	138.73	0.20	12.50	19,936.75	0.06%	0.01%	0.74%	
Henry Schein Inc	HSIC	138.05	78.83	n/a	7.00	10,882.56	0.03%		0.23%	
Ameren Corp	AEE	258.09	93.12	2.53	6.50	24,033.53	0.07%	0.18%	0.46%	
ANSYS Inc	ANSS	86.99	278.99	n/a	8.50	24,269.34	0.07%		0.61%	
FactSet Research Systems Inc	FDS	37.98	429.68	0.83	10.50	16,319.25	0.05%	0.04%	0.51%	
NVIDIA Corp	NVDA	2500.00	181.63	0.09	23.00	454,075.00	1.34%	0.12%	30.86%	
Sealed Air Corp	SEE	146.08	61.12	1.31	10.00	8,928.65	0.03%	0.03%	0.26%	
Cognizant Technology Solutions Corp	CTSH	517.79	67.96	1.59	7.50	35,188.67	0.10%	0.17%	0.78%	
SVB Financial Group	SIVB	59.08	403.55	n/a	6.50	23,842.14	0.07%		0.46%	
Intuitive Surgical Inc	ISRG	357.11	230.17	n/a	12.50	82,196.24	0.24%		3.04%	
Take-Two Interactive Software Inc	TTWO	166.49	132.73	n/a	10.50	22,098.08	0.07%		0.69%	
Republic Services Inc	RSG	315.89	138.66	1.43	12.50	43,801.45	0.13%	0.18%	1.62%	
eBay Inc	EBAY	559.84	48.63	1.81	15.50	27,225.12	0.08%	0.15%	1.25%	
Goldman Sachs Group Inc/The	GS	343.45	333.39	3.00	5.00	114,501.80	0.34%	1.01%	1.69%	
SBA Communications Corp	SBAC	107.83	335.79	0.85	35.50	36,207.90	0.11%	0.09%	3.80%	
Sempra Energy	SRE	314.31	165.80	2.76	7.50	52,111.77	0.15%	0.43%	1.15%	
Moody's Corp	MCO	183.50	310.25	0.90	8.00	56,930.88	0.17%	0.15%	1.35%	
ON Semiconductor Corp	ON	434.51	66.78	n/a	23.00	29,016.31	0.09%		1.97%	
Booking Holdings Inc	BKNG	40.62	1935.69	n/a	22.00	78,633.53	0.23%		5.11%	
F5 Inc	FFIV	59.56	167.36	n/a	10.00	9,967.29	0.03%		0.29%	
Akamai Technologies Inc	AKAM	160.31	96.22	n/a	5.50	15,424.55	0.05%		0.25%	
Charles River Laboratories International Inc	CRL	50.81	250.54	n/a	12.00	12,728.68	0.04%		0.45%	
MarketAxess Holdings Inc	MKTX	37.64	270.78	1.03	10.50	10,192.16	0.03%	0.03%	0.32%	
Devon Energy Corp	DVN	660.00	62.85	8.08	30.00	41,481.00	0.12%	0.99%	3.68%	
Bio-Techne Corp	TECH	39.23	385.28	0.33	17.50	15,116.08	0.04%	0.01%	0.78%	
Alphabet Inc	GOOGL	5996.00	116.32	n/a		0.00	0.00%			
Teleflex Inc	TFX	46.91	240.46	0.57	13.50	11,278.78	0.03%	0.02%	0.45%	
Netflix Inc	NFLX	444.71	224.90	n/a	10.50	100,014.38	0.30%		3.10%	
Allegion plc	ALLE	87.84	105.70	1.55	14.50	9,284.48	0.03%	0.04%	0.40%	
Agilent Technologies Inc	A	298.71	134.10	0.63		0.00	0.00%	0.00%		
Warner Bros Discovery Inc	WBD	2426.84	15.00	n/a	11.50	36,402.66	0.11%		1.24%	
Elevance Health Inc	ELV	240.00	477.10	1.07	10.00	114,504.48	0.34%	0.36%	3.38%	

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a	% of Total Market Cap	Cap. Weighted Div. Yield	Cap. Weighted
									Long-Term Growth
Trimble Inc	TRMB	250.14	69.43	n/a	12.50	17,367.36	0.05%	0.04%	0.64%
CME Group Inc	CME	359.42	199.48	2.01	8.50	71,696.70	0.21%	0.42%	1.80%
Juniper Networks Inc	JNPR	322.61	28.03	3.00	9.00	9,042.73	0.03%	0.08%	0.24%
BlackRock Inc	BLK	151.50	669.18	2.92	10.00	101,382.78	0.30%	0.87%	3.00%
DTE Energy Co	DTE	193.74	130.30	2.72	4.50	25,244.58	0.07%	0.20%	0.34%
Nasdaq Inc	NDAQ	164.68	180.90	0.44	7.50	29,700.25	0.09%	0.04%	0.66%
Celanese Corp	CE	108.35	117.51	2.31	6.00	12,732.09	0.04%	0.09%	0.23%
Philip Morris International Inc	PM	1550.16	97.15	5.15	7.00	150,598.34	0.44%	2.29%	3.11%
Salesforce Inc	CRM	995.00	184.02	n/a	n/a	0.00	0.00%	n/a	n/a
Ingersoll Rand Inc	IR	405.93	49.80	0.16	16.50	20,215.31	0.06%	0.01%	0.99%
Huntington Ingalls Industries Inc	HII	40.05	216.84	2.18	10.00	6,683.79	0.03%	0.06%	0.26%
MetLife Inc	MET	813.21	63.25	3.16	7.50	51,435.28	0.15%	0.48%	1.14%
Tapestry Inc	TPR	251.80	33.63	2.97	10.00	8,468.10	0.03%	0.07%	0.25%
CSX Corp	CSX	2141.24	32.33	1.24	10.00	69,226.32	0.20%	0.25%	2.05%
Edwards Lifesciences Corp	EW	619.94	100.54	n/a	12.50	62,329.07	0.18%	n/a	2.30%
Ameriprise Financial Inc	AMP	109.90	269.92	1.85	12.50	29,665.29	0.09%	0.16%	1.10%
Zebra Technologies Corp	ZBRA	52.51	357.69	n/a	11.50	18,783.73	0.06%	0.06%	0.64%
Zimmer Biomet Holdings Inc	ZBH	209.58	110.39	0.87	7.00	23,135.21	0.07%	0.06%	0.48%
CBRE Group Inc	CBRE	326.86	85.62	n/a	2.50	27,985.84	0.08%	n/a	0.21%
Camden Property Trust	CPT	106.53	141.10	2.66	8.50	15,031.10	0.04%	0.12%	0.38%
Mastercard Inc	MA	958.68	353.79	0.55	18.50	339,169.98	1.00%	0.56%	18.54%
CarMax Inc	KMX	159.17	99.54	n/a	13.00	15,843.38	0.05%	n/a	0.61%
Intercontinental Exchange Inc	ICE	558.27	101.99	1.49	6.50	56,937.55	0.17%	0.25%	1.09%
Fidelity National Information Services Inc	FIS	607.95	102.16	1.84	52.00	62,107.76	0.18%	0.34%	9.54%
Chipotle Mexican Grill Inc	CMG	27.77	1564.22	n/a	16.50	43,430.57	0.13%	n/a	2.12%
Wynn Resorts Ltd	WYNN	115.97	63.48	n/a	27.00	7,361.46	0.02%	n/a	0.59%
Live Nation Entertainment Inc	LYV	228.06	93.99	n/a	n/a	0.00	0.00%	n/a	n/a
Assurant Inc	AIZ	54.09	175.78	1.55	15.50	9,507.06	0.03%	0.04%	0.44%
NRG Energy Inc	NRG	237.28	37.75	3.71	-10.50	8,957.47	0.03%	0.10%	-0.28%
Regions Financial Corp	RF	934.50	21.18	3.78	11.50	19,792.71	0.06%	0.22%	0.67%
Monster Beverage Corp	MNST	529.67	99.62	n/a	11.50	52,765.83	0.16%	n/a	1.79%
Mosaic Co/The	MOS	361.99	52.66	1.14	n/a	0.00	0.00%	0.00%	n/a
Baker Hughes Co	BKR	1011.75	25.69	2.80	33.00	25,991.96	0.08%	0.22%	2.53%
Expedia Group Inc	EXPE	151.57	106.05	n/a	n/a	0.00	0.00%	n/a	n/a
Eversys Inc	EVRG	229.48	68.26	3.35	7.50	15,664.17	0.05%	0.16%	0.35%
CF Industries Holdings Inc	CF	208.60	95.49	1.68	26.50	19,919.40	0.06%	0.10%	1.56%
Leidos Holdings Inc	LDOS	136.66	107.00	1.35	n/a	0.00	0.00%	0.00%	n/a
APA Corp	APA	338.23	37.17	1.35	9.00	12,572.08	0.04%	0.05%	0.33%
Alphabet Inc	GOOG	6163.00	116.64	n/a	18.50	718,852.32	2.12%	n/a	39.29%
TE Connectivity Ltd	TEL	319.84	133.73	1.68	16.00	42,772.07	0.13%	0.21%	2.02%
Cooper Cos Inc/The	COO	49.34	327.00	0.02	10.50	16,132.87	0.05%	0.00%	0.50%
Discover Financial Services	DFS	273.17	101.00	2.38	16.00	27,590.27	0.08%	0.19%	1.30%
Visa Inc	V	1635.02	212.11	0.71	13.50	346,803.03	1.02%	0.72%	13.83%
Mid-America Apartment Communities Inc	MAA	115.44	185.73	2.69	4.50	21,440.49	0.06%	0.17%	0.29%
Xylem Inc/NY	XYL	180.09	92.03	1.30	6.50	16,573.96	0.05%	0.06%	0.32%
Marathon Petroleum Corp	MPC	541.00	91.66	2.53	n/a	0.00	0.00%	0.00%	n/a
Tractor Supply Co	TSCO	111.88	191.48	1.92	25.50	21,423.17	0.06%	0.12%	1.61%
Advanced Micro Devices Inc	AMD	1620.51	94.47	n/a	12.50	153,089.39	0.45%	n/a	5.65%
ResMed Inc	RMD	146.29	240.52	0.70	8.50	35,184.47	0.10%	0.07%	0.88%
Mettler-Toledo International Inc	MTD	22.51	1349.73	n/a	13.50	30,378.37	0.09%	n/a	1.21%
VICI Properties Inc	VICI	963.09	34.19	4.21	12.00	32,928.15	0.10%	0.41%	1.17%
Copart Inc	CPRT	237.67	128.10	n/a	8.50	30,445.91	0.09%	n/a	0.76%
Albemarle Corp	ALB	117.11	244.31	0.65	21.50	28,611.88	0.08%	0.05%	1.82%
Fortinet Inc	FTNT	802.64	59.65	n/a	15.00	47,877.24	0.14%	n/a	2.12%
Moderna Inc	MRNA	397.76	164.09	n/a	-2.50	65,268.44	0.19%	n/a	-0.48%
Essex Property Trust Inc	ESS	65.12	286.53	3.07	-4.00	18,659.98	0.06%	0.17%	-0.22%
Realty Income Corp	O	601.60	73.99	4.01	6.00	44,512.24	0.13%	0.53%	0.79%
Westrock Co	WRK	254.85	42.36	2.36	20.00	10,795.53	0.03%	0.08%	0.64%
Westinghouse Air Brake Technologies Corp	WAB	182.65	93.47	0.64	9.00	17,072.11	0.05%	0.03%	0.45%
Pool Corp	POOL	39.59	357.70	1.12	14.00	14,161.70	0.04%	0.05%	0.59%
Western Digital Corp	WDC	313.17	49.10	n/a	20.00	15,376.55	0.05%	n/a	0.91%
PepsiCo Inc	PEP	1380.09	174.96	2.63	6.00	241,459.67	0.71%	1.88%	4.28%
Diamondback Energy Inc	FANG	173.63	128.02	9.53	n/a	0.00	0.00%	0.00%	n/a
ServiceNow Inc	NOW	202.00	446.66	n/a	45.50	90,225.32	0.27%	n/a	12.13%
Church & Dwight Co Inc	CHD	242.91	87.97	1.19	6.00	21,368.70	0.06%	0.08%	0.38%
Duke Realty Corp	DRE	384.82	62.56	1.79	-2.50	24,074.34	0.07%	0.13%	-0.18%
Federal Realty OP LP	FRT	79.42	105.61	4.05	2.50	8,387.55	0.02%	0.10%	0.06%
MGM Resorts International	MGM	426.05	32.73	0.03	25.00	13,944.68	0.04%	0.00%	1.03%
American Electric Power Co Inc	AEP	513.73	98.56	3.17	6.50	50,633.62	0.15%	0.47%	0.97%
SolarEdge Technologies Inc	SEDG	55.39	360.13	n/a	22.00	19,946.52	0.06%	n/a	1.30%
PTC Inc	PTC	116.98	123.38	n/a	29.00	14,432.50	0.04%	n/a	1.24%
JB Hunt Transport Services Inc	JBHT	103.81	183.27	0.87	11.50	19,025.81	0.06%	0.05%	0.65%
Lam Research Corp	LRCX	136.98	500.51	1.20	21.50	68,557.36	0.20%	0.24%	4.36%
Mohawk Industries Inc	MHK	63.53	128.48	n/a	10.50	8,162.85	0.02%	n/a	0.25%
Pentair PLC	PNR	164.46	48.89	1.72	13.00	8,040.45	0.02%	0.04%	0.31%
Vertex Pharmaceuticals Inc	VRTX	255.76	280.41	n/a	18.50	71,716.54	0.21%	n/a	3.92%
Amcort PLC	AMCR	1502.77	12.95	3.71	15.00	19,460.83	0.06%	0.21%	0.86%
Meta Platforms Inc	META	2280.67	159.10	n/a	16.00	362,854.92	1.07%	n/a	17.15%
T-Mobile US Inc	TMUS	1254.04	143.06	n/a	9.50	179,403.11	0.53%	n/a	5.04%
United Rentals Inc	URI	69.99	322.67	n/a	18.00	22,582.06	0.07%	n/a	1.20%
ABIOMED Inc	ABMD	45.63	293.01	n/a	10.00	13,368.87	0.04%	n/a	0.40%
Honeywell International Inc	HON	673.69	192.46	2.04	11.00	129,658.76	0.38%	0.78%	4.21%

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
Alexandria Real Estate Equities Inc	ARE	163.17	165.78	2.85	7.50	27,049.99	0.08%	0.23%	0.60%
Delta Air Lines Inc	DAL	641.20	31.80	n/a		0.00	0.00%		
Seagate Technology Holdings PLC	STX	214.84	79.99	3.50		0.00	0.00%	0.00%	
United Airlines Holdings Inc	UAL	326.73	36.75	n/a	15.00	12,007.29	0.04%		0.53%
News Corp	NWS	197.27	17.28	1.16		0.00	0.00%	0.00%	
Centene Corp	CNC	580.07	92.97	n/a	10.00	53,929.20	0.16%		1.59%
Martin Marietta Materials Inc	MLM	62.37	352.08	0.69	5.50	21,960.64	0.06%	0.04%	0.36%
Teradyne Inc	TER	160.20	100.89	0.44	8.50	16,162.88	0.05%	0.02%	0.41%
PayPal Holdings Inc	PYPL	1158.04	86.53	n/a	12.00	100,205.20	0.30%		3.55%
Tesla Inc	TSLA	1044.49	891.45	n/a	50.50	931,110.61	2.75%		138.93%
DISH Network Corp	DISH	291.56	17.37	n/a	2.50	5,064.40	0.01%		0.04%
Dow Inc	DOW	718.17	53.21	5.26	19.50	38,213.67	0.11%	0.59%	2.20%
Penn National Gaming Inc	PENN	166.80	34.55	n/a	15.00	5,763.04	0.02%		0.26%
Everest Re Group Ltd	RE	39.20	261.35	2.53	17.50	10,244.92	0.03%	0.08%	0.53%
Teledyne Technologies Inc	TDY	46.84	391.40	n/a	11.50	18,334.35	0.05%		0.62%
News Corp	NWSA	388.47	17.14	1.17		0.00	0.00%	0.00%	
Exelon Corp	EXC	980.14	46.49	2.90		0.00	0.00%	0.00%	
Global Payments Inc	GPN	281.54	122.32	0.82	17.00	34,437.97	0.10%	0.08%	1.73%
Crown Castle International Corp	CCI	433.00	180.66	3.25	12.00	78,225.78	0.23%	0.75%	2.77%
Aptiv PLC	APTIV	270.93	104.89	n/a	27.50	28,417.95	0.08%		2.31%
Advance Auto Parts Inc	AAP	60.64	193.62	3.10	16.00	11,741.12	0.03%	0.11%	0.56%
Align Technology Inc	ALGN	78.81	280.97	n/a	17.00	22,142.12	0.07%		1.11%
Illumina Inc	ILMN	157.10	216.68	n/a	6.50	34,040.43	0.10%		0.65%
LKQ Corp	LKQ	276.60	54.84	1.82	13.00	15,168.74	0.04%	0.08%	0.58%
Nielsen Holdings PLC	NLSN	359.83	23.95	1.00		0.00	0.00%	0.00%	
Zoetis Inc	ZTS	470.63	182.55	0.71	11.00	85,913.32	0.25%	0.18%	2.79%
Equinix Inc	EQIX	91.08	703.74	1.76	-3.50	64,093.12	0.19%	0.33%	-0.66%
Digital Realty Trust Inc	DLR	284.73	132.45	3.68	15.00	37,713.02	0.11%	0.41%	1.67%
Las Vegas Sands Corp	LVS	764.16	37.69	n/a	11.00	28,801.04	0.09%		0.94%
Molina Healthcare Inc	MOH	58.10	327.72	n/a	13.50	19,040.53	0.06%		0.76%

REBUTTAL EXHIBIT JMC-3.2

CAPM ANALYSIS

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)
Alliant Energy Corporation	LNT	3.16%	0.80	14.76%	11.60%	12.44%
Ameren Corporation	AEE	3.16%	0.80	14.76%	11.60%	12.44%
American Electric Power Company, Inc	AEP	3.16%	0.75	14.76%	11.60%	11.86%
Avista Corporation	AVA	3.16%	0.90	14.76%	11.60%	13.60%
Black Hills Corporation	BKH	3.16%	0.95	14.76%	11.60%	14.18%
CMS Energy Corporation	CMS	3.16%	0.75	14.76%	11.60%	11.86%
Consolidated Edison, Inc.	ED	3.16%	0.75	14.76%	11.60%	11.86%
Duke Energy Corporation	DUK	3.16%	0.85	14.76%	11.60%	13.02%
Edison International	EIX	3.16%	0.95	14.76%	11.60%	14.18%
Entergy Corporation	ETR	3.16%	0.90	14.76%	11.60%	13.60%
Evergy, Inc.	EVRG	3.16%	0.90	14.76%	11.60%	13.60%
Eversource Energy	ES	3.16%	0.90	14.76%	11.60%	13.60%
IDACORP, Inc.	IDA	3.16%	0.80	14.76%	11.60%	12.44%
NorthWestern Corporation	NWE	3.16%	0.95	14.76%	11.60%	14.18%
OGE Energy Corporation	OGE	3.16%	1.00	14.76%	11.60%	14.76%
Pinnacle West Capital Corporation	PNW	3.16%	0.90	14.76%	11.60%	13.60%
Portland General Electric Company	POR	3.16%	0.85	14.76%	11.60%	13.02%
Southern Company	SO	3.16%	0.90	14.76%	11.60%	13.60%
Wisconsin Energy Corporation	WEC	3.16%	0.80	14.76%	11.60%	12.44%
Xcel Energy Inc.	XEL	3.16%	0.80	14.76%	11.60%	12.44%
Mean			0.860			13.14%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Value Line, as of July 29, 2022

[3] Source: Average of Rebuttal Exhibit JMC-3.1 S&P 500 MRP 1, 2, & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

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

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

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)
Alliant Energy Corporation	LNT	3.16%	0.855	14.76%	11.60%	13.08%
Ameren Corporation	AEE	3.16%	0.799	14.76%	11.60%	12.43%
American Electric Power Company, Inc	AEP	3.16%	0.814	14.76%	11.60%	12.60%
Avista Corporation	AVA	3.16%	0.772	14.76%	11.60%	12.11%
Black Hills Corporation	BKH	3.16%	0.963	14.76%	11.60%	14.33%
CMS Energy Corporation	CMS	3.16%	0.803	14.76%	11.60%	12.48%
Consolidated Edison, Inc.	ED	3.16%	0.697	14.76%	11.60%	11.25%
Duke Energy Corporation	DUK	3.16%	0.789	14.76%	11.60%	12.31%
Edison International	EIX	3.16%	0.930	14.76%	11.60%	13.95%
Entergy Corporation	ETR	3.16%	0.939	14.76%	11.60%	14.05%
Evergy, Inc.	EVRG	3.16%	0.864	14.76%	11.60%	13.19%
Eversource Energy	ES	3.16%	0.879	14.76%	11.60%	13.36%
IDACORP, Inc.	IDA	3.16%	0.833	14.76%	11.60%	12.83%
NorthWestern Corporation	NWE	3.16%	0.948	14.76%	11.60%	14.16%
OGE Energy Corporation	OGE	3.16%	0.996	14.76%	11.60%	14.72%
Pinnacle West Capital Corporation	PNW	3.16%	0.900	14.76%	11.60%	13.60%
Portland General Electric Company	POR	3.16%	0.828	14.76%	11.60%	12.77%
Southern Company	SO	3.16%	0.875	14.76%	11.60%	13.32%
Wisconsin Energy Corporation	WEC	3.16%	0.794	14.76%	11.60%	12.37%
Xcel Energy Inc.	XEL	3.16%	0.805	14.76%	11.60%	12.50%
Mean			0.854			13.07%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, 5-Year Betas as of July 29, 2022

[3] Source: Average of Rebuttal Exhibit JMC-3.1 S&P 500 MRP 1, 2, & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & VL BETA
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)
Alliant Energy Corporation	LNT	3.80%	0.80	14.76%	10.96%	12.57%
Ameren Corporation	AEE	3.80%	0.80	14.76%	10.96%	12.57%
American Electric Power Company, Inc	AEP	3.80%	0.75	14.76%	10.96%	12.02%
Avista Corporation	AVA	3.80%	0.90	14.76%	10.96%	13.67%
Black Hills Corporation	BKH	3.80%	0.95	14.76%	10.96%	14.21%
CMS Energy Corporation	CMS	3.80%	0.75	14.76%	10.96%	12.02%
Consolidated Edison, Inc.	ED	3.80%	0.75	14.76%	10.96%	12.02%
Duke Energy Corporation	DUK	3.80%	0.85	14.76%	10.96%	13.12%
Edison International	EIX	3.80%	0.95	14.76%	10.96%	14.21%
Entergy Corporation	ETR	3.80%	0.90	14.76%	10.96%	13.67%
Evergy, Inc.	EVERG	3.80%	0.90	14.76%	10.96%	13.67%
Eversource Energy	ES	3.80%	0.90	14.76%	10.96%	13.67%
IDACORP, Inc.	IDA	3.80%	0.80	14.76%	10.96%	12.57%
NorthWestern Corporation	NWE	3.80%	0.95	14.76%	10.96%	14.21%
OGE Energy Corporation	OGE	3.80%	1.00	14.76%	10.96%	14.76%
Pinnacle West Capital Corporation	PNW	3.80%	0.90	14.76%	10.96%	13.67%
Portland General Electric Company	POR	3.80%	0.85	14.76%	10.96%	13.12%
Southern Company	SO	3.80%	0.90	14.76%	10.96%	13.67%
Wisconsin Energy Corporation	WEC	3.80%	0.80	14.76%	10.96%	12.57%
Xcel Energy Inc.	XEL	3.80%	0.80	14.76%	10.96%	12.57%
Mean			0.860			13.23%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14

[2] Source: Value Line, as of July 29, 2022

[3] Source: Average of Rebuttal Exhibit JMC-3.1 S&P 500 MRP 1, 2, & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- LONG-TERM PROJECTED RISK-FREE RATE & BLOOMBERG BETA
 $K = R_f + \beta (R_m - R_f)$

		[1]	[2]	[3]	[4]	[5]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2024 - 2028)	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)
Alliant Energy Corporation	LNT	3.80%	0.855	14.76%	10.96%	13.17%
Ameren Corporation	AEE	3.80%	0.799	14.76%	10.96%	12.56%
American Electric Power Company, Inc	AEP	3.80%	0.814	14.76%	10.96%	12.72%
Avista Corporation	AVA	3.80%	0.772	14.76%	10.96%	12.26%
Black Hills Corporation	BKH	3.80%	0.963	14.76%	10.96%	14.36%
CMS Energy Corporation	CMS	3.80%	0.803	14.76%	10.96%	12.60%
Consolidated Edison, Inc.	ED	3.80%	0.697	14.76%	10.96%	11.44%
Duke Energy Corporation	DUK	3.80%	0.789	14.76%	10.96%	12.45%
Edison International	EIX	3.80%	0.930	14.76%	10.96%	13.99%
Entergy Corporation	ETR	3.80%	0.939	14.76%	10.96%	14.09%
Evergy, Inc.	EVRG	3.80%	0.864	14.76%	10.96%	13.27%
Eversource Energy	ES	3.80%	0.879	14.76%	10.96%	13.44%
IDACORP, Inc.	IDA	3.80%	0.833	14.76%	10.96%	12.94%
NorthWestern Corporation	NWE	3.80%	0.948	14.76%	10.96%	14.19%
OGE Energy Corporation	OGE	3.80%	0.996	14.76%	10.96%	14.72%
Pinnacle West Capital Corporation	PNW	3.80%	0.900	14.76%	10.96%	13.66%
Portland General Electric Company	POR	3.80%	0.828	14.76%	10.96%	12.88%
Southern Company	SO	3.80%	0.875	14.76%	10.96%	13.40%
Wisconsin Energy Corporation	WEC	3.80%	0.794	14.76%	10.96%	12.50%
Xcel Energy Inc.	XEL	3.80%	0.805	14.76%	10.96%	12.63%
Mean			0.854			13.16%

Notes:

[1] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022, at 14

[2] Source: Bloomberg Professional, 5-Year Betas as of July 29, 2022

[3] Source: Average of Rebuttal Exhibit JMC-3.1 S&P 500 MRP 1, 2, & 3

[4] Equals [3] - [1]

[5] Equals [1] + [2] x [4]

REBUTTAL EXHIBIT JMC-4

RISK PREMIUM ANALYSIS

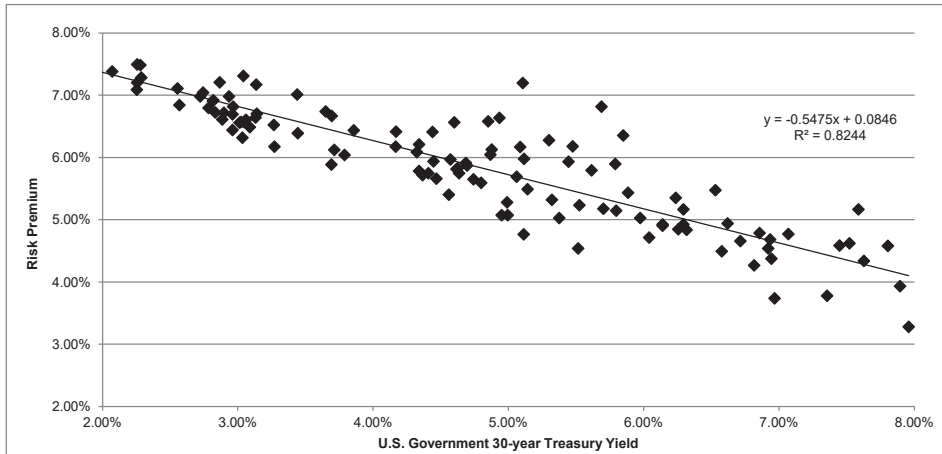
BOND YIELD PLUS RISK PREMIUM
Risk Premium -- Electric Utilities

	[1]	[2]	[3]
	Average Authorized Elec ROE	U.S. Govt. 30-year Treasury	Risk Premium
1992.1	12.38%	7.80%	4.58%
1992.2	11.83%	7.89%	3.93%
1992.3	12.03%	7.45%	4.59%
1992.4	12.14%	7.52%	4.62%
1993.1	11.84%	7.07%	4.77%
1993.2	11.64%	6.86%	4.79%
1993.3	11.15%	6.31%	4.84%
1993.4	11.04%	6.14%	4.90%
1994.1	11.07%	6.57%	4.49%
1994.2	11.13%	7.35%	3.78%
1994.3	12.75%	7.58%	5.17%
1994.4	11.24%	7.96%	3.28%
1995.1	11.96%	7.63%	4.34%
1995.2	11.32%	6.94%	4.37%
1995.3	11.37%	6.71%	4.66%
1995.4	11.58%	6.23%	5.35%
1996.1	11.46%	6.29%	5.17%
1996.2	11.46%	6.92%	4.54%
1996.3	10.70%	6.96%	3.74%
1996.4	11.56%	6.62%	4.94%
1997.1	11.08%	6.81%	4.27%
1997.2	11.62%	6.93%	4.68%
1997.3	12.00%	6.53%	5.47%
1997.4	11.06%	6.14%	4.92%
1998.1	11.31%	5.88%	5.43%
1998.2	12.20%	5.85%	6.35%
1998.3	11.65%	5.47%	6.18%
1998.4	12.30%	5.10%	7.20%
1999.1	10.40%	5.37%	5.03%
1999.2	10.94%	5.79%	5.15%
1999.3	10.75%	6.04%	4.71%
1999.4	11.10%	6.25%	4.85%
2000.1	11.21%	6.29%	4.92%
2000.2	11.00%	5.97%	5.03%
2000.3	11.68%	5.79%	5.89%
2000.4	12.50%	5.69%	6.81%
2001.1	11.38%	5.44%	5.93%
2001.2	10.88%	5.70%	5.18%
2001.3	10.76%	5.52%	5.23%
2001.4	11.57%	5.30%	6.27%
2002.1	10.05%	5.51%	4.54%
2002.2	11.41%	5.61%	5.79%
2002.3	11.25%	5.08%	6.17%
2002.4	11.57%	4.93%	6.64%
2003.1	11.43%	4.85%	6.58%
2003.2	11.16%	4.60%	6.56%
2003.3	9.88%	5.11%	4.76%
2003.4	11.09%	5.11%	5.98%
2004.1	11.00%	4.88%	6.12%
2004.2	10.64%	5.32%	5.32%
2004.3	10.75%	5.06%	5.69%
2004.4	10.91%	4.86%	6.04%
2005.1	10.56%	4.69%	5.87%
2005.2	10.13%	4.47%	5.66%
2005.3	10.85%	4.44%	6.41%
2005.4	10.59%	4.68%	5.91%
2006.1	10.38%	4.63%	5.75%
2006.2	10.63%	5.14%	5.49%
2006.3	10.06%	4.99%	5.07%
2006.4	10.39%	4.74%	5.65%
2007.1	10.39%	4.80%	5.59%
2007.2	10.27%	4.99%	5.28%

BOND YIELD PLUS RISK PREMIUM
Risk Premium -- Electric Utilities

	[1]	[2]	[3]
	Average Authorized Elec ROE	U.S. Govt. 30-year Treasury	Risk Premium
2007.3	10.02%	4.95%	5.07%
2007.4	10.43%	4.61%	5.81%
2008.1	10.15%	4.41%	5.75%
2008.2	10.54%	4.57%	5.97%
2008.3	10.38%	4.44%	5.94%
2008.4	10.39%	3.65%	6.74%
2009.1	10.45%	3.44%	7.01%
2009.2	10.58%	4.17%	6.42%
2009.3	10.41%	4.32%	6.09%
2009.4	10.54%	4.34%	6.21%
2010.1	10.45%	4.62%	5.82%
2010.2	10.08%	4.36%	5.71%
2010.3	10.29%	3.86%	6.43%
2010.4	10.34%	4.17%	6.17%
2011.1	9.96%	4.56%	5.40%
2011.2	10.12%	4.34%	5.78%
2011.3	10.36%	3.69%	6.67%
2011.4	10.34%	3.04%	7.31%
2012.1	10.30%	3.14%	7.17%
2012.2	9.92%	2.93%	6.98%
2012.3	9.78%	2.74%	7.04%
2012.4	10.07%	2.86%	7.21%
2013.1	9.77%	3.13%	6.64%
2013.2	9.84%	3.14%	6.70%
2013.3	9.83%	3.71%	6.12%
2013.4	9.82%	3.79%	6.04%
2014.1	9.57%	3.69%	5.88%
2014.2	9.83%	3.44%	6.39%
2014.3	9.79%	3.26%	6.52%
2014.4	9.78%	2.96%	6.81%
2015.1	9.66%	2.55%	7.11%
2015.2	9.50%	2.88%	6.61%
2015.3	9.40%	2.96%	6.44%
2015.4	9.65%	2.96%	6.69%
2016.1	9.70%	2.72%	6.98%
2016.2	9.41%	2.57%	6.84%
2016.3	9.76%	2.28%	7.48%
2016.4	9.55%	2.83%	6.72%
2017.1	9.61%	3.04%	6.57%
2017.2	9.61%	2.90%	6.71%
2017.3	9.73%	2.82%	6.91%
2017.4	9.74%	2.82%	6.92%
2018.1	9.59%	3.02%	6.57%
2018.2	9.57%	3.09%	6.49%
2018.3	9.66%	3.06%	6.60%
2018.4	9.44%	3.27%	6.17%
2019.1	9.57%	3.01%	6.56%
2019.2	9.58%	2.78%	6.79%
2019.3	9.57%	2.29%	7.28%
2019.4	9.74%	2.25%	7.49%
2020.1	9.45%	1.89%	7.56%
2020.2	9.52%	1.38%	8.14%
2020.3	9.34%	1.37%	7.98%
2020.4	9.32%	1.62%	7.70%
2021.1	9.45%	2.07%	7.38%
2021.2	9.46%	2.25%	7.20%
2021.3	9.37%	1.93%	7.44%
2021.4	9.36%	1.94%	7.41%
2022.1	9.34%	2.25%	7.09%
2022.2	9.35%	3.03%	6.32%
AVERAGE	10.53%	4.57%	5.96%
MEDIAN	10.39%	4.62%	6.04%

BOND YIELD PLUS RISK PREMIUM
Risk Premium -- Electric Utilities



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.90799
R Square	0.82445
Adjusted R Square	0.82298
Standard Error	0.00423
Observations	122

ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.0101	0.0101	563.5479	0.0000
Residual	120	0.0021	0.0000		
Total	121	0.0122			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0846	0.00112	75.48738	0.00000	0.08239	0.08683	0.08239	0.08683
X Variable 1	-0.5475	0.02306	-23.73916	0.00000	-0.59314	-0.50182	-0.59314	-0.50182

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.16%	6.73%	9.89%
Blue Chip Near-Term Projected Forecast (Q4 2022 - Q4 2023) [5]	3.48%	6.56%	10.04%
Blue Chip Long-Term Projected Forecast (2024-2028) [6]	3.80%	6.38%	10.18%
AVERAGE			10.04%

Notes:

- [1] Source: Regulatory Research Associates, rate cases through July 29, 2022
- [2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
- [3] Equals Column [1] - Column [2]
- [4] Source: Bloomberg Professional
- [5] Source: Blue Chip Financial Forecasts, Vol. 41, No. 8, August 1, 2022 at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022 at 14
- [7] See notes [4] & [5]
- [8] Equals 0.084612 + (-0.547477 x Column [6])
- [9] Equals Column [6] + Column [7]

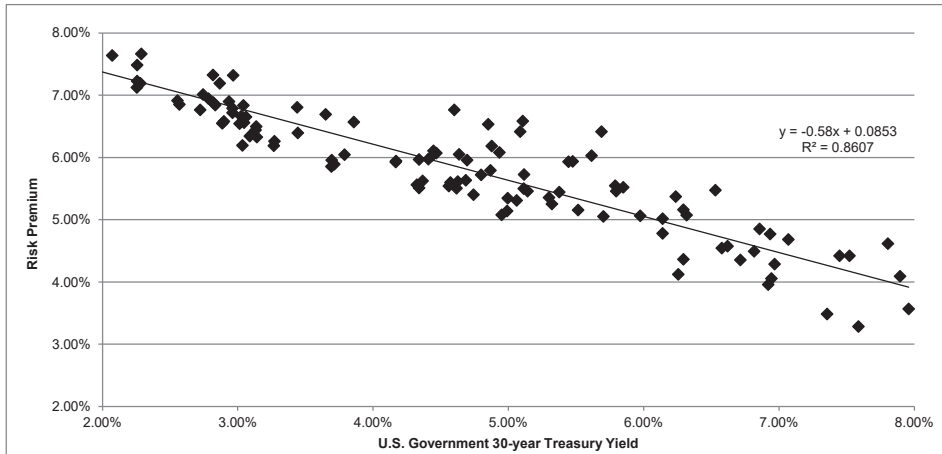
BOND YIELD PLUS RISK PREMIUM
Risk Premium -- Natural Gas Utilities

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
1992.1	12.42%	7.80%	4.62%
1992.2	11.98%	7.89%	4.09%
1992.3	11.87%	7.45%	4.42%
1992.4	11.94%	7.52%	4.42%
1993.1	11.75%	7.07%	4.68%
1993.2	11.71%	6.86%	4.85%
1993.3	11.39%	6.31%	5.07%
1993.4	11.16%	6.14%	5.02%
1994.1	11.12%	6.57%	4.55%
1994.2	10.84%	7.35%	3.48%
1994.3	10.87%	7.58%	3.28%
1994.4	11.53%	7.96%	3.57%
1995.2	11.00%	6.94%	4.06%
1995.3	11.07%	6.71%	4.35%
1995.4	11.61%	6.23%	5.37%
1996.1	11.45%	6.29%	5.16%
1996.2	10.88%	6.92%	3.96%
1996.3	11.25%	6.96%	4.29%
1996.4	11.19%	6.62%	4.58%
1997.1	11.31%	6.81%	4.49%
1997.2	11.70%	6.93%	4.77%
1997.3	12.00%	6.53%	5.47%
1997.4	10.92%	6.14%	4.78%
1998.2	11.37%	5.85%	5.52%
1998.3	11.41%	5.47%	5.94%
1998.4	11.69%	5.10%	6.59%
1999.1	10.82%	5.37%	5.44%
1999.2	11.25%	5.79%	5.46%
1999.4	10.38%	6.25%	4.12%
2000.1	10.66%	6.29%	4.36%
2000.2	11.03%	5.97%	5.06%
2000.3	11.33%	5.79%	5.55%
2000.4	12.10%	5.69%	6.41%
2001.1	11.38%	5.44%	5.93%
2001.2	10.75%	5.70%	5.05%
2001.4	10.65%	5.30%	5.35%
2002.1	10.67%	5.51%	5.15%
2002.2	11.64%	5.61%	6.03%
2002.3	11.50%	5.08%	6.42%
2002.4	11.01%	4.93%	6.08%
2003.1	11.38%	4.85%	6.53%
2003.2	11.36%	4.60%	6.76%
2003.3	10.61%	5.11%	5.50%
2003.4	10.84%	5.11%	5.73%
2004.1	11.06%	4.88%	6.18%
2004.2	10.57%	5.32%	5.25%
2004.3	10.37%	5.06%	5.31%
2004.4	10.66%	4.86%	5.79%
2005.1	10.65%	4.69%	5.96%
2005.2	10.54%	4.47%	6.07%
2005.3	10.47%	4.44%	6.03%
2005.4	10.32%	4.68%	5.63%
2006.1	10.68%	4.63%	6.05%
2006.2	10.60%	5.14%	5.46%
2006.3	10.34%	4.99%	5.34%
2006.4	10.14%	4.74%	5.40%
2007.1	10.52%	4.80%	5.72%
2007.2	10.13%	4.99%	5.14%
2007.3	10.03%	4.95%	5.08%
2007.4	10.12%	4.61%	5.50%
2008.1	10.38%	4.41%	5.97%
2008.2	10.17%	4.57%	5.60%

BOND YIELD PLUS RISK PREMIUM
Risk Premium -- Natural Gas Utilities

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
2008.3	10.55%	4.44%	6.11%
2008.4	10.34%	3.65%	6.69%
2009.1	10.24%	3.44%	6.81%
2009.2	10.11%	4.17%	5.94%
2009.3	9.88%	4.32%	5.56%
2009.4	10.31%	4.34%	5.97%
2010.1	10.24%	4.62%	5.61%
2010.2	9.99%	4.36%	5.62%
2010.3	10.43%	3.86%	6.57%
2010.4	10.09%	4.17%	5.93%
2011.1	10.10%	4.56%	5.54%
2011.2	9.85%	4.34%	5.51%
2011.3	9.65%	3.69%	5.96%
2011.4	9.88%	3.04%	6.84%
2012.1	9.63%	3.14%	6.50%
2012.2	9.83%	2.93%	6.90%
2012.3	9.75%	2.74%	7.01%
2012.4	10.06%	2.86%	7.19%
2013.1	9.57%	3.13%	6.44%
2013.2	9.47%	3.14%	6.33%
2013.3	9.60%	3.71%	5.89%
2013.4	9.83%	3.79%	6.04%
2014.1	9.54%	3.69%	5.85%
2014.2	9.84%	3.44%	6.39%
2014.3	9.45%	3.26%	6.19%
2014.4	10.28%	2.96%	7.32%
2015.1	9.47%	2.55%	6.91%
2015.2	9.43%	2.88%	6.55%
2015.3	9.75%	2.96%	6.79%
2015.4	9.68%	2.96%	6.72%
2016.1	9.48%	2.72%	6.76%
2016.2	9.42%	2.57%	6.85%
2016.3	9.47%	2.28%	7.19%
2016.4	9.67%	2.83%	6.84%
2017.1	9.60%	3.04%	6.56%
2017.2	9.47%	2.90%	6.58%
2017.3	10.14%	2.82%	7.32%
2017.4	9.70%	2.82%	6.88%
2018.1	9.68%	3.02%	6.66%
2018.2	9.43%	3.09%	6.34%
2018.3	9.71%	3.06%	6.65%
2018.4	9.53%	3.27%	6.26%
2019.1	9.55%	3.01%	6.54%
2019.2	9.73%	2.78%	6.94%
2019.3	9.95%	2.29%	7.66%
2019.4	9.74%	2.25%	7.48%
2020.1	9.35%	1.89%	7.46%
2020.2	9.55%	1.38%	8.17%
2020.3	9.52%	1.37%	8.15%
2020.4	9.50%	1.62%	7.88%
2021.1	9.71%	2.07%	7.64%
2021.2	9.48%	2.25%	7.22%
2021.3	9.43%	1.93%	7.50%
2021.4	9.59%	1.94%	7.65%
2022.1	9.38%	2.25%	7.12%
2022.2	9.23%	3.03%	6.19%
AVERAGE	10.43%	4.51%	5.92%
MEDIAN	10.33%	4.58%	5.96%

BOND YIELD PLUS RISK PREMIUM
Risk Premium -- Natural Gas Utilities



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.92771
R Square	0.86065
Adjusted R Square	0.85945
Standard Error	0.00388
Observations	118

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.0108	0.0108	716.4438	0.0000
Residual	116	0.0017	0.0000		
Total	117	0.0126			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0853	0.00104	81.97595	0.00000	0.08325	0.08737	0.08325	0.08737
X Variable 1	-0.5800	0.02167	-26.76647	0.00000	-0.62289	-0.53706	-0.62289	-0.53706

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	3.16%	6.70%	9.86%
Blue Chip Near-Term Projected Forecast (Q4 2021 - Q4 2022) [5]	3.48%	6.51%	9.99%
Blue Chip Long-Term Projected Forecast (2023-2027) [6]	3.80%	6.33%	10.13%
AVERAGE			9.99%

Notes:

- [1] Source: Regulatory Research Associates, rate cases through July 29, 2022
- [2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
- [3] Equals Column [1] - Column [2]
- [4] Source: Bloomberg Professional
- [5] Source: Blue Chip Financial Forecasts, Vol. 41, No. 8, August 1, 2022 at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 41, No. 6, June 1, 2022 at 14
- [7] See notes [4] & [5]
- [8] Equals 0.085314 + (-0.579973 x Column [6])
- [9] Equals Column [6] + Column [7]

REBUTTAL EXHIBIT JMC-5
EXPECTED EARNINGS ANALYSIS

EXPECTED EARNINGS ANALYSIS

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Company	Value Line ROE 2025-2027	Value Line Total Capital 2021	Value Line Common Equity Ratio 2021	Total Equity 2021	Value Line Total Capital 2025-2027	Value Line Common Equity Ratio 2025-2027	Total Equity 2025-2027	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
Alliant Energy Corporation	11.50%	12,725	47.10%	5,993	17,100	45.00%	7,695	5.12%	1.025	11.79%
Ameren Corporation	10.00%	22,391	43.30%	9,695	29,500	48.50%	14,308	8.09%	1.039	10.39%
American Electric Power Company, Inc/AEP	11.00%	53,734	41.70%	22,407	75,900	42.50%	32,258	7.56%	1.036	11.40%
Avista Corporation	8.00%	4,105	52.50%	2,155	5,630	51.50%	2,899	6.11%	1.030	8.24%
Black Hills Corporation	10.00%	6,914	40.30%	2,786	7,300	55.00%	4,015	7.58%	1.037	10.37%
CMS Energy Corporation	13.00%	18,760	34.20%	6,416	23,300	38.00%	8,854	6.65%	1.032	13.42%
Consolidated Edison, Inc.	8.00%	42,641	47.00%	20,041	51,600	49.50%	25,542	4.97%	1.024	8.19%
Duke Energy Corporation	9.00%	109,744	43.10%	47,300	144,100	37.50%	54,038	2.70%	1.013	9.12%
Edison International	13.00%	41,959	33.20%	13,930	55,000	34.50%	18,975	6.38%	1.031	13.40%
Energy Corporation	11.50%	36,733	31.70%	11,644	47,300	33.50%	15,846	6.36%	1.031	11.85%
Energy, Inc.	10.00%	18,542	49.90%	9,252	23,400	46.50%	10,881	3.30%	1.016	10.16%
Eversource Energy	9.50%	32,233	45.30%	14,602	44,500	43.50%	19,358	5.80%	1.028	9.77%
IDACORP, Inc.	9.50%	4,669	57.20%	2,671	6,700	49.50%	3,317	4.43%	1.022	9.71%
NorthWestern Corporation	8.00%	4,893	47.80%	2,339	6,025	51.00%	3,073	5.61%	1.027	8.22%
OGE Energy Corporation	12.50%	8,553	47.40%	4,054	10,650	51.00%	5,432	6.02%	1.029	12.87%
Pinnacle West Capital Corporation	9.00%	12,820	46.10%	5,910	15,325	45.00%	6,896	3.13%	1.015	9.14%
Portland General Electric Company	9.50%	6,265	43.20%	2,706	7,550	42.00%	3,171	3.22%	1.016	9.65%
Southern Company	14.50%	78,285	35.60%	27,869	93,500	37.00%	34,595	4.42%	1.022	14.81%
Wisconsin Energy Corporation	13.00%	24,467	44.60%	10,912	29,800	44.50%	13,261	3.98%	1.019	13.25%
Xcel Energy Inc.	11.00%	37,391	41.80%	15,629	49,200	42.00%	20,664	5.74%	1.028	11.31%
Mean										10.855%
Median										10.38%

Notes:

- [1] Source: Value Line
- [2] Source: Value Line
- [3] Source: Value Line
- [4] Equals [2] x [3]
- [5] Source: Value Line
- [6] Source: Value Line
- [7] Equals [5] x [6]
- [8] Equals ([7] / [4]) ^ (1/5) - 1
- [9] Equals 2 x (1 + [8]) / (2 + [8])
- [10] Equals [1] x [9]

REBUTTAL EXHIBIT JMC-6

**DR. WOOLRIDGE'S REPLICATED DCF ANALYSIS APPLYING
ESTIMATED EPS GROWTH ESTIMATES**

DR. WOOLRIDGE DCF ANALYSIS BASED ON ANALYSTS' PROJECTED EPS GROWTH RATES

Woolridge Electric Proxy Group

		Analysts' Projected EPS growth rates				
Company		Yahoo	Zacks	S&P	Value Line	
ALLETE, Inc. (NYSE-ALE)	ALE	8.7%	8.7%	6.7%	6.0%	
Alliant Energy Corporation (NYSE-LNT)	LNT	5.4%	5.7%	5.9%	6.0%	
Ameren Corporation (NYSE-AEE)	AEE	6.5%	7.2%	7.3%	6.5%	
American Electric Power Co. (NYSE-AEP)	AEP	6.2%	6.2%	6.4%	6.5%	
Avista Corporation (NYSE-AVA)	AVA	5.9%	5.9%	5.0%	3.0%	
CMS Energy Corporation (NYSE-CMS)	CMS	8.5%	8.1%	7.8%	6.5%	
Consolidated Edison, Inc. (NYSE-ED)	ED	5.2%	2.0%	3.0%	4.5%	
Dominion Energy Inc. (NYSE-D)	D	6.5%	6.4%	6.5%	14.0%	
Duke Energy Corporation (NYSE-DUK)	DUK	5.9%	6.0%	5.6%	6.0%	
Edison International (NYSE-EIX)	EIX	5.0%	2.8%	4.1%	16.0%	
Entergy Corporation (NYSE-ETR)	ETR	6.0%	6.7%	6.1%	4.0%	
Energy, Inc. (NYSE-EVRG)	EVRG	5.0%	5.1%	6.3%	7.5%	
Eversource Energy (NYSE-ES)	ES	6.7%	6.2%	6.8%	6.0%	
Hawaiian Electric Industries (NYSE-HE)	HE	1.3%	3.2%	7.9%	4.0%	
IDACORP, Inc. (NYSE-IDA)	IDA	2.8%	2.8%	4.8%	4.0%	
NextEra Energy, Inc. (NYSE-NEE)	NEE	9.1%	9.3%	9.8%	12.5%	
NorthWestern Corporation (NYSE-NWE)	NWE	4.5%	2.3%	2.9%	3.0%	
OGE Energy Corp. (NYSE-OGE)	OGE	1.9%	3.5%	1.5%	6.5%	
Pinnacle West Capital Corp. (NYSE-PNW)	PNW	0.1%	NA	5.9%	0.5%	
Portland General Electric Company (NYSE-POR)	POR	3.2%	4.4%	4.4%	4.5%	
Southern Company (NYSE-SO)	SO	6.1%	4.0%	5.7%	6.5%	
WEC Energy Group (NYSE-WEC)	WEC	6.0%	6.1%	6.5%	6.0%	
Xcel Energy Inc. (NYSE-XEL)	XEL	7.1%	6.4%	6.2%	6.0%	
Mean		5.37%	5.41%	5.79%	6.35%	Average 5.73%

Source: Exhibit JRW-7, pages 4, 5

Woolridge Electric Proxy Group

Dividend Yield*		3.30%
Adjusted Dividend Yield	Adjustment Factor	1.028647233
Growth Rate		3.39%
Equity Cost Rate		5.73%
		9.12%

* Page 2 of Exhibit JRW-7

REBUTTAL EXHIBIT JMC-7

DETAILED VIEW OF MR. ROTHSCHILD'S FORWARD BETA CAPM ANALYSIS

DETAILED VIEW OF MR. ROTHCHILD'S "FORWARD BETA" CAPITAL ASSET PRICING MODEL ANALYSIS

Mr. Rothschild's Proxy Group Average Forward Beta Estimates

	03/29/2022	04/05/2022	04/12/2022	04/19/2022	04/26/2022	05/03/2022	05/10/2022	05/17/2022	05/24/2022	05/31/2022	06/07/2022	06/14/2022	06/21/2022	06/28/2022	Average	Time Avg.	
Betas	0.57	0.56	0.56	0.56	0.46	0.58	0.46	0.55	0.60	0.54	0.64	0.61	0.64	0.60	0.568	0.585	
Forward (6 months)																	
Slope	15%			1.00	1.32	1.52	2.01	2.31	2.66	3.06	3.52	4.05	4.65	5.35			
Points	0.00	2.9%	3.3%	3.8%	4.4%	5.1%	5.9%	6.7%	7.7%	8.9%	10.2%	11.8%	13.5%	15.6%			
Time Weight	0.0%																
CAPM Betas	Spot (Jun 28, 2022)		Weighted (Apr - Jun 2022)														
Forward	0.60		0.58														

Source: Exhibit ALR-4, page 3

Mr. Rothschild's Proxy Group Average Forward Beta CAPM Estimates

	3-Month Treasury Bill	30-Year Treasury Bond
Forward Beta	Forward Beta	Forward Beta
Risk-Free Rate	1.32%	3.07%
Beta	0.58	0.58
Risk Premium	9.89%	8.14%
CAPM (Weighted)	7.10%	7.83%

Source: Exhibit ALR-4, page 1

Mr. Rothschild's Proxy Group Forward Beta Estimates

Company	Ticker	03/29/2022	04/05/2022	04/12/2022	04/19/2022	04/26/2022	05/03/2022	05/10/2022	05/17/2022	05/24/2022	05/31/2022	06/07/2022	06/14/2022	06/21/2022	06/28/2022	Average	Time Avg.
Ameren Corporation	AEE	0.78	0.67	0.53	0.65	0.54	0.68	0.42	0.50	0.78	0.71	0.85	0.66	0.77	0.69	0.660	0.680
American Electric Power Company, Inc.	AEP	0.55	0.55	0.63	0.64	0.63	0.63	0.60	0.63	0.61	0.66	0.69	0.66	0.65	0.59	0.618	0.632
ALLETE, Inc.	ALE	N/A	N/A	N/A	N/A	0.31	0.66	N/A	N/A	0.45	N/A	N/A	N/A	N/A	N/A	0.478	0.083
Avista Corporation	AVA	N/A	0.84	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.839	0.024
Black Hills Corporation	BKH	N/A	N/A	0.34	0.47	N/A	0.44	N/A	0.79	N/A	0.73	N/A	0.63	0.56	0.65	0.575	0.421
CMS Energy Corporation	CMS	0.47	0.43	0.48	0.46	0.42	0.47	0.41	0.47	0.54	0.51	0.44	0.49	0.62	0.50	0.460	0.487
CenterPoint Energy, Inc.	CNP	0.43	0.40	0.47	0.45	0.47	0.44	0.44	0.49	0.50	0.37	0.57	0.49	0.58	0.43	0.468	0.481
Dominion Resources, Inc.	D	0.64	0.65	0.70	0.68	0.49	0.68	0.56	0.56	0.71	0.63	0.80	0.67	0.56	0.59	0.637	0.634
Duke Energy Corporation	DUK	0.62	0.57	0.67	0.62	0.52	0.57	0.59	0.57	0.61	0.67	0.70	0.69	0.70	0.62	0.617	0.631
Energy Corporation	ETR	0.57	0.45	0.58	0.61	0.53	0.59	0.49	0.52	0.64	0.64	0.60	0.73	0.54	0.53	0.573	0.583
Energy, Inc.	EVRG	0.45	0.46	N/A	0.49	0.51	0.37	N/A	0.44	N/A	N/A	N/A	0.63	N/A	0.73	0.509	0.290
IDACORP, Inc.	IDA	0.41	0.40	0.46	0.33	0.35	0.41	0.30	0.39	0.43	0.33	0.33	0.33	0.37	0.30	0.367	0.352
Alliant Energy Corporation	LNT	0.81	0.87	0.62	0.63	-0.26	0.82	0.49	N/A	0.50	0.24	N/A	0.73	0.80	0.80	0.566	0.494
MGE Energy, Inc.	MGE	N/A	N/A	N/A	N/A	0.34	N/A	N/A	N/A	0.81	N/A	0.51	N/A	N/A	N/A	0.428	0.068
NextEra Energy, Inc.	NEE	0.87	0.72	0.75	0.80	0.69	0.73	0.66	0.80	0.81	0.81	0.87	0.75	0.77	0.76	0.770	0.772
NorthWestern Corporation	NWE	0.26	N/A	N/A	N/A	0.41	0.72	0.52	0.69	N/A	N/A	0.53	N/A	N/A	0.61	0.534	0.281
OGE Energy Corporation	OGE	0.47	N/A	N/A	N/A	N/A	0.41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.544	0.086
Other Tail Corporation	OTTR	N/A	N/A	0.58	N/A	0.34	0.51	N/A	N/A	0.77	0.31	N/A	0.55	N/A	0.58	0.397	0.276
Public Service Enterprise Group Inc.	PEG	0.50	0.47	0.53	0.54	0.51	0.45	0.51	0.55	0.57	0.38	0.84	0.52	0.80	0.53	0.536	0.554
Pinnacle West Capital Corporation	PNW	0.73	0.60	0.63	0.63	0.53	0.63	0.55	0.54	0.55	0.67	0.67	0.75	0.91	0.79	0.655	0.692
Portland General Electric Company	POR	0.46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.455	0.000
PPL Corporation	PPL	0.49	0.51	0.50	0.66	0.48	0.46	0.44	0.46	0.49	0.44	0.58	0.52	0.54	0.46	0.503	0.501
Southern Company	SO	0.67	0.64	0.67	0.70	0.63	0.68	0.61	0.63	0.66	0.68	0.74	0.68	0.66	0.70	0.667	0.674
Sempra Energy	SRE	0.56	0.53	0.50	0.56	0.57	0.56	0.51	0.56	0.63	0.58	0.65	0.60	0.61	0.51	0.567	0.576
Wisconsin Energy Corporation	WEC	0.62	0.66	0.54	0.58	0.46	0.59	0.47	0.54	0.58	0.43	0.54	0.66	0.79	0.73	0.570	0.597
Xcel Energy Inc.	XEL	0.42	0.43	0.47	0.52	0.61	0.61	0.57	0.62	0.62	0.63	0.65	0.63	0.63	0.46	0.555	0.571
Proxy Group Average		0.57	0.56	0.56	0.58	0.46	0.58	0.46	0.55	0.60	0.54	0.64	0.61	0.64	0.60	0.568	0.585

Source: Mr. Rothschild's workpapers, Workbook: "2019_10-2022.06 - RFC Electric PG Betas - SELECT.xlsx"; Worksheet: "OPTIVA BETAS"; Cells: EC51:EP86

DETAILED VIEW OF MR. ROTHCHILD'S "FORWARD BETA" CAPITAL ASSET PRICING MODEL ANALYSIS

Composition of Mr. Rothschild's 7.10% CAPM Result, Applying 3-Month Treasury Bill (1.32%) as Risk-Free Rate and Risk Premium of 5.89%

Company	Ticker	03/29/2022	04/05/2022	04/19/2022	04/26/2022	05/03/2022	05/10/2022	05/17/2022	05/24/2022	05/31/2022	06/07/2022	06/14/2022	06/21/2022	06/28/2022	Average	Time Adv.
Ameren Corporation	AEE	9.02%	7.92%	6.61%	7.73%	6.67%	5.49%	6.23%	9.03%	8.33%	9.78%	7.89%	8.99%	8.11%	7.85%	8.05%
American Electric Power Company, Inc.	AEP	6.73%	6.78%	7.51%	7.66%	6.94%	7.22%	7.55%	7.33%	7.87%	8.16%	7.82%	7.79%	7.19%	7.44%	7.57%
ALLETE, Inc.	ALE	N/A	N/A	N/A	N/A	4.43%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.14%
Avista Corporation	AVA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.56%
Black Hills Corporation	BKH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.49%
CMS Energy Corporation	CMS	6.00%	5.56%	6.11%	5.95%	N/A	5.34%	5.94%	6.69%	6.39%	5.64%	6.21%	7.43%	6.31%	6.07%	6.24%
CenterPoint Energy, Inc.	CNP	5.62%	5.29%	5.95%	5.80%	5.96%	5.70%	6.21%	6.31%	4.96%	6.97%	6.19%	7.08%	5.55%	5.95%	6.08%
Dominion Resources, Inc.	D	7.68%	7.72%	8.27%	8.05%	6.13%	6.90%	6.86%	8.34%	7.53%	9.19%	7.97%	6.87%	7.12%	7.62%	7.59%
Duke Energy Corporation	DUK	7.49%	6.93%	7.97%	7.48%	6.50%	6.89%	6.97%	7.39%	7.00%	8.24%	8.17%	7.45%	7.42%	7.57%	7.09%
Energy Corporation	ETR	6.97%	5.81%	7.05%	7.34%	6.53%	7.12%	6.43%	7.63%	7.62%	7.26%	8.57%	6.70%	6.59%	6.98%	7.09%
Energy, Inc.	EVRG	5.82%	5.85%	N/A	6.14%	6.34%	4.98%	N/A	N/A	5.67%	N/A	7.53%	N/A	8.50%	4.19%	4.80%
IDACORP, Inc.	IDA	5.33%	5.28%	5.87%	4.60%	4.76%	5.35%	5.20%	N/A	4.57%	4.60%	4.56%	4.97%	4.28%	4.95%	4.80%
Alliant Energy Corporation	LNT	9.31%	7.96%	7.48%	7.60%	-1.21%	9.44%	N/A	6.29%	3.66%	6.40%	8.57%	8.50%	9.27%	6.92%	6.20%
MGE Energy, Inc.	MGE	N/A	N/A	N/A	N/A	4.71%	N/A	N/A	N/A	N/A	6.40%	N/A	N/A	N/A	5.56%	1.99%
NextEra Energy, Inc.	NEE	8.46%	8.46%	8.70%	9.20%	8.10%	8.54%	7.88%	9.30%	9.30%	9.97%	8.71%	8.93%	8.87%	8.94%	8.99%
NorthWestern Corporation	NWE	N/A	N/A	N/A	N/A	5.40%	6.50%	8.17%	N/A	N/A	6.51%	N/A	N/A	7.35%	6.60%	4.10%
OGE Energy Corporation	OGE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.70%	2.17%
Other Tail Corporation	OTTR	N/A	N/A	N/A	N/A	4.63%	6.40%	8.90%	8.90%	4.36%	N/A	6.74%	N/A	7.08%	5.25%	6.05%
Public Service Enterprise Group Inc.	PEG	6.23%	5.96%	6.00%	6.63%	6.40%	5.82%	6.79%	6.96%	5.11%	9.63%	6.45%	7.24%	6.59%	6.62%	4.80%
Pinnacle West Capital Corporation	PWV	8.57%	7.26%	7.51%	7.55%	6.57%	7.55%	6.74%	6.76%	7.91%	7.97%	8.74%	10.34%	9.16%	7.80%	8.17%
Portland General Electric Company	POR	5.82%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.82%	1.32%
PPL Corporation	PPL	6.19%	6.35%	6.25%	7.88%	6.06%	5.91%	5.88%	6.14%	5.68%	7.05%	6.47%	6.62%	5.92%	6.28%	6.28%
Southern Company	SO	7.94%	7.63%	8.25%	7.52%	7.84%	8.07%	7.84%	7.84%	8.07%	8.67%	8.02%	7.80%	8.27%	7.92%	7.99%
Sempra Energy	SRE	6.88%	6.56%	6.24%	6.91%	6.92%	6.86%	6.35%	7.59%	7.08%	7.76%	7.27%	7.38%	6.35%	6.93%	7.02%
Wisconsin Energy Corporation	WEC	7.43%	7.84%	6.69%	7.07%	5.88%	7.12%	5.98%	7.04%	5.52%	6.66%	7.83%	9.18%	8.56%	6.96%	7.23%
Xcel Energy Inc.	XEL	5.48%	5.53%	6.00%	6.44%	7.31%	7.39%	6.91%	7.50%	7.54%	7.73%	6.52%	7.58%	5.88%	6.81%	6.97%
Proxy Group Average		6.92%	6.81%	6.87%	7.06%	5.82%	7.03%	6.81%	7.29%	6.69%	7.68%	7.39%	7.70%	7.25%	6.94%	7.10%

Composition of Mr. Rothschild's 7.83% CAPM Result, Applying 30-Year Treasury Bond (3.07%) as Risk-Free Rate and Risk Premium of 8.14%

Company	Ticker	03/29/2022	04/05/2022	04/19/2022	04/26/2022	05/03/2022	05/10/2022	05/17/2022	05/24/2022	05/31/2022	06/07/2022	06/14/2022	06/21/2022	06/28/2022	Average	Time Adv.
Ameren Corporation	AEE	9.41%	8.51%	7.43%	8.34%	7.47%	6.51%	7.12%	9.42%	8.84%	10.03%	8.48%	9.38%	8.66%	8.45%	8.61%
American Electric Power Company, Inc.	AEP	7.53%	7.56%	8.16%	8.29%	7.70%	7.93%	8.20%	8.02%	8.46%	8.70%	8.42%	8.38%	7.91%	8.11%	8.21%
ALLETE, Inc.	ALE	N/A	N/A	N/A	N/A	5.63%	N/A	N/A	6.77%	N/A	N/A	N/A	N/A	N/A	6.96%	3.75%
Avista Corporation	AVA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.90%	3.27%
Black Hills Corporation	BKH	N/A	N/A	5.85%	6.88%	N/A	6.62%	9.47%	N/A	9.00%	N/A	8.17%	7.67%	8.39%	7.76%	6.50%
CMS Energy Corporation	CMS	6.93%	6.56%	7.01%	6.82%	6.50%	6.38%	6.87%	7.49%	7.24%	6.63%	7.10%	8.10%	7.18%	6.98%	7.12%
CenterPoint Energy, Inc.	CNP	6.61%	6.34%	6.88%	6.76%	6.89%	6.67%	7.09%	7.18%	6.07%	7.72%	7.08%	7.81%	6.56%	6.88%	6.99%
Dominion Resources, Inc.	D	8.31%	8.34%	8.79%	8.61%	7.03%	7.66%	7.63%	8.85%	8.18%	9.55%	8.55%	7.64%	7.85%	8.26%	8.23%
Duke Energy Corporation	DUK	8.15%	7.69%	8.54%	8.14%	7.34%	7.66%	7.72%	8.07%	7.75%	8.77%	8.71%	8.79%	8.11%	8.09%	8.21%
Energy Corporation	ETR	7.72%	6.77%	7.79%	8.02%	7.36%	7.84%	7.28%	8.27%	8.26%	7.96%	9.04%	7.50%	7.40%	7.73%	7.82%
Energy, Inc.	EVRG	6.77%	6.80%	N/A	7.03%	7.21%	6.08%	6.65%	N/A	N/A	N/A	8.18%	N/A	8.98%	7.21%	5.43%
IDACORP, Inc.	IDA	6.37%	6.33%	6.82%	5.78%	5.91%	5.52%	6.27%	6.58%	5.75%	5.77%	5.74%	5.50%	5.50%	6.06%	5.94%
Alliant Energy Corporation	LNT	9.65%	8.54%	8.14%	8.24%	0.99%	7.05%	N/A	7.16%	5.00%	N/A	9.04%	8.98%	9.62%	7.68%	7.09%
MGE Energy, Inc.	MGE	N/A	N/A	N/A	N/A	5.87%	N/A	N/A	N/A	7.25%	N/A	9.04%	8.98%	9.62%	6.56%	7.09%
NextEra Energy, Inc.	NEE	10.19%	8.95%	9.15%	9.56%	8.65%	8.47%	9.59%	9.64%	9.64%	10.19%	9.15%	9.33%	9.34%	9.35%	9.35%
NorthWestern Corporation	NWE	5.16%	N/A	N/A	N/A	6.43%	8.00%	7.34%	N/A	N/A	7.35%	N/A	N/A	8.03%	7.42%	5.36%
OGE Energy Corporation	OGE	N/A	6.90%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.09%	N/A	N/A	7.50%	3.78%
Other Tail Corporation	OTTR	N/A	N/A	7.78%	N/A	5.80%	7.25%	N/A	9.31%	5.57%	N/A	8.09%	N/A	N/A	6.31%	5.32%
Public Service Enterprise Group Inc.	PEG	7.11%	6.89%	7.41%	7.44%	7.28%	7.19%	7.58%	7.72%	6.19%	9.91%	7.30%	7.95%	7.41%	7.44%	7.59%
Pinnacle West Capital Corporation	PWV	9.04%	7.96%	8.16%	8.20%	7.39%	7.53%	7.43%	7.55%	8.49%	8.55%	9.17%	10.50%	9.52%	8.41%	8.71%
Portland General Electric Company	POR	6.78%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.78%	3.07%
PPL Corporation	PPL	7.08%	7.21%	7.13%	8.47%	6.98%	7.13%	8.04%	6.66%	6.66%	7.79%	7.31%	7.43%	6.85%	7.16%	7.15%
Southern Company	SO	8.52%	8.26%	8.51%	8.77%	8.18%	8.63%	8.16%	8.44%	8.63%	9.12%	8.59%	8.41%	8.79%	8.50%	8.56%
Sempra Energy	SRE	7.65%	7.38%	7.12%	7.67%	7.68%	7.21%	7.66%	8.23%	7.81%	8.37%	7.97%	8.06%	7.21%	7.68%	7.76%
Wisconsin Energy Corporation	WEC	8.10%	8.44%	7.49%	7.84%	6.82%	6.91%	7.84%	7.78%	7.46%	7.46%	8.43%	9.54%	9.03%	7.71%	7.93%
Xcel Energy Inc.	XEL	6.50%	6.53%	6.92%	7.29%	8.00%	7.67%	8.15%	8.25%	8.19%	8.35%	7.35%	8.22%	7.59%	6.81%	6.97%
Proxy Group Average		7.68%	7.59%	7.64%	7.80%	6.78%	7.77%	7.59%	7.98%	7.49%	8.30%	8.07%	8.32%	7.95%	7.70%	7.83%