

Attachment JRW-1
Educational Background, Research, and Related Business Experience
J. Randall Woolridge

J. Randall Woolridge is a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed Faculty Fellow in Business Administration in the College of Business Administration of the Pennsylvania State University in University Park, PA. In addition, Professor Woolridge is Director of the Smeal College Trading Room and President and CEO of the Nittany Lion Fund, LLC.

Professor Woolridge received a Bachelor of Arts degree in Economics from the University of North Carolina, a Master of Business Administration degree from the Pennsylvania State University, and a Doctor of Philosophy degree in Business Administration (major area-finance, minor area-statistics) from the University of Iowa. He has taught Finance courses including corporation finance, commercial and investment banking, and investments at the undergraduate, graduate, and executive MBA levels.

Professor Woolridge's research has centered on empirical issues in corporation finance and financial markets. He has published over 35 articles in the best academic and professional journals in the field, including the *Journal of Finance*, the *Journal of Financial Economics*, and the *Harvard Business Review*. His research has been cited extensively in the business press. His work has been featured in the *New York Times*, *Forbes*, *Fortune*, *The Economist*, *Barron's*, *Wall Street Journal*, *Business Week*, *Investors' Business Daily*, *USA Today*, and other publications. In addition, Dr. Woolridge has appeared as a guest to discuss the implications of his research on CNN's *Money Line*, CNBC's *Morning Call* and *Business Today*, and Bloomberg's *Morning Call*.

Professor Woolridge's stock valuation book, *The StreetSmart Guide to Valuing a Stock* (McGraw-Hill, 2003), was released in its second edition. He has also co-authored *Spinoffs and Equity Carve-Outs: Achieving Faster Growth and Better Performance* (Financial Executives Research Foundation, 1999) as well as a textbook entitled *Basic Principles of Finance* (Kendall Hunt, 2011).

Professor Woolridge has also consulted with corporations, financial institutions, and government agencies. In addition, he has directed and participated in university- and company- sponsored professional development programs for executives in 25 countries in North and South America, Europe, Asia, and Africa.

Over the past thirty-five years Dr. Woolridge has prepared testimony and/or provided consultation services in regulatory rate cases in the rate of return area in following states: Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Indiana, Kansas, Kentucky, Maryland, Massachusetts, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Washington, D.C. He has also testified before the Federal Energy Regulatory Commission.

J. Randall Woolridge

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Home Address

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State College, PA 16801
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Academic Experience

Professor of Finance, the Smeal College of Business Administration, the Pennsylvania State University (July 1, 1990 to the present).

President, Nittany Lion Fund LLC, (January 1, 2005 to the present)

Director, the Smeal College Trading Room (January 1, 2001 to the present)

Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration (July 1, 1987 to the present).

Associate Professor of Finance, College of Business Administration, the Pennsylvania State University (July 1, 1984 to June 30, 1990).

Assistant Professor of Finance, College of Business Administration, the Pennsylvania State University (September, 1979 to June 30, 1984).

Education

Doctor of Philosophy in Business Administration, the University of Iowa. Major field: Finance.

Master of Business Administration, the Pennsylvania State University.

Bachelor of Arts, the University of North Carolina. Major field: Economics.

Books

James A. Miles and J. Randall Woolridge, *Spinoffs and Equity Carve-Outs: Achieving Faster Growth and Better Performance* (Financial Executives Research Foundation), 1999

Patrick Cusatis, Gary Gray, and J. Randall Woolridge, *The StreetSmart Guide to Valuing a Stock* (2nd Edition, McGraw-Hill), 2003.

J. Randall Woolridge and Gary Gray, *The New Corporate Finance, Capital Markets, and Valuation: An Introductory Text* (Kendall Hunt, 2003).

Research

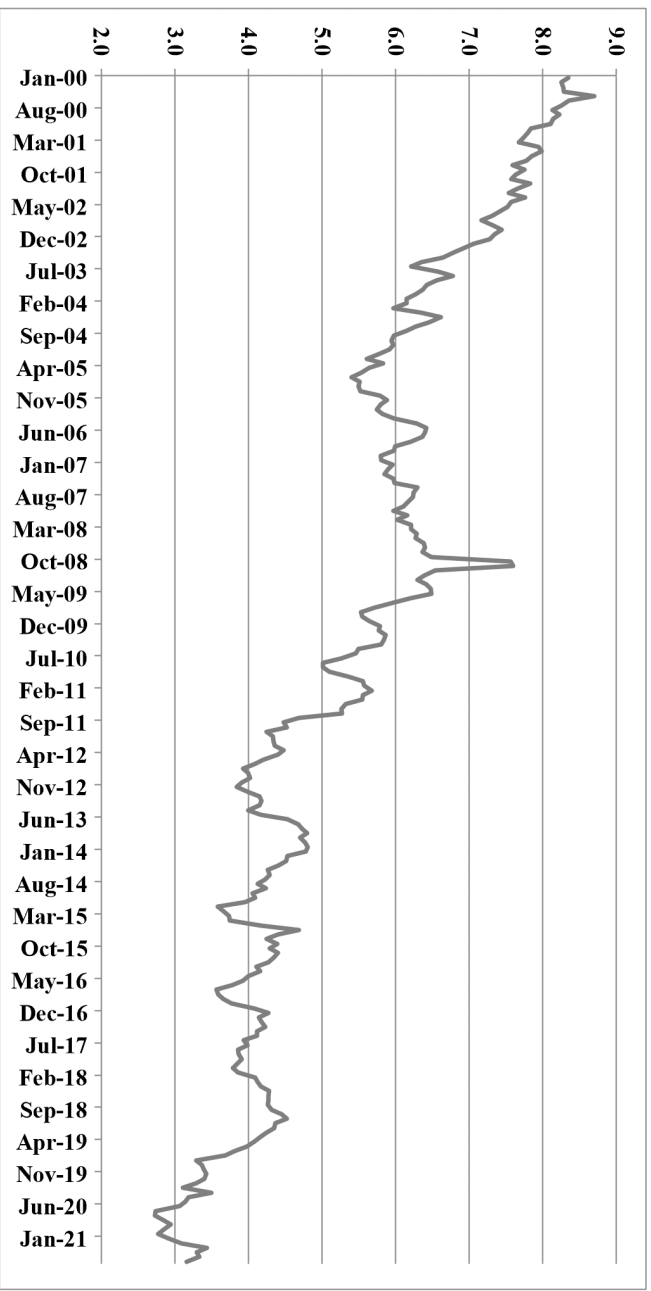
Dr. Woolridge has published over 35 articles in the best academic and professional journals in the field, including the *Journal of Finance*, the *Journal of Financial Economics*, and the *Harvard Business Review*.

Unitil Energy Systems

DOE's Recommended Cost of Capital

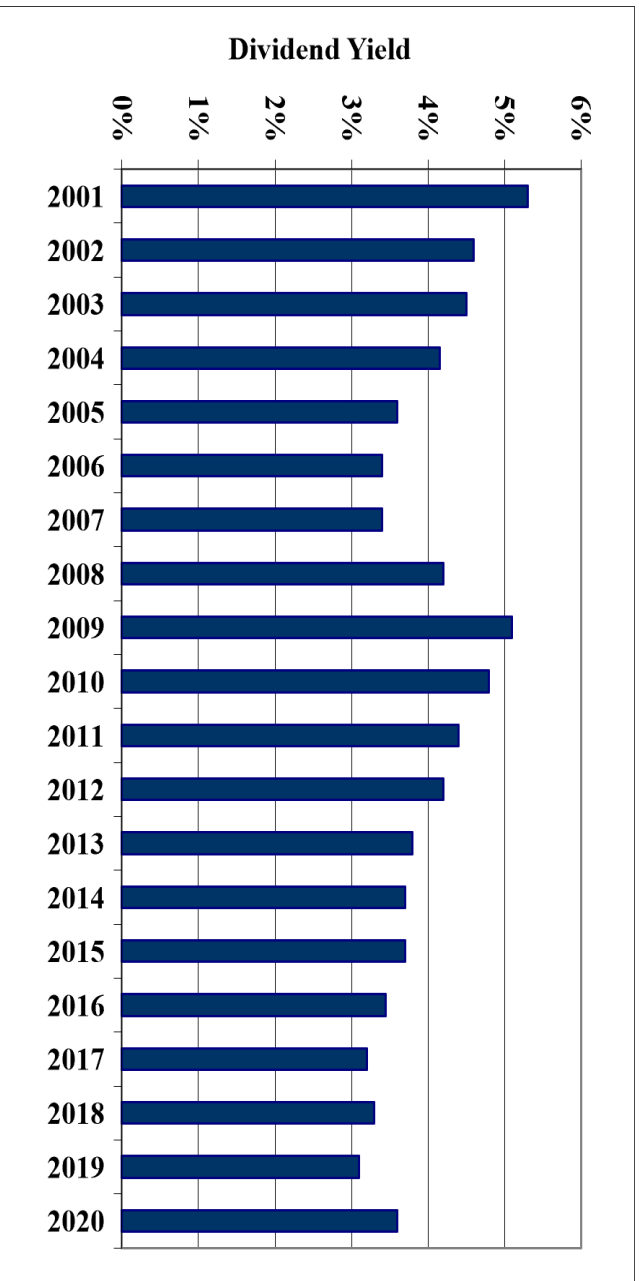
Capital Source	Capitalization Amounts	Capitalization Ratios	Cost Rate	Weighted Cost Rate
Short-Term Debt	18,066,524.0	7.82%	1.69%	0.13%
Long-Term Debt	106,500,000.00	46.08%	5.49%	2.53%
Preferred Stock	188,700.00	0.08%	6.00%	0.00%
Common Equity	<u>106,351,927.55</u>	<u>46.02%</u>	8.75%	<u>4.03%</u>
Total Capital	231,107,151.55	100.00%		6.69%

Attachment JRW-3
Long-Term 'A' Rated Public Utility Bonds

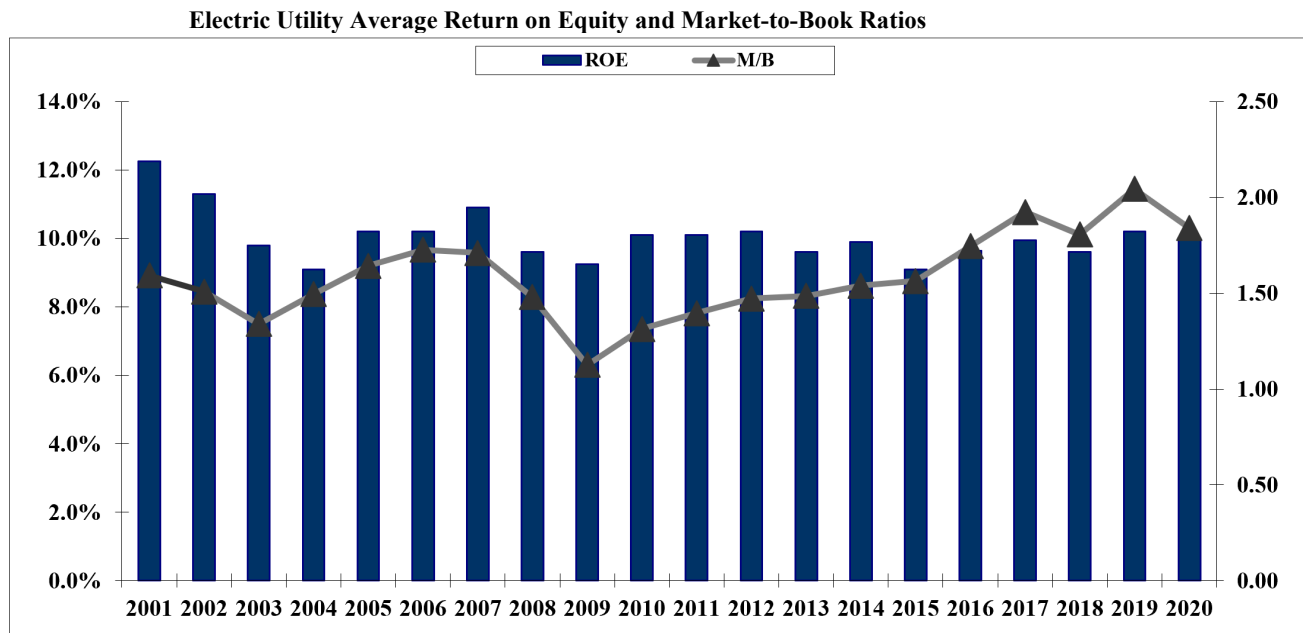


Data Source: Mergent Bond Record

Electric Utility Average Dividend Yield



Data Source: *Value Line Investment Survey*.



Data Source: *Value Line Investment Survey.*

Summary Financial Statistics for Proxy Groups

Panel A
Electric Proxy Group

Company	Operating Revenue (\$mil)	Percent Reg Elec Revenue	Percent Reg Gas Revenue	Net Plant (\$mil)	Market Cap (\$mil)	S&P Issuer Credit Rating	Moody's Long Term Rating	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio	Return on Equity	Market to Book Ratio
ALLETE, Inc. (NYSE-ALE)	\$1,240.5	84%	0%	\$4,405.6	\$3,983.2	BBB	Baa1	2.89x	MN, WI	56.1%	8.5%	1.78
Alliant Energy Corporation (NYSE-LNT)	\$3,647.7	84%	12%	\$13,527.1	\$14,177.5	A-	Baa2	2.63x	WI,IA,IL,MN	43.6%	11.4%	2.72
Ameren Corporation (NYSE-AEE)	\$5,646.0	80%	13%	\$24,412.0	\$21,439.4	BBB+	Baa1	3.56x	IL,MO	44.7%	10.6%	2.66
American Electric Power Co. (NYSE-AEP)	\$15,561.4	96%	0%	\$61,095.5	\$49,306.3	A-	Baa2	2.67x	10 States	38.6%	9.9%	2.51
Avista Corporation (NYSE-AVA)	\$1,345.6	64%	22%	\$4,944.9	\$3,488.8	BBB	Baa2	2.21x	WA,OR,AK,ID	45.7%	10.6%	1.80
CMS Energy Corporation (NYSE-CMS)	\$6,845.0	65%	28%	\$18,973.0	\$19,402.5	BBB+	NA	2.54x	MI	27.3%	13.9%	3.87
Consolidated Edison, Inc. (NYSE-ED)	\$12,574.0	64%	17%	\$44,747.0	\$29,375.6	A-	Baa2	2.58x	NY,PA	44.2%	7.7%	1.62
Dominion Energy Inc. (NYSE-D)	\$16,572.0	67%	34%	\$69,581.0	\$74,607.2	BBB+	NA	2.49x	VA,NC,SC,OH,WV,UT	40.5%	5.4%	2.52
Duke Energy Corporation (NYSE-DUK)	\$24,658.0	91%	7%	\$102,339.0	\$74,542.2	BBB+	Baa2	2.59x	NC,OH,FL,SC,KY	40.5%	8.3%	1.66
Edison International (NYSE-EIX)	\$12,347.0	100%	0%	\$44,849.0	\$25,437.9	BBB	Baa3	2.54x	CA	37.9%	10.8%	1.91
Entergy Corporation (NYSE-ETR)	\$10,878.7	88%	0%	\$35,515.6	\$25,636.9	BBB+	Baa2	2.15x	LA,AR,MS,TX	33.4%	13.0%	2.50
Eversource Energy (NYSE-EVRG)	\$5,147.8	100%	0%	\$19,216.9	\$16,564.2	A-	NA	3.07x	KS,MO	46.0%	7.2%	1.93
Eversource Energy (NYSE-ES)	\$8,526.5	82%	12%	\$27,635.4	\$32,513.5	A-	Baa1	3.49x	CT,NH,MA	44.4%	7.5%	2.57
Hawaiian Electric Industries (NYSE-HE)	\$2,874.6	89%	0%	\$5,308.8	\$5,109.8	BBB	Baa1	3.73x	HI	47.7%	9.8%	2.24
IDACORP, Inc. (NYSE-IDA)	\$1,346.4	100%	0%	\$4,531.5	\$5,372.7	BBB	Baa1	2.96x	ID	57.2%	9.6%	2.18
MGE Energy, Inc. (NYSE-MGEE)	\$555.0	70%	30%	\$1,643.4	\$2,631.0	AA-	A1	4.95x	WI	60.3%	10.4%	3.07
NextEra Energy, Inc. (NYSE-NEE)	\$19,204.0	71%	0%	\$82,010.0	\$137,996.0	A-	Baa1	2.43x	FL	43.8%	10.6%	3.73
NorthWestern Corporation (NYSE-NWE)	\$1,257.9	78%	22%	\$4,704.6	\$3,932.3	BBB	NA	2.83x	MT,SD,NE	47.5%	10.2%	1.93
OGE Energy Corp. (NYSE-OGE)	\$2,231.6	100%	0%	\$8,964.8	\$8,015.1	BBB+	NA	3.36x	OK,AR	55.2%	10.6%	1.94
Otter Tail Corporation (NDQ-OTTR)	\$919.5	50%	0%	\$1,775.7	\$2,065.4	BBB	Baa2	4.16	MN,ND,SD	52.1%	11.5%	2.64
Pinnacle West Capital Corp. (NYSE-PNW)	\$3,471.2	95%	0%	\$14,254.3	\$11,273.2	A-	A3	2.95x	AZ	47.8%	10.1%	2.08
Portland General Electric Company (NYSE-POR)	\$2,123.0	100%	0%	\$6,820.0	\$5,325.9	BBB+	A3	2.62x	OR	48.1%	8.4%	2.06
Sempra Energy (NYSE-SRE)	\$10,829.0	56%	44%	\$37,043.0	\$43,210.1	BBB+	Baa2	2.31x	CA,TX	36.5%	10.4%	2.44
Southern Company (NYSE-SO)	\$21,419.0	73%	14%	\$84,420.0	\$71,408.9	BBB+	Baa1	3.20x	GA,FL,NJ,IL,VA,TN,MS	34.1%	18.1%	2.60
WEC Energy Group (NYSE-WEC)	\$7,523.1	58%	42%	\$23,661.5	\$32,871.4	A-	Baa1	3.12x	WI,IL,MN,MI	43.9%	11.4%	3.25
Xcel Energy Inc. (NYSE-XEL)	\$11,529.0	83%	16%	\$40,781.0	\$36,307.1	A-	Baa1	2.69x	MN,WI,ND,SD,MI	39.2%	10.8%	2.74
Mean	\$8,087.4	80%	12%	\$30,275.4	\$29,076.7	BBB+	Baa1	2.95		44.5%	10.3%	2.42
Median	\$6,245.5	82%	10%	\$21,439.2	\$20,421.0	BBB+	Baa1	2.76		44.3%	10.4%	2.47

Data Source: Company 2020 SEC 10-K filings, S&P Capital IQ; Value Line Investment Survey, 2021.

Panel B
Nelson Proxy Group

Company	Operating Revenue (\$mil)	Percent Reg Elec Revenue	Percent Reg Gas Revenue	Net Plant (\$mil)	Market Cap (\$mil)	S&P Issuer Credit Rating	Moody's Long Term Rating	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio	Return on Equity	Market to Book Ratio
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Consolidated Edison, Inc. (NYSE-ED)	\$12,574.0	64%	17%	\$44,747.0	\$29,375.6	A-	Baa2	2.58x	NY,PA	44.2%	7.7%	1.62
DTE Energy Company (NYSE-DTE)	\$14,212.0	37%	39%	\$21,650.0	\$20,066.4	BBB+	Baa1	3.15	MI	42.9%	10.8%	1.87
Duke Energy Corporation (NYSE-DUK)	\$24,658.0	91%	7%	\$102,339.0	\$74,542.2	BBB+	Baa2	2.59x	NC,OH,FL,SC,KY	40.5%	8.3%	1.66
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NextEra Energy, Inc. (NYSE-NEE)	\$19,204.0	71%	0%	\$82,010.0	\$137,996.0	A-	Baa1	2.43x	FL	43.8%	10.6%	3.73
NorthWestern Corporation (NYSE-NWE)	\$1,257.9	78%	22%	\$4,704.6	\$3,932.3	BBB	NA	2.83x	MT,SD,NE	47.5%	10.2%	1.93

Value Line Risk Metrics for Proxy Groups

Panel A
Electric Proxy Group

Company	Beta	Financial Strength	Safety	Earnings Predictability	Stock Price Stability
ALLETE, Inc. (NYSE-ALE)	0.90	A	2	90	90
Alliant Energy Corporation (NYSE-LNT)	0.85	A	2	95	95
Ameren Corporation (NYSE-AEE)	0.85	A	1	95	95
American Electric Power Co. (NYSE-AEP)	0.75	A+	1	95	100
Avista Corporation (NYSE-AVA)	0.95	B++	2	60	65
CMS Energy Corporation (NYSE-CMS)	0.80	B++	2	90	95
Consolidated Edison, Inc. (NYSE-ED)	0.75	A+	1	100	85
Dominion Energy Inc. (NYSE-D)	0.85	B++	2	55	90
Duke Energy Corporation (NYSE-DUK)	0.90	A	2	90	95
Edison International (NYSE-EIX)	1.00	B+	3	5	75
Entergy Corporation (NYSE-ETR)	0.95	B++	2	70	90
Eversource Energy (NYSE-ES)	0.90	A	1	100	85
Hawaiian Electric Industries (NYSE-HE)	0.85	A	2	75	85
IDACORP, Inc. (NYSE-IDA)	0.85	A	1	100	100
MGE Energy, Inc. (NYSE-MGEE)	0.75	A+	1	100	95
NextEra Energy, Inc. (NYSE-NEE)	0.95	A+	1	80	90
NorthWestern Corporation (NYSE-NWE)	0.95	B++	2	90	85
OGE Energy Corp. (NYSE-OGE)	1.05	A	2	90	80
Otter Tail Corporation (NDQ-OTTR)	0.90	A	2	95	100
Pinnacle West Capital Corp. (NYSE-PNW)	0.95	A	2	100	90
Portland General Electric Company (NYSE-POR)	0.90	B++	3	85	90
Sempra Energy (NYSE-SRE)	1.00	A	2	85	90
Southern Company (NYSE-SO)	0.95	A	2	95	90
WEC Energy Group (NYSE-WEC)	0.80	A+	1	95	85
Xcel Energy Inc. (NYSE-XEL)	0.80	A+	1	100	95
Mean	0.89	A	1.7	85	89

Data Source: Value Line Investment Survey, 2021.

Nelson Proxy Group

Company	Beta	Financial Strength	Safety	Earnings Predictability	Stock Price Stability
ALLETE, Inc. (NYSE-ALE)	0.90	A	2	90	90
Alliant Energy Corporation (NYSE-LNT)	0.85	A	2	95	95
Ameren Corporation (NYSE-AEE)	0.85	A	1	95	95
American Electric Power Co. (NYSE-AEP)	0.75	A+	1	95	100
Avista Corporation (NYSE-AVA)	0.95	B++	2	60	65
CMS Energy Corporation (NYSE-CMS)	0.80	B++	2	90	95
Consolidated Edison, Inc. (NYSE-ED)	0.75	A+	1	100	85
DTE Energy Company (NYSE-DTE)	0.95	A	2	95	90
Duke Energy Corporation (NYSE-DUK)	0.90	A	2	90	95
Entergy Corporation (NYSE-ETR)	0.95	B++	2	70	90
Eversource Energy (NYSE-ES)	0.90	A	1	100	85
Hawaiian Electric Industries (NYSE-HE)	0.85	A	2	75	85
IDACORP, Inc. (NYSE-IDA)	0.85	A	1	100	100
NextEra Energy, Inc. (NYSE-NEE)	0.95	A+	1	80	90

***Value Line* Risk Metrics for Proxy Groups**

Beta

A relative measure of the historical sensitivity of a stock's price to overall fluctuations in the New York Stock Exchange Composite Index. A beta of 1.50 indicates a stock tends to rise (or fall) 50% more than the New York Stock Exchange Composite Index. The "coefficient" is derived from a regression analysis of the relationship between weekly percentage changes in the price of a stock and weekly percentage changes in the NYSE Index over a period of five years. In the case of shorter price histories, a smaller time period is used, but two years is the minimum. Betas are adjusted for their long-term tendency to converge toward 1.00.

Financial Strength

A relative measure of the companies reviewed by *Value Line*. The relative ratings range from A++ (strongest) down to C (weakest).

Safety Rank

A measurement of potential risk associated with individual common stocks. The Safety Rank is computed by averaging two other *Value Line* indexes the Price Stability Index and the Financial strength Rating. Safety Ranks range from 1 (Highest) to 5 (Lowest). Conservative investors should try to limit their purchases to equities ranked 1 (Highest) and 2 (Above Average) for Safety.

Earnings Predictability

A measure of the reliability of an earnings forecast. Earnings Predictability is based upon the stability of year-to-year comparisons, with recent years being weighted more heavily than earlier ones. The most reliable forecasts tend to be those with the highest rating (100); the least reliable, the lowest (5). The earnings stability is derived from the standard deviation of percentage changes in quarterly earnings over an eight-year period. Special adjustments are made for comparisons around zero and from plus to minus.

Stock Price Stability

A measure of the stability of a stock's price. It includes sensitivity to the market (see Beta as well as the stock's inherent volatility. *Value Line's* Stability ratings range from 1 (highest) to 5 (lowest).

Source: *Value Line Investment Analyzer*.

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Attachment JRW-5
Capital Structure Ratios and Debt Cost Rates
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Attachment JRW-5

Unitil Energy Systems
Capital Structure Ratios and Debt Cost Rates

Panel A - Unitil's Proposed Capital Structure and Debt Cost Rates

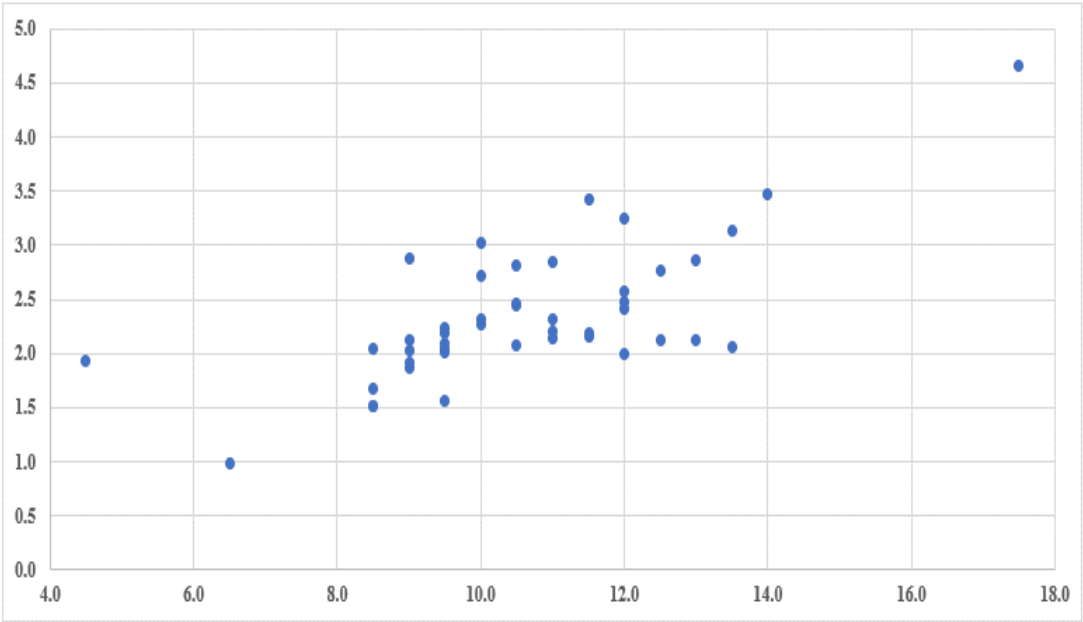
Capital Source	Capitalization Amounts	Capitalization Ratios	Cost Rate
Short-Term Debt	-	0.00%	1.69%
Long-Term Debt	89,900,000.00	46.99%	5.49%
Preferred Stock	188,700.00	0.10%	6.00%
Common Equity	<u>101,242,877.00</u>	<u>52.91%</u>	
Total Capital	191,331,577.00	100.00%	

Panel B - DOE's Recommended Capital Structure Ratios and Debt Cost Rates

Capital Source	Capitalization Amounts	Capitalization Ratios	Cost Rate
Short-Term Debt	18,066,524.0	7.82%	1.69%
Long-Term Debt	106,500,000.0	46.08%	5.49%
Preferred Stock	188,700.0	0.08%	6.00%
Common Equity	<u>106,351,927.6</u>	<u>46.02%</u>	
Total Capital	231,107,151.6	100.00%	

The Relationship Between Expected ROE and Market-to-Book Ratios
Electric Utilities and Gas Distribution Companies

Market-to-Book



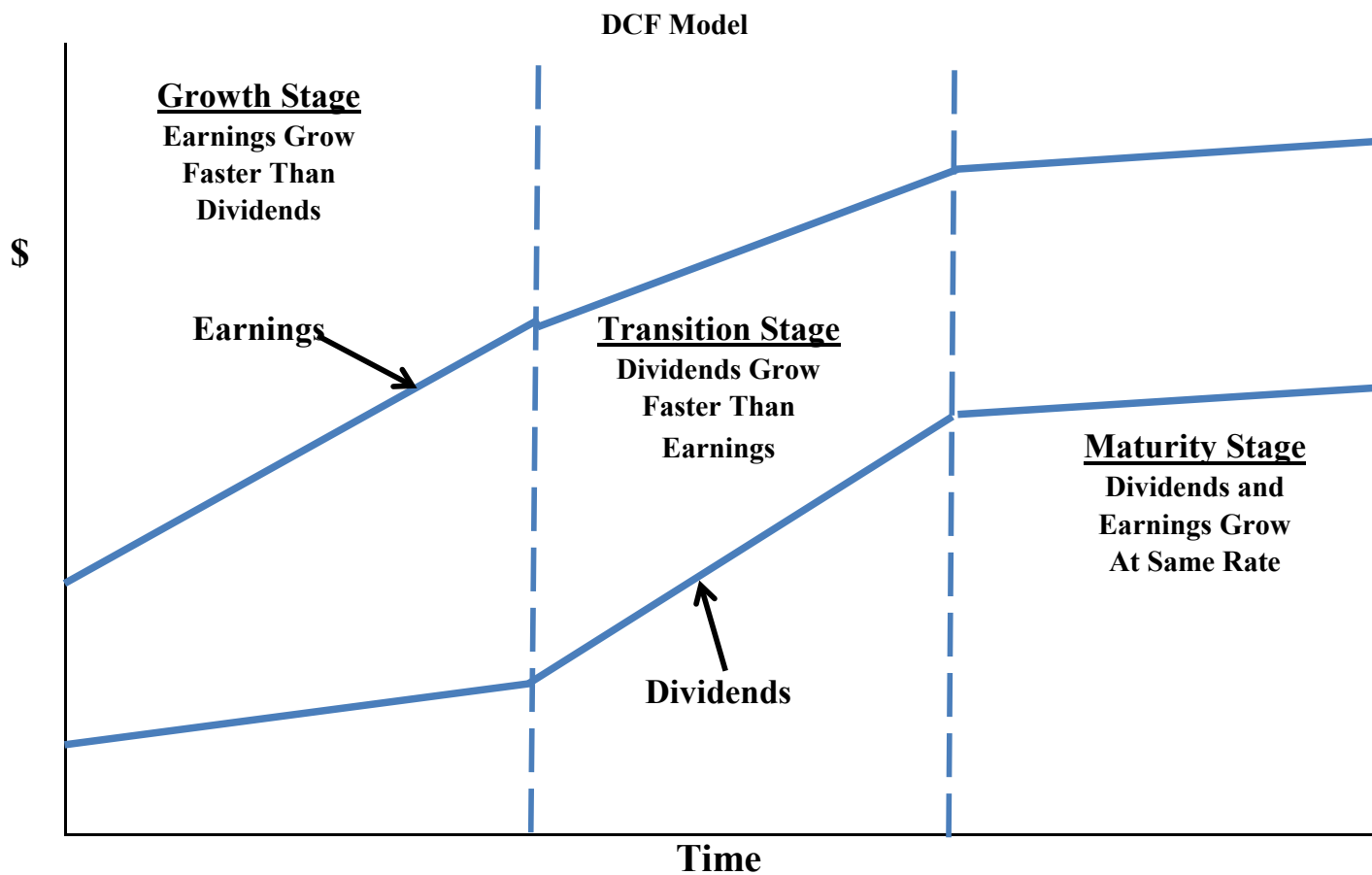
Expected Return on Equity
R-Square = .50, N=43

Industry Average Betas
*Value Line Investment Survey Betas***
 28-Jan-21

Rank	Industry	Beta	Rank	Industry	Beta	Rank	Industry	Beta
1	Oilfield Svcs/Equip.	1.49	34	Bank (Midwest)	1.20	67	Investment Co.	1.01
2	Homebuilding	1.47	35	Restaurant	1.19	68	Med Supp Non-Invasive	1.00
3	Insurance (Life)	1.47	36	Machinery	1.19	69	Environmental	1.00
4	Petroleum (Integrated)	1.42	37	Electrical Equipment	1.18	70	Telecom. Equipment	1.00
5	Hotel/Gaming	1.42	38	Bank	1.18	71	Investment Co.(Foreign)	1.00
6	Petroleum (Producing)	1.41	39	Medical Services	1.17	72	E-Commerce	0.99
7	Apparel	1.39	40	Electronics	1.17	73	Retail Store	0.98
8	Air Transport	1.37	41	Maritime	1.17	74	Cable TV	0.96
9	Shoe	1.37	42	Heavy Truck & Equip	1.15	75	Drug	0.96
10	Retail (Hardlines)	1.36	43	Toiletries/Cosmetics	1.15	76	Telecom. Services	0.95
11	Building Materials	1.33	44	R.E.I.T.	1.15	77	Healthcare Information	0.94
12	Office Equip/Supplies	1.33	45	Automotive	1.15	78	Computer Software	0.94
13	Aerospace/Defense	1.31	46	Reinsurance	1.14	79	Tobacco	0.94
14	Metals & Mining (Div.)	1.30	47	Publishing	1.11	80	Trucking	0.94
15	Metal Fabricating	1.30	48	Computers/Peripherals	1.10	81	Telecom. Utility	0.93
16	Pipeline MLPs	1.30	49	Semiconductor Equip	1.10	82	Electric Utility (West)	0.90
17	Auto Parts	1.29	50	Industrial Services	1.09	83	Foreign Electronics	0.90
18	Steel	1.28	51	Precision Instrument	1.09	84	Biotechnology	0.90
19	Retail Automotive	1.27	52	Packaging & Container	1.09	85	Beverage	0.89
20	Oil/Gas Distribution	1.26	53	Railroad	1.08	86	Electric Utility (East)	0.89
21	Paper/Forest Products	1.25	54	Power	1.07	87	Natural Gas Utility	0.89
22	Furn/Home Furnishings	1.25	55	Wireless Networking	1.07	88	Electric Util. (Central)	0.89
23	Public/Private Equity	1.24	56	Med Supp Invasive	1.06	89	Household Products	0.81
24	Natural Gas (Div.)	1.24	57	Retail Building Supply	1.06	90	Retail/Wholesale Food	0.81
25	Advertising	1.23	58	Educational Services	1.06	91	Water Utility	0.79
26	Financial Svcs. (Div.)	1.22	59	Semiconductor	1.06	92	Entertainment Tech	0.79
27	Recreation	1.21	60	Internet	1.05	93	Food Processing	0.77
28	Engineering & Const	1.21	61	Insurance (Prop/Cas.)	1.05	94	Precious Metals	0.68
29	Retail (Softlines)	1.21	62	Human Resources	1.04			
30	Chemical (Specialty)	1.21	63	Information Services	1.03			
31	Chemical (Diversified)	1.21	64	Entertainment	1.03			
32	Diversified Co.	1.20	65	Thrift	1.02			
33	Chemical (Basic)	1.20	66	IT Services	1.01		Mean	1.12

* Industry averages for 94 industries using *Value Line*'s database of 1,700 companies - Updated 1-28-21.

** *Value Line* computes betas using monthly returns regressed against the New York Stock Exchange Index for five years. These betas are then adjusted as follows: $V/L \text{ Beta} = \{ (2/3) * \text{Regressed Beta} \} + \{ (1/3) * (1.0) \}$ to account to tendency for Betas to regress toward average of 1.0. See M. Blume, "On the Assessment of Risk," *Journal of Finance*, March 1971.



DCF Study

**Panel A
Electric Proxy Group**

Dividend Yield*	3.35%
Adjustment Factor	<u>1.02625</u>
Adjusted Dividend Yield	3.44%
Growth Rate**	<u>5.25%</u>
Equity Cost Rate	8.70%

* Page 2 of Attachment JRW-7

** Based on data provided on pages 3, 4, 5, and
6 of Attachment JRW-7

**Panel B
Nelson Proxy Group**

Dividend Yield*	3.40%
Adjustment Factor	<u>1.02625</u>
Adjusted Dividend Yield	3.49%
Growth Rate**	<u>5.25%</u>
Equity Cost Rate	8.75%

* Page 2 of Attachment JRW-7

** Based on data provided on pages 3, 4, 5, and
6 of Attachment JRW-7

DCF Study
Dividend YieldsPanel A
Electric Proxy Group

Company		Annual Dividend	Dividend Yield 30 Day	Dividend Yield 90 Day	Dividend Yield 180 Day
ALLETE, Inc. (NYSE-ALE)	ALE	2.52	4.1%	3.8%	3.7%
Alliant Energy Corporation (NYSE-LNT)	LNT	1.52	2.7%	2.6%	2.7%
Ameren Corporation (NYSE-AEE)	AEE	2.20	2.6%	2.6%	2.7%
American Electric Power Co. (NYSE-AEP)	AEP	2.96	3.5%	3.4%	3.5%
Avista Corporation (NYSE-AVA)	AVA	1.69	4.2%	4.1%	3.9%
CMS Energy Corporation (NYSE-CMS)	CMS	1.74	2.9%	2.8%	2.8%
Consolidated Edison, Inc. (NYSE-ED)	ED	3.10	4.2%	4.2%	4.1%
Dominion Energy Inc. (NYSE-D)	D	2.52	3.4%	3.3%	3.3%
Duke Energy Corporation (NYSE-DUK)	DUK	3.86	3.8%	3.8%	3.9%
Edison International (NYSE-EIX)	EIX	2.65	4.5%	4.6%	4.6%
Entergy Corporation (NYSE-ETR)	ETR	3.80	3.7%	3.6%	3.7%
Evergy, Inc. (NYSE-EVRG)	EVRG	2.14	3.4%	3.3%	3.4%
Eversource Energy (NYSE-ES)	ES	2.41	2.8%	2.8%	2.8%
Hawaiian Electric Industries (NYSE-HE)	HE	1.36	3.3%	3.2%	3.2%
IDACORP, Inc. (NYSE-IDA)	IDA	2.84	2.7%	2.7%	2.8%
MGE Energy, Inc. (NYSE-MGEE)	MGEE	1.48	2.0%	1.9%	2.0%
NextEra Energy, Inc. (NYSE-NEE)	NEE	1.54	1.9%	1.9%	2.0%
NorthWestern Corporation (NYSE-NWE)	NWE	2.48	4.3%	4.1%	4.0%
OGE Energy Corp. (NYSE-OGE)	OGE	1.61	4.8%	4.7%	4.8%
Otter Tail Corporation (NDQ-OTTR)	OTTR	1.56	2.7%	2.9%	3.1%
Pinnacle West Capital Corp. (NYSE-PNW)	PNW	3.32	4.8%	4.4%	4.2%
Portland General Electric Company (NYSE-POR)	POR	1.63	3.4%	3.3%	3.4%
SEMPRA Energy (NYSE-SRE)	SRE	4.40	3.4%	3.4%	3.3%
Southern Company (NYSE-SO)	SO	2.56	4.1%	4.0%	4.0%
WEC Energy Group (NYSE-WEC)	WEC	2.71	3.0%	2.9%	2.9%
Xcel Energy Inc. (NYSE-XEL)	XEL	1.83	2.9%	2.7%	2.7%
Mean			3.4%	3.3%	3.4%
Median			3.4%	3.3%	3.3%

Data Sources: S&P Cap IQ., November, 2021.

Panel B
Nelson Proxy Group

Company		Annual Dividend	Dividend Yield 30 Day	Dividend Yield 90 Day	Dividend Yield 180 Day
ALLETE, Inc. (NYSE-ALE)	ALE	2.52	4.1%	3.8%	3.7%
Alliant Energy Corporation (NYSE-LNT)	LNT	1.52	2.7%	2.6%	2.7%
Ameren Corporation (NYSE-AEE)	AEE	2.20	2.6%	2.6%	2.7%
American Electric Power Co. (NYSE-AEP)	AEP	2.96	3.5%	3.4%	3.5%
Avista Corporation (NYSE-AVA)	AVA	1.69	4.2%	4.1%	3.9%
CMS Energy Corporation (NYSE-CMS)	CMS	1.74	2.9%	2.8%	2.8%
Consolidated Edison, Inc. (NYSE-ED)	ED	3.10	4.2%	4.2%	4.1%
DTE Energy Company (NYSE-DTE)	DTE	4.34	3.8%	3.7%	3.5%
Duke Energy Corporation (NYSE-DUK)	DUK	3.86	3.8%	3.8%	3.9%
Entergy Corporation (NYSE-ETR)	ETR	3.80	3.7%	3.6%	3.7%
Evergy, Inc. (NYSE-EVRG)	EVRG	2.14	3.4%	3.3%	3.4%
Eversource Energy (NYSE-ES)	ES	2.41	2.8%	2.8%	2.8%
Hawaiian Electric Industries (NYSE-HE)	HE	1.36	3.3%	3.2%	3.2%
IDACORP, Inc. (NYSE-IDA)	IDA	2.84	2.7%	2.7%	2.8%
NextEra Energy, Inc. (NYSE-NEE)	NEE	1.54	1.9%	1.9%	2.0%
NorthWestern Corporation (NYSE-NWE)	NWE	2.48	4.3%	4.1%	4.0%
OGE Energy Corp. (NYSE-OGE)	OGE	1.61	4.8%	4.7%	4.8%
Otter Tail Corporation (NDQ-OTTR)	OTTR	1.56	2.7%	2.9%	3.1%
Pinnacle West Capital Corp. (NYSE-PNW)	PNW	3.32	4.8%	4.4%	4.2%
Portland General Electric Company (NYSE-POR)	POR	1.63	3.4%	3.3%	3.4%
Public Service Enterprise Group Inc. (NYSE:PEG)	DTE	4.34	3.8%	3.7%	3.5%
Southern Company (NYSE-SO)	SO	2.56	4.1%	4.0%	4.0%
WEC Energy Group (NYSE-WEC)	WEC	2.71	3.0%	2.9%	2.9%
Xcel Energy Inc. (NYSE-XEL)	XEL	1.83	2.9%	2.7%	2.7%
Mean			3.5%	3.4%	3.4%
Median			3.5%	3.4%	3.4%

Data Sources: S&P Cap IQ., November, 2021.

DCF Study

DCF Equity Cost Growth Rate Measures
Value Line Historic Growth RatesPanel A
Electric Proxy Group

Company	Value Line Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
ALLETE, Inc. (NYSE-ALE)	4.0	3.0	5.0	2.5	3.5	4.5
Alliant Energy Corporation (NYSE-LNT)	7.0	6.5	5.0	6.5	7.0	6.5
Ameren Corporation (NYSE-AEE)	2.0	0.5		8.0	3.5	3.5
American Electric Power Co. (NYSE-AEP)	4.0	5.0	4.0	4.0	5.5	3.0
Avista Corporation (NYSE-AVA)	4.0	6.5	4.0	4.5	4.0	4.0
CMS Energy Corporation (NYSE-CMS)	7.5	11.5	5.0	7.0	7.0	5.5
Consolidated Edison, Inc. (NYSE-ED)	2.5	2.5	4.0	1.5	3.0	4.5
Dominion Energy Inc. (NYSE-D)	-1.5	7.5	5.0	-5.0	7.5	9.0
Duke Energy Corporation (NYSE-DUK)	2.5	3.0	2.0	1.5	3.5	1.0
Edison International (NYSE-EIX)	-8.0	7.0	1.5	-18.5	10.5	1.5
Entergy Corporation (NYSE-ETR)		1.5	1.0	3.0	2.0	-1.0
Evergy, Inc. (NYSE-EVRG)						
Eversource Energy (NYSE-ES)	5.5	8.5	6.5	5.5	6.5	4.0
Hawaiian Electric Industries (NYSE-HE)	6.0	0.5	3.0	3.5	0.5	3.5
IDACORP, Inc. (NYSE-IDA)	6.0	8.0	5.0	4.0	8.0	4.5
MGE Energy, Inc. (NYSE-MGEE)	5.0	3.5	5.5	3.0	4.5	6.0
Nextera Energy, Inc. (NYSE-NEE)	6.0	10.0	9.0	6.5	12.0	10.5
NorthWestern Corporation (NYSE-NWE)	5.5	5.5	6.0	3.5	6.5	5.5
OGE Energy Corp. (NYSE-OGE)	4.5	7.5	6.0	3.0	9.5	4.0
Otter Tail Corporation (NDQ-OTTR)	11.5	1.5	0.5	8.0	3.0	5.0
Pinnacle West Capital Corp. (NYSE-PNW)	6.5	4.0	3.5	5.0	5.5	4.0
Portland General Electric Company (NYSE-POR)	4.0	4.0	3.0	1.5	6.0	3.5
Sempra Energy (NYSE-SRE)	3.0	10.0	5.5	5.0	8.0	6.0
Southern Company (NYSE-SO)	3.0	3.5	3.5	2.5	3.5	3.0
WEC Energy Group (NYSE-WEC)	8.0	13.5	7.5	7.5	8.5	8.0
Xcel Energy Inc. (NYSE-XEL)	6.0	5.5	4.5	5.5	6.0	5.0
Mean	4.4	5.6	4.4	3.2	5.8	4.6
Median	4.8	5.5	4.8	4.0	6.0	4.5
Average of Median Figures =				4.9		

Data Source: Value Line Investment Survey.

Panel B
Nelson Proxy Group

Company	Value Line Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
ALLETE, Inc. (NYSE-ALE)	4.0	3.0	5.0	2.5	3.5	4.5
Alliant Energy Corporation (NYSE-LNT)	7.0	6.5	5.0	6.5	7.0	6.5
Ameren Corporation (NYSE-AEE)	2.0	0.5		8.0	3.5	3.5
American Electric Power Co. (NYSE-AEP)	4.0	5.0	4.0	4.0	5.5	3.0
Avista Corporation (NYSE-AVA)	4.0	6.5	4.0	4.5	4.0	4.0
CMS Energy Corporation (NYSE-CMS)	7.5	11.5	5.0	7.0	7.0	5.5
Consolidated Edison, Inc. (NYSE-ED)	2.5	2.5	4.0	1.5	3.0	4.5
DTE Energy Company (NYSE-DTE)	7.5	6.0	4.5	8.0	7.5	5.0
Duke Energy Corporation (NYSE-DUK)	2.5	3.0	2.0	1.5	3.5	1.0
Entergy Corporation (NYSE-ETR)		1.5	1.0	3.0	2.0	-1.0
Evergy, Inc. (NYSE-EVRG)						
Eversource Energy (NYSE-ES)	5.5	8.5	6.5	5.5	6.5	4.0
Hawaiian Electric Industries (NYSE-HE)	6.0	0.5	3.0	3.5	0.5	3.5
IDACORP, Inc. (NYSE-IDA)	6.0	8.0	5.0	4.0	8.0	4.5
Nextera Energy, Inc. (NYSE-NEE)	6.0	10.0	9.0	6.5	12.0	10.5
NorthWestern Corporation (NYSE-NWE)	5.5	5.5	6.0	3.5	6.5	5.5
OGE Energy Corp. (NYSE-OGE)	4.5	7.5	6.0	3.0	9.5	4.0
Otter Tail Corporation (NDQ-OTTR)	11.5	1.5	0.5	8.0	3.0	5.0
Pinnacle West Capital Corp. (NYSE-PNW)	6.5	4.0	3.5	5.0	5.5	4.0
Portland General Electric Company (NYSE-POR)	4.0	4.0	3.0	1.5	6.0	3.5
Public Service Enterprise Group Inc. (NYSE:PEG)	1.5	3.5	5.5	3.5	4.5	4.5
Southern Company (NYSE-SO)	3.0	3.5	3.5	2.5	3.5	3.0
WEC Energy Group (NYSE-WEC)	8.0	13.5	7.5	7.5	8.5	8.0
Xcel Energy Inc. (NYSE-XEL)	6.0	5.5	4.5	5.5	6.0	5.0
Mean	5.2	5.3	4.5	4.6	5.5	4.4
Median	5.5	5.0	4.5	4.0	5.5	4.5
Average of Median Figures =				4.8		

Data Source: Value Line Investment Survey.

000122

DCF Study

DCF Equity Cost Growth Rate Measures

Value Line Projected Growth Rates

Panel A
Electric Proxy Group

Company	Value Line			Value Line		
	Projected Growth			Sustainable Growth		
	Est'd. '18-'20 to '24-'26			Return on	Retention	Internal
	Earnings	Dividends	Book Value	Equity	Rate	Growth
ALLETE, Inc. (NYSE-ALE)	5.0	4.0	3.0	9.0%	35.0%	3.2%
Alliant Energy Corporation (NYSE-LNT)	5.5	6.0	5.0	11.0%	35.0%	3.9%
Ameren Corporation (NYSE-AEE)	6.5	7.0	6.5	10.5%	42.0%	4.4%
American Electric Power Co. (NYSE-AEP)	6.5	5.5	5.5	11.0%	36.0%	4.0%
Avista Corporation (NYSE-AVA)	3.0	4.5	3.0	8.0%	26.0%	2.1%
CMS Energy Corporation (NYSE-CMS)	6.0	5.5	6.5	13.5%	40.0%	5.4%
Consolidated Edison, Inc. (NYSE-ED)	4.0	3.0	3.0	8.5%	36.0%	3.1%
Dominion Energy Inc. (NYSE-D)	12.0	-1.5	4.0	12.0%	32.0%	3.8%
Duke Energy Corporation (NYSE-DUK)	7.0	2.0	2.0	9.5%	34.0%	3.2%
Edison International (NYSE-EIX)	NMF	3.5	5.0	11.5%	40.0%	4.6%
Entergy Corporation (NYSE-ETR)	3.0	4.5	5.0	11.5%	37.0%	4.3%
Evergy, Inc. (NYSE-EVRG)	8.0	5.5	3.0	9.0%	38.0%	3.4%
Eversource Energy (NYSE-ES)	6.5	6.0	4.5	9.5%	38.0%	3.6%
Hawaiian Electric Industries (NYSE-HE)	3.0	3.0	3.5	9.0%	33.0%	3.0%
IDACORP, Inc. (NYSE-IDA)	4.0	6.5	4.0	9.5%	36.0%	3.4%
MGE Energy, Inc. (NYSE-MGEE)	5.5	5.0	5.5	10.0%	46.0%	4.6%
Nextera Energy, Inc. (NYSE-NEE)	10.5	10.0	5.5	12.5%	30.0%	3.8%
NorthWestern Corporation (NYSE-NWE)	3.0	3.5	3.0	8.5%	31.0%	2.6%
OGE Energy Corp. (NYSE-OGE)	4.0	4.5	1.5	13.0%	31.0%	4.0%
Otter Tail Corporation (NDQ-OTTR)	7.0	6.0	6.0	12.0%	41.0%	4.9%
Pinnacle West Capital Corp. (NYSE-PNW)	0.0	1.5	3.5	8.0%	30.0%	2.4%
Portland General Electric Company (NYSE-POR)	7.0	5.5	3.0	9.5%	36.0%	3.4%
Sempra Energy (NYSE-SRE)	10.0	6.0	7.5	11.5%	48.0%	5.5%
Southern Company (NYSE-SO)	6.0	3.0	4.0	14.0%	34.0%	4.8%
WEC Energy Group (NYSE-WEC)	6.5	6.5	4.0	13.0%	34.0%	4.4%
Xcel Energy Inc. (NYSE-XEL)	6.0	6.0	5.0	11.0%	39.0%	4.3%
Mean	5.8	4.7	4.3	10.6%	36.1%	3.8%
Median	6.0	5.3	4.0	10.8%	36.0%	3.8%
Average of Median Figures =		5.1			Median =	3.8%

* 'Est'd. '18-'20 to '24-'26' is the estimated growth rate from the base period 2018 to 2020 until the future period 2024 to 2026.

Data Source: Value Line Investment Survey.

Panel B
Nelson Proxy Group

Company	Value Line			Value Line		
	Projected Growth			Sustainable Growth		
	Est'd. '18-'20 to '24-'26			Return on	Retention	Internal
	Earnings	Dividends	Book Value	Equity	Rate	Growth
ALLETE, Inc. (NYSE-ALE)	5.0	4.0	3.0	9.0%	35.0%	3.2%
Alliant Energy Corporation (NYSE-LNT)	5.5	6.0	5.0	11.0%	35.0%	3.9%
Ameren Corporation (NYSE-AEE)	6.5	7.0	6.5	10.5%	42.0%	4.4%
American Electric Power Co. (NYSE-AEP)	6.5	5.5	5.5	11.0%	36.0%	4.0%
Avista Corporation (NYSE-AVA)	3.0	4.5	3.0	8.0%	26.0%	2.1%
CMS Energy Corporation (NYSE-CMS)	6.0	5.5	6.5	13.5%	40.0%	5.4%
Consolidated Edison, Inc. (NYSE-ED)	4.0	3.0	3.0	8.5%	36.0%	3.1%
DTE Energy Company (NYSE-DTE)	2.0	1.5	4.5	9.5%	42.0%	4.0%
Duke Energy Corporation (NYSE-DUK)	7.0	2.0	2.0	9.5%	34.0%	3.2%
Entergy Corporation (NYSE-ETR)	3.0	4.5	5.0	11.5%	37.0%	4.3%
Evergy, Inc. (NYSE-EVRG)	8.0	5.5	3.0	9.0%	38.0%	3.4%
Eversource Energy (NYSE-ES)	6.5	6.0	4.5	9.5%	38.0%	3.6%
Hawaiian Electric Industries (NYSE-HE)	3.0	3.0	3.5	9.0%	33.0%	3.0%
IDACORP, Inc. (NYSE-IDA)	4.0	6.5	4.0	9.5%	36.0%	3.4%
Nextera Energy, Inc. (NYSE-NEE)	10.5	10.0	5.5	12.5%	30.0%	3.8%
NorthWestern Corporation (NYSE-NWE)	3.0	3.5	3.0	8.5%	31.0%	2.6%
OGE Energy Corp. (NYSE-OGE)	4.0	4.5	1.5	13.0%	31.0%	4.0%
Otter Tail Corporation (NDQ-OTTR)	7.0	6.0	6.0	12.0%	41.0%	4.9%
Pinnacle West Capital Corp. (NYSE-PNW)	0.0	1.5	3.5	8.0%	30.0%	2.4%
Portland General Electric Company (NYSE-POR)	7.0	5.5	3.0	9.5%	36.0%	3.4%
Public Service Enterprise Group Inc. (NYSE:PEG)	3.5	4.0	4.5	11.0%	43.0%	4.7%
Southern Company (NYSE-SO)	6.0	3.0	4.0	14.0%	34.0%	4.8%
WEC Energy Group (NYSE-WEC)	6.5	6.5	4.0	13.0%	34.0%	4.4%
Xcel Energy Inc. (NYSE-XEL)	6.0	6.0	5.0	11.0%	39.0%	4.3%
Mean	5.1	4.8	4.1	10.5%	35.7%	3.8%
Median	5.8	5.0	4.0	10.0%	36.0%	3.8%
Average of Median Figures =		4.9			Median =	3.8%

* 'Est'd. '18-'20 to '24-'26' is the estimated growth rate from the base period 2018 to 2020 until the future period 2024 to 2026.

Data Source: Value Line Investment Survey.

DCF Study

DCF Equity Cost Growth Rate Measures
Analysts Projected EPS Growth Rate EstimatesPanel A
Electric Proxy Group

Company	Yahoo	Zacks	S&P	Mean
ALLETE, Inc. (NYSE-ALE)	5.7%	6.0%	6.0%	5.9%
Alliant Energy Corporation (NYSE-LNT)	5.8%	5.9%	6.0%	5.9%
Ameren Corporation (NYSE-AEE)	7.9%	7.4%	7.1%	7.5%
American Electric Power Co. (NYSE-AEP)	5.5%	5.7%	6.0%	5.7%
Avista Corporation (NYSE-AVA)	6.2%	5.1%	5.0%	5.4%
CMS Energy Corporation (NYSE-CMS)	5.7%	7.0%	7.0%	6.6%
Consolidated Edison, Inc. (NYSE-ED)	2.0%	2.0%	2.2%	2.1%
Dominion Energy Inc. (NYSE-D)	6.9%	6.8%	6.8%	6.8%
Duke Energy Corporation (NYSE-DUK)	5.5%	5.3%	4.9%	5.2%
Edison International (NYSE-EIX)	4.1%	4.1%	3.4%	3.9%
Entergy Corporation (NYSE-ETR)	5.7%	NA	3.7%	4.7%
Evergy, Inc. (NYSE-EVRG)	5.7%	6.1%	6.7%	6.2%
Eversource Energy (NYSE-ES)	6.8%	6.3%	6.5%	6.5%
Hawaiian Electric Industries (NYSE-HE)	1.3%	7.3%	7.6%	5.4%
IDACORP, Inc. (NYSE-IDA)	3.2%	3.9%	3.6%	3.6%
MGE Energy, Inc. (NYSE-MGEE)	5.9%	5.9%	5.9%	5.9%
Nextera Energy, Inc. (NYSE-NEE)	8.9%	8.4%	8.0%	8.4%
NorthWestern Corporation (NYSE-NWE)	4.5%	4.8%	4.5%	4.6%
OGE Energy Corp. (NYSE-OGE)	3.9%	4.5%	2.4%	3.6%
Otter Tail Corporation (NDQ-OTTR)	9.0%	4.7%	6.0%	6.6%
Pinnacle West Capital Corp. (NYSE-PNW)	0.1%	5.0%	-1.9%	1.1%
Portland General Electric Company (NYSE-POR)	7.2%	8.6%	4.4%	6.7%
Sempra Energy (NYSE-SRE)	4.3%	4.9%	4.2%	4.5%
Southern Company (NYSE-SO)	6.5%	4.9%	6.2%	5.9%
WEC Energy Group (NYSE-WEC)	6.6%	6.3%	6.6%	6.5%
Xcel Energy Inc. (NYSE-XEL)	6.9%	6.4%	6.0%	6.4%
Mean	5.4%	5.7%	5.2%	5.4%
Median	5.7%	5.9%	6.0%	5.9%

Data Sources: www.zacks.com, http://quote.yahoo.com, S&P Cap IQ, November, 2021.

Panel B
Nelson Proxy Group

Company	Yahoo	Zacks	S&P	Mean
ALLETE, Inc. (NYSE-ALE)	5.7%	6.0%	6.0%	5.9%
Alliant Energy Corporation (NYSE-LNT)	5.8%	5.9%	6.0%	5.9%
Ameren Corporation (NYSE-AEE)	7.9%	7.4%	7.1%	7.5%
American Electric Power Co. (NYSE-AEP)	5.5%	5.7%	6.0%	5.7%
Avista Corporation (NYSE-AVA)	6.2%	5.1%	5.0%	5.4%
CMS Energy Corporation (NYSE-CMS)	5.7%	7.0%	7.0%	6.6%
Consolidated Edison, Inc. (NYSE-ED)	2.0%	2.0%	2.2%	2.1%
DTE Energy Company (NYSE-DTE)	2.7%	6.0%	6.0%	4.9%
Duke Energy Corporation (NYSE-DUK)	5.5%	5.3%	4.9%	5.2%
Entergy Corporation (NYSE-ETR)	5.7%	NA	3.7%	4.7%
Evergy, Inc. (NYSE-EVRG)	5.7%	6.1%	6.7%	6.2%
Eversource Energy (NYSE-ES)	6.8%	6.3%	6.5%	6.5%
Hawaiian Electric Industries (NYSE-HE)	1.3%	7.3%	7.6%	5.4%
IDACORP, Inc. (NYSE-IDA)	3.2%	3.9%	3.6%	3.6%
Nextera Energy, Inc. (NYSE-NEE)	8.9%	8.4%	8.0%	8.4%
NorthWestern Corporation (NYSE-NWE)	4.5%	4.8%	4.5%	4.6%
OGE Energy Corp. (NYSE-OGE)	3.9%	4.5%	2.4%	3.6%
Otter Tail Corporation (NDQ-OTTR)	9.0%	4.7%	6.0%	6.6%
Pinnacle West Capital Corp. (NYSE-PNW)	0.1%	5.0%	-1.9%	1.1%
Portland General Electric Company (NYSE-POR)	7.2%	8.6%	4.4%	6.7%
Public Service Enterprise Group Inc. (NYSE:PEG)	2.8%	3.5%	4.1%	3.5%
Southern Company (NYSE-SO)	6.5%	4.9%	6.2%	5.9%
WEC Energy Group (NYSE-WEC)	6.6%	6.3%	6.6%	6.5%
Xcel Energy Inc. (NYSE-XEL)	6.9%	6.4%	6.0%	6.4%
Mean	5.2%	5.7%	5.2%	5.4%
Median	5.7%	5.9%	6.0%	5.8%

Data Sources: www.zacks.com, http://quote.yahoo.com, S&P Cap IQ, November, 2021.

DCF Study

DCF Growth Rate Indicators

Electric and Nelson Proxy Groups

Growth Rate Indicator	Electric Proxy Group	Nelson Proxy Group
Historic <i>Value Line</i> Growth in EPS, DPS, and BVPS	4.9%	3.5%
Projected <i>Value Line</i> Growth in EPS, DPS, and BVPS	5.1%	4.9%
Sustainable Growth ROE * Retention Rate	3.8%	3.8%
Projected EPS Growth from Yahoo and Zacks - Mean/Median	5.4%/5.9%	5.4%/5.8%

Capital Asset Pricing Model

Panel A
Electric Proxy Group

Risk-Free Interest Rate	2.50%
Beta*	0.90
<u>Ex Ante Equity Risk Premium**</u>	<u>5.50%</u>
CAPM Cost of Equity	7.5%

* See page 3 of Attachment JRW-8

** See pages 5 and 6 of Attachment JRW-8

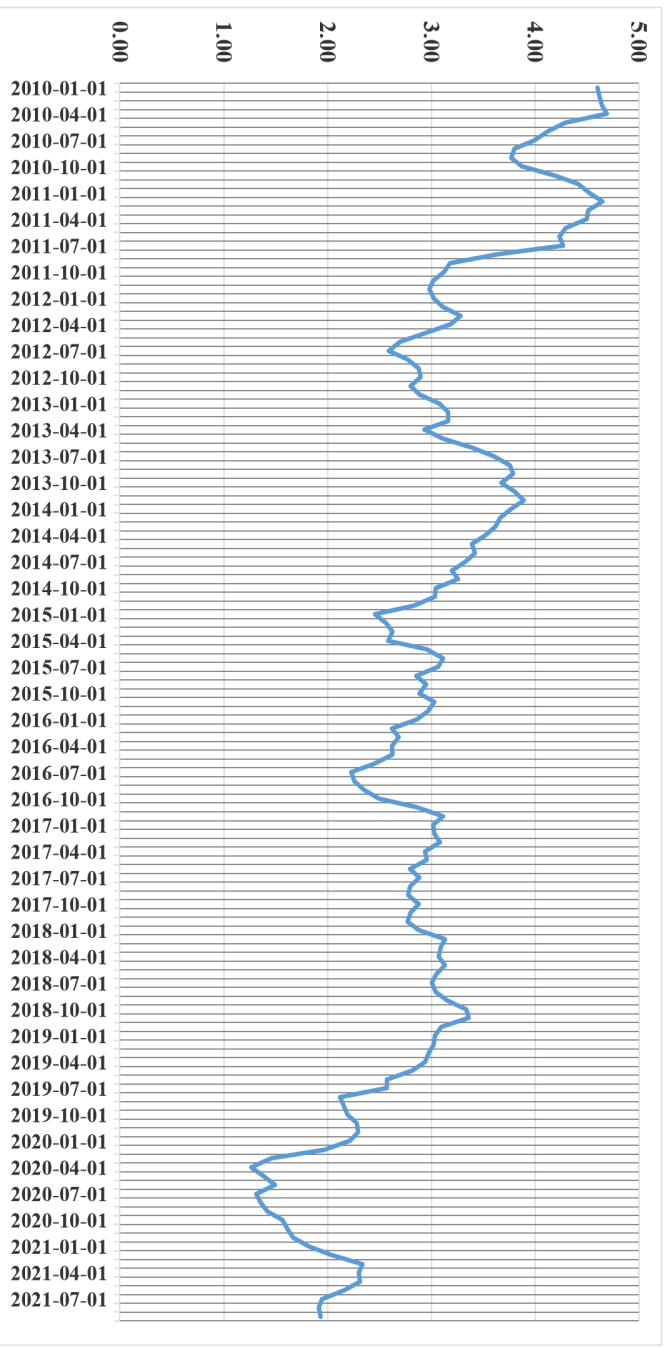
Panel B
Nelson Proxy Group

Risk-Free Interest Rate	2.50%
Beta*	0.90
<u>Ex Ante Equity Risk Premium**</u>	<u>5.50%</u>
CAPM Cost of Equity	7.5%

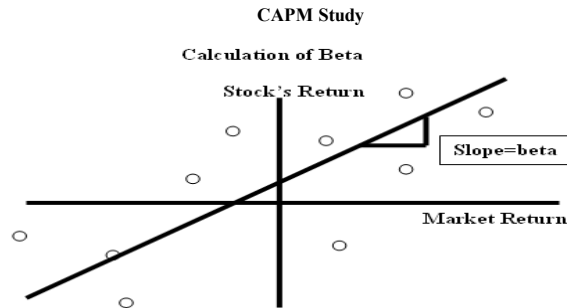
* See page 3 of Attachment JRW-8

** See pages 5 and 6 of Attachment JRW-8

Thirty-Year U.S. Treasury Yields
2010-2021



Source: Federal Reserve Bank of St. Louis, FRED Database.



Panel A
Electric Proxy Group

Company	Beta
ALLETE, Inc. (NYSE-ALE)	0.90
Alliant Energy Corporation (NYSE-LNT)	0.85
Ameren Corporation (NYSE-AEE)	0.85
American Electric Power Co. (NYSE-AEP)	0.75
Avista Corporation (NYSE-AVA)	0.95
CMS Energy Corporation (NYSE-CMS)	0.80
Consolidated Edison, Inc. (NYSE-ED)	0.75
Dominion Energy Inc. (NYSE-D)	0.85
Duke Energy Corporation (NYSE-DUK)	0.90
Edison International (NYSE-EIX)	1.00
Entergy Corporation (NYSE-ETR)	0.95
Evergy, Inc. (NYSE-EVRG)	0.95
Eversource Energy (NYSE-ES)	0.90
Hawaiian Electric Industries (NYSE-HE)	0.85
IDACORP, Inc. (NYSE-IDA)	0.85
MGE Energy, Inc. (NYSE-MGEE)	0.75
NextEra Energy, Inc. (NYSE-NEE)	0.95
NorthWestern Corporation (NYSE-NWE)	0.95
OGE Energy Corp. (NYSE-OGE)	1.05
Otter Tail Corporation (NDQ-OTTR)	0.90
Pinnacle West Capital Corp. (NYSE-PNW)	0.95
Portland General Electric Company (NYSE-POR)	0.90
Sempra Energy (NYSE-SRE)	1.00
Southern Company (NYSE-SO)	0.95
WEC Energy Group (NYSE-WEC)	0.80
Xcel Energy Inc. (NYSE-XEL)	0.80
Mean	0.89
Median	0.90

Data Source: *Value Line Investment Survey*, 2021.

Panel B
Nelson Proxy Group

Company	Beta
ALLETE, Inc. (NYSE-ALE)	0.90
Alliant Energy Corporation (NYSE-LNT)	0.85
Ameren Corporation (NYSE-AEE)	0.85
American Electric Power Co. (NYSE-AEP)	0.75
Avista Corporation (NYSE-AVA)	0.95
CMS Energy Corporation (NYSE-CMS)	0.80
Consolidated Edison, Inc. (NYSE-ED)	0.75
DTE Energy Company (NYSE-DTE)	0.95
Duke Energy Corporation (NYSE-DUK)	0.90
Entergy Corporation (NYSE-ETR)	0.95
Evergy, Inc. (NYSE-EVRG)	0.95
Eversource Energy (NYSE-ES)	0.90
Hawaiian Electric Industries (NYSE-HE)	0.85
IDACORP, Inc. (NYSE-IDA)	0.85
NextEra Energy, Inc. (NYSE-NEE)	0.95
NorthWestern Corporation (NYSE-NWE)	0.95
OGE Energy Corp. (NYSE-OGE)	1.05
Otter Tail Corporation (NDQ-OTTR)	0.90
Pinnacle West Capital Corp. (NYSE-PNW)	0.95
Portland General Electric Company (NYSE-POR)	0.90
Public Service Enterprise Group Inc. (NYSE:PEG)	0.95
Sempra Energy (NYSE-SRE)	1.00
Southern Company (NYSE-SO)	0.95
WEC Energy Group (NYSE-WEC)	0.80
Xcel Energy Inc. (NYSE-XEL)	0.80
Mean	0.90
Median	0.90

Data Source: *Value Line Investment Survey*, 2021.

CAPM Study

Risk Premium Approaches

	Historical Ex Post Returns	Surveys	Expected Return Models and Market Data
Means of Assessing The Market Risk Premium	Historical Average Stock Minus Bond Returns	Surveys of CFOs, Financial Forecasters, Companies, Analysts on Expected Returns and Market Risk Premiums	Use Market Prices and Market Fundamentals (such as Growth Rates) to Compute Expected Returns and Market Risk Premiums
Problems/Debated Issues	Time Variation in Required Returns, Measurement and Time Period Issues, and Biases such as Market and Company Survivorship Bias	Questions Regarding Survey Histories, Responses, and Representativeness Surveys may be Subject to Biases, such as Extrapolation	Assumptions Regarding Expectations, Especially Growth

Source: Adapted from Antti Ilmanen, Expected Returns on Stocks and Bonds,” *Journal of Portfolio Management* , (Winter 2003).

CAPM Study

Market Risk Premium Results - 2000-2021

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Median
Historical Risk Premium										
	Ibbotson	2016	1928-2015	Historical Stock Returns - Bond Returns	Arithmetic				6.00%	
					Geometric				4.40%	
	Damodaran	2021	1928-2020	Historical Stock Returns - Bond Returns	Arithmetic				6.44%	
					Geometric				4.83%	
	Dimson, Marsh, Staunton _Credit Suisse Report	2019	1900-2018	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
					Geometric					
	Bate	2008	1900-2007	Historical Stock Returns - Bond Returns	Geometric				4.50%	
	Shiller	2006	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				7.00%	
					Geometric				5.50%	
	Siegel	2005	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				6.10%	
					Geometric				4.60%	
	Dimson, Marsh, and Staunton	2006	1900-2005	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
	Goyal & Welch	2006	1872-2004	Historical Stock Returns - Bond Returns					4.77%	
	Median									5.50%
Ex Ante Models (Puzzle Research)										
	Claus Thomas	2001	1985-1998	Abnormal Earnings Model					3.00%	
	Arnott and Bernstein	2002	1810-2001	Fundamentals - Div Yld + Growth					2.40%	
	Constantinides	2002	1872-2000	Historical Returns & Fundamentals - P/D & P/E					6.90%	
	Cornell	1999	1926-1997	Historical Returns & Fundamental GDP/Earnings		3.50%	5.50%	4.50%	4.50%	
	Easton, Taylor, et al	2002	1981-1998	Residual Income Model					5.30%	
	Fama French	2002	1951-2000	Fundamental DCF with EPS and DPS Growth		2.55%	4.32%		3.44%	
	Harris & Marston	2001	1982-1998	Fundamental DCF with Analysts' EPS Growth					7.14%	
	McKinsey	2002	1962-2002	Fundamental (P/E, D/P, & Earnings Growth)		3.50%	4.00%		3.75%	
	Siegel	2005	1802-2001	Historical Earnings Yield					2.50%	
	Grabowski	2006	1926-2005	Historical and Projected		3.50%	6.00%	4.75%	4.75%	
	Maheu & McCurdy	2006	1885-2003	Historical Excess Returns, Structural Breaks,		4.02%	5.10%	4.56%	4.56%	
	Bostock	2004	1960-2002	Bond Yields, Credit Risk, and Income Volatility		3.90%	1.30%	2.60%	2.60%	
	Bakshi & Chen	2005	1982-1998	Fundamentals - Interest Rates					7.31%	
	Donaldson, Kamstra, & Kramer	2006	1952-2004	Fundamental, Dividend yld., Returns., & Volatility		3.00%	4.00%	3.50%	3.50%	
	Campbell	2008	1982-2007	Historical & Projections (D/P & Earnings Growth)		4.10%	5.40%		4.75%	
	Best & Byrne	2001	Projection	Fundamentals - Div Yld + Growth					2.00%	
	Fernandez	2007	Projection	Required Equity Risk Premium					4.00%	
	DeLong & Magin	2008	Projection	Earnings Yield - TIPS					3.22%	
	Siegel - Rethink ERP	2011	Projection	Real Stock Returns and Components					5.50%	
	Duff & Phelps	2021	Projection	Normalized with 2.5% Long-Term Treasury Yield					5.50%	
	Mschchowski - VL - 2014	2014	Projection	Fundamentals - Expected Return Minus 10-Year Treasury Rate					5.50%	
	American Appraisal Quarterly ERP	2015	Projection	Fundamental Economic and Market Factors					6.00%	
	Market Risk Premia	2021	Projection	Fundamental Economic and Market Factors					3.42%	
	KPMG	2021	Projection	Fundamental Economic and Market Factors					5.00%	
	Damodaran -11-21	2021	Projection	Fundamentals - Implied from FCF to Equity Model (Trailing 12 month, with adjusted payout)					4.53%	
	Social Security									
	Office of Chief Actuary		1900-1995							
	John Campbell	2001	1860-2000	Historical & Projections (D/P & Earnings Growth)	Arithmetic	3.00%	4.00%	3.50%	3.50%	
			Projected for 75 Years		Geometric	1.50%	2.50%	2.00%	2.00%	
	Peter Diamond	2001	Projected for 75 Years	Fundamentals (D/P, GDP Growth)		3.00%	4.80%	3.90%	3.90%	
	John Shoven	2001	Projected for 75 Years	Fundamentals (D/P, P/E, GDP Growth)		3.00%	3.50%	3.25%	3.25%	
	Median									4.00%
Surveys										
	New York Fed	2015	Five-Year	Survey of Wall Street Firms					5.70%	
	Survey of Financial Forecasters	2020	10-Year Projection	About 20 Financial Forecasters					3.36%	
	Duke - CFO Magazine Survey	2020	10-Year Projection	Approximately 200 CFOs					4.05%	
	Welch - Academics	2008	30-Year Projection	Random Academics		5.00%	5.74%	5.37%	5.37%	
	Fernandez - Academics, Analysts, and Companie	2021	Long-Term	Survey of Academics, Analysts, and Companies					5.50%	
	Median									5.37%
Building Block										
	Ibbotson and Chen	2015	Projection	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			6.22%	5.21%	
					Geometric			4.20%		
	Chen - Rethink ERP	2010	20-Year Projection	Combination Supply Model (Historic and Projection)	Geometric				4.00%	
	Ilmanen - Rethink ERP	2010	Projection	Current Supply Model (D/P & Earnings Growth)	Geometric				3.00%	
	Grinold, Kroner, Siegel - Rethink ERP	2011	Projection	Current Supply Model (D/P & Earnings Growth)	Arithmetic			4.63%	4.12%	
					Geometric			3.60%		
	Median									4.06%
Mean										4.73%
Median										4.83%

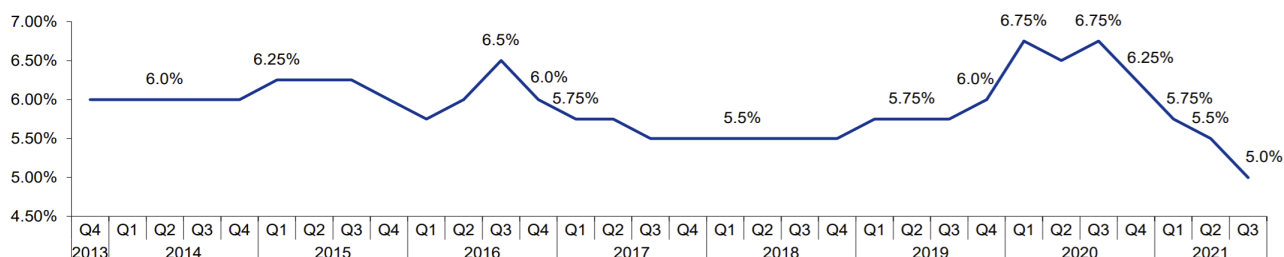
CAPM Study

Market Risk Premium Results - 2010-2021									
Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low High	Midpoint of Range	Mean	Average
Historical Risk Premium	Ibbotson	2016	1928-2015	Historical Stock Returns - Bond Returns	Arithmetic			6.00%	
					Geometric			4.40%	
	Damodaran	2021	1928-2020	Historical Stock Returns - Bond Returns	Arithmetic			6.44%	
					Geometric			4.83%	
	Dimson, Marsh, Staunton _Credit Suisse Report	2019	1900-2018	Historical Stock Returns - Bond Returns	Arithmetic			5.50%	
	Median								5.43%
Ex Ante Models (Puzzle Research)	Siegel - Rethink ERP	2011	Projection	Real Stock Returns and Components				5.50%	
	Duff & Phelps	2021	Projection	Normalized with 2.5% Long-Term Treasury Yield				5.50%	
	Mschchowski - VL - 2014	2014	Projection	Fundamentals - Expected Return Minus 10-Year Treasury Rate				5.50%	
	American Appraisal Quarterly ERP	2015	Projection	Fundamental Economic and Market Factors				6.00%	
	Market Risk Premia	2021	Projection	Fundamental Economic and Market Factors				3.42%	
	KPMG	2021	Projection	Fundamental Economic and Market Factors				5.00%	
	Damodaran -11-21	2021	Projection	Fundamentals - Implied from FCF to Equity Model (Trailing 12 month, with adjusted payout)				4.53%	
	Median								5.50%
Surveys	New York Fed	2015	Five-Year	Survey of Wall Street Firms				5.70%	
	Survey of Financial Forecasters	2020	10-Year Projection	About 20 Financial Forecasters				3.36%	
	Duke - CFO Magazine Survey	2020	10-Year Projection	Approximately 200 CFOs				4.05%	
	Fernandez - Academics, Analysts, and Companies	2021	Long-Term	Survey of Academics, Analysts, and Companies				5.50%	
	Median								4.78%
Building Block	Ibbotson and Chen	2015	Projection	Historical Supply Model (D/P & Earnings Growth)	Arithmetic		6.22%	5.21%	
					Geometric		4.20%		
	Chen - Rethink ERP	2010	20-Year Projection	Combination Supply Model (Historic and Projection)	Geometric			4.00%	
	Ilmanen - Rethink ERP	2010	Projection	Current Supply Model (D/P & Earnings Growth)	Geometric			3.00%	
	Grinold, Kroner, Siegel - Rethink ERP	2011	Projection	Current Supply Model (D/P & Earnings Growth)	Arithmetic		4.63%	4.12%	
					Geometric		3.60%		
	Median			d					4.06%
Mean									4.94%
Median									5.10%

CAPM Study

KPMG and Duff & Phelps Equity Risk Premium Estimates

KPMG Equity Risk Premium Estimates



Duff & Phelps Risk-Free Rate and Equity Risk Premium Estimates

DUFF & PHELPS

December 9, 2020

Table: Equity Risk Premium & Risk-free Rates

Duff & Phelps Recommended U.S. Equity Risk Premium (ERP) and Corresponding Risk-free Rates (R_f); January 2008–Present

For additional information, please visit <https://www.duffandphelps.com/insights/publications/cost-of-capital>

Date	Risk-free Rate (R_f)	R_f (%)	Duff & Phelps Recommended ERP (%)	What Changed
Current Guidance:				
December 9, 2020 – UNTIL FURTHER NOTICE	Normalized 20-year U.S. Treasury yield	2.50	5.50	ERP
June 30, 2020 – December 8, 2020	Normalized 20-year U.S. Treasury yield	2.50	6.00	R_f
March 25, 2020 – June 29, 2020	Normalized 20-year U.S. Treasury yield	3.00	6.00	ERP
December 19, 2019 – March 24, 2020	Normalized 20-year U.S. Treasury yield	3.00	5.00	ERP
September 30, 2019 – December 18, 2019	Normalized 20-year U.S. Treasury yield	3.00	5.50	R_f
December 31, 2018 – September 29, 2019	Normalized 20-year U.S. Treasury yield	3.50	5.50	ERP
September 5, 2017 – December 30, 2018	Normalized 20-year U.S. Treasury yield	3.50	5.00	ERP
November 15, 2016 – September 4, 2017	Normalized 20-year U.S. Treasury yield	3.50	5.50	R_f
January 31, 2016 – November 14, 2016	Normalized 20-year U.S. Treasury yield	4.00	5.50	ERP
December 31, 2015	Normalized 20-year U.S. Treasury yield	4.00	5.00	
December 31, 2014	Normalized 20-year U.S. Treasury yield	4.00	5.00	
December 31, 2013	Normalized 20-year U.S. Treasury yield	4.00	5.00	
February 28, 2013 – January 30, 2016	Normalized 20-year U.S. Treasury yield	4.00	5.00	ERP
December 31, 2012	Normalized 20-year U.S. Treasury yield	4.00	5.50	
January 15, 2012 – February 27, 2013	Normalized 20-year U.S. Treasury yield	4.00	5.50	ERP
December 31, 2011	Normalized 20-year U.S. Treasury yield	4.00	6.00	
September 30, 2011 – January 14, 2012	Normalized 20-year U.S. Treasury yield	4.00	6.00	ERP
July 1 2011 – September 29, 2011	Normalized 20-year U.S. Treasury yield	4.00	5.50	R_f
June 1, 2011 – June 30, 2011	Spot 20-year U.S. Treasury yield	Spot	5.50	R_f
May 1, 2011 – May 31, 2011	Normalized 20-year U.S. Treasury yield	4.00	5.50	R_f
December 31, 2010	Spot 20-year U.S. Treasury yield	Spot	5.50	
December 1, 2010 – April 30, 2011	Spot 20-year U.S. Treasury yield	Spot	5.50	R_f
June 1, 2010 – November 30, 2010	Normalized 20-year U.S. Treasury yield	4.00	5.50	R_f
December 31, 2009	Spot 20-year U.S. Treasury yield	Spot	5.50	
December 1, 2009 – May 31, 2010	Spot 20-year U.S. Treasury yield	Spot	5.50	ERP
June 1, 2009 – November 30, 2009	Spot 20-year U.S. Treasury yield	Spot	6.00	R_f
December 31, 2008	Normalized 20-year U.S. Treasury yield	4.50	6.00	
November 1, 2008 – May 31, 2009	Normalized 20-year U.S. Treasury yield	4.50	6.00	R_f
October 27, 2008 – October 31, 2008	Spot 20-year U.S. Treasury yield	Spot	6.00	ERP
January 1, 2008 – October 26, 2008	Spot 20-year U.S. Treasury yield	Spot	5.00	Initialized

*"Normalized" in this context means that in months where the risk-free rate is deemed to be abnormally low, a proxy for a longer-term sustainable risk-free rate is used.

To learn more about cost of capital issues, and to ensure that you are using the most recent Duff & Phelps Recommended ERP, visit www.duffandphelps.com/insights/publications/cost-of-capital. This and other related resources can also be found in the online Cost of Capital Navigator platform. To learn more about the Cost of Capital Navigator and other Duff & Phelps valuation and industry data products, visit www.DPCCostofCapital.com.

Unitil's Recommended Cost of Capital

Capital Source	Capitalization Amounts	Capitalization Ratios	Cost Rate	Weighted Cost Rate
Short-Term Debt	-	0.00%	1.69%	0.00%
Long-Term Debt	89,900,000.00	46.99%	5.49%	2.58%
Preferred Stock	188,700.00	0.10%	6.00%	0.01%
Common Equity	<u>101,242,877.00</u>	<u>52.91%</u>	10.00%	<u>5.29%</u>
Total Capital	191,331,577.00	100.00%		7.88%

Summary of Nelson Equity Cost Rate Results

Constant Growth DCF	Low	Mean	High
30-Day Average	8.45%	9.20%	9.83%
90-Day Average	8.44%	9.06%	9.75%
180-Day Average	8.48%	9.09%	9.84%
Quarterly Growth DCF	Low	Mean	High
30-Day Average	8.55%	9.29%	9.99%
90-Day Average	8.52%	9.14%	9.91%
180-Day Average	8.55%	9.21%	9.99%
<i>Value Line</i>-based CAPM		Current 30-Year Treasury Yield (1.97%)	Projected 30-Year Treasury Yield (2.72%)
Proxy Group Average		12.82%	12.91%
Proxy Group Median		12.48%	12.59%
<i>Value Line</i>-based Empirical CAPM		Current 30-Year Treasury Yield (1.97%)	Projected 30-Year Treasury Yield (2.72%)
Proxy Group Average		13.20%	13.27%
Proxy Group Median		12.95%	13.03%
Bond Yield Plus Risk Premium			
Current 30-Year Treasury Yield (1.97%)		9.89%	
Projected 30-Year Treasury Yield (2.72%)		9.80%	

GDP and S&P 500 Growth Rates

Growth Rates
GDP, S&P 500 Price, EPS, and DPS

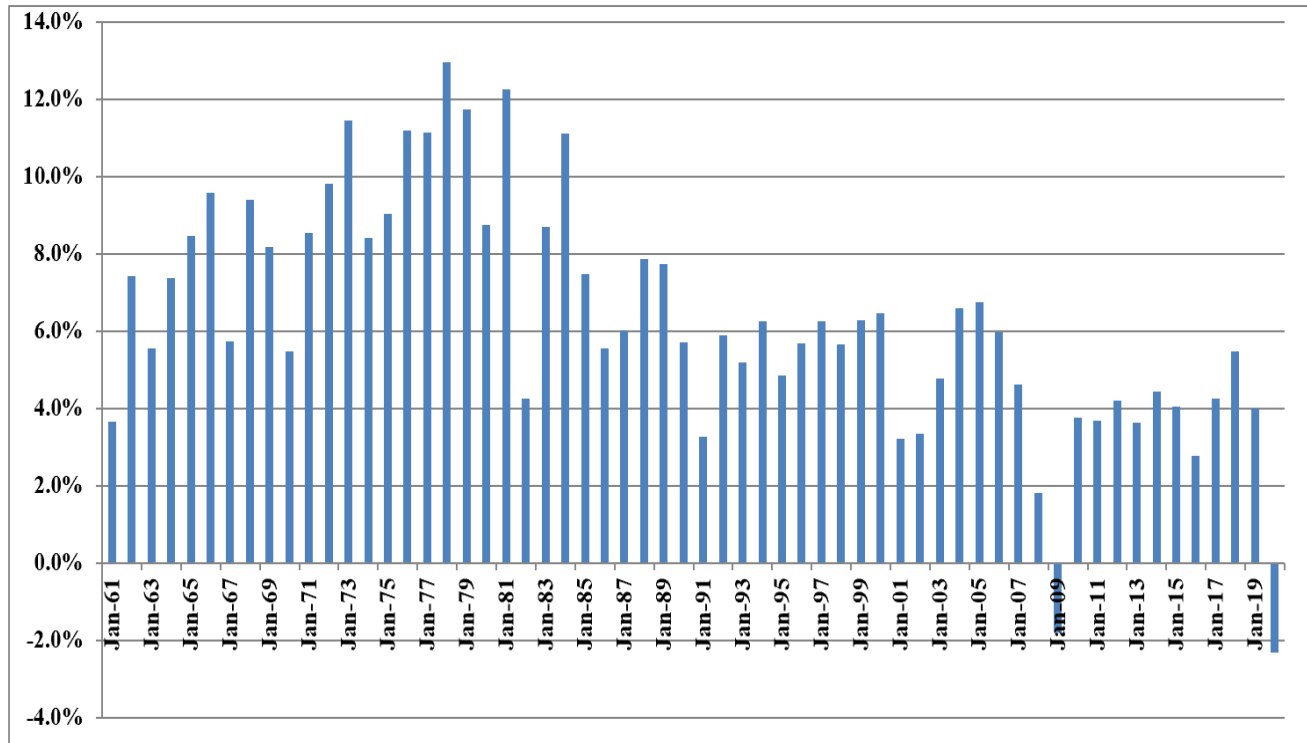
	GDP	S&P 500	S&P 500 EPS	S&P 500 DPS
1960	542.382	58.11	3.10	1.98
1961	562.210	71.55	3.37	2.04
1962	603.921	63.1	3.67	2.15
1963	637.451	75.02	4.13	2.35
1964	684.460	84.75	4.76	2.58
1965	742.289	92.43	5.30	2.83
1966	813.414	80.33	5.41	2.88
1967	859.958	96.47	5.46	2.98
1968	940.651	103.86	5.72	3.04
1969	1017.615	92.06	6.10	3.24
1970	1073.303	92.15	5.51	3.19
1971	1164.850	102.09	5.57	3.16
1972	1279.110	118.05	6.17	3.19
1973	1425.376	97.55	7.96	3.61
1974	1545.243	68.56	9.35	3.72
1975	1684.904	90.19	7.71	3.73
1976	1873.412	107.46	9.75	4.22
1977	2081.826	95.1	10.87	4.86
1978	2351.599	96.11	11.64	5.18
1979	2627.334	107.94	14.55	5.97
1980	2857.307	135.76	14.99	6.44
1981	3207.042	122.55	15.18	6.83
1982	3343.789	140.64	13.82	6.93
1983	3634.038	164.93	13.29	7.12
1984	4037.613	167.24	16.84	7.83
1985	4338.979	211.28	15.68	8.20
1986	4579.631	242.17	14.43	8.19
1987	4855.215	247.08	16.04	9.17
1988	5236.438	277.72	24.12	10.22
1989	5641.580	353.4	24.32	11.73
1990	5963.144	330.22	22.65	12.35
1991	6158.129	417.09	19.30	12.97
1992	6520.327	435.71	20.87	12.64
1993	6858.559	466.45	26.90	12.69
1994	7287.236	459.27	31.75	13.36
1995	7639.749	615.93	37.70	14.17
1996	8073.122	740.74	40.63	14.89
1997	8577.552	970.43	44.09	15.52
1998	9062.817	1229.23	44.27	16.20
1999	9630.663	1469.25	51.68	16.71
2000	10252.347	1320.28	56.13	16.27
2001	10581.822	1148.09	38.85	15.74
2002	10936.418	879.82	46.04	16.08
2003	11458.246	1111.91	54.69	17.88
2004	12213.730	1211.92	67.68	19.407
2005	13036.637	1248.29	76.45	22.38
2006	13814.609	1418.3	87.72	25.05
2007	14451.860	1468.36	82.54	27.73
2008	14712.845	903.25	65.39	28.05
2009	14448.932	1115.10	59.65	22.31
2010	14992.052	1257.64	83.66	23.12
2011	15542.582	1257.60	97.05	26.02
2012	16197.007	1426.19	102.47	30.44
2013	16784.851	1848.36	107.45	36.28
2014	17527.258	2058.90	113.01	39.44
2015	18238.301	2043.94	106.32	43.16
2016	18745.075	2238.83	108.86	45.03
2017	19542.980	2673.61	124.94	49.73
2018	20611.861	2506.85	148.34	53.61
2019	21433.226	3230.78	162.35	58.80
2020	20934.850	3756.07	138.12	56.70
Growth Rates	6.28	7.20	6.53	5.75

Data Sources: GDPA - <http://research.stlouisfed.org/fred2/series/GDPA/downloaddata>

S&P 500, EPS and DPS - <http://pages.stern.nyu.edu/~adamodar/>

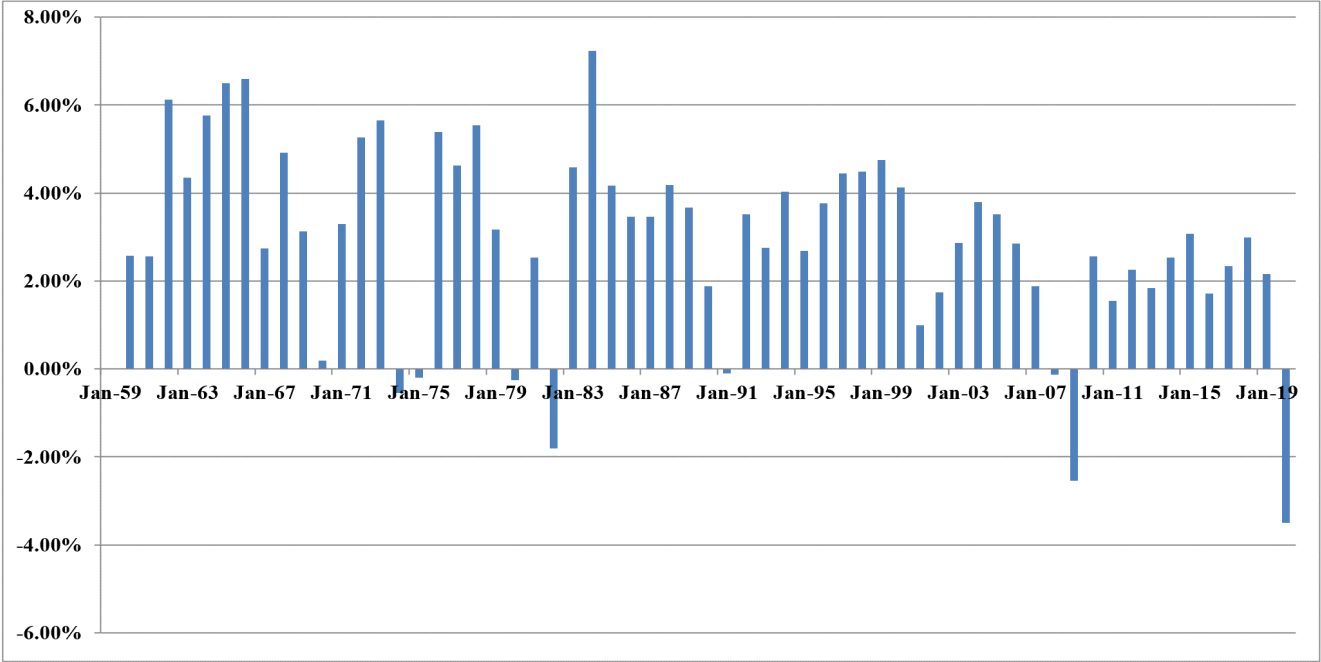
Annual Nominal GDP Growth Rates

Annual Growth Rates - 1961-2020



Data Sources: GDPA -<https://fred.stlouisfed.org/series/GDPA>

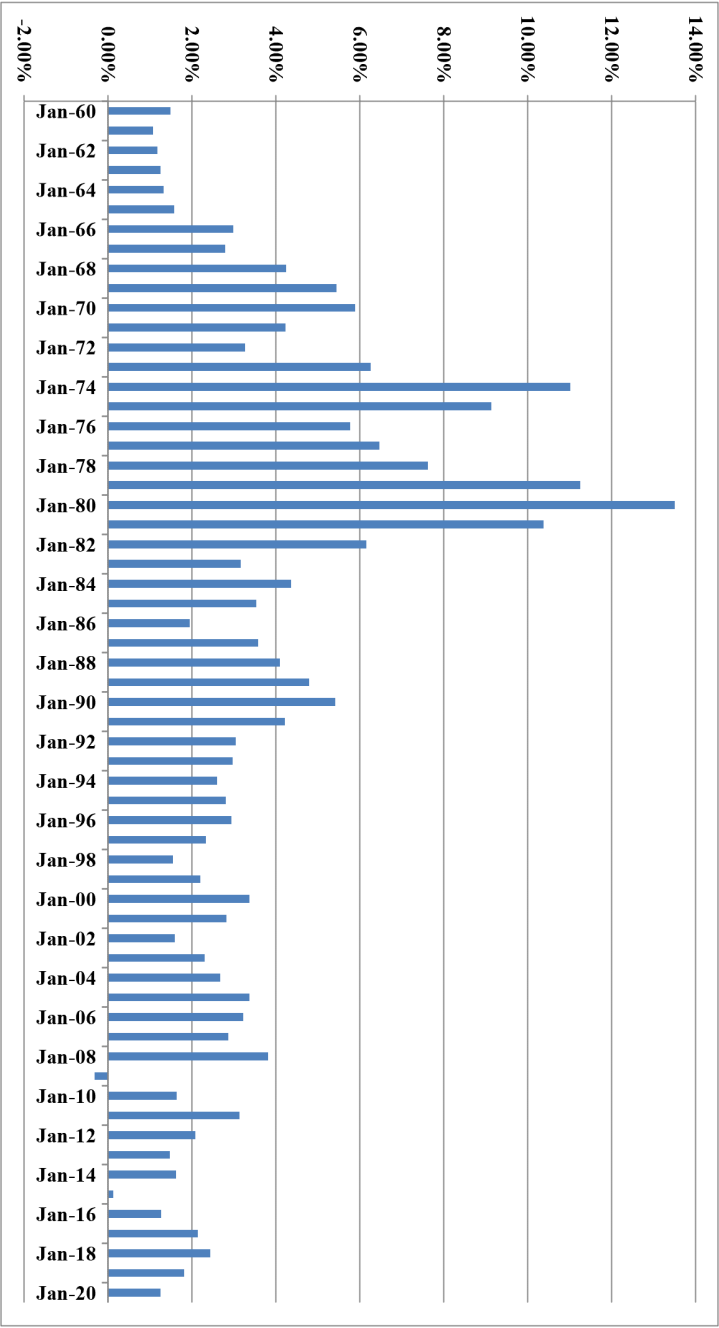
Real GDP Growth Rates
Annual Real GDP Growth Rates
1961-2020



Data Sources: GDPC1 - <https://fred.stlouisfed.org/series/GDPCA>

Inflation Rates

**Annual Inflation Rates
1961-2020**



Data Sources: CPIAUCSL - <https://fred.stlouisfed.org/series/CPIAUCSL>

Projected Nominal GDP Growth Rates

Panel A

Historic GDP Growth Rates

10-Year Average		3.40%
20-Year Average		3.63%
30-Year Average		4.27%
40-Year Average		5.10%
50-Year Average		6.12%

Calculated using GDP data on Page 1 of Attachment JRW-10

Panel B

Projected GDP Growth Rates

	Projected Nominal GDP Time Frame Growth Rate	
Congressional Budget Office	2019-29	3.8%
Survey of Financial Forecasters	Ten Year	4.3%
Social Security Administration	2020-2095	4.1%
Energy Information Administration	2019-2050	4.2%

Sources:

Congressional Budget Office, *The 2020 Long-Term Budget Outlook*, June 25, 2020.
U.S. Energy Information Administration, *Annual Energy Outlook 2020*, Table: Macroeconomic Indicators,
Social Security Administration, 2020 Annual Report of the Board of Trustees of the Old-Age,
Survivors, and Disability Insurance (OASDI) Program, Table VI.G4, p. 211(July 15, 2020),
The 4.1% growth rate is the growth in projected GDP from \$22,341 trillion in 2020 to \$450,425 trillion in 2095.
<https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/>

GDP and S&P 500 Growth Rates

Long-Term Growth of GDP, S&P 500, S&P 500 EPS, and S&P 500 DPS

