

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,  
Complainant,

v.

CASCADE NATURAL GAS  
CORPORATION,

Respondent.

**CASCADE NATURAL GAS CORPORATION**

**EXHIBIT OF ANN E. BULKLEY**

**GENERAL ECONOMIC STATISTICS**

**March 29, 2019**

SUMMARY OF ROE ANALYSES RESULTS<sup>1</sup>

<b>Constant Growth DCF</b>			
	Median Low	Median	Median High
30-Day Average	8.24%	9.69%	12.16%
90-Day Average	8.58%	9.63%	12.12%
180-Day Average	8.26%	9.72%	12.17%
Constant Growth Average	8.36%	9.68%	12.15%
<b>CAPM</b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
CAPM	10.97%	11.08%	11.25%
CAPM Mean Result	11.10%		
<b>Treasury Yield Plus Risk Premium</b>			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Analysis	9.74%	9.90%	10.13%
Risk Premium Mean Result	9.92%		
<b>Expected Earnings Analysis</b>			
	Mean		Median
Expected Earnings Result	11.56%		11.48%

**Notes:**

[1] The analytical results included in the table reflect the results of the Constant Growth DCF analysis excluding the results for individual companies that did not meet the minimum threshold of 7 percent.

PROXY GROUP SCREENING DATA AND RESULTS - FINAL PROXY GROUP

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	
Company	Dividends	S&P Credit Rating Between BBB- and AAA	Covered by More Than 1 Analyst	Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	% Regulated Operating Income > 70%	% Regulated Natural Gas Operating Income > 60%	Announced Merger	
Atmos Energy Corporation	ATO	YES	A	Yes	Yes	100.00%	68.59%	No
New Jersey Resources Corporation	NJR	YES	BBB+	Yes	Yes	96.45%	88.91%	No
Northwest Natural Gas Company	NWN	YES	A+	Yes	Yes	99.50%	96.47%	No
One Gas Inc.	OGS	YES	A	Yes	Yes	100.00%	100.00%	No
South Jersey Industries, Inc.	SJI	YES	BBB	Yes	Yes	80.31%	100.00%	No
Southwest Gas Corporation	SWX	YES	BBB+	Yes	Yes	82.19%	100.00%	No
Spire Inc.	SR	YES	A-	Yes	Yes	99.77%	100.00%	No

Notes:

- [1] Source: SNL Financial
- [2] Source: SNL Financial
- [3] Source: Yahoo! Finance and Zacks
- [4] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks
- [5] to [6] Source: Form 10-Ks for 2017, 2016 & 2015
- [7] SNL Financial News Releases

30-DAY CONSTANT GROWTH DCF -- CASCADE NATURAL GAS PROXY GROUP

Company		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	All Proxy Group			With Exclusions		
											[10]	[11]	[12]	[13]	[14]	
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE	
Atmos Energy Corporation	ATO	\$2.10	\$93.27	2.25%	2.33%	7.50%	6.45%	6.50%	6.82%	8.77%	9.14%	9.84%	8.77%	9.14%	9.84%	
New Jersey Resources Corporation	NJR	\$1.17	\$46.09	2.54%	2.63%	9.50%	6.00%	7.00%	7.50%	8.61%	10.13%	12.16%	8.61%	10.13%	12.16%	
Northwest Natural Gas Company	NWN	\$1.90	\$60.49	3.14%	3.34%	30.50%	4.00%	4.30%	12.93%	7.20%	16.28%	34.12%	7.20%	16.28%	34.12%	
One Gas Inc.	OGS	\$1.84	\$79.77	2.31%	2.39%	10.50%	5.50%	5.90%	7.30%	7.87%	9.69%	12.93%	7.87%	9.69%	12.93%	
South Jersey Industries, Inc.	SJI	\$1.15	\$28.87	3.98%	4.21%	9.50%	12.70%	12.50%	11.57%	13.67%	15.78%	16.94%	13.67%	15.78%	16.94%	
Southwest Gas Corporation	SWX	\$2.08	\$77.00	2.70%	2.79%	9.00%	6.20%	5.00%	6.73%	7.77%	9.53%	11.82%	7.77%	9.53%	11.82%	
Spire, Inc.	SR	\$2.37	\$75.12	3.15%	3.22%	6.50%	2.70%	4.00%	4.40%	5.90%	7.62%	9.76%		7.62%	9.76%	
<b>MEDIAN</b>				2.70%	2.79%	9.50%	6.00%	5.90%	7.30%	7.87%	9.69%	12.16%	8.24%	9.69%	12.16%	

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 30-day average as of January 31, 2019
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.50 x [8])
- [5] Source: Value Line Investment Survey
- [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])
- [12] Equals [9] if greater than 7.00%
- [13] Equals [10] if greater than 7.00%
- [14] Equals [11] if greater than 7.00%

90-DAY CONSTANT GROWTH DCF -- CASCADE NATURAL GAS PROXY GROUP

Company		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	All Proxy Group			With Exclusions		
											[10]	[11]	[12]	[13]	[14]	
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE	
Atmos Energy Corporation	ATO	\$2.10	\$94.96	2.21%	2.29%	7.50%	6.45%	6.50%	6.82%	8.73%	9.10%	9.79%	8.73%	9.10%	9.79%	
New Jersey Resources Corporation	NJR	\$1.17	\$46.79	2.50%	2.59%	9.50%	6.00%	7.00%	7.50%	8.58%	10.09%	12.12%	8.58%	10.09%	12.12%	
Northwest Natural Gas Company	NWN	\$1.90	\$65.33	2.91%	3.10%	30.50%	4.00%	4.30%	12.93%	6.97%	16.03%	33.85%	16.03%	33.85%		
One Gas, Inc.	OGS	\$1.84	\$81.74	2.25%	2.33%	10.50%	5.50%	5.90%	7.30%	7.81%	9.63%	12.87%	7.81%	9.63%	12.87%	
South Jersey Industries, Inc.	SJI	\$1.15	\$31.32	3.67%	3.88%	9.50%	12.70%	12.50%	11.57%	13.35%	15.45%	16.60%	13.35%	15.45%	16.60%	
Southwest Gas Corporation	SWX	\$2.08	\$79.34	2.62%	2.71%	9.00%	6.20%	5.00%	6.73%	7.69%	9.44%	11.74%	7.69%	9.44%	11.74%	
Spire, Inc.	SR	\$2.37	\$75.43	3.14%	3.21%	6.50%	2.70%	4.00%	4.40%	5.88%	7.61%	9.74%	7.61%	9.74%		
<b>MEDIAN</b>				2.62%	2.71%	9.50%	6.00%	5.90%	7.30%	7.81%	9.63%	12.12%	8.58%	9.63%	12.12%	

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 90-day average as of January 31, 2019
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.50 x [8])
- [5] Source: Value Line Investment Survey
- [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])
- [12] Equals [9] if greater than 7.00%
- [13] Equals [10] if greater than 7.00%
- [14] Equals [11] if greater than 7.00%

180-DAY CONSTANT GROWTH DCF -- CASCADE NATURAL GAS PROXY GROUP

Company		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	All Proxy Group			With Exclusions			
										[9]	[10]	[11]	[12]	[13]	[14]	
		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE	
Atmos Energy Corporation	ATO	\$2.10	\$92.68	2.27%	2.34%	7.50%	6.45%	6.50%	6.82%	8.79%	9.16%	9.85%	8.79%	9.16%	9.85%	
New Jersey Resources Corporation	NJR	\$1.17	\$45.92	2.55%	2.64%	9.50%	6.00%	7.00%	7.50%	8.62%	10.14%	12.17%	8.62%	10.14%	12.17%	
Northwest Natural Gas Company	NWN	\$1.90	\$64.28	2.96%	3.15%	30.50%	4.00%	4.30%	12.93%	7.02%	16.08%	33.91%	7.02%	16.08%	33.91%	
One Gas, Inc.	OGS	\$1.84	\$78.88	2.33%	2.42%	10.50%	5.50%	5.90%	7.30%	7.90%	9.72%	12.96%	7.90%	9.72%	12.96%	
South Jersey Industries, Inc.	SJI	\$1.15	\$32.28	3.56%	3.77%	9.50%	12.70%	12.50%	11.57%	13.23%	15.34%	16.49%	13.23%	15.34%	16.49%	
Southwest Gas Corporation	SWX	\$2.08	\$78.39	2.65%	2.74%	9.00%	6.20%	5.00%	6.73%	7.72%	9.48%	11.77%	7.72%	9.48%	11.77%	
Spire, Inc.	SR	\$2.37	\$73.89	3.21%	3.28%	6.50%	2.70%	4.00%	4.40%	5.95%	7.68%	9.81%		7.68%	9.81%	
<b>MEDIAN</b>					2.65%	2.74%	9.50%	6.00%	5.90%	7.30%	7.90%	9.72%	12.17%	8.26%	9.72%	12.17%

Notes

- [1] Source: Bloomberg Professional
- [2] Source: Bloomberg Professional, equals 180-day average as of January 31, 2019
- [3] Equals [1] / [2]
- [4] Equals [3] x (1 + 0.50 x [8])
- [5] Source: Value Line Investment Survey
- [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])
- [12] Equals [9] if greater than 7.00%
- [13] Equals [10] if greater than 7.00%
- [14] Equals [11] if greater than 7.00%

BETA  
AS OF JANUARY 31, 2019

		[1]
Proxy Group	Ticker	Value Line
Atmos Energy Corporation	ATO	0.60
New Jersey Resources Corporation	NJR	0.70
Northwest Natural Gas Company	NWN	0.60
ONE Gas, Inc.	OGS	0.65
South Jersey Industries, Inc.	SJI	0.80
Southwest Gas Corporation	SWX	0.70
Spire, Inc.	SR	0.65
MEAN		0.671

Notes:

[1] Source: Value Line; November 30, 2018

CAPITAL ASSET PRICING MODEL

	[4]	[5]	[6]	[7]	[8]
	Risk-Free Rate ( <i>R<sub>f</sub></i> )	Beta ( <i>β</i> )	Market Return ( <i>R<sub>m</sub></i> )	Market Risk Premium ( <i>R<sub>m</sub> - R<sub>f</sub></i> )	ROE ( <i>K</i> )
<b>Proxy Group Average Value Line Beta</b>					
Current 30-day average of 30-year U.S. Treasury bond yield [1]	3.03%	0.671	14.85%	11.81%	10.97%
Near-term projected 30-year U.S. Treasury bond yield (Q2 2019 - Q2 2020) [2]	3.38%	0.671	14.85%	11.47%	11.08%
Projected 30-year U.S. Treasury bond yield (2020 - 2024) [3]	3.90%	0.671	14.85%	10.95%	11.25%
				MEAN	11.10%

Notes:

- [1] Source: Bloomberg Professional, 30-day average as of January 31, 2019  
 [2] Source: Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2  
 [3] Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14  
 [4] See Notes [1], [2] and [3]  
 [5] Source: Schedule-4  
 [6] Source: Schedule-5, p.2  
 [7] Equals [6] - [4]  
 [8] Equals [4] + ([5] x [7])



MARKET RISK PREMIUM DERIVED FROM ANALYSTS LONG-TERM GROWTH ESTIMATES

[9] Estimated Weighted Average Dividend Yield	2.08%
[10] Estimated Weighted Average Long-Term Growth Rate	12.64%
[11] S&P 500 Estimated Required Market Return	14.85%
[12] Risk-Free Rate	3.03%      3.38%      3.90%
[13] Implied Market Risk Premium	11.81%      11.47%      10.95%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14] Weight in Index	[15] Estimated Dividend Yield	[16] Cap-Weighted Dividend Yield	[17] Long-Term Growth Est.	[18] Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	0.14%	4.60%	0.01%	8.20%	0.01%
American Express Co	AXP	0.37%	1.52%	0.01%	14.99%	0.06%
Verizon Communications Inc	VZ	0.97%	4.38%	0.04%	2.30%	0.02%
Broadcom Inc	AVGO	0.46%	3.95%	0.02%	14.32%	0.07%
Boeing Co/The	BA	0.93%	2.13%	0.02%	16.70%	0.16%
Caterpillar Inc	CAT	0.33%	2.58%	0.01%	13.35%	0.04%
JPMorgan Chase & Co	JPM	1.46%	3.09%	0.05%	9.33%	0.14%
Chevron Corp	CVX	0.93%	4.15%	0.04%	7.17%	0.07%
Coca-Cola Co/The	KO	0.87%	3.24%	0.03%	7.49%	0.07%
AbbVie Inc	ABBV	0.51%	5.33%	0.03%	8.81%	0.05%
Walt Disney Co/The	DIS	0.71%	1.58%	0.01%	12.98%	0.09%
FleetCor Technologies Inc	FLT	0.08%	n/a	n/a	16.50%	0.01%
Extra Space Storage Inc	EXR	0.05%	3.49%	0.00%	5.34%	0.00%
Exxon Mobil Corp	XOM	1.32%	4.48%	0.06%	11.59%	0.15%
Phillips 66	PSX	0.19%	3.35%	0.01%	5.70%	0.01%
General Electric Co	GE	0.38%	0.39%	0.00%	1.60%	0.01%
HP Inc	HPQ	0.15%	2.91%	0.00%	6.06%	0.01%
Home Depot Inc/The	HD	0.88%	2.24%	0.02%	13.01%	0.11%
International Business Machines Corp	IBM	0.52%	4.67%	0.02%	3.59%	0.02%
Concho Resources Inc	CXO	0.10%	n/a	n/a	31.00%	0.03%
Johnson & Johnson	JNJ	1.52%	2.71%	0.04%	7.26%	0.11%
McDonald's Corp	MCD	0.59%	2.60%	0.02%	8.92%	0.05%
Merck & Co Inc	MRK	0.82%	2.96%	0.02%	8.46%	0.07%
3M Co	MMM	0.50%	2.72%	0.01%	7.70%	0.04%
American Water Works Co Inc	AWK	0.07%	1.90%	0.00%	8.45%	0.01%
Bank of America Corp	BAC	1.17%	2.11%	0.02%	9.70%	0.11%
Brighthouse Financial Inc	BHF	0.02%	n/a	n/a	8.64%	0.00%
Baker Hughes a GE Co	BHGE	0.05%	3.05%	0.00%	40.82%	0.02%
Pfizer Inc	PFE	1.04%	3.39%	0.04%	5.45%	0.06%
Procter & Gamble Co/The	PG	1.02%	2.97%	0.03%	6.60%	0.07%
AT&T Inc	T	0.93%	6.79%	0.06%	5.69%	0.05%
Travelers Cos Inc/The	TRV	0.14%	2.45%	0.00%	17.65%	0.02%
United Technologies Corp	UTX	0.43%	2.49%	0.01%	9.80%	0.04%
Analog Devices Inc	ADI	0.15%	1.94%	0.00%	8.43%	0.01%
Walmart Inc	WMT	1.18%	2.17%	0.03%	5.01%	0.06%
Cisco Systems Inc	CSCO	0.90%	2.79%	0.03%	5.74%	0.05%
Intel Corp	INTC	0.91%	2.67%	0.02%	8.54%	0.08%
General Motors Co	GM	0.23%	3.90%	0.01%	11.08%	0.03%
Microsoft Corp	MSFT	3.40%	1.76%	0.06%	12.16%	0.41%
Dollar General Corp	DG	0.13%	1.00%	0.00%	15.00%	0.02%
Cigna Corp	CI	0.32%	0.02%	0.00%	18.35%	0.06%
Kinder Morgan Inc/DE	KMI	0.17%	4.42%	0.01%	10.00%	0.02%
Citigroup Inc	C	0.67%	2.79%	0.02%	11.07%	0.07%
American International Group Inc	AIG	0.16%	2.96%	0.00%	11.00%	0.02%
Honeywell International Inc	HON	0.45%	2.28%	0.01%	13.55%	0.06%
Altria Group Inc	MO	0.39%	6.48%	0.03%	8.50%	0.03%
HCA Healthcare Inc	HCA	0.20%	1.15%	0.00%	11.56%	0.02%
Under Armour Inc	UAA	0.02%	n/a	n/a	30.02%	0.00%
International Paper Co	IP	0.08%	4.22%	0.00%	6.08%	0.00%
Hewlett Packard Enterprise Co	HPE	0.09%	2.89%	0.00%	4.86%	0.00%
Abbott Laboratories	ABT	0.54%	1.75%	0.01%	11.69%	0.06%
Aflac Inc	AFL	0.15%	2.26%	0.00%	9.28%	0.01%
Air Products & Chemicals Inc	APD	0.15%	2.82%	0.00%	12.30%	0.02%
Royal Caribbean Cruises Ltd	RCL	0.11%	2.33%	0.00%	13.52%	0.01%
American Electric Power Co Inc	AEP	0.17%	3.39%	0.01%	5.96%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Hess Corp	HES	0.07%	1.85%	0.00%	-9.49%	-0.01%
Anadarko Petroleum Corp	APC	0.10%	2.54%	0.00%	21.38%	0.02%
Aon PLC	AON	0.16%	1.02%	0.00%	11.70%	0.02%
Apache Corp	APA	0.05%	3.05%	0.00%	-3.09%	0.00%
Archer-Daniels-Midland Co	ADM	0.11%	2.98%	0.00%	11.10%	0.01%
Automatic Data Processing Inc	ADP	0.26%	2.26%	0.01%	14.00%	0.04%
Verisk Analytics Inc	VRSK	0.08%	n/a	n/a	12.91%	0.01%
AutoZone Inc	AZO	0.09%	n/a	n/a	12.80%	0.01%
Avery Dennison Corp	AVY	0.04%	1.99%	0.00%	5.75%	0.00%
MSCI Inc	MSCI	0.06%	1.36%	0.00%	13.10%	0.01%
Ball Corp	BLL	0.08%	0.77%	0.00%	6.50%	0.00%
Bank of New York Mellon Corp/The	BK	0.21%	2.14%	0.00%	7.33%	0.02%
Baxter International Inc	BAX	0.16%	1.05%	0.00%	12.20%	0.02%
Becton Dickinson and Co	BDX	0.29%	1.23%	0.00%	13.29%	0.04%
Berkshire Hathaway Inc	BRK/B	1.19%	n/a	n/a	-5.60%	-0.07%
Best Buy Co Inc	BBY	0.07%	3.04%	0.00%	11.10%	0.01%
H&R Block Inc	HRB	0.02%	4.24%	0.00%	10.00%	0.00%
Boston Scientific Corp	BSX	0.22%	n/a	n/a	38.58%	0.09%
Bristol-Myers Squibb Co	BMJ	0.34%	3.32%	0.01%	12.78%	0.04%
Fortune Brands Home & Security Inc	FBHS	0.03%	1.94%	0.00%	11.16%	0.00%
Brown-Forman Corp	BF/B	0.06%	1.41%	0.00%	9.86%	0.01%
Cabot Oil & Gas Corp	COG	0.05%	1.12%	0.00%	33.27%	0.02%
Campbell Soup Co	CPB	0.05%	3.95%	0.00%	3.05%	0.00%
Kansas City Southern	KSU	0.05%	1.36%	0.00%	8.97%	0.00%
Hilton Worldwide Holdings Inc	HLT	0.09%	0.81%	0.00%	9.53%	0.01%
Carnival Corp	CCL	0.13%	3.47%	0.00%	11.76%	0.02%
Qorvo Inc	QRVO	0.03%	n/a	n/a	11.42%	0.00%
CenturyLink Inc	CTL	0.07%	14.10%	0.01%	-21.81%	-0.02%
UDR Inc	UDR	0.05%	2.95%	0.00%	5.68%	0.00%
Clorox Co/The	CLX	0.08%	2.59%	0.00%	4.95%	0.00%
CMS Energy Corp	CMS	0.06%	2.93%	0.00%	6.93%	0.00%
Newell Brands Inc	NWL	0.04%	4.34%	0.00%	1.98%	0.00%
Colgate-Palmolive Co	CL	0.24%	2.60%	0.01%	6.69%	0.02%
Comerica Inc	CMA	0.05%	3.40%	0.00%	16.41%	0.01%
IPG Photonics Corp	IPGP	0.03%	n/a	n/a	9.24%	0.00%
Conagra Brands Inc	CAG	0.04%	3.93%	0.00%	8.50%	0.00%
Consolidated Edison Inc	ED	0.11%	3.81%	0.00%	3.73%	0.00%
SL Green Realty Corp	SLG	0.03%	3.68%	0.00%	-0.59%	0.00%
Corning Inc	GLW	0.11%	2.16%	0.00%	10.39%	0.01%
Cummins Inc	CMI	0.10%	3.10%	0.00%	10.64%	0.01%
Danaher Corp	DHR	0.33%	0.58%	0.00%	10.95%	0.04%
Target Corp	TGT	0.16%	3.51%	0.01%	6.44%	0.01%
Deere & Co	DE	0.22%	1.85%	0.00%	10.83%	0.02%
Dominion Energy Inc	D	0.24%	5.22%	0.01%	6.03%	0.01%
Dover Corp	DOV	0.05%	2.19%	0.00%	10.97%	0.01%
Alliant Energy Corp	LNT	0.05%	3.19%	0.00%	6.49%	0.00%
Duke Energy Corp	DUK	0.27%	4.23%	0.01%	5.00%	0.01%
Regency Centers Corp	REG	0.05%	3.42%	0.00%	6.04%	0.00%
Eaton Corp PLC	ETN	0.14%	3.46%	0.00%	9.83%	0.01%
Ecolab Inc	ECL	0.19%	1.16%	0.00%	13.00%	0.03%
PerkinElmer Inc	PKI	0.04%	0.31%	0.00%	15.49%	0.01%
Emerson Electric Co	EMR	0.17%	2.99%	0.01%	8.93%	0.02%
EOG Resources Inc	EOG	0.24%	0.89%	0.00%	11.06%	0.03%
Entergy Corp	ETR	0.07%	4.08%	0.00%	-0.73%	0.00%
Equifax Inc	EFX	0.05%	1.46%	0.00%	6.60%	0.00%
IQVIA Holdings Inc	IQV	0.11%	n/a	n/a	15.23%	0.02%
Gartner Inc	IT	0.05%	n/a	n/a	14.47%	0.01%
FedEx Corp	FDX	0.20%	1.46%	0.00%	14.30%	0.03%
Macy's Inc	M	0.03%	5.74%	0.00%	0.60%	0.00%
FMC Corp	FMC	0.05%	2.01%	0.00%	17.07%	0.01%
Ford Motor Co	F	0.15%	6.82%	0.01%	-4.80%	-0.01%
NextEra Energy Inc	NEE	0.36%	2.48%	0.01%	8.40%	0.03%
Franklin Resources Inc	BEN	0.06%	3.51%	0.00%	10.00%	0.01%
Freeport-McMoRan Inc	FCX	0.07%	1.72%	0.00%	-12.55%	-0.01%
Gap Inc/The	GPS	0.04%	3.81%	0.00%	8.63%	0.00%
General Dynamics Corp	GD	0.22%	2.17%	0.00%	10.09%	0.02%
General Mills Inc	GIS	0.11%	4.41%	0.00%	5.90%	0.01%
Genuine Parts Co	GPC	0.06%	2.89%	0.00%	5.62%	0.00%
WW Grainger Inc	GWW	0.07%	1.84%	0.00%	12.47%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Halliburton Co	HAL	0.12%	2.30%	0.00%	30.08%	0.04%
Harley-Davidson Inc	HOG	0.03%	4.02%	0.00%	8.97%	0.00%
Harris Corp	HRS	0.08%	1.79%	0.00%	7.00%	0.01%
HCP Inc	HCP	0.06%	4.69%	0.00%	2.29%	0.00%
Helmerich & Payne Inc	HP	0.03%	5.07%	0.00%	96.36%	0.03%
Fortive Corp	FTV	0.11%	0.37%	0.00%	12.69%	0.01%
Hershey Co/The	HSY	0.07%	2.72%	0.00%	7.28%	0.00%
Synchrony Financial	SYF	0.09%	2.80%	0.00%	6.20%	0.01%
Hormel Foods Corp	HRL	0.10%	1.98%	0.00%	5.80%	0.01%
Arthur J Gallagher & Co	AJG	0.06%	2.30%	0.00%	10.91%	0.01%
Mondelez International Inc	MDLZ	0.29%	2.25%	0.01%	7.33%	0.02%
CenterPoint Energy Inc	CNP	0.07%	3.72%	0.00%	6.90%	0.00%
Humana Inc	HUM	0.18%	0.65%	0.00%	14.26%	0.03%
Willis Towers Watson PLC	WLTW	0.09%	1.47%	0.00%	14.13%	0.01%
Illinois Tool Works Inc	ITW	0.19%	2.91%	0.01%	9.51%	0.02%
Ingersoll-Rand PLC	IR	0.10%	2.12%	0.00%	10.69%	0.01%
Foot Locker Inc	FL	0.03%	2.47%	0.00%	6.24%	0.00%
Interpublic Group of Cos Inc/The	IPG	0.04%	3.69%	0.00%	8.53%	0.00%
International Flavors & Fragrances Inc	IFF	0.06%	2.06%	0.00%	9.00%	0.01%
Jacobs Engineering Group Inc	JEC	0.04%	1.05%	0.00%	13.25%	0.01%
Hanesbrands Inc	HBI	0.02%	4.00%	0.00%	1.83%	0.00%
Kellogg Co	K	0.09%	3.80%	0.00%	4.91%	0.00%
Broadridge Financial Solutions Inc	BR	0.05%	1.92%	0.00%	10.00%	0.00%
Perrigo Co PLC	PRGO	0.03%	1.64%	0.00%	1.17%	0.00%
Kimberly-Clark Corp	KMB	0.16%	3.70%	0.01%	6.34%	0.01%
Kimco Realty Corp	KIM	0.03%	6.58%	0.00%	3.54%	0.00%
Kohl's Corp	KSS	0.05%	3.55%	0.00%	16.00%	0.01%
Oracle Corp	ORCL	0.77%	1.51%	0.01%	7.35%	0.06%
Kroger Co/The	KR	0.10%	1.98%	0.00%	6.43%	0.01%
Leggett & Platt Inc	LEG	0.02%	3.71%	0.00%	10.00%	0.00%
Lennar Corp	LEN	0.06%	0.34%	0.00%	12.74%	0.01%
Jefferies Financial Group Inc	JEF	0.03%	2.40%	0.00%	n/a	n/a
Eli Lilly & Co	LLY	0.54%	2.15%	0.01%	12.86%	0.07%
L Brands Inc	LB	0.03%	8.62%	0.00%	10.72%	0.00%
Charter Communications Inc	CHTR	0.32%	n/a	n/a	47.90%	0.15%
Lincoln National Corp	LNC	0.05%	2.53%	0.00%	n/a	n/a
Loews Corp	L	0.06%	0.52%	0.00%	n/a	n/a
Lowe's Cos Inc	LOW	0.33%	2.00%	0.01%	15.17%	0.05%
Host Hotels & Resorts Inc	HST	0.06%	4.43%	0.00%	4.57%	0.00%
Marsh & McLennan Cos Inc	MMC	0.19%	1.88%	0.00%	11.80%	0.02%
Masco Corp	MAS	0.04%	1.48%	0.00%	15.46%	0.01%
Mattel Inc	MAT	0.02%	n/a	n/a	10.00%	0.00%
S&P Global Inc	SPGI	0.20%	1.19%	0.00%	12.10%	0.02%
Medtronic PLC	MDT	0.50%	2.26%	0.01%	7.94%	0.04%
CVS Health Corp	CVS	0.36%	3.05%	0.01%	11.30%	0.04%
DowDuPont Inc	DWDP	0.52%	2.82%	0.01%	6.17%	0.03%
Micron Technology Inc	MU	0.18%	n/a	n/a	-3.30%	-0.01%
Motorola Solutions Inc	MSI	0.08%	1.95%	0.00%	6.30%	0.01%
Cboe Global Markets Inc	CBOE	0.04%	1.33%	0.00%	13.10%	0.01%
Mylan NV	MYL	0.07%	n/a	n/a	6.67%	0.00%
Laboratory Corp of America Holdings	LH	0.06%	n/a	n/a	8.78%	0.01%
Newmont Mining Corp	NEM	0.08%	1.64%	0.00%	-3.00%	0.00%
Twenty-First Century Fox Inc	FOXA	0.22%	0.73%	0.00%	9.22%	0.02%
NIKE Inc	NKE	0.44%	1.07%	0.00%	13.35%	0.06%
NiSource Inc	NI	0.04%	2.86%	0.00%	5.79%	0.00%
Noble Energy Inc	NBL	0.05%	1.97%	0.00%	25.55%	0.01%
Norfolk Southern Corp	NSC	0.19%	2.05%	0.00%	8.64%	0.02%
Principal Financial Group Inc	PFG	0.06%	4.31%	0.00%	5.88%	0.00%
Eversource Energy	ES	0.09%	2.91%	0.00%	5.62%	0.01%
Northrop Grumman Corp	NOC	0.20%	1.74%	0.00%	12.71%	0.03%
Wells Fargo & Co	WFC	0.95%	3.68%	0.04%	11.26%	0.11%
Nucor Corp	NUE	0.08%	2.61%	0.00%	0.85%	0.00%
PVH Corp	PVH	0.04%	0.14%	0.00%	11.03%	0.00%
Occidental Petroleum Corp	OXY	0.21%	4.67%	0.01%	13.85%	0.03%
Omnicom Group Inc	OMC	0.07%	3.08%	0.00%	6.64%	0.00%
ONEOK Inc	OKE	0.11%	5.36%	0.01%	23.23%	0.03%
Raymond James Financial Inc	RJF	0.05%	1.69%	0.00%	12.30%	0.01%
Parker-Hannifin Corp	PH	0.09%	1.84%	0.00%	9.52%	0.01%
Rollins Inc	ROL	0.05%	1.13%	0.00%	10.00%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
PPL Corp	PPL	0.10%	5.24%	0.01%	6.17%	0.01%
Exelon Corp	EXC	0.20%	2.89%	0.01%	4.94%	0.01%
ConocoPhillips	COP	0.33%	1.80%	0.01%	6.00%	0.02%
PulteGroup Inc	PHM	0.03%	1.58%	0.00%	7.17%	0.00%
Pinnacle West Capital Corp	PNW	0.04%	3.35%	0.00%	4.99%	0.00%
PNC Financial Services Group Inc/The	PNC	0.24%	3.10%	0.01%	7.37%	0.02%
PPG Industries Inc	PPG	0.11%	1.82%	0.00%	7.49%	0.01%
Progressive Corp/The	PGR	0.17%	3.74%	0.01%	9.80%	0.02%
Public Service Enterprise Group Inc	PEG	0.12%	3.30%	0.00%	6.64%	0.01%
Raytheon Co	RTN	0.20%	2.11%	0.00%	12.28%	0.02%
Robert Half International Inc	RHI	0.03%	1.74%	0.00%	13.20%	0.00%
Edison International	EIX	0.08%	4.30%	0.00%	5.84%	0.00%
Schlumberger Ltd	SLB	0.26%	4.52%	0.01%	33.69%	0.09%
Charles Schwab Corp/The	SCHW	0.27%	1.45%	0.00%	19.78%	0.05%
Sherwin-Williams Co/The	SHW	0.17%	0.82%	0.00%	10.92%	0.02%
JM Smucker Co/The	SJM	0.05%	3.24%	0.00%	3.41%	0.00%
Snap-on Inc	SNA	0.04%	2.29%	0.00%	8.23%	0.00%
AMETEK Inc	AME	0.07%	0.77%	0.00%	10.44%	0.01%
Southern Co/The	SO	0.21%	4.94%	0.01%	3.38%	0.01%
BB&T Corp	BBT	0.16%	3.32%	0.01%	10.93%	0.02%
Southwest Airlines Co	LUV	0.14%	1.13%	0.00%	10.67%	0.01%
Stanley Black & Decker Inc	SWK	0.08%	2.09%	0.00%	10.50%	0.01%
Public Storage	PSA	0.16%	3.76%	0.01%	4.45%	0.01%
Arista Networks Inc	ANET	0.07%	n/a	n/a	27.64%	0.02%
SunTrust Banks Inc	STI	0.11%	3.37%	0.00%	9.18%	0.01%
Sysco Corp	SYO	0.14%	2.44%	0.00%	12.53%	0.02%
Texas Instruments Inc	TXN	0.41%	3.06%	0.01%	10.48%	0.04%
Textron Inc	TXT	0.05%	0.15%	0.00%	12.56%	0.01%
Thermo Fisher Scientific Inc	TMO	0.42%	0.28%	0.00%	11.00%	0.05%
Tiffany & Co	TIF	0.05%	2.48%	0.00%	12.54%	0.01%
TJX Cos Inc/The	TJX	0.26%	1.57%	0.00%	11.18%	0.03%
Torchmark Corp	TMK	0.04%	0.76%	0.00%	13.70%	0.01%
Total System Services Inc	TSS	0.07%	0.58%	0.00%	14.15%	0.01%
Johnson Controls International plc	JCI	0.13%	3.08%	0.00%	6.90%	0.01%
Ulta Beauty Inc	ULTA	0.07%	n/a	n/a	19.00%	0.01%
Union Pacific Corp	UNP	0.50%	2.01%	0.01%	10.86%	0.05%
Keysight Technologies Inc	KEYS	0.06%	n/a	n/a	17.00%	0.01%
UnitedHealth Group Inc	UNH	1.10%	1.33%	0.01%	13.73%	0.15%
Unum Group	UNM	0.03%	2.99%	0.00%	9.00%	0.00%
Marathon Oil Corp	MRO	0.06%	1.27%	0.00%	5.00%	0.00%
Varian Medical Systems Inc	VAR	0.05%	n/a	n/a	16.10%	0.01%
Ventas Inc	VTR	0.10%	4.92%	0.00%	2.29%	0.00%
VF Corp	VFC	0.14%	2.42%	0.00%	-16.64%	-0.02%
Vornado Realty Trust	VNO	0.06%	3.78%	0.00%	3.70%	0.00%
Vulcan Materials Co	VMC	0.06%	1.10%	0.00%	16.04%	0.01%
Weyerhaeuser Co	WY	0.08%	5.18%	0.00%	10.50%	0.01%
Whirlpool Corp	WHR	0.04%	3.46%	0.00%	5.75%	0.00%
Williams Cos Inc/The	WMB	0.14%	5.05%	0.01%	3.90%	0.01%
WEC Energy Group Inc	WEC	0.10%	3.23%	0.00%	4.89%	0.00%
Xerox Corp	XRX	0.03%	3.54%	0.00%	0.20%	0.00%
Adobe Inc	ADBE	0.51%	n/a	n/a	16.75%	0.09%
AES Corp/VA	AES	0.05%	3.33%	0.00%	8.66%	0.00%
Amgen Inc	AMGN	0.50%	3.10%	0.02%	6.16%	0.03%
Apple Inc	AAPL	3.33%	1.75%	0.06%	9.40%	0.31%
Autodesk Inc	ADSK	0.14%	n/a	n/a	54.78%	0.07%
Cintas Corp	CTAS	0.08%	1.09%	0.00%	12.11%	0.01%
Comcast Corp	CMCSA	0.70%	2.30%	0.02%	11.34%	0.08%
Molson Coors Brewing Co	TAP	0.06%	2.46%	0.00%	0.00%	0.00%
KLA-Tencor Corp	KLAC	0.07%	2.82%	0.00%	7.15%	0.00%
Marriott International Inc/MD	MAR	0.17%	1.43%	0.00%	12.10%	0.02%
McCormick & Co Inc/MD	MKC	0.06%	1.84%	0.00%	6.10%	0.00%
Nordstrom Inc	JWN	0.03%	3.19%	0.00%	9.00%	0.00%
PACCAR Inc	PCAR	0.10%	1.95%	0.00%	6.10%	0.01%
Costco Wholesale Corp	COST	0.40%	1.06%	0.00%	10.58%	0.04%
First Republic Bank/CA	FRC	0.07%	0.75%	0.00%	11.82%	0.01%
Stryker Corp	SYK	0.28%	1.17%	0.00%	8.64%	0.02%
Tyson Foods Inc	TSN	0.08%	2.42%	0.00%	-5.00%	0.00%
Lamb Weston Holdings Inc	LW	0.04%	1.11%	0.00%	11.02%	0.00%
Applied Materials Inc	AMAT	0.16%	2.05%	0.00%	7.34%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
American Airlines Group Inc	AAL	0.07%	1.12%	0.00%	15.20%	0.01%
Cardinal Health Inc	CAH	0.06%	3.81%	0.00%	18.34%	0.01%
Celgene Corp	CELG	0.26%	n/a	n/a	20.70%	0.05%
Cerner Corp	CERN	0.08%	n/a	n/a	12.47%	0.01%
Cincinnati Financial Corp	CINF	0.06%	2.61%	0.00%	n/a	n/a
DR Horton Inc	DHI	0.06%	1.56%	0.00%	11.80%	0.01%
Flowserve Corp	FLS	0.02%	1.73%	0.00%	20.07%	0.00%
Electronic Arts Inc	EA	0.12%	n/a	n/a	12.63%	0.01%
Expeditors International of Washington Inc	EXPD	0.05%	1.30%	0.00%	9.60%	0.00%
Fastenal Co	FAST	0.07%	2.84%	0.00%	14.85%	0.01%
M&T Bank Corp	MTB	0.10%	2.43%	0.00%	10.45%	0.01%
Xcel Energy Inc	XEL	0.12%	2.90%	0.00%	5.98%	0.01%
Fiserv Inc	FISV	0.14%	n/a	n/a	7.40%	0.01%
Fifth Third Bancorp	FITB	0.07%	3.28%	0.00%	3.95%	0.00%
Gilead Sciences Inc	GILD	0.38%	3.26%	0.01%	5.45%	0.02%
Hasbro Inc	HAS	0.05%	2.78%	0.00%	9.73%	0.00%
Huntington Bancshares Inc/OH	HBAN	0.06%	4.23%	0.00%	8.20%	0.00%
Welltower Inc	WELL	0.12%	4.49%	0.01%	7.21%	0.01%
Biogen Inc	BIIB	0.29%	n/a	n/a	5.81%	0.02%
Northern Trust Corp	NTRS	0.08%	2.71%	0.00%	12.82%	0.01%
Packaging Corp of America	PKG	0.04%	3.35%	0.00%	8.25%	0.00%
Paychex Inc	PAYX	0.11%	3.16%	0.00%	9.25%	0.01%
People's United Financial Inc	PBCT	0.03%	4.27%	0.00%	2.00%	0.00%
QUALCOMM Inc	QCOM	0.25%	5.01%	0.01%	11.71%	0.03%
Roper Technologies Inc	ROP	0.12%	0.65%	0.00%	9.20%	0.01%
Ross Stores Inc	ROST	0.14%	0.98%	0.00%	10.50%	0.02%
IDEXX Laboratories Inc	IDXX	0.08%	n/a	n/a	16.33%	0.01%
Starbucks Corp	SBUX	0.36%	2.11%	0.01%	13.12%	0.05%
KeyCorp	KEY	0.07%	4.13%	0.00%	13.17%	0.01%
State Street Corp	STT	0.11%	2.65%	0.00%	8.69%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	0.05%	n/a	n/a	19.54%	0.01%
US Bancorp	USB	0.35%	2.89%	0.01%	7.83%	0.03%
AO Smith Corp	AOS	0.03%	1.84%	0.00%	9.33%	0.00%
Symantec Corp	SYMC	0.06%	1.43%	0.00%	7.50%	0.00%
T Rowe Price Group Inc	TROW	0.09%	3.00%	0.00%	6.11%	0.01%
Waste Management Inc	WM	0.17%	1.94%	0.00%	11.78%	0.02%
CBS Corp	CBS	0.07%	1.46%	0.00%	16.37%	0.01%
Allergan PLC	AGN	0.21%	2.06%	0.00%	7.11%	0.01%
Constellation Brands Inc	STZ	0.12%	1.70%	0.00%	8.64%	0.01%
Xilinx Inc	XLNX	0.12%	1.29%	0.00%	8.60%	0.01%
DENTSPLY SIRONA Inc	XRAY	0.04%	0.83%	0.00%	6.90%	0.00%
Zions Bancorp NA	ZION	0.04%	2.52%	0.00%	6.78%	0.00%
Alaska Air Group Inc	ALK	0.03%	2.19%	0.00%	5.60%	0.00%
Invesco Ltd	IVZ	0.03%	6.59%	0.00%	1.84%	0.00%
Linde PLC	LIN	0.38%	2.02%	0.01%	18.10%	0.07%
Intuit Inc	INTU	0.24%	0.87%	0.00%	15.87%	0.04%
Morgan Stanley	MS	0.31%	2.84%	0.01%	13.50%	0.04%
Microchip Technology Inc	MCHP	0.08%	1.81%	0.00%	12.03%	0.01%
Chubb Ltd	CB	0.26%	2.19%	0.01%	10.00%	0.03%
Hologic Inc	HOLX	0.05%	n/a	n/a	3.10%	0.00%
Citizens Financial Group Inc	CFG	0.07%	3.77%	0.00%	16.69%	0.01%
O'Reilly Automotive Inc	ORLY	0.12%	n/a	n/a	15.51%	0.02%
Allstate Corp/The	ALL	0.13%	2.09%	0.00%	9.00%	0.01%
FLIR Systems Inc	FLIR	0.03%	1.31%	0.00%	n/a	n/a
Equity Residential	EQR	0.11%	2.98%	0.00%	6.31%	0.01%
BorgWarner Inc	BWA	0.04%	1.66%	0.00%	6.02%	0.00%
Newfield Exploration Co	NFX	0.02%	n/a	n/a	17.71%	0.00%
Incyte Corp	INCY	0.07%	n/a	n/a	57.27%	0.04%
Simon Property Group Inc	SPG	0.24%	4.39%	0.01%	5.20%	0.01%
Eastman Chemical Co	EMN	0.05%	3.08%	0.00%	7.40%	0.00%
Twitter Inc	TWTR	0.11%	n/a	n/a	56.40%	0.06%
AvalonBay Communities Inc	AVB	0.11%	3.05%	0.00%	5.99%	0.01%
Prudential Financial Inc	PRU	0.16%	3.91%	0.01%	9.00%	0.01%
United Parcel Service Inc	UPS	0.31%	3.45%	0.01%	10.18%	0.03%
Apartment Investment & Management Co	AIV	0.03%	3.07%	0.00%	-2.64%	0.00%
Walgreens Boots Alliance Inc	WBA	0.29%	2.44%	0.01%	9.77%	0.03%
McKesson Corp	MCK	0.10%	1.22%	0.00%	7.95%	0.01%
Lockheed Martin Corp	LMT	0.35%	3.04%	0.01%	9.15%	0.03%
AmerisourceBergen Corp	ABC	0.07%	1.92%	0.00%	8.42%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Capital One Financial Corp	COF	0.16%	1.99%	0.00%	4.54%	0.01%
Waters Corp	WAT	0.07%	n/a	n/a	11.10%	0.01%
Dollar Tree Inc	DLTR	0.10%	n/a	n/a	9.96%	0.01%
Darden Restaurants Inc	DRI	0.06%	2.86%	0.00%	10.31%	0.01%
NetApp Inc	NTAP	0.07%	2.51%	0.00%	19.39%	0.01%
Citrix Systems Inc	CTXS	0.06%	1.37%	0.00%	11.85%	0.01%
Goodyear Tire & Rubber Co/The	GT	0.02%	3.02%	0.00%	n/a	n/a
DXC Technology Co	DXC	0.08%	1.19%	0.00%	6.44%	0.00%
DaVita Inc	DVA	0.04%	n/a	n/a	18.34%	0.01%
Hartford Financial Services Group Inc/The	HIG	0.07%	2.56%	0.00%	9.50%	0.01%
Iron Mountain Inc	IRM	0.05%	6.57%	0.00%	7.16%	0.00%
Estee Lauder Cos Inc/The	EL	0.13%	1.26%	0.00%	11.52%	0.01%
Cadence Design Systems Inc	CDNS	0.06%	n/a	n/a	10.90%	0.01%
Universal Health Services Inc	UHS	0.05%	0.30%	0.00%	9.82%	0.00%
E*TRADE Financial Corp	ETFC	0.05%	1.20%	0.00%	12.08%	0.01%
Skyworks Solutions Inc	SWKS	0.05%	2.08%	0.00%	8.42%	0.00%
National Oilwell Varco Inc	NOV	0.05%	0.68%	0.00%	86.26%	0.04%
Quest Diagnostics Inc	DGX	0.05%	2.43%	0.00%	7.98%	0.00%
Activision Blizzard Inc	ATVI	0.15%	0.72%	0.00%	10.89%	0.02%
Rockwell Automation Inc	ROK	0.09%	2.29%	0.00%	8.42%	0.01%
Kraft Heinz Co/The	KHC	0.25%	5.20%	0.01%	3.82%	0.01%
American Tower Corp	AMT	0.32%	1.94%	0.01%	15.19%	0.05%
HollyFrontier Corp	HFC	0.04%	2.34%	0.00%	7.07%	0.00%
Regeneron Pharmaceuticals Inc	REGN	0.19%	n/a	n/a	13.78%	0.03%
Amazon.com Inc	AMZN	3.57%	n/a	n/a	49.33%	1.76%
Jack Henry & Associates Inc	JKHY	0.04%	1.11%	0.00%	11.00%	0.00%
Ralph Lauren Corp	RL	0.03%	2.15%	0.00%	6.69%	0.00%
Boston Properties Inc	BXP	0.09%	2.88%	0.00%	6.45%	0.01%
Amphenol Corp	APH	0.11%	1.05%	0.00%	9.75%	0.01%
Arconic Inc	ARNC	0.04%	1.28%	0.00%	11.60%	0.00%
Pioneer Natural Resources Co	PXD	0.10%	0.22%	0.00%	28.80%	0.03%
Valero Energy Corp	VLO	0.16%	4.10%	0.01%	16.26%	0.03%
Synopsys Inc	SNPS	0.06%	n/a	n/a	15.20%	0.01%
L3 Technologies Inc	LLL	0.07%	1.63%	0.00%	10.49%	0.01%
Western Union Co/The	WU	0.03%	4.16%	0.00%	3.19%	0.00%
CH Robinson Worldwide Inc	CHRW	0.05%	2.30%	0.00%	10.60%	0.01%
Accenture PLC	ACN	0.42%	1.90%	0.01%	10.27%	0.04%
TransDigm Group Inc	TDG	0.09%	n/a	n/a	14.04%	0.01%
Yum! Brands Inc	YUM	0.12%	1.79%	0.00%	12.97%	0.02%
Prologis Inc	PLD	0.18%	2.78%	0.01%	6.85%	0.01%
FirstEnergy Corp	FE	0.09%	3.88%	0.00%	-0.02%	0.00%
VeriSign Inc	VRSN	0.09%	n/a	n/a	13.40%	0.01%
Quanta Services Inc	PWR	0.02%	0.45%	0.00%	25.00%	0.01%
Henry Schein Inc	HSIC	0.05%	n/a	n/a	9.57%	0.00%
Ameren Corp	AEE	0.07%	2.74%	0.00%	8.30%	0.01%
ANSYS Inc	ANSS	0.06%	n/a	n/a	12.40%	0.01%
NVIDIA Corp	NVDA	0.37%	0.45%	0.00%	10.57%	0.04%
Sealed Air Corp	SEE	0.03%	1.62%	0.00%	3.82%	0.00%
Cognizant Technology Solutions Corp	CTSH	0.17%	1.15%	0.00%	13.20%	0.02%
SVB Financial Group	SIVB	0.05%	n/a	n/a	8.88%	0.00%
Intuitive Surgical Inc	ISRG	0.25%	n/a	n/a	12.95%	0.03%
Affiliated Managers Group Inc	AMG	0.02%	1.14%	0.00%	2.88%	0.00%
Take-Two Interactive Software Inc	TTWO	0.05%	n/a	n/a	12.30%	0.01%
Republic Services Inc	RSG	0.11%	1.96%	0.00%	11.85%	0.01%
eBay Inc	EBAY	0.13%	1.66%	0.00%	10.71%	0.01%
Goldman Sachs Group Inc/The	GS	0.31%	1.62%	0.01%	7.27%	0.02%
SBA Communications Corp	SBAC	0.09%	n/a	n/a	45.90%	0.04%
Sempra Energy	SRE	0.14%	3.06%	0.00%	9.96%	0.01%
Moody's Corp	MCO	0.13%	1.11%	0.00%	12.80%	0.02%
Booking Holdings Inc	BKNG	0.36%	n/a	n/a	15.78%	0.06%
F5 Networks Inc	FFIV	0.04%	n/a	n/a	9.39%	0.00%
Akamai Technologies Inc	AKAM	0.05%	n/a	n/a	16.57%	0.01%
Devon Energy Corp	DVN	0.05%	1.20%	0.00%	10.92%	0.01%
Alphabet Inc	GOOGL	1.43%	n/a	n/a	17.82%	0.25%
Red Hat Inc	RHT	0.13%	n/a	n/a	18.40%	0.02%
Teleflex Inc	TFX	0.05%	0.50%	0.00%	12.95%	0.01%
Allegion PLC	ALLE	0.03%	0.98%	0.00%	11.97%	0.00%
Netflix Inc	NFLX	0.63%	n/a	n/a	36.80%	0.23%
Agilent Technologies Inc	A	0.10%	0.86%	0.00%	9.50%	0.01%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Anthem Inc	ANTM	0.33%	1.06%	0.00%	11.14%	0.04%
CME Group Inc	CME	0.28%	1.54%	0.00%	13.78%	0.04%
Juniper Networks Inc	JNPR	0.04%	2.93%	0.00%	8.07%	0.00%
BlackRock Inc	BLK	0.28%	3.18%	0.01%	9.25%	0.03%
DTE Energy Co	DTE	0.09%	3.21%	0.00%	5.87%	0.01%
Celanese Corp	CE	0.05%	2.26%	0.00%	7.05%	0.00%
Nasdaq Inc	NDAQ	0.06%	2.00%	0.00%	8.16%	0.00%
Philip Morris International Inc	PM	0.51%	5.94%	0.03%	8.77%	0.04%
salesforce.com Inc	CRM	0.49%	n/a	n/a	23.98%	0.12%
Huntington Ingalls Industries Inc	HII	0.04%	1.67%	0.00%	40.00%	0.02%
MetLife Inc	MET	0.19%	3.68%	0.01%	13.36%	0.03%
Under Armour Inc	UA	0.02%	n/a	n/a	37.54%	0.01%
Tapestry Inc	TPR	0.05%	3.49%	0.00%	10.33%	0.00%
Fluor Corp	FLR	0.02%	2.30%	0.00%	19.23%	0.00%
CSX Corp	CSX	0.24%	1.34%	0.00%	10.47%	0.02%
Edwards Lifesciences Corp	EW	0.15%	n/a	n/a	14.00%	0.02%
Ameriprise Financial Inc	AMP	0.07%	2.84%	0.00%	11.80%	0.01%
TechnipFMC PLC	FTI	0.04%	2.26%	0.00%	5.58%	0.00%
Zimmer Biomet Holdings Inc	ZBH	0.09%	0.88%	0.00%	3.85%	0.00%
CBRE Group Inc	CBRE	0.07%	n/a	n/a	11.00%	0.01%
Mastercard Inc	MA	0.91%	0.63%	0.01%	16.68%	0.15%
CarMax Inc	KMX	0.04%	n/a	n/a	12.92%	0.01%
Intercontinental Exchange Inc	ICE	0.19%	1.25%	0.00%	11.57%	0.02%
Fidelity National Information Services Inc	FIS	0.15%	1.34%	0.00%	12.00%	0.02%
Chipotle Mexican Grill Inc	CMG	0.06%	n/a	n/a	21.66%	0.01%
Wynn Resorts Ltd	WYNN	0.06%	2.44%	0.00%	31.10%	0.02%
Assurant Inc	AIZ	0.03%	2.49%	0.00%	n/a	n/a
NRG Energy Inc	NRG	0.05%	0.29%	0.00%	46.03%	0.02%
Monster Beverage Corp	MNST	0.13%	n/a	n/a	15.40%	0.02%
Regions Financial Corp	RF	0.07%	3.69%	0.00%	14.52%	0.01%
Mosaic Co/The	MOS	0.05%	0.31%	0.00%	7.00%	0.00%
Expedia Group Inc	EXPE	0.07%	1.07%	0.00%	17.20%	0.01%
Energy Inc	EVRG	0.06%	3.31%	0.00%	8.22%	0.01%
Discovery Inc	DISCA	0.02%	n/a	n/a	12.30%	0.00%
CF Industries Holdings Inc	CF	0.04%	2.75%	0.00%	16.65%	0.01%
Viacom Inc	VIAB	0.04%	2.72%	0.00%	3.48%	0.00%
Alphabet Inc	GOOG	1.66%	n/a	n/a	17.82%	0.30%
TE Connectivity Ltd	TEL	0.12%	2.17%	0.00%	10.13%	0.01%
Cooper Cos Inc/The	COO	0.06%	0.02%	0.00%	10.50%	0.01%
Discover Financial Services	DFS	0.09%	2.37%	0.00%	8.80%	0.01%
TripAdvisor Inc	TRIP	0.03%	n/a	n/a	17.25%	0.01%
Visa Inc	V	1.00%	0.74%	0.01%	17.79%	0.18%
Mid-America Apartment Communities Inc	MAA	0.05%	3.79%	0.00%	n/a	n/a
Xylem Inc/NY	XYL	0.05%	1.35%	0.00%	14.57%	0.01%
Marathon Petroleum Corp	MPC	0.19%	3.20%	0.01%	16.14%	0.03%
Advanced Micro Devices Inc	AMD	0.10%	n/a	n/a	15.67%	0.02%
Tractor Supply Co	TSCO	0.04%	1.45%	0.00%	12.76%	0.01%
ResMed Inc	RMD	0.06%	1.56%	0.00%	12.50%	0.01%
Mettler-Toledo International Inc	MTD	0.07%	n/a	n/a	13.01%	0.01%
Copart Inc	CPRT	0.05%	n/a	n/a	10.00%	0.01%
Fortinet Inc	FTNT	0.06%	n/a	n/a	19.22%	0.01%
Albemarle Corp	ALB	0.04%	1.66%	0.00%	9.81%	0.00%
Essex Property Trust Inc	ESS	0.08%	2.74%	0.00%	6.15%	0.00%
Realty Income Corp	O	0.09%	3.94%	0.00%	6.59%	0.01%
Seagate Technology PLC	STX	0.05%	5.69%	0.00%	3.59%	0.00%
Westrock Co	WRK	0.04%	4.47%	0.00%	4.73%	0.00%
IHS Markit Ltd	INFO	0.09%	n/a	n/a	11.21%	0.01%
Western Digital Corp	WDC	0.06%	4.45%	0.00%	2.72%	0.00%
PepsiCo Inc	PEP	0.68%	3.29%	0.02%	6.68%	0.05%
Diamondback Energy Inc	FANG	0.07%	0.48%	0.00%	15.26%	0.01%
Nektar Therapeutics	NKTR	0.03%	n/a	n/a	n/a	n/a
Maxim Integrated Products Inc	MXIM	0.06%	3.39%	0.00%	8.93%	0.01%
Church & Dwight Co Inc	CHD	0.07%	1.35%	0.00%	9.07%	0.01%
Duke Realty Corp	DRE	0.04%	2.94%	0.00%	4.81%	0.00%
Federal Realty Investment Trust	FRT	0.04%	3.08%	0.00%	4.25%	0.00%
MGM Resorts International	MGM	0.07%	1.63%	0.00%	2.26%	0.00%
Twenty-First Century Fox Inc	FOX	0.17%	0.73%	0.00%	9.22%	0.02%
JB Hunt Transport Services Inc	JBHT	0.05%	0.97%	0.00%	18.78%	0.01%
Lam Research Corp	LRCX	0.11%	2.59%	0.00%	-0.42%	0.00%

STANDARD AND POOR'S 500 INDEX

Name	Ticker	[14]	[15]	[16]	[17]	[18]
		Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
Mohawk Industries Inc	MHK	0.04%	n/a	n/a	4.95%	0.00%
Pentair PLC	PNR	0.03%	1.75%	0.00%	10.22%	0.00%
Vertex Pharmaceuticals Inc	VRTX	0.21%	n/a	n/a	46.02%	0.10%
Facebook Inc	FB	1.69%	n/a	n/a	21.88%	0.37%
United Rentals Inc	URI	0.04%	n/a	n/a	17.76%	0.01%
Alexandria Real Estate Equities Inc	ARE	0.06%	2.95%	0.00%	5.64%	0.00%
ABIOMED Inc	ABMD	0.07%	n/a	n/a	29.00%	0.02%
Delta Air Lines Inc	DAL	0.14%	2.83%	0.00%	13.07%	0.02%
United Continental Holdings Inc	UAL	0.10%	n/a	n/a	14.17%	0.01%
News Corp	NWS	0.01%	1.55%	0.00%	18.80%	0.00%
Centene Corp	CNC	0.11%	n/a	n/a	17.51%	0.02%
Macerich Co/The	MAC	0.03%	6.50%	0.00%	2.58%	0.00%
Martin Marietta Materials Inc	MLM	0.05%	1.09%	0.00%	12.23%	0.01%
PayPal Holdings Inc	PYPL	0.44%	n/a	n/a	22.12%	0.10%
Coty Inc	COTY	0.02%	6.44%	0.00%	8.78%	0.00%
DISH Network Corp	DISH	0.03%	n/a	n/a	-20.68%	-0.01%
Alexion Pharmaceuticals Inc	ALXN	0.12%	n/a	n/a	16.41%	0.02%
Everest Re Group Ltd	RE	0.04%	2.56%	0.00%	10.00%	0.00%
WellCare Health Plans Inc	WCG	0.06%	n/a	n/a	18.46%	0.01%
News Corp	NWSA	0.02%	1.56%	0.00%	18.80%	0.00%
Global Payments Inc	GPN	0.08%	0.04%	0.00%	14.67%	0.01%
Crown Castle International Corp	CCI	0.21%	3.84%	0.01%	18.23%	0.04%
Aptiv PLC	APTIV	0.09%	1.11%	0.00%	10.39%	0.01%
Advance Auto Parts Inc	AAP	0.05%	0.15%	0.00%	17.37%	0.01%
Capri Holdings Ltd	CPRI	0.03%	n/a	n/a	6.27%	0.00%
Align Technology Inc	ALGN	0.08%	n/a	n/a	23.19%	0.02%
Illumina Inc	ILMN	0.18%	n/a	n/a	25.16%	0.04%
Alliance Data Systems Corp	ADS	0.04%	1.28%	0.00%	12.18%	0.00%
LKQ Corp	LKQ	0.04%	n/a	n/a	13.85%	0.00%
Nielsen Holdings PLC	NLSN	0.04%	5.45%	0.00%	n/a	n/a
Garmin Ltd	GRMN	0.06%	3.06%	0.00%	6.03%	0.00%
Cimarex Energy Co	XEC	0.03%	0.96%	0.00%	63.18%	0.02%
Zoetis Inc	ZTS	0.18%	0.76%	0.00%	16.18%	0.03%
Digital Realty Trust Inc	DLR	0.09%	3.73%	0.00%	17.99%	0.02%
Equinix Inc	EQIX	0.13%	2.31%	0.00%	19.40%	0.03%
Discovery Inc	DISCK	0.04%	n/a	n/a	12.30%	0.01%

Notes:

- [9] Equals sum of Col. [16]  
 [10] Equals sum of Col. [18]  
 [11] Equals  $([9] \times (1 + (0.5 \times [10]))) + [10]$   
 [12] Source: Schedule-5, at 1  
 [13] Equals [11] - [12]  
 [14] Equals weight in S&P 500 based on market capitalization  
 [15] Source: Bloomberg Professional, as of January 31, 2019  
 [16] Equals [14] x [15]  
 [17] Source: Bloomberg Professional, as of January 31, 2019  
 [18] Equals [14] x [17]

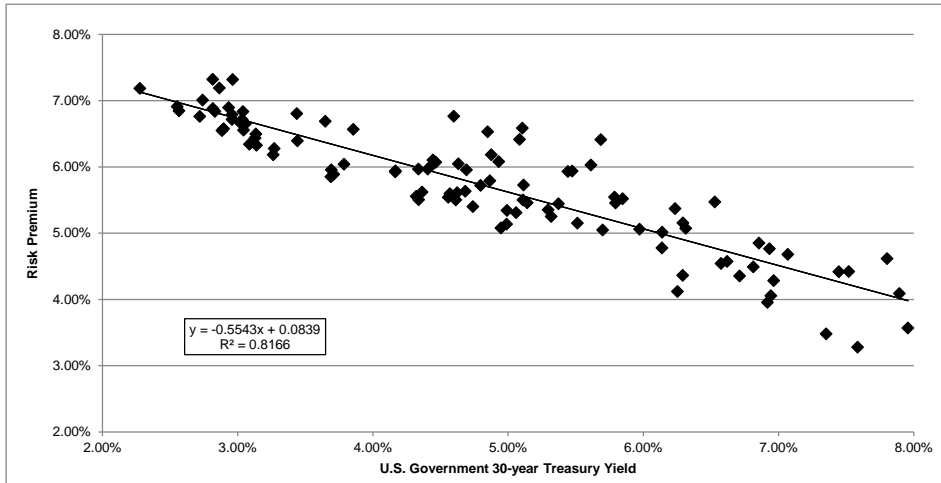


BOND YIELD PLUS RISK PREMIUM

	[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%
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%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
	Average Authorized Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
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	9.55%	3.27%	6.28%
2019.1	9.75%	3.03%	6.72%
AVERAGE	10.54%	4.81%	5.72%
MEDIAN	10.47%	4.74%	5.85%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.903661
R Square	0.816602
Adjusted R Square	0.814822
Standard Error	0.003942
Observations	105

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.007127	0.007127	458.621404	0.000000
Residual	103	0.001601	0.000016		
Total	104	0.008727			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.0839	0.001303	64.38	0.000000	0.081333	0.086504	0.081333	0.086504
U.S. Govt. 30-year Treasury	(0.5543)	0.025882	(21.42)	0.000000	(0.605614)	(0.502951)	(0.605614)	(0.502951)

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-Day Average [4]	3.03%	6.71%	9.74%
Blue Chip Consensus Forecast (Q2 2019 - Q2 2020) [5]	3.38%	6.52%	9.90%
Blue Chip Consensus Forecast (2020-2024) [6]	3.90%	6.23%	10.13%
<b>AVERAGE</b>			<b>9.92%</b>

Notes:

- [1] Source: Regulatory Research Associates, accessed February 7, 2019.
- [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, 30-day average as of January 31, 2019
- [5] Source: Blue Chip Financial Forecasts, Vol. 38, No. 2, February 1, 2019, at 2
- [6] Source: Blue Chip Financial Forecasts, Vol. 37, No. 12, December 1, 2018, at 14
- [7] See notes [4], [5] & [6]
- [8] Equals  $0.083919 + (-0.554283 \times \text{Column [7]})$
- [9] Equals Column [7] + Column [8]

EXPECTED EARNINGS ANALYSIS

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
		Value Line ROE 2021-2023	Value Line Total Capital 2017	Value Line Common Equity Ratio 2017	Total Equity 2017	Value Line Total Capital 2021-2023	Value Line Common Equity Ratio 2021-2023	Total Equity 2021-2023	Compound Annual Growth Rate	Adjustment Factor	Adjusted Return on Common Equity
Atmos Energy Corporation	ATO	11.00%	6,966	56.00%	3,901	11,000	55.00%	6,050	9.17%	1.044	11.48%
New Jersey Resources Corporation	NJR	13.00%	2,234	55.40%	1,237	3,160	62.00%	1,959	9.62%	1.046	13.60%
Northwest Natural Gas Company	NWN	12.00%	1,426	52.10%	743	1,750	53.50%	936	4.73%	1.023	12.28%
One Gas Inc.	OGS	11.00%	3,154	62.20%	1,961	3,850	62.00%	2,387	4.00%	1.020	11.22%
South Jersey Industries, Inc.	SJI	11.50%	2,315	51.50%	1,192	3,700	50.00%	1,850	9.18%	1.044	12.00%
Southwest Gas Corporation	SWX	9.50%	3,613	50.20%	1,814	5,700	52.50%	2,993	10.53%	1.050	9.98%
Spire, Inc.	SR	10.00%	3,986	50.00%	1,993	5,115	55.00%	2,813	7.14%	1.034	10.34%
Mean											11.56%
Median											11.48%

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  $2 \times (1 + [8]) / (2 + [8])$
- [10] Equals [1] x [9]

SIZE PREMIUM CALCULATION

Proxy Group Market Capitalization and Market-to-Book Ratio

Company	Ticker	[1]	[2]
		Market Capitalization (\$ billions)	Market-to-Book Ratio
Atmos Energy Corporation	ATO	10.93	2.07
New Jersey Resources Corporation	NJR	4.08	2.77
Northwest Natural Gas Company	NWN	1.74	2.37
ONE Gas Inc.	OGS	4.19	2.08
South Jersey Industries, Inc.	SJI	2.54	2.00
Southwest Gas Corporation	SWX	4.08	1.96
Spire, Inc.	SR	3.81	1.67
Average		4.48	2.13
Median		4.08	2.07

Cascade Natural Gas Corp.	
Common Equity (\$ millions) [3]	202.50
Implied Market Capitalization [4]	420.18
As a percent of Proxy Group Median Market Capitalization	10.30%

Duff & Phelps Cost of Capital Navigator -- Size Premium

Breakdown of Deciles 1-10	[5]	[6]
	Market Capitalization of Largest Company (\$ millions)	Size Premium
1-Largest	1,073,390.57	-0.30%
2	29,022.867	0.52%
3	13,455.802	0.81%
4	7,254.230	0.85%
5	4,503.549	1.28%
6	2,992.251	1.50%
7	1,960.201	1.58%
8	1,292.224	1.80%
9	727.843	2.46%
10-Smallest	321.578	5.22%
Cascade Natural Gas Corp. - Implied Market Capitalization	420	2.46%
Proxy Group Median Market Capitalization	4,081	1.28%
Size Premium [7]		1.18%

Notes:

- [1] Source: Bloomberg Professional; equals 30-day average as of January 31, 2019  
 [2] Source: Bloomberg Professional; equals 30-day average as of January 31, 2019  
 [3] Data provided by Cascade Natural Gas Corp.  
 [4] Equals [3] x proxy group median market-to-book ratio  
 [5] Duff & Phelps Cost of Capital Navigator - Size Premium: Annual Data as of 12/31/2018  
 [6] Duff & Phelps Cost of Capital Navigator - Size Premium: Annual Data as of 12/31/2018  
 [7] Equals 2.46% - 1.28%

FLOTATION COST ADJUSTMENT -- CASCADE NATURAL GAS PROXY GROUP

Company	Date [i]	Shares Issued (000)	Offering Price	Under-writing Discount [ii]	Offering Expense (\$000)	Net Proceeds Per Share	Total Flotation Costs (\$000)	Equity Issue Before Costs (\$000)	Net Proceeds (\$000)	Flotation Cost Percentage
MDU Resources Group	2/4/2004	2,300	\$ 23.32	\$ 0.7930	\$ 350	\$ 22.37	\$ 2,174	\$ 53,636	\$ 51,462	4.05%
MDU Resources Group	11/19/2002	2,400	\$ 24.00	\$ 0.7200	\$ 193	\$ 23.20	\$ 1,921	\$ 57,600	\$ 55,680	3.33%
							\$ 4,094	\$ 111,236	\$ 107,142	3.68%

Notes:

[i] Offering Completion Date

[ii] Underwriting discount was calculated as the market price minus the offering price when not explicitly given in the prospectus.

The flotation cost adjustment is derived by dividing the dividend yield by 1 - F (where F = flotation costs expressed in percentage terms), or by 0.9632, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

$$k = \frac{D \times (1 + 0.5g)}{P \times (1 - F)} + g$$

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Expected Dividend Yield Adjusted for Flotation Costs	[6] Value Line Earnings Growth	[7] Yahoo! Finance Earnings Growth	[8] Zacks Earnings Growth	[9] Average Earnings Growth	[10] ROE	[11] ROE Adjusted for Flotation Costs
Atmos Energy Corporation	ATO	\$2.10	\$93.27	2.25%	2.33%	2.42%	7.50%	6.45%	6.50%	6.82%	9.14%	9.23%
New Jersey Resources Corporation	NJR	\$1.17	\$46.09	2.54%	2.63%	2.73%	9.50%	6.00%	7.00%	7.50%	10.13%	10.23%
Northwest Natural Gas Company	NWN	\$1.90	\$60.49	3.14%	3.34%	3.47%	30.50%	4.00%	4.30%	12.93%	16.28%	16.41%
One Gas Inc.	OGS	\$1.84	\$79.77	2.31%	2.39%	2.48%	10.50%	5.50%	5.90%	7.30%	9.69%	9.78%
South Jersey Industries, Inc.	SJI	\$1.15	\$28.87	3.98%	4.21%	4.37%	9.50%	12.70%	12.50%	11.57%	15.78%	15.94%
Southwest Gas Corporation	SWX	\$2.08	\$77.00	2.70%	2.79%	2.90%	9.00%	6.20%	5.00%	6.73%	9.53%	9.63%
Spire, Inc.	SR	\$2.37	\$75.12	3.15%	3.22%	3.35%	6.50%	2.70%	4.00%	4.40%	7.62%	7.75%
Median											9.69%	9.78%
Flotation Cost Adjustment											[12]	0.09%

Notes:

[1] Source: Bloomberg Professional

[2] Source: Bloomberg Professional, equals 30-day average as of January 31, 2019

[3] Equals [1] / [2]

[4] Equals [3] x (1 + 0.5 x [9])

[5] Equals [4] / (1 - Flotation Cost)

[6] Source: Value Line

[7] Source: Yahoo! Finance

[8] Source: Zacks

[9] Equals Average ([6], [7], [8])

[10] Equals [4] + [9]

[11] Equals [5] + [9]

[12] Equals Average ([11]) - Average ([10])

2019-2023 CAPITAL EXPENDITURES AS A PERCENT OF 2017 NET PLANT  
 (\$ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2017	2019	2020	2021	2022	2023	2019-23 Cap. Ex. / 2017 Net Plant
Atmos Energy Corporation	ATO							
Capital Spending per Share			\$14.65	\$14.43	\$14.20	\$14.20	\$14.20	
Common Shares Outstanding			116.00	123.00	130.00	130.00	130.00	
Capital Expenditures			\$1,699.4	\$1,774.3	\$1,846.0	\$1,846.0	\$1,846.0	97.33%
Net Plant		\$9,259.2						
New Jersey Resources Corporation	NJR							
Capital Spending per Share			\$2.25	\$2.30	\$2.35	\$2.35	\$2.35	
Common Shares Outstanding			86.50	86.50	86.50	86.50	86.50	
Capital Expenditures			\$194.6	\$199.0	\$203.3	\$203.3	\$203.3	38.45%
Net Plant		\$2,609.7						
Northwest Natural Gas Company	NWN							
Capital Spending per Share			\$6.65	\$6.45	\$6.25	\$6.25	\$6.25	
Common Shares Outstanding			30.00	31.00	32.00	32.00	32.00	
Capital Expenditures			\$199.5	\$200.0	\$200.0	\$200.0	\$200.0	44.32%
Net Plant		\$2,255.0						
ONE Gas, Inc.	OGS							
Capital Spending per Share			\$7.40	\$7.45	\$7.50	\$7.50	\$7.50	
Common Shares Outstanding			53.00	54.00	55.00	55.00	55.00	
Capital Expenditures			\$392.2	\$402.3	\$412.5	\$412.5	\$412.5	50.70%
Net Plant		\$4,007.6						
South Jersey Industries, Inc.	SJI							
Capital Spending per Share			\$3.10	\$3.93	\$4.75	\$4.75	\$4.75	
Common Shares Outstanding			91.00	93.00	95.00	95.00	95.00	
Capital Expenditures			\$282.1	\$365.0	\$451.3	\$451.3	\$451.3	74.10%
Net Plant		\$2,700.2						
Southwest Gas Corporation	SWX							
Capital Spending per Share			\$15.20	\$16.23	\$17.25	\$17.25	\$17.25	
Common Shares Outstanding			51.00	53.00	55.00	55.00	55.00	
Capital Expenditures			\$775.2	\$859.9	\$948.8	\$948.8	\$948.8	99.06%
Net Plant		\$4,523.7						
Spire, Inc.	SR							
Capital Spending per Share			\$9.60	\$9.80	\$10.00	\$10.00	\$10.00	
Common Shares Outstanding			52.00	53.50	55.00	55.00	55.00	
Capital Expenditures			\$499.2	\$524.3	\$550.0	\$550.0	\$550.0	72.94%
Net Plant		\$3,665.2						
Cascade Natural Gas	CNG							
Capital Expenditures [8]			\$86.6	\$67.6	\$46.2	\$42.5	\$39.1	73.51%
Net Plant in Service [9]		\$383.75						
								CNG CapEx Total (2019 - 2023)
								\$282.11
								CNG CapEx Annual Average
								\$56.4
								Proxy Group Median
								72.9%
								CNG as % Proxy Group Median
								1.01

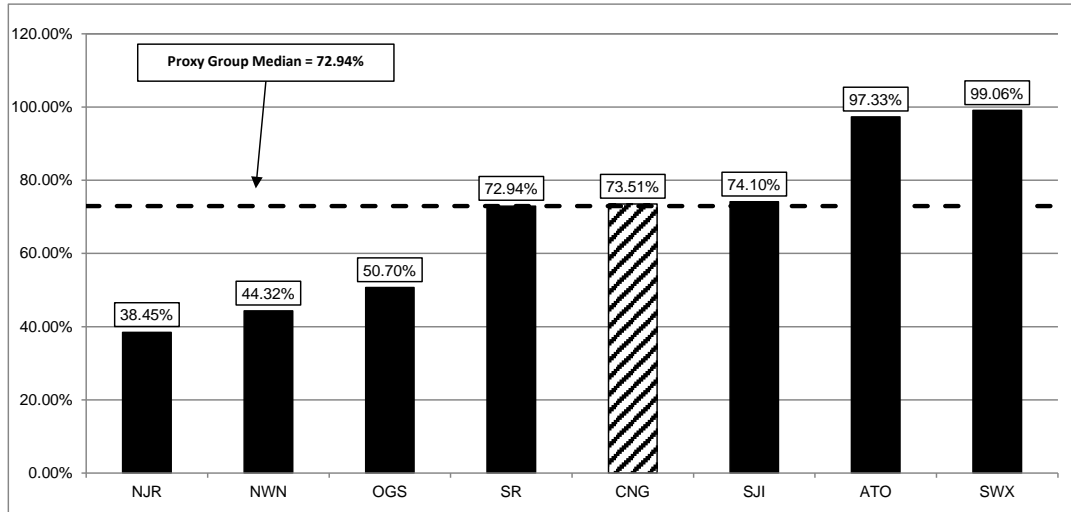
Notes:

[1] - [6] Value Line, November 30, 2018

[7] Equals (Column [2] + [3] + [4] + [5] + [6]) / Column [1]

[8] - [9] Data provided by Cascade Natural Gas

2019-2023 CAPITAL EXPENDITURES AS A PERCENT OF 2017 NET PLANT



Projected CAPEX / 2017 Net Plant

Company		2019-2023
New Jersey Resources Corporation	NJR	38.45%
Northwest Natural Gas Company	NWN	44.32%
ONE Gas, Inc.	OGS	50.70%
Spire, Inc.	SR	72.94%
Cascade Natural Gas	CNG	73.51%
South Jersey Industries, Inc.	SJI	74.10%
Atmos Energy Corporation	ATO	97.33%
Southwest Gas Corporation	SWX	99.06%
Proxy Group Median		72.94%
CNG/Proxy Group		1.01

Notes:

Source: Schedule-10 page 1 col. [7]



**COMPARISON OF CASCADE NATURAL GAS AND PROXY GROUP COMPANIES  
 REGULATORY FRAMEWORK - ADJUSTMENT CLAUSES**

Proxy Group Company	Operation State	Operation	Test Year	Rate Base	Decoupling		New Capital		
					Full	Partial	Generation Capacity	Generic Infrastructure	
Atmos Energy Corporation	Kansas	Gas	1	Historical			x	x	
	Kentucky	Gas	1	Fully Forecast			x	x	
	Louisiana	Gas	1	Historical			x	x	
	Mississippi	Gas	1	Fully Forecast			x	x	
	Tennessee	Gas	1	Fully Forecast			x		
	Texas RRC	Gas	1	Historical			x	x	
New Jersey Resources Corporation	New Jersey	Gas	1	Partially Forecast	x			x	
Northwest Natural Gas Company	Oregon	Gas	1	Fully Forecast			x		
	Washington	Gas	1	Historical					
ONE Gas, Inc.	Kansas	Gas	1	Historical			x	x	
	Oklahoma	Gas	1	Historical			x		
	Texas RRC	Gas	1	Historical			x	x	
South Jersey Industries, Inc.	New Jersey	Gas	1	Partially Forecast	x			x	
Southwest Gas Corporation	Arizona	Gas	1	Historical			x	x	
	California	Gas	1	Fully Forecast			x		
	Nevada	Gas	1	Historical			x	x	
Spire, Inc.	Alabama	Gas	1	Historical			x		
	Missouri	Gas	1	Historical				x	
Proxy Companies				Historical: 11 Forecast: 7	Average: 7 Year End: 11	4	12	0	12
Total Jurisdictions	18								
Percent of Jurisdictions				Forecast: 39%	Year End: 61%	22%	67%	0%	67%
Cascade Natural Gas [2]	Washington			Historical	Average	x			x

Notes:

[1] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated September 28, 2018. Operating subsidiaries not covered in this report were excluded from this exhibit.

[2] Data provided by Cascade Natural Gas Corporation

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]

Proxy Group Company	Ticker	2017	2016	MRY
Atmos Energy Corporation	ATO	59.63%	61.35%	59.63%
New Jersey Resources Corporation	NJR	62.35%	56.79%	62.35%
Northwest Natural Gas Company	NWN	51.95%	55.38%	51.95%
ONE Gas, Inc.	OGS	63.18%	62.08%	63.18%
South Jersey Industries, Inc.	SJI	54.63%	66.50%	54.63%
Southwest Gas Corporation	SWX	51.32%	54.69%	51.32%
Spire, Inc.	SR	56.45%	64.21%	56.45%
MEAN		57.07%	60.14%	57.07%
LOW		51.32%	54.69%	51.32%
HIGH		63.18%	66.50%	63.18%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2017	2016	MRY
Atmos Energy Corporation	ATO	59.63%	61.35%	59.63%
New Jersey Natural Gas Company	NJR	62.35%	56.79%	62.35%
Northwest Natural Gas Company	NWN	51.95%	55.38%	51.95%
Kansas Gas Service Company	OGS	63.35%	62.01%	63.35%
Oklahoma Natural Gas Company	OGS		62.13%	62.13%
Texas Gas Service Company	OGS	63.01%	62.09%	63.01%
South Jersey Gas Company	SJI	54.63%	66.50%	54.63%
Southwest Gas Corporation	SWX	51.32%	54.69%	51.32%
Spire Alabama Inc.	SR		77.62%	77.62%
Spire Gulf Inc.	SR	41.52%	56.30%	41.52%
Spire Mississippi Inc.	SR	68.02%	53.26%	68.02%
Spire Missouri Inc.	SR	57.13%	56.93%	57.13%

Notes:

[1] Ratios are weighted by actual common capital and long-term debt of Operating Subsidiaries

[2] Natural Gas Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]

Proxy Group Company	Ticker	2017	2016	MRY
Atmos Energy Corporation	ATO	40.37%	38.65%	40.37%
New Jersey Resources Corporation	NJR	37.65%	43.21%	37.65%
Northwest Natural Gas Company	NWN	48.05%	44.62%	48.05%
ONE Gas, Inc.	OGS	36.82%	37.92%	36.82%
South Jersey Industries, Inc.	SJI	45.37%	33.50%	45.37%
Southwest Gas Corporation	SWX	48.68%	45.31%	48.68%
Spire, Inc.	SR	43.55%	35.79%	43.55%
MEAN		42.93%	39.86%	42.93%
LOW		36.82%	33.50%	36.82%
HIGH		48.68%	45.31%	48.68%

LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2017	2016	MRY
Atmos Energy Corporation	ATO	40.37%	38.65%	40.37%
New Jersey Natural Gas Company	NJR	37.65%	43.21%	37.65%
Northwest Natural Gas Company	NWN	48.05%	44.62%	48.05%
Kansas Gas Service Company	OGS	36.65%	37.99%	36.65%
Oklahoma Natural Gas Company	OGS		37.87%	37.87%
Texas Gas Service Company	OGS	36.99%	37.91%	36.99%
South Jersey Gas Company	SJI	45.37%	33.50%	45.37%
Southwest Gas Corporation	SWX	48.68%	45.31%	48.68%
Spire Alabama Inc.	SR		22.38%	22.38%
Spire Gulf Inc.	SR	58.48%	43.70%	58.48%
Spire Mississippi Inc.	SR	31.98%	46.74%	31.98%
Spire Missouri Inc.	SR	42.87%	43.07%	42.87%

Notes:

[1] Ratios are weighted by actual common capital and long-term debt of Operating Subsidiaries

[2] Natural Gas Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.

CAPITAL STRUCTURE ANALYSIS

PREFERRED EQUITY RATIO [1]

Proxy Group Company	Ticker	2017	2016	MRY
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%
New Jersey Resources Corporation	NJR	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%
ONE Gas, Inc.	OGS	0.00%	0.00%	0.00%
South Jersey Industries, Inc.	SJI	0.00%	0.00%	0.00%
Southwest Gas Corporation	SWX	0.00%	0.00%	0.00%
Spire, Inc.	SR	0.00%	0.00%	0.00%
MEAN		0.00%	0.00%	0.00%
LOW		0.00%	0.00%	0.00%
HIGH		0.00%	0.00%	0.00%

PREFERRED EQUITY RATIO - UTILITY OPERATING COMPANIES [2]

Company Name	Ticker	2017	2016	MRY
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%
New Jersey Natural Gas Company	NJR	0.00%	0.00%	0.00%
Northwest Natural Gas Company	NWN	0.00%	0.00%	0.00%
Kansas Gas Service Company	OGS	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS		0.00%	0.00%
Texas Gas Service Company	OGS	0.00%	0.00%	0.00%
South Jersey Gas Company	SJI	0.00%	0.00%	0.00%
Southwest Gas Corporation	SWX	0.00%	0.00%	0.00%
Spire Alabama Inc.	SR		0.00%	0.00%
Spire Gulf Inc.	SR	0.00%	0.00%	0.00%
Spire Mississippi Inc.	SR	0.00%	0.00%	0.00%
Spire Missouri Inc.	SR	0.00%	0.00%	0.00%

Notes:

[1] Ratios are weighted by actual common capital and long-term debt of Operating Subsidiaries

[2] Natural Gas Operating Subsidiaries with data listed as N/A from SNL Financial have been excluded from the analysis.