D'Ascendis Late-Filed Exhibit #1
CWSNC: NCUC Docket No. W-354 Sub 364
On-the-Record Data Request 1
Page 1 of 31

Carolina Water Service, Inc. of North Carolina Recommended Capital Structure and Cost Rates for Ratemaking Purposes at September 30, 2019

Type Of Capital	Ratios (1)	Cost Rate	Weighted Cost Rate
Long-Term Debt	50.90%	5.36% (1)	2.73%
Common Equity	49.10%	10.15% (2)	4.98%
Total	100.00%		7.71%

Notes:

- (1) Company-Provided.
- (2) From page 2 of this Schedule.

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Page 2 of 31

<u>Carolina Water Service, Inc. of North Carolina</u> <u>Brief Summary of Common Equity Cost Rate</u>

Line No.	Principal Methods	Proxy Group of Six Water Companies
1.	Discounted Cash Flow Model (DCF) (1)	8.81%
2.	Risk Premium Model (RPM) (2)	10.00%
3.	Capital Asset Pricing Model (CAPM) (3)	9.29%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	11.16%
5.	Indicated Common Equity Cost Rate before Adjustment for Size Risk	9.75%
6.	Size Risk Adjustment (5)	0.40%
7.	Recommended Common Equity Cost Rate after Adjustment for Size Risk	10.15%
Notes:	(1) From page 3 of this Schedule.	

- (2) From page 10 of this Schedule.
- $(3) \ \ From\ page\ 21\ of\ this\ Schedule.$
- (4) From page 26 of this Schedule.
- (5) From Schedule DWD-8 (direct testimony).

Page 3 of 31

D'Ascendis Late-Filed Exhibit #1

On-the-Record Data Request 1

CWSNC: NCUC Docket No. W-354 Sub 364

Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for the Carolina Water Service, Inc. of North Carolina

[8]	Indicated Common Equity Cost Rate (5)	8.76 % 10.30 6.82 10.80 6.69 9.00 8.73 % 8.88 %
[2]	Adjusted Dividend Yield (4)	1.43 % 1.70 2.82 1.53 1.53 1.80 Average Median
[9]	Average Projected Five Year Growth in EPS (3)	7.33 % 1.43 8.60 1.70 4.00 2.82 9.27 1.53 5.10 1.59 7.20 Average of Mean and Median
[5]	Yahoo! Finance Projected Five Year Growth in EPS	6.00 % 8.20 4.00 9.80 2.70 4.90 4.90
[4]	Zack's Five Year Projected Growth Rate in EPS	8.00 % 8.10 NA 10.00 NA NA
[2]	Value Line Projected Five Year Growth in EPS (2)	8.00 % 9.50 NA 8.00 7.50 9.50
[1]	Average Dividend Yield (1)	1.38 % 1.63 2.76 1.46 1.55 1.74
	Proxy Group of Six Water Companies	American States Water Co. American Water Works Company Inc Artesian Resources Corporation California Water Service Group Middlesex Water Co. York Water Co.

NA= Not Available

Notes:

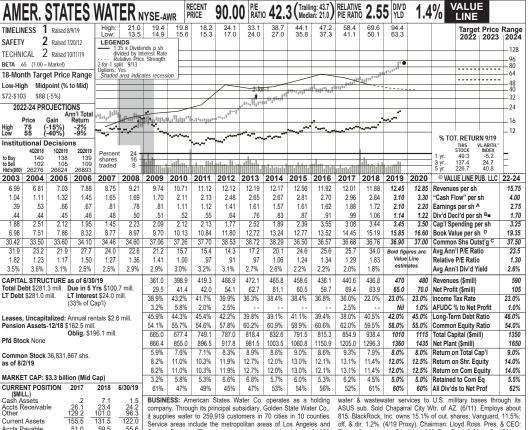
 $(1)\ Indicated\ dividend\ at\ 10/18/2019\ divided\ by\ the\ average\ closing\ price\ of\ the\ last\ 60\ trading\ days\ ending$ 10/18/2019 for each company.

- (2) From pages 4 through 9 of this Schedule.
 (3) Average of columns 2 through 5 excluding negative growth rates.
 (4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 6) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co., 1.38% x (1+(1/2 x 7.33%)) = 1.43%.
- (5) Column 6 + column 7.

Source of Information:

Value Line Investment Survey www.reuters.com Downloaded on 10/18/2019www.yahoo.com Downloaded on 10/18/2019 www.zacks.com Downloaded on 10/18/2019





55.6 Orange Counties. The company also provides electricity to 24,353 customers in Big Bear Lake and San Bernardino Cnty. Provides 50.4 106.3

ASUS sub. Sold Chaparral City Wtr. of AZ. (6/11). Employs about 815. BlackRock, Inc. owns 15.1% of out. shares; Vanguard, 11.5%, off. & dir. 1.2%. (4/19 Proxy). Chairman: Lloyd Ross. Pres. & CEO Robert Sprowls, Inc. CA. Addr.: 630 Fast Foothill Blvd., San Dimas CA 91773. Tel: 909-394-3600. Internet: www.aswater.com

Current	t Liab.	1	56.7	146.6	106.3
of chang	L RATE: e (per sh) les Flow" gs ids alue	10 Yrs.	% 3. % 4. % 9.	o% 65% 80%	'16-'18 22-'24 4.5% 5.0% 3.0% 9.5% 5.0%
Cal- endar	QUAR Mar.31	TERLY RE	VENUES (Sep. 30	\$ mill.) Dec. 31	Full Year
2016 2017 2018 2019 2020	93.5 98.8 94.7 101.7 105	112.0 113.2 106.9 124.6 130	123.8 124.4 124.2 138.7 140	106.8 104.2 111.0 105 105	436.1 440.6 436.8 470 480
Cal-	E/	RNINGS	ED CUAD	ΓΛ.	
endar				Dec. 31	Full Year
			Sep. 30 .59		
2016 2017 2018 2019	.28 .34 .29 .35 .38	.45 .62 .44 .72 .67	.59 .57 .62 .65 .70	.30 .35 .37 .38 .45	1.62 1.88 1.72 2.10

51.0 59.3 46.4 156.7 59.5 40.3 46.8 146.6

Current Assets Accts Payable Debt Due Other

Current Liab

Shares of American States Water have performed well since our July report. The stock price, which had already been on a roll over the past one-, three-, and five year periods, surged over 20% in the last three months. By comparison, the S&P 500 Index returns have been flattish. We attribute the showing to the positive earnings and dividend news (more below). earnings and dividend news (more below).

Rate relief is spurring the bottom line. In California, utilities petition for higher rates triennially. State regulators recently finalized the Golden States Water subsidiary's ruling. Hence, there was a \$0.08-a-share gain in the June quarter resulting from the new rates being retroactive to the beginning of the very Wider. sulting from the new rates being retroactive to the beginning of the year. Wider margins also helped as the company has done a good job of cutting costs. To reflect this, we have raised our earnings-pershare estimates for 2019 and 2020, \$0.15 and \$0.10, respectively, to \$2.10 and \$2.20. Nonregulated activities are also providing a boost. Through its ASUS operations, the company provides water services to U.S. Army bases around the country. For the first half of the year, share-earnings contributions from this business

doubled from 2018's \$0.11, to \$0.22. The inclusion of revenues generated from Fort Riley were part of the reason, as was an increase in management fees and con-struction at other bases. As more military complexes privatize their water services, we expect this segment to gain in importance. Moreover, profits made here are not regulated by state authorities.

The most recent dividend hike was better than expected. In the last quarter, the payout was raised a hefty 11% to an annual rate of \$1.22 a share.

The yield on this equity has declined meaningfully. At 1.4%, AWR is now yielding about 80 basis points lower than the *Value Line* median. And, while much of this is due to the robust dividend growth prospects, the equity is now richly yalued as to many key financial metrics. In any case, our ranking system pegs AWR to outperform the market in the year ahead. However, the stock is now trading above our 2022-2024 TPR. Price performance over the next 18-month period is also projected to be subpar. James A. Flood

October 11, 2019

(A) Primary earnings. Excludes nonrecurring (B) Dividends historically paid in early March, gains/(losses): '04, 7¢: '05, 13¢: '06, 3¢; '08, June, September, and December. ■ Div'd reinduction of the mid-November. | (C) In millions, adjusted for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (C) In millions, adjusted for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends in a private for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends in a private for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends in a private for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends in a private for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends in a private for split. (D) Includes intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. As of 6/30/19; 'due mid-November. | (B) Dividends intangibles. | (B) Dividends i

Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability 85 95 90

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RECENT 123.86 P/E RATIO 34.1 (Trailing: 38.6) RELATIVE 2.05 DIV'D P/E RATIO 2.05 VLD AMERICAN WATER NYSE-AWK 56.2 41.1 1 Raised 4/5/19 23.7 23.0 16.5 16.2 25.8 19.4 61.2 48.4 85.2 58.9 98.2 76.0 Target Price Range 2022 | 2023 | 2024 LEGENDS

1.10 x Dividends p sh divided by Interest Rate
Relative Price Strength 3 New 7/25/08 SAFFTY TECHNICAL 3 Lowered 10/4/19 200 BETA .60 (1.00 = Market) Options: Yes Shaded area indicates 18-Month Target Price Range -80 Low-High Midpoint (% to Mid) \$102-\$142 \$122 (0%) -60 -50 2022-24 PROJECTIONS -40 30 120 1% -8% (-5%) (-35%) -20 % TOT. RETURN 9/19 Institutional Decisions 4Q2018 1Q2019 2Q2019 362 287 360 331 © VALUE LINE PUB. LLC 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 22-24 13.84 13.08 14.61 13.98 15.49 16.78 17.72 20.90 Revenues per sh 15.18 16.25 16.28 18.54 18.81 19.04 19.90 23.80 65 d 47 2 87 2 89 3.56 3.73 4.27 4.36 4.75 5 13 5 26 5 14 6.15 6.75 7.05 "Cash Flow" per sh 8.30 d.97 d2.14 1.10 1.25 1.53 1.72 2.11 2.06 2.39 2.64 2.62 2.38 3.15 3.60 3.90 Earnings per sh A 4.70 .82 .90 5.27 1.47 1.62 1.78 2.10 Div'd Decl'd per sh B= 9.15 Cap'l Spending per sh 1.33 4.38 4.31 4.74 6.31 5.25 7.36 8.04 8.78 9.00 9.00 36.55 Book Value per sh 23.86 28.39 25.64 22.91 23.59 24.11 25.11 26.52 27.39 28.25 29.24 30.13 32.42 34.25 41.25 160.00 160.00 160.00 174.63 175.00 175.66 176.99 178.25 179.46 178.28 178.10 178.44 180.68 181.00 182.00 Common Shs Outst'g 189.00 Avg Ann'l P/E Ratio 21.5 Bold fig 1.14 1.04 .93 1.05 1.06 1.12 1.05 1.03 1.45 1.70 1.47 Relative P/E Ratio 1.20 4.2% 3.8% 3.1% 3.4% 2.0% 2.5% 2.5% 2.0% 2.0% 2.1% Avg Ann'l Div'd Yield 1.9% 2.8% 2440.7 2710.7 2666.2 2876.9 2901.9 3011.3 3159.0 3302.0 3357.0 3440.0 CAPITAL STRUCTURE as of 6/30/19 3600 3800 Revenues (\$mill) 4500 Total Debt \$9064.0 mil. Due in 5 Yrs \$1555.0 mil. LT Debt \$8642.0 mil. LT Interest \$370.0 mil. 304.9 374.3 369.3 429.8 476.0 468.0 426.0 567.0 650 700 Net Profit (\$mill) 28.2% 21.0% 21.0% Income Tax Rate 37.9% 40.4% 39.5% 40.7% 39.1% 39.4% 39 1% 39 2% 53.3% 21.0% (59% of Cap'l) 4.0% 5.0% 5.0% AFUDC % to Net Profit 5.0% 56.9% 55.7% 53.9% 46.1% Leases, Uncapitalized: Annual rentals \$17.0 mill Pension Assets12/18 \$1499.0 mill 56.8% 52 4% 52.4% 53.7% 52 4% 54 7% 56.3% 58.5% 58.0% Long-Term Debt Ratio 59.0% 43.2% 44.2% 47.6% 45.3% 43.1% 47.4% 46.2% 47.5% 43.6% 41.5% 42.0% Common Equity Ratio Oblig. \$1892.0 mill. Pfd Div'd \$.4 mill 9289 0 9561 3 9580 3 9635 5 9940.7 10364 10911 10967 11875 13433 15000 15700 Total Capital (\$mill) 18800 Pfd Stock \$7.0 mill. 11021 11739 12391 14992 17409 19500 Net Plant (\$mill) 10524 11059 12900 13933 16246 18500 22500 5.4% 1 1% 4.8% 5.4% 5 1% 5.5% 5 7% 1 0% 5 5% 5 5% Return on Total Cap'l 6.0% Common Stock 180.652.681 shares 10.5% Return on Shr. Equity as of 7/25/19 5.2% 6.5% 7.2% 8.4% 7.8% 8.7% 9.4% 9.0% 7.9% 9.7% 10.5% 11.5% 10.5% 10.5% Return on Com Equity 8.4% 9.4% MARKET CAP: \$22.4 billion (Large Cap) 2.8% 3.5% 3.6% 4 7% 4.3% 47% 4 0% 2.5% 4 2% 5.0% 5.0% Retained to Com Fo
 CURRENT POSITION (\$MILL.)
 2017

 Cash Assets
 82

 Accts Receivable Other
 272

 366
 2018 6/30/19 56% 52% 57% 40% 50% 50% 56% 68% 56% 54% 55% All Div'ds to Net Prof

337 318 741 investor-owned water and wastewater utility in the U.S., providing services to more than 14 million people in 46 states and Ontario, Canada. Nonregulated business assists municipalities and military 140 422 755 1317 bases with the maintenance and upkeep as well. Regulated operations made up 87% of 2018 revenues. New Jersey is its largest

market accounting for 24% of regulated revenues; Pennsylvania, 23%. Has 7,100 employees. The Vanguard Grp, owns 11.0% of outstanding shares; BlackRock, Inc., 7.9%; officers & directors, less than 1.0%. (3/19 Proxy). President & CEO: Susan N. Story. Chairman: George MacKenzie. Address: 1 Water Street, Camden, NJ 08102. Tel.: 856-346-8200. Internet: www.amwater.com.

Accts Payable Debt Due Other Current Liab.	195 1227 903 2325	1035 884	140 422 755
ANNUAL RATES of change (per sh) Revenues "Cash Flow" Earnings Dividends Book Value	Past 10 Yrs. 3.0% 18.5%	Past Es 5 Yrs. 3.5% 6.0% 6.5% 10.5% 4.0%	st'd '16-'18 to '22-'24 4.0% 7.0% 9.5% 9.0% 5.0%

Cal- QUARTERLY REVENUES (\$ mill.) Full

Current Assets

301 322 781

endar	Mar.31	Jun. 30	Sep. 30	Dec. 31	Yea					
2016	743.0	827.0	930.0	802.0	3302					
2017	756.0	844.0	936.0	821.0	3357					
2018	761.0	853.0	976.0	850.0	3440					
2019	813.0	882.0	1025	880	3600					
2020	850	930	1080	940	3800					
Cal-	EA	EARNINGS PER SHARE A								
endar	Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year					
2016	.46	.77	.83	.57	2.62					
2017	.52	.73	1.12	.01	2.38					
2018	.59	.91	1.03	.62	3.15					
2019	.62	.94	1.28	.76	3.60					
2020	.65	1.00	1.45	.80	3.90					
Cal-	QUAR'	TERLY DIV	IDENDS P	AID B=	Full					
endar	Mar.31	Jun.30	Sep.30	Dec.31	Year					
2015	.31	.34	.34	.34	1.33					
2016	.34	.375			1.47					
2017	.375	.415	.415	.415	1.62					
2018	.415	.455	.455	.455	1.78					
2019	.455	.50	.50							

Despite some unfavorable weather, Despite some unfavorable weather, American Water Works should enjoy a strong earnings year. In the second quarter, unusually wet weather muted demand for water from many of its customers. Still, the utility managed to post a 3% bottom-line gain. All in all, we estimate that the company will post a 14% increase in share earnings in 2019. Prospects for 2020 look good, too. Assuming normal weather, more rate relief, and savings from acquisitions (more be-

BUSINESS: American Water Works Company, Inc. is the largest

and savings from acquisitions (more below), we think American Water's e per share can advance another 8%.

Acquisitions, cost controls, and a larger rate base ought to drive the company's results for quite some time. Although 2019 has been relatively quiet on this front, the utility has been on a contin-uous buying spree for many years. Because the water industry is composed of over 50,000 small municipally-run districts that are often not very efficient, American Water has achieved significant synergies by absorbing these smaller entities. In addition, the company plans on spending over \$8 billion on capital projects between 2019 and 2024. This should increase the amount of assets that it can earn a return on. Much of the outcome will depend on regulators, but the utility has been able to maintain good relations with its overseers.

There are no plans to issue equity in the near term. The number of American water's outstanding shares has increased only 2% since year-end 2012. Thus, the 86 billion in net plant that has been added has been financed with debt and internal funds. This has worked out well for stakeholders as the value of the stock has risen roughly three times. Nevertheless, the best time to issue new equity is after a stock has done exceptionally well and in-

vestor sentiment is positive.
These shares hold our Highest (1) rank for Timeliness. That being said,
AWK's potential for the 18 month- and three- to five-year periods is well below average. Indeed, while the equity has impressed Wall Street with its strong performance, conservative, income-oriented investors may well want to consider the three-month Treasury bill, which has the same yield and carries virtually no risk same yield and carries virtually no risk James A. Flood October 11, 2 October 11, 2019

(A) Diluted earnings. Excludes nonrecurlosses: '08, \$4.62; '09, \$2.63; '11, \$0.07. Disc. oper.: '06, (\$0.04); '11, \$0.03; '12, (\$0.10); '13,(\$0.01). GAAP used as of 2014. Next earn-

ings report due late October. Quarterly earnings do not sum in "16 due to rounding. (B) Dividends paid in March, June, September, and December.

Div. reinvestment available. (E) Pro forma numbers for '06 & '07.

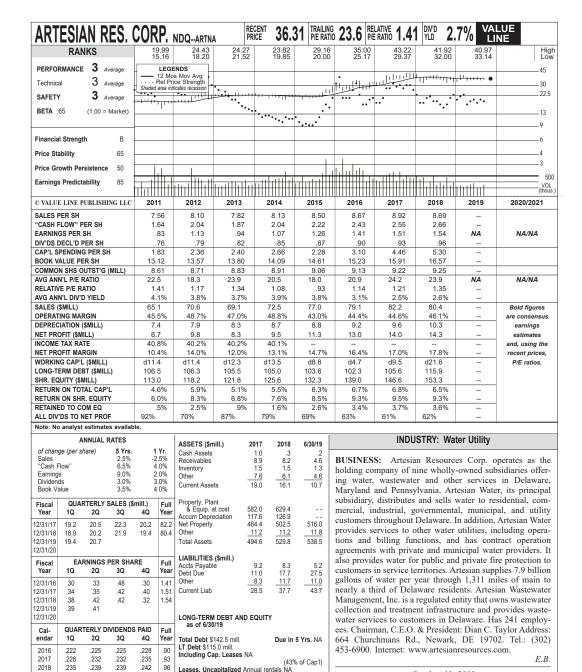
Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability

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Common Stock 9.279.000 shares

Pfd Stock None

Leases, Uncapitalized Annual rentals NA

Pension Liability None in '18 vs. None in '17

Pfd Div'd Paid None

(57% of Cap'l)

3 Mos.

0.22%

.235 2018

INSTITUTIONAL

4Q'18

38

27

3846

2019 .242 246 246 .25

to Buy

to Sell

Hld's(000)

.239

DECISIONS

1Q'19

39

32

3896

20'19

38

35

3949

40.53% To subscribe call 1-800-VALUELINE

3 Yrs.

nds plus appreciation as of 9/30/2019

5 Yrs

113.93%

October 11, 2019

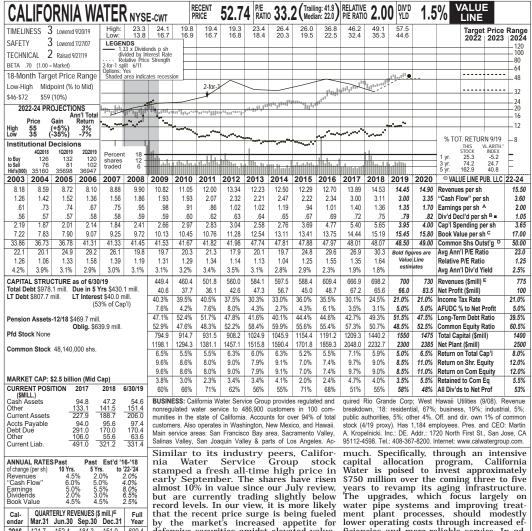
1 Yr.

3.33%

TOTAL SHAREHOLDER RETURN

6 Mos

0.63%



ndar Mar.31 Jun.30 Sep.30 Dec.31 184.3 609.4 2016 121.7 151.0 2017 171 1 2117 162 0 666 134.6 126.1 **140** 167.4 169.9 175 174.9 179.0 221.3 225 698.2 **700** 2020 185 230 730 EARNINGS PER SHARE Mar.31 Jun.30 Sep.30 Dec.31 d.02 .02 d.02 d.16 1.01 1.40 2016 .39 .31 .35 .29 .32 **.37** 1.36 1.35 1.70 2019 .79 2020 42 80 40 Cal-endar QUARTERLY DIVIDENDS PAID B . Mar.31 Jun.30 Sep.30 Dec.31 .1675 .1725 .1675 .1725 1675 1725 .1675 .1725 2016 .18 .1875 .1975 2017 .1875 .1975 1875 .1875

but are currently trading slightly below record levels. In our view, it is more likely that the recent price surge is being fueled by the market's increased appetite for defensive securities amidst elevated valua-

tions, rather than company-specific fundamentals.

mentals. Even so, second-quarter results were generally good. Revenues of \$179 million, an annual improvement of about 2%, came in on par with our expectation, as base rate increases provided a modest boost. On the earnings front, California posted June-period share net of \$0.35, four cents better than the previous-year tally, but a pixel share four cull. It would be cents better than the previous-year tally, but a nickel shy of our call. It would appear that management has yet to corral operating expenses, and is still faced with higher income taxes and interest costs. All told, we are shaving \$0.05 from our current-year bottom-line forecast, to \$1.35 a share. operating expenses, and is still faced with side 18 months out is only average. Final-higher income taxes and interest costs. All ly, the issue is ranked to track the broader told, we are shaving \$0.05 from our market over the coming six to 12 months, current-year bottom-line forecast, to \$1.35 and the dividend yield falls short of the a share.

The long-term story has not changed Nicholas P. Patrikis October 11, 2019

(E) Excludes non-reg. rev.

Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability 60 65

(A) Basic EPS. Excl. nonrecurring gain (loss):
'11, 4¢. Next earnings report due early Nov.
(B) Dividends historically paid in late Feb.
May, Aug., and Nov. ■ Div'd reinvestment plan
(D) In millions, adjusted for splits. 2019 Value Line. Inc. All rights reserved. Factual material is obtained from sources believed to be reliable and is provided without warranties of any kind. THE PUBLISHER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMSSIONS HEREIN. This publication is strictly for subscribers own, momentacial, internal use. No part of it may be reproduced, resold, stored or transmitted in any printed, electroin or of ther time, or used for generating or marketing any printed or electroin, service or product.

(C) Incl. intangible assets. In '18: \$24.7 mill.,

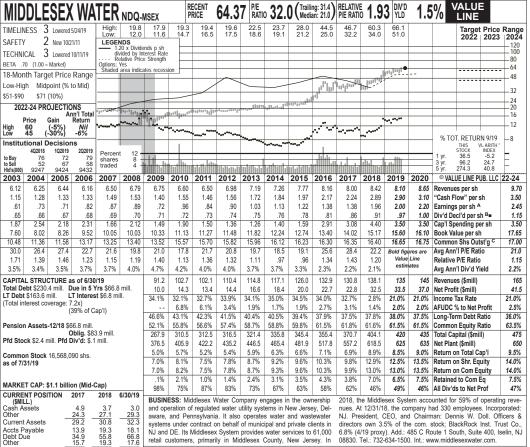
ficiencies and more-reliable service. In addition, rate hikes are likely in the cards, which would aid in recuperating a portion

of the capital spent on upgrades. Overall, we remain optimistic that the company can earn \$2.00 per share by 2022-2024. We would be remiss to recommend

these shares at recent levels. Though long-term business prospects are bright, and the regulated water space tends to hold up better than most in a down mar-

ket, capital appreciation potential three to five years hence is limited. Moreover, up-side 18 months out is only average. Final-

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Current Liab 64.5 94 4 102.5 Past Est'd '16-'18
5 Yrs. to '22-'24
3.5% 3.0%
9.0% 6.5%
11.0% 7.5%
3.0% 5.0%
4.5% 3.5% ANNUAL RATES of change (per sh) Revenues "Cash Flow" Earnings Dividends 5.5% 6.0% 2.0% 3.5% Book Value

COL QUARTERLY REVENUES (\$ mill.)

Cal-			TENOLO I		Full				
endar	Mar.31	Jun. 30	Sep. 30	Dec. 31	Yea				
2016	30.6	32.7	37.8	31.8	132				
2017	30.1	33.0	36.2	31.5	130				
2018	31.2	34.9	38.7	33.3	138				
2019	30.7	33.4	38.0	32.9	135				
2020	32.0	36.0	42.0	35.0	145				
Cal-	EA	EARNINGS PER SHARE A							
endar	Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Yea				
2016	.29	.36	.54	.19	1.38				
2017	.27	.33	.46	.32	1.38				
2018	.27	.52	.74	.43	1.96				
2019	.39	.49	.72	.40	2.00				
2020	.40	.55	.77	.48	2.20				
Cal-	QUAR'	TERLY DIV	IDENDS P	AID B=	Full				
endar	Mar.31	Jun.30	Sep.30	Dec.31	Yea				
2015	.1925	.1925	.1925	.19875	.78				
2016	.19875	.19875	19875	.21125	.8				
2017			.21125						
2018	.22375	.22375	.22375	.24	.9				
2019	.24	.24	.24						
	L				L				

retail customers, primarily in Middlesex County, New Jersey. In

Middlesex Water stock etched a new high-water mark since we last reported on the regulated northeast utility. Over the past few quarters, the company has performed relatively well in regard to top and bottom-line growth (recent period excluded), and the stock price has been broadly reflective of this. In price has been broadly reflective of this. In fact, MSEX shares have nearly doubled in value since mid-2017. In addition, given elevated market valuations and an ambiguous political climate, we think a renewed flight-to-safety approach may be further fueling the investment community's interest in Middlesex stock. Meanwhile, weaker-than-anticipated second quarter financial results have

Meanwhile, weaker-than-anticipated second-quarter financial results have prompted us to temper our current-year revenue and earnings forecasts. Indeed, negatives appeared to outweigh the positives in the June period. Namely, unfavorable weather conditions precipitated softer water demand, while the recent revision of its 10-year Perth Amboy contract (lower revenues) took a toll Decent customer additions in its Delatoll. Decent customer additions in its Delaware systems were only partially offset-ting. Operating expenses improved slight-

(A) Diluted earnings. Next earnings report due (B) Dividends historically paid in mid-Feb., late October. (C) In millions. late October.

ly, year over year, thanks to lower expenses related to Perth Amboy, but personnel costs edged higher to handle regulatory requirements. On balance, we are reducing our 2019 top- and bottom-line estimates by \$6.0 million and \$0.15, to \$135 million and \$2.00 a share, respectively.

Infrastructure investment through its Water for Tomorrow initiative still has a long road ahead. The company is has a long road ahead. The company is already knee-deep in the strategic over-haul of its water delivery and waste water management systems, which ought to eventually bear fruit on the efficiency front. Improving service reliability, fewer main and pipe breaks, and more-effective filtration processes are primary focus areas. On balance, we think annual capital spending will be steady over the pull to 2022-2024.

Investors should turn the page, for now. The issue remains ranked to mirror the year-ahead broader market averages. What's more, total return potential 3- to 5-years out is limited, as the stock is cur-rently trading beyond the upper end of our long-term Target Price Range. Nicholas P. Patrikis October 11. 2019

Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability 65 60 75

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42.83 P/E 38.2 (Trailing: 39.7) RELATIVE 2.30 DIV'D P/E RATIO 2.30 DIV'D YORK WATER NDQ-YORW 1.6% 22.0 17.6 24.3 18.8 26.7 19.7 16.5 6.2 18.0 9.7 18.0 12.8 39.8 23.8 36.1 27.5 Target Price Range 2022 | 2023 | 2024 1 Raised 10/11/19 LEGENDS

1.10 x Dividends p sh divided by Interest Rate
Relative Price Strength
3-for-2 split 9/06 3 Lowered 7/17/15 SAFFTY TECHNICAL 3 Lowered 8/30/19 BETA .75 (1.00 = Market) 18-Month Target Price Range .32 Low-High Midpoint (% to Mid) 24 \$41 (-5%) -16 2022-24 PROJECTIONS 100 001 -12 Ann'l Total Return 45 (+5%) (-30%) 3% -6% % TOT. RETURN 9/19 Institutional Decisions THIS STOCK 46.4 56.0 142.6 VL ARITH INDEX -5.2 24.7 40.8 4Q2018 1Q2019 2Q2019 Percent shares traded 12 8 4 33 40 4794 © VALUE LINE PUB. LLC 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 22-24 2.18 3.58 4.00 Revenues per sh 2.17 2.58 2.56 2.79 2.89 2.95 3.07 3.18 3.21 3.27 3.68 3.70 3.77 3.74 3.90 5.10 "Cash Flow" per sh .65 .65 79 77 .86 .88 .57 .95 1.07 1.09 1.12 1.19 1.36 1.45 1.42 1.53 1.58 1.70 1.80 2.50 .47 .49 .56 .58 .57 .64 .71 .71 .72 .75 .89 .97 .92 1.01 1.04 1.10 1.20 Earnings per sh A 1.70 .73 .42 45 .48 .51 52 .55 .57 .63 Div'd Decl'd per sh B .95 1.85 .65 1.95 1.07 1.85 1.18 .83 .94 1.95 2.00 Cap'l Spending per sh 11.25 Book Value per sh 4.06 4.65 4.85 5.84 5.97 6.14 6.92 7.19 7.45 7.73 7.98 8.15 8.51 8.88 9.28 9.75 10.40 12.10 9.63 10.33 10.40 11.20 11.27 12.56 12.69 12.79 12.92 12.98 12.83 12.81 12.85 12.94 13.00 12.90 Common Shs Outst'g 12.80

> 2.8% 2.8% 2.6%

54.9% 55.2%

45.9 47.1 47.6 48.6

1.8% 1.6%

11.0% 11.5%

12.5

55.6% 57.4%

Oblig. \$41.5 mill.						
Pfd Stock None						
Common Stock 12,974	,287 shs.			L		
MARKET CAP: \$550 m	illion (Sn	nall Cap)				
CURRENT POSITION (\$MILL.) Cash Assets	2017	2018	6/30/19			
Accounts Receivable Inventory (Avg. Cost) Other	4.5 .9 3.2	4.8 .9 3.3	4.5 1.0 3.8			
Current Assets Accts Payable Debt Due Other	8.6 3.1 6.0 9.1	9.0 3.0 1.0 6.8	9.3 4.2 6.0			
Current Liab.	9.1	10.8	10.2			

3.6%

37.0 39.0

37.9% 38.5% 35.3% 37.6% 37.6% 29.8% 27.5% 31.3% 25.9% 15.7%

45.7%

160 1 176.4 180.2 184 8 188 4 189.4 196.3 198 7 209.5 219.5

222.0

8.6% 9.8% 9.5% 9.3% 9.3% 11.0% 11.5%

8.6% 9.8%

1.9% 2.7% 2.5% 2 4% 2 4% 3.9% 44% 3.4% 4 0% 3.8% 4.0%

3.5%

Due in 5 Yrs \$42.5 mill. LT Interest \$5.5 mill.

3.1%

40.6 41.4 42.4

3.1%

54.0%

9.3%

3.5%

48.3% 47 1% 46.0% 45.1% 44.8% 44 4% 42 6% 43.0% 42.5% 40.0%

228.4 233.0 240.3 244.2 253.2 261.4

6 5% 6.4% 6.4% 6.5% 7.4% 7.6%

72% 73% 74% 74% 64% 62% 67% 63% 64% 63%

51.7% 52.9%

1.40 1.36 1.40 1.68 1.61 1.48 1.46 1.32 1.50 1.55 1.48 1.22 1.18 1.72 1.74 1.63

3.2%

3.1% 2.9% 2.5% 2.8%

Total Debt \$96.1 mill.

LT Debt \$96.1 mill.

CAPITAL STRUCTURE as of 6/30/19

n Assats12/18 \$40 6 mill

BUSINESS: The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2018, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 199,000. Has more than 69,000 customers. Residential customers accounted for 65% of 2018 revenues; commercial and industrial (28%); other (7%). It also provides sewer billing services. Incorporated: PA York had 109 full-time employees at 12/31/18. President/CEO: Jeffrey R. Hines. Officers/directors own 1.2% of the common stock (3/19 proxy). Address: 130 East Market Street, York, Pennsylvania 17401, Telephone: (717) 845-3601. Internet: www.yorkwater.com

Avg Ann'l P/E Ratio

Avg Ann'l Div'd Yield

1.25

2.5%

65.0

21.0%

1.5%

34.0%

66.0%

235

325

10.5%

14.0%

6.0%

Relative P/E Ratio

Net Profit (\$mill)

1.5% AFUDC % to Net Profit

37.0% Long-Term Debt Ratio

230 Total Capital (\$mill)

8.0% Return on Total Cap'l

10.5% Return on Shr. Equity

10.5% Return on Com Equity

4.0% Retained to Com Fo

61% All Div'ds to Net Prof

315 Net Plant (\$mill)

51.5 Revenues (\$mill)

21.0% 21.0% Income Tax Rate

57.5% | 60.0% | 63.0% | Common Equity Ratio

old fig

225

305

7 5%

10.5%

10.5%

1.9% 2.1%

13.0 13.4 14.5 15.5

57.0%

288.8

7 5%

10.9%

48.4 50.5

299.2

10.6%

2.1%

270.9

10.4%

10.4%

estimates

Past Est'd '16-'18 to '22-'24 3.0% 5.5% 6.0% 9.0% 6.5% 9.5% 4.0% 6.5% 4.5% ANNUAL RATES of change (per sh)
Revenues
"Cash Flow"
Earnings
Dividends
Book Value

Cal- QUARTERLY REVENUES (\$ mill.) Full

endar	Mar.31	Jun. 30	Sep. 30	Dec. 31	Year
2016	11.3	11.8	12.6	11.9	47.
2017	11.3	12.3	12.7	12.3	48.
2018	11.6	12.0	12.7	12.1	48.
2019	11.8	13.0	13.2	12.5	50.
2020	12.2	13.0	13.5	12.8	51.
Cal-	EA	RNINGS P	ER SHARI	A	Full
endar	Mar.31	Jun. 30	Sep. 30	Dec. 31	Year
2016	.19	.23	.27	.23	.92
2017	.20	.23	.31	.27	1.01
2018	.20	.26	.29	.29	1.04
2019	.22	.28	.30	.30	1.10
2020	.24	.31	.33	.32	1.20
Cal-	QUAF	TERLY DI	VIDENDS F	PAID B	Full
endar	Mar.31	Jun.30	Sep.30	Dec.31	Year
2015	.1495	.1495	.1495	.1555	.60
2016	.1555	.1555	.1555	.1602	.62
2017	.1602	.1602	.1602	.1666	.64
2018	.1666	.1666	.1666	.1733	.67
2019	.1733	.1733	.1733		
1	I				

York Water Company's stock price has risen sharply since the start of September. Shares of the regulated water utility broke through a \$35-\$36 resistance level and are now trading above \$42 a share (around fresh all-time highs). In our opinion, there aren't any obvious catalysts behind the recent move, as second-quarter financial results came in basically with expectations. That said, with broader market indices making a return to all-time-high territory, it is likely that the in-vestment community may be starting to accumulate stock of relatively recessionproof companies.

June-period earnings of 0.28 a share

hit our mark, while revenues of 13.0 million modestly beat our 12.5 million call. Indeed, the top line is benefiting from a rate hike that took effect on March 1st of this year, as well as an increasing customer base. Meanwhile, the bottom line advanced merely two pennies, year over year, as higher operating costs and income taxes remain in the picture.

York's capital spending program is in full swing. Over the past three months, the company invested \$4.7 million on

specific dam improvements and various inreastructure upgrades. This was in addition to a \$3.3 million bill in the first quarter. According to top brass, another \$9.5 million in investment is on tap for the back half of 2019. Target upgrades include main extensions, dam and spillway overhaule, westewater treatment plant average. hauls, wastewater treatment plant expansion, and routine pipe and service line repairs. Looking forward, we expect spending for these necessary improvements to spill over well into next decade, given the vast amount of infrastructure that needs to be replaced.

York stock has been upgraded two notches on our Timeliness Ranking Scale, to I, and is now slated as a year-ahead market outperformer. Thus, subscribers with a six- to 12-month holding period are best suited here. On the nolding period are best suited here. On the other hand, the recent quotation leaves much to be desired. Based on our system, the issue offers subpar price appreciation potential over both the intermediate (18 months) and long term (3 to 5 years) investment horizons. The dividend yield is nothing to write home about, either.

Nicholas P. Patrikis October 11, 2019

October 11, 2019

(A) Diluted earnings. Next earnings report due (C) In millions, adjusted for split late October. (B) Dividends historically paid in late February, June, September, and December.

Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability 60 60 95

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D'Ascendis Late-Filed Exhibit #1
CWSNC: NCUC Docket No. W-354 Sub 364
On-the-Record Data Request 1
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Carolina Water Service, Inc. of North Carolina Summary of Risk Premium Models for the Proxy Group of Six Water Companies

		Proxy Group of S Water Companie	
Predictive Risk Premium Model (PRPM) (1)		10.73	%
Risk Premium Using an Adjusted Total Market Approach (2)		9.27	_%
	Average	10.00	_ %

Notes:

- (1) From page 11 of this Schedule.
- (2) From page 12 of this Schedule.

D'Ascendis Late-Filed Exhibit #1

On-the-Record Data Request 1 Page 11 of 31

CWSNC: NCUC Docket No. W-354 Sub 364

Carolina Water Service. Inc. of North Carolina

		[9]
		[2]
Cal Office	Model (1)	[4]
carollina water Service, inc. of North Carolline Indicated ROE	Predictive Risk Premium	[3]
Laionna water 350	erived by the Predi	[2]
	Δ	[1]

[2]	Indicated ROE (5)	12.69%	NMF	10.27%	9.92%	9.92%	13.14%	11.19%	10.27%	10.73%
[6]	Risk-Free Rate (4)	2.53%	2.53%	2.53%	2.53%	2.53%	2.53%	Average	Median	Average of Mean and Median
[5]	Predicted Risk Premium (3)	10.16%	NMF	7.74%	7.39%	7.39%	10.61%			Average of Me
[4]	GARCH Coefficient	1.98126	6.51236	2.11410	2.02252	2.18875	2.20343			
[3]	Recommended Variance (2)	0.41%	NMF	0.29%	0.29%	0.27%	0.38%			
[2]	Spot Predicted Variance	0.44%	NMF	0.27%	0.27%	0.24%	0.31%			
[1]	LT Average Predicted Variance	0.38%	NMF	0.32%	0.32%	0.30%	0.45%			
	Proxy Group of Six Water Companies	American States Water Co.	American Water Works Company Inc	Artesian Resources Corporation	California Water Service Group	Middlesex Water Co.	York Water Co.			

NMF = Not Meaningful Figure

Notes:

The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service. (1)

Average of columns [1] and [2]. $(1+(\operatorname{Column} [3] * \operatorname{Column} [4])^{^{^{1}2}}) \cdot 1.$

(5 (4)

Six-month average yield on 30-year Treasury bonds. Column [5] + Column [6].

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Carolina Water Service, Inc. of North Carolina Indicated Common Equity Cost Rate Through Use of a Risk Premium Model Using an Adjusted Total Market Approach

Line No.		Proxy Group of Six Water Companies
4	W. 11 A. D 1	
1.	Yield on A Rated Public Utility Bonds (1)	3.71 %
2.	Adjustment to Reflect Bond Rating Difference of Proxy Group	0.07 (2)
3.	Adjusted Bond Yield	3.78 %
4.	Equity Risk Premium (3)	5.49
5.	Risk Premium Derived Common Equity Cost Rate	9.27 %

- Notes: (1) Six-month average A rated public utility bond yield ended September 2019.
 - (2) Adjustment to reflect the A2 / A3 Moody's LT issuer rating of the proxy group of six water companies as shown on page 14 of this Schedule. The 0.07% upward adjustment is derived by taking 1/6 of the spread between A2 and A3 Public Utility Bonds (1/6 * 0.42% = 0.07%) as derived from page 13 of this Schedule.
 - (3) From page 15 of this Schedule.

Carolina Water Service, Inc. of North Carolina Interest Rates and Bond Spreads for Moody's Corporate and Public Utility Bonds

Selected Bond Yields

[1]	[2]	[3]

	Aaa Rated Corporate Bond	A Rated Public Utility Bond	Baa Rated Public Utility Bond			
Sep-2019	3.03 %	3.37 %	3.71 %			
Aug-2019	2.98	3.29	3.63			
Jul-2019	3.29	3.69	4.13			
Jun-2019	3.42	3.82	4.31			
May-2019	3.67	3.98	4.47			
Apr-2019	3.69	4.08	4.55			
Average	3.35 %	3.71 %	4.13 %			

Selected Bond Spreads

A Rated Public Utility Bonds Over Aaa Rated Corporate Bonds:

0.36 % (1)

Baa Rated Public Utility Bonds Over A Rated Public Utility Bonds:

0.42 % (2)

Notes:

- (1) Column [2] Column [1].
- (2) Column [3] Column [2].

Source of Information:

Bloomberg Professional Service

D'Ascendis Late-Filed Exhibit #1 CWSNC: NCUC Docket No. W-354 Sub 364 On-the-Record Data Request 1 Page 14 of 31

Carolina Water Service, Inc. of North Carolina Comparison of Long-Term Issuer Ratings for Proxy Group of Six Water Companies

Moody's	Standard & Poor's
Long-Term Issuer Rating	Long-Term Issuer Rating
October 2019	October 2019

Proxy Group of Six Water Companies	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting(1)
American States Water Co. (2)	A2	6.0	A+	5.0
American Water Works Company Inc (3)	A3	7.0	Α	6.0
Artesian Resources Corporation	NR		NR	
California Water Service Group (4)	NR		A+	5.0
Middlesex Water Co.	NR		A	6.0
York Water Co.	NR		A-	7.0
Average	A2/A3	6.5	A	5.8

Notes:

- (1) From page 6 of Schedule DWD-4 (direct testimony).
- (2) Ratings that of Golden State Water Company.
- (3) Ratings that of New Jersey and Pennsylvania American Water Companies.
- (4) Ratings that of Aqua Pennsylvania, Inc.
- (5) Ratings that of California Water Service Company.

Source Information: Moody's Investors Service

Standard & Poor's Global Utilities Rating Service

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<u>Carolina Water Service, Inc. of North Carolina</u> Judgment of Equity Risk Premium for <u>Proxy Group of Six Water Companies</u>

Line No.		Proxy Group of Six Water Companies
1.	Calculated equity risk premium based on the total market using	
	the beta approach (1)	5.74 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities	
	with A rated bonds (2)	5.24
3.	Average equity risk premium	5.49 %

Notes: (1) From page 16 of this Schedule.

 $\begin{tabular}{ll} (2) & From page 20 of this Schedule. \end{tabular}$

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Carolina Water Service, Inc. of North Carolina Derivation of Equity Risk Premium Based on the Total Market Approach Using the Beta for the Proxy Group of Six Water Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Six Water Companies
	<u>Ibbotson-Based Equity Risk Premiums:</u>	
1.	Ibbotson Equity Risk Premium (1)	5.54 %
2.	Regression on Ibbotson Risk Premium Data (2)	8.92
3.	Ibbotson Equity Risk Premium based on PRPM (3)	8.12
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	10.41
5.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	11.10
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.74
7.	Conclusion of Equity Risk Premium	8.97 %
8.	Adjusted Beta (7)	0.64
9.	Forecasted Equity Risk Premium	5.74 %

Notes provided on page 17 of this Schedule.

D'Ascendis Late-Filed Exhibit #1 CWSNC: NCUC Docket No. W-354 Sub 364 On-the-Record Data Request 1 Page 17 of 31

Carolina Water Service, Inc. of North Carolina Derivation of Equity Risk Premium Based on the Total Market Approach Using the Beta for the Proxy Group of Six Water Companies

Notes:

- (1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® SBBI® 2018 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1926-2018.
- (2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2018 referenced in Note 1 above.
- (3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through September 2019.
- (4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the six-month average of Aaa and Aa corporate bonds of 3.42% from the projected 3-5 year total annual market return of 13.83% (described fully in note 1 on page 22 of this Schedule).
- (5) Using data from Value Line for the S&P 500, an expected total return of 14.52% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the six-month average Aaa and Aa corporate bonds of 3.42% results in an expected equity risk premium of 11.10%.
- (6) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.16% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the six-month average of Aaa and Aa corporate bonds of 3.42% results in an expected equity risk premium of 9.74%.
- (7) Average of mean and median beta from page 21 of this Schedule.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2019 SBBI Yearbook, John Wiley & Sons, Inc. Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Bloomberg Professional Service

On-the-Record Data Request 1

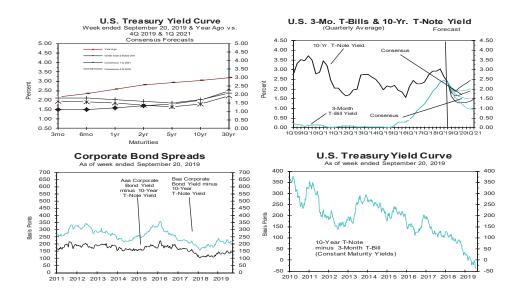
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2 ■ BLUE CHIP FINANCIAL FORECASTS ■ OCTOBER 1, 2019

Consensus Forecasts of U.S. Interest Rates and Key Assumptions

	History						Cons	ensus l	Forecas	sts-Qua	arterly	Avg.		
	Av	erage For	Week End	ding	Ave	erage For	Month	Latest Qtr	4Q	1Q	2Q	3Q	4Q	1Q
Interest Rates	Sep 20	Sep 13	Sep 6	Aug 30	Aug	<u>Jul</u>	<u>Jun</u>	3Q 2019*	2019	2020	2020	2020	2020	2021
Federal Funds Rate	2.19	2.13	2.13	2.12	2.13	2.40	2.38	2.25	1.8	1.6	1.5	1.5	1.5	1.4
Prime Rate	5.25	5.25	5.25	5.25	5.25	5.50	5.50	5.35	4.9	4.8	4.7	4.7	4.6	4.6
LIBOR, 3-mo.	2.15	2.13	2.12	2.13	2.16	2.29	2.40	2.21	2.0	1.9	1.8	1.8	1.8	1.8
Commercial Paper, 1-mo.	2.07	2.04	2.03	2.06	2.08	2.25	2.35	2.14	1.9	1.7	1.6	1.6	1.6	1.5
Treasury bill, 3-mo.	1.95	1.96	1.97	1.99	1.99	2.15	2.22	2.04	1.8	1.6	1.6	1.5	1.5	1.5
Treasury bill, 6-mo.	1.92	1.89	1.88	1.90	1.93	2.08	2.17	1.98	1.8	1.7	1.6	1.5	1.6	1.5
Treasury bill, 1 yr.	1.86	1.81	1.72	1.75	1.77	1.96	2.00	1.85	1.7	1.6	1.6	1.6	1.6	1.6
Treasury note, 2 yr.	1.73	1.69	1.50	1.52	1.57	1.84	1.81	1.69	1.6	1.6	1.6	1.6	1.6	1.7
Treasury note, 5 yr.	1.66	1.61	1.38	1.40	1.49	1.83	1.83	1.63	1.5	1.6	1.6	1.7	1.7	1.8
Treasury note, 10 yr.	1.80	1.76	1.52	1.50	1.63	2.06	2.07	1.81	1.7	1.7	1.8	1.8	1.9	2.0
Treasury note, 30 yr.	2.24	2.22	2.00	1.98	2.12	2.57	2.57	2.30	2.1	2.2	2.2	2.3	2.4	2.5
Corporate Aaa bond	3.18	3.18	2.96	2.93	3.06	3.43	3.56	3.21	3.0	3.0	3.2	3.3	3.4	3.5
Corporate Baa bond	3.92	3.92	3.72	3.70	3.82	4.16	4.33	3.96	4.0	4.1	4.2	4.3	4.4	4.4
State & Local bonds	3.21	3.14	3.06	3.05	3.08	3.24	3.29	3.15	2.9	2.9	3.0	3.1	3.1	3.2
Home mortgage rate	3.73	3.56	3.49	3.58	3.62	3.77	3.80	3.66	3.6	3.6	3.7	3.7	3.8	3.8
				Histor	y				Co	nsensı	ıs Fore	casts-C)uartei	rlv
	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	40	1Q	2Q	30	4Q	10
Key Assumptions	2017	2018	2018	2018	2018	2019	2019	2019**	2019	2020	2020	2020	2020	2021
Fed's AFE \$ Index	106.2	102.9	105.5	107.8	109.4	109.4	110.2	110.4	110.3	110.0	109.2	108.9	108.6	108.9
Real GDP	3.5	2.5	3.5	2.9	1.1	3.1	2.0	2.0	1.8	1.7	1.7	1.6	1.8	1.9
GDP Price Index	2.6	2.3	3.2	2.0	1.6	1.1	2.4	2.1	2.0	2.0	2.0	2.1	2.0	2.0
Consumer Price Index	3.1	3.2	2.1	2.0	1.5	0.9	2.9	2.0	2.0	2.1	2.0	2.0	2.0	2.0

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; LIBOR quotes from Intercontinental Exchange. All interest rate data are sourced from Haver Analytics. Historical data for Fed's Major Currency Index are from FRSR H.10. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). *Interest rate data for 3Q 2019 are based on historical data through the week ended September 20. **Data for 3Q 2019 for the Fed's AFE \$ Index based on data through week ended September 20. Figures for 3Q 2019 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panelists this month.



On-the-Record Data Request 1

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Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2021 through 2025 and averages for the five-year periods 2021-2025 and 2026-2030. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

Profession P				Ave r	age For The	Year		Five-Yea	r Averages
Top 10 Average 15								2021-2025	2026-2030
Prime Rate	1. Federal Funds Rate	CONSENSUS	2.4	2.4	2.6	2.7	2.8	2.6	2.8
CONSINSIS 5.6 5.8 5.8 5.6 5.7		Top 10 Average	3.1	3.2	3.4	3.4	3.4	3.3	3.4
Top 10 Average Figura Fi		Bottom 10 Average	1.5	1.6	1.7	2.1	2.2	1.8	2.1
Section 10 Average 4.6	2. Prime Rate	CONSENSUS	5.4	5.5	5.6	5.8	5.8	5.6	5.7
Section Consensity Consen		Top 10 Average	6.1	6.2	6.4	6.4	6.4	6.3	6.2
Top 10 Average South Paper, 1-Mo. Post									
CONSENSION CON	3. LIBOR, 3-Mo.								
Commercial Paper, I-Mo. CONSENSIS 2.5 2.6 2.7 2.9 2.9 2.7 2.9 2.0 2.									
Top 10 Average Soltom									
Streasury Bill Yield, 3-Mo. CONSINUS 2.4 2.4 2.5 2.7 2.8 2.6 2.8	Commercial Paper, 1-Mo.								
1. Treasury Bill Yield, 3-Mo Moverage 3.1 3.2 3.4 3.4 3.4 3.3 3.4 3.1 3.2 3.4 3.4 3.4 3.3 3.4 3.2 3.4 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.7 3.8 3.8 3.6 3.6 3.8 3.6 3.6 3.8 3.6 3.6 3.8 3.6 3.6 3.8 3.6 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8									
Top 10 Average Salt									
Bottom 10 Average 1.5 1.6 1.7 2.0 2.2 1.8 2.1 2.0 2.0 2.7 2.9 2.9 2.7 2.9 2.9 2.7 2.9 2.9 2.7 2.9 2.9 2.7 2.9 2.9 2.7 2.9 2.0 2.3 2.0 2.0 2.3 2.0 2.0 2.3 2.0 2.0 2.0 2.3 2.0 2.	Treasury Bill Yield, 3-Mo.								
CONSENSUS CONS									
Top 10 Average Bottom 10 Ave									
Rottom 10 Average 1.7	Treasury Bill Yield, 6-Mo.								
7. Treasury Bill Yield, 1-Yr. CONSENSUS Top 10 Average 1.8 1.8 2.0 2.3 2.4 2.1 2.3 2.									
Top 10 Average Bottom 10 10 Average 1.8 1.8 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.1 2.3 2.3 2.5 2									
Solution 10 Average 1.8 1.8 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.4 2.0 2.3 2.5	7. Treasury Bill Yield, 1-Yr.								
S. Treasury Note Yield, 2-Yr. CONSENSUS 3.6 3.7 3.8 3.8 3.6 3.8 3.8 3.6 3.8 3.8 3.6 3.8 3.									
Top 10 Average 3.3 3.5 3.7 3.8 3.8 3.6 3.8	0.7								
Bottom 10 Average 1.8 1.9 2.0 2.3 2.4 2.1 2.3 2.4 2.1 2.3 2.5 2.	8. I reasury Note Yield, 2-Yr.								
CONSENSUS CONS									
Top 10 Average 3.5 3.7 4.0 4.0 4.0 3.8 4.1	10 T N-+- Vi-14 5 V-								
Bottom 10 Average 2.0 2.1 2.2 2.3 2.5 2.2 2.4	10. I reasury Note Field, 3-11.								
11. Treasury Note Yield, 10-Yr. CONSENSUS Top 10 Average 3.6 3.9 4.2 4.2 4.2 4.2 4.0 4.4 4.6 4.7 4.8 4.6 4.8 4.6 4.8 4.6 4.8 4.0 4.0 4.0 3.9 4.0 4									
Top 10 Average 3.6 3.9 4.2 4.2 4.2 4.0 4.4 4.6 2.6 2.4 2.6 2.6 2.4 2.6	11 Tecomer Note Viold 10 Ve								
Bottom 10 Average 2.3 2.4 2.4 2.5 2.6 2.4 2.6 2.4 2.6 2.6 2.4 2.6 2.6 2.4 2.6 2.6 2.4 2.6 2.	11. Treasury Note Tield, 10-11.								
12. Treasury Bond Yield, 30-Yr. CONSENSUS 3.3 3.5 3.6 3.7 3.8 3.6 3.8 Top 10 Average 4.0 4.3 4.5 4.6 4.6 4.4 4.8 4.8 4.6 4.7 4.7 4.8 4.6 4.8 4.8 4.6 4.8 4.6 4.7 4.7 4.8 4.6 4.8 4.6 4.7 4.8 4.6 4.8 4.6 4.8 4.6 4.7 4.8 4.6 4.8 4.6 4.7 4.8 4.6 4.9 4.0 4									
Top 10 Average A.0 A.3 A.5 A.6 A.6 A.4 A.8 A.5 A.5 A.6 A.6 A.4 A.8 A.5	12 Treasury Bond Vield 30-Vr								
Bottom 10 Average 2.7 2.7 2.8 2.9 2.9 2.8 2.9 2.9 2.8 2.9 2.9 2.8 2.9 2.9 2.8 2.9 2.	12. Treasury Bond Tield, 50-11.								
13. Corporate Aaa Bond Yield Top 10 Average 5.0 5.2 5.5									
Top 10 Average S.0 S.2 S.5 S.5 S.5 S.3 S.6 Bottom 10 Average S.8 S.9 S.9 S.7 S.7 S.6 S.8 CONSENSUS S.3 S.6 S.7 S.7 S.6 S.8 Top 10 Average G.0 G.3 G.6 G.6 G.6 G.7 G.5 G.8 Bottom 10 Average 4.7 4.8 4.7 4.8 4.8 4.7 4.8 I4. State & Local Bonds Yield Top 10 Average 4.6 4.9 S.0 S.0 S.0 S.0 4.9 S.1 Bottom 10 Average 4.6 4.9 S.0 S.0 S.0 S.0 4.9 S.1 Bottom 10 Average S.3 S.5 S.8 S.8 S.6 S.6 S.9 Bottom 10 Average S.3 S.5 S.8 S.8 S.8 S.6 S.9 Bottom 10 Average S.3 S.5 S.8 S.8 S.8 S.6 S.9 Bottom 10 Average A.0 A.0 A.0 A.0 A.2 A.2 A.1 A.2 A. Fed's AFE Nominal \$ Index Top 10 Average I10.8 I10.5 I10.9 I10.8 I10.6 I10.7 I11.2 Bottom 10 Average I10.8 I10.5 I10.9 I10.8 I10.6 I10.7 I11.2 Bottom 10 Average I10.8 I10.5 I10.9 I10.8 I10.6 I10.7 I11.2 Bottom 10 Average I10.8 I10.5 I10.9 I10.8 I10.6 I10.7 I11.2 Bottom 10 Average I10.8 I10.5 I10.9 I10.8 I10.6 I10.7 I11.2 Bottom 10 Average I10.8 I10.5 I10.9 I10.8 I10.6 I10.7 I11.2 Bottom 10 Average I.5 I.4 I.6 I.8 I.8 I.6 I.8 C. GDP Chained Price Index CONSENSUS I.8 I.8 I.8 I.9 I.9 I.9 I.8 D. Consumer Price Index CONSENSUS I.8 I.8 I.8 I.9 I.9 I.9 I.8 D. Consumer Price Index CONSENSUS I.9 I.9 I.2 I.2 I.2 I.2 I.2 I.2 I.2 I.2 I.3 I.3 I.8 I.8 I.8 I.9 I.9 I.9 I.8 D. Consumer Price Index CONSENSUS I.9 I.9 I.9 I.8 I.8 I.8 I.8 I.9 I.9 I.9 I.8 I.8 I.8 I.8 I.9 I.9 I.9 I.8 I.8 I.8 I.8 I.8 I.9 I.9 I.9 I.8	13. Corporate Aaa Bond Yield		-						
Bottom 10 Average 3.8 3.9 3.9 4.0 4.0 3.9 4.0									
13. Corporate Baa Bond Yield CONSENSUS 5.3 5.6 5.7 5.7 5.6 5.8									
Top 10 Average Bottom 10 Average A.7 A.8 A.7 A.8	13. Corporate Baa Bond Yield								
Bottom 10 Average 4.7 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.8 4.7 4.8 4.9 5.0 5.0 5.0 5.0 4.9 5.0 5.	1		6.0		6.6	6.6	6.7		6.8
14. State & Local Bonds Yield CONSENSUS			4.7			4.8			
Top 10 Average A6	14. State & Local Bonds Yield		4.1	4.2	4.3	4.3	4.3	4.2	4.4
Secondary Consense		Top 10 Average	4.6	4.9	5.0	5.0	5.0	4.9	5.1
Top 10 Average 5.3 5.5 5.8 5.8 5.8 5.6 5.9		Bottom 10 Average	3.5	3.6	3.6	3.6	3.6	3.6	3.6
A. Fed's AFE Nominal \$ Index Bottom 10 Average A.0 A.0 A.0 A.0 A.0 A.2 A.2 A.1 A.2 A.2 A.2 A.3 A.2 A.5 A.5	15. Home Mortgage Rate	CONSENSUS	4.7	4.8	4.9	5.0	5.0	4.9	5.0
A. Fed's AFE Nominal \$ Index		Top 10 Average	5.3	5.5	5.8	5.8	5.8	5.6	5.9
Top 10 Average Bottom 10 Average CONSENSUS CON		Bottom 10 Average	4.0	4.0	4.0	4.2	4.2	4.1	4.2
Bottom 10 Average 106.6 105.8 104.9 104.6 103.6 105.1 102.9	A. Fed's AFE Nominal \$ Index	CONSENSUS	108.5	108.2	108.0	107.6	106.9	107.8	106.7
B. Real GDP CONSENSUS 1.9 1.9 2.0		Top 10 Average	110.8	110.5	110.9	110.8	110.6	110.7	111.2
Real GDP CONSENSUS 1.9 1.9 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.1 2.0 2.1 2.0 2.1 2.0 2.1 2.0		Bottom 10 Average	106.6	105.8	104.9	104.6	103.6	105.1	102.9
B. Real GDP CONSENSUS 1.9 1.9 2.0 2.1 2.1 2.0 2.1 Top 10 Average 2.3 2.4 2.4 2.5 2.5 2.4 2.6 Bottom 10 Average 1.5 1.4 1.6 1.8 1.8 1.6 1.8 CONSENSUS 2.1 2.1 2.0 2.0 2.0 2.1 2.0 Top 10 Average 2.4 2.4 2.2 2.2 2.2 2.3 2.2 Bottom 10 Average 1.8 1.8 1.8 1.9 1.9 1.9 1.8 CONSENSUS 2.1 2.2 2.2 2.1 2.1 2.1 2.1 2.0 D. Consumer Price Index CONSENSUS 2.1 2.2 2.2 2.1 2.1 2.1 2.1 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4				Year-O	ver-Year, %	Change		- Five-Yea	r Averages
Top 10 Average 2.3 2.4 2.4 2.5 2.5 2.4 2.6 Bottom 10 Average 1.5 1.4 1.6 1.8 1.8 1.6 1.8 C. GDP Chained Price Index Top 10 Average 2.4 2.4 2.2 2.2 2.2 2.3 2.2 Bottom 10 Average 1.8 1.8 1.8 1.9 1.9 1.9 1.8 D. Consumer Price Index Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 D. Consumer Price Index Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 Top 10 Average 2.5 2.4 2.4 2.4 Top 10 Average 2.5 2.4 Top 10 Average 2.5 2.4 Top 10 Average 2.5 Top 10 Average			2021	2022	2023	2024	2025	2021-2025	2026-2030
Bottom 10 Average 1.5 1.4 1.6 1.8 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.6 1.8 1.8 1.6 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.9 1.9 1.9 1.8 1.	B. Real GDP	CONSENSUS			2.0				2.1
C. GDP Chained Price Index CONSENSUS 2.1 2.1 2.0 2.0 2.0 2.1 2.0 Top 10 Average 2.4 2.4 2.2 2.2 2.2 2.2 2.3 2.2 Bottom 10 Average 1.8 1.8 1.8 1.9 1.9 1.9 1.8 CONSENSUS 2.1 2.2 2.2 2.1 2.1 2.1 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4									
Top 10 Average 2.4 2.4 2.2 2.2 2.2 2.3 2.2 2.5 2.4 2.4 2.5		Bottom 10 Average							
D. Consumer Price Index Bottom 10 Average 1.8 1.8 1.8 1.9 1.9 1.9 1.8 1.8 D. Consumer Price Index CONSENSUS 2.1 2.2 2.1 2.1 2.1 2.1 2.1 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4	C. GDP Chained Price Index								
D. Consumer Price Index CONSENSUS 2.1 2.2 2.2 2.1 2.1 2.1 2.1 2.1 Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4 2.4									
Top 10 Average 2.5 2.4 2.4 2.4 2.4 2.4 2.4									
	D. Consumer Price Index								
Bottom 10 Average 1.7 1.8 1.9 1.9 1.9 1.8 1.8									
		Bottom 10 Average	1.7	1.8	1.9	1.9	1.9	1.8	1.8

Carolina Water Service, Inc. of North Carolina Derivation of Mean Equity Risk Premium Based Studies Using Holding Period Returns and Projected Market Appreciation of the S&P Utility Index

Line No.		Implied Equity Risk Premium
	Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):	
1.	Historical Equity Risk Premium	4.00 %
2.	Regression of Historical Equity Risk Premium (2)	6.49
3.	Forecasted Equity Risk Premium Based on PRPM (3)	3.92
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	6.54
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	5.23
6.	Average Equity Risk Premium (6)	5.24 %

- Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility
 Bond average monthly yields from 1928-2018. Holding period returns are
 calculated based upon income received (dividends and interest) plus the relative
 change in the market value of a security over a one-year holding period.
 - (2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 2018 referenced in note 1 above.
 - (3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 September 2019.
 - (4) Using data from Value Line for the S&P Utilities Index, an expected return of 10.25% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the six-month average A rated public utility bond yield of 3.71%, shown on line 1 of page 12 of this Schedule results in an equity risk premium of 6.54%. (10.25% 3.71% = 6.54%)
 - (5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 8.94% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the sixmonth average A rated public utility bond yield of 3.71%, shown on line 1 of page 12 of this Schedule results in an equity risk premium of 5.23%. (8.94% 3.71% =
 - (6) Average of lines 1 through 5.

Dec 13 2019

Carolina Water Service. Inc. of North Carolina.
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (ECAPM).

	[8]	Indicated Common Equity Cost Rate (3)	8.90 % 8.90 8.99 9.51	9.86	9.32 %	9.25 %	9.29 %
	[2]	ECAPM Cost Rate	9.41 % 9.41 9.49 9.94	10.23	% 22.6	9.71 %	9.74
g Model (ECAPM)	[9]	Traditional CAPM Cost Rate	8.40 % 8.40 8.49 9.09	9.49	% 88.8	8.79 %	8.84
ıtai Asset Pricing	[2]	Risk-Free Rate (2)	2.53 % 2.53 % 2.53 2.53	2.53			
ia Empirical Capi	[4]	Market Risk Premium (1)	9.94 % 9.94 9.94 9.94	9.94 9.94			
odei (CARIM) ai	[3]	A	0.59 0.59 0.60 0.66	0.70	0.64	0.63	0.64
ai Asset Pricing Mo	[2]	Bloomberg Adjusted Beta	0.53 0.57 0.55 0.61	0.70			
oi the Tradinonal Capit	[1]	Value Line Adjusted Beta	0.65 0.60 0.65 0.70	0.70			
01 me 113		Proxy Group of Six Water Companies	American States Water Co. American Water Works Company Inc Artesian Resources Corporation California Water Service Group	Middlesex Water Co. York Water Co.	Mean	Median	Average of Mean and Median

Notes on page 22 of this Schedule.

D'Ascendis Late-Filed Exhibit #1 CWSNC: NCUC Docket No. W-354 Sub 364 On-the-Record Data Request 1 Page 22 of 31

Carolina Water Service, Inc. of North Carolina Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure	1 · Ibbotson	Arithmetic Mean	MRP (1926-2018)

Measure 1: Ibbotson Arithmetic Mean MRP (1926-2018)		
Arithmetic Mean Monthly Returns for Large Stocks 1920	6-2018:	11.89	%
Arithmetic Mean Income Returns on Long-Term Govern		5.12	,,
MRP based on Ibbotson Historical Data:	mene Bones.	6.77	0/0
Pint based on laborson historical bata.		0.77	• ′0
Measure 2: Application of a Regression Analysis to Ibbo	tson Historical Data		
(1926-2018)		9.81	%
	1.0		=
Measure 3: Application of the PRPM to Ibbotson Historic	cal Data:		
(January 1926 - September 2019)		9.14	%
Value Line MRP Estimates:			
Measure 4: Value Line Projected MRP (Thirteen weeks of	ending October 18, 2019)		
Total projected return on the market 3-5 years hence*:		13.83	%
Risk-Free Rate (see note 2):		2.53	
MRP based on Value Line Summary & Index:		11.30	%
*Forcasted 3-5 year capital appreciation plus	s expected dividend yield		
Measure 5: Value Line Projected Return on the Market b	pased on the S&P 500		
Total return on the Market based on the S&P 500:		14.52	%
Risk-Free Rate (see note 2):		2.53	
MRP based on Value Line data		11.99	%
Measure 6: Bloomberg Projected MRP			
Total return on the Market based on the S&P 500:		13.16	%
Risk-Free Rate (see note 2):		2.53	
	MRP based on Bloomberg data	10.63	%
	Average of Value Line, Ibbotson, and Bloomberg MRP:	9.94	%
			-
(2) The six-month average yield on 30-year Treasury bonds	s ending September 2019 as shown below:		
	Apr-19	2.94	%
	May-19	2.82	
	Jun-19	2.57	
	1.140	2.55	

Jul-19

Aug-19

Sep-19

2.57

2.12

2.16 2.53 %

(3) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index

Stocks, Bonds, Bills, and Inflation - 2019 SBBI Yearbook, John Wiley & Sons, Inc.

Bloomberg Professional Services

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<u>Carolina Water Service, Inc. of North Carolina</u> Basis of Selection of the Group of Non-Price Regulated Companies <u>Comparable in Total Risk to the Utility Proxy Group</u>

The criteria for selection of the Non-Price Regulated Proxy Group was that the non-price regulated companies be domestic and reported in <u>Value Line Investment Survey</u> (Standard Edition).

The Non-Price Regulated Proxy Group was then selected based on the unadjusted beta range of 0.24 - 0.68 and residual standard error of the regression range of 2.7385 - 3.2661 of the Utility Proxy Group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Utility Proxy Group's residual standard error of the regression is 0.1319. The standard deviation of the standard error of the regression is calculated as follows:

Standard Deviation of the Std. Err. of the Regr. = $\frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

Thus,
$$0.1070 = 3.0023 = 3.0023$$
 $\sqrt{518} = 22.7596$

Source of Information: Value Line, Inc., September 2019

Value Line Investment Survey (Standard Edition)

D'Ascendis Late-Filed Exhibit #1 CWSNC: NCUC Docket No. W-354 Sub 364 On-the-Record Data Request 1 Page 24 of 31

Carolina Water Service, Inc. of North Carolina Basis of Selection of Comparable Risk Domestic Non-Price Regulated Companies

	[1]	[2]	[3]	[4]
	Value Line		Residual Standard	Standard
	Adjusted	Unadjusted	Error of the	Deviation
Proxy Group of Six Water Companies	Beta	Beta	Regression	of Beta
American States Water Co.	0.65	0.45	2.6675	0.0960
American Water Works Company Inc	0.60	0.34	2.1751	0.0783
Artesian Resources Corporation	0.65	0.41	3.4253	0.1233
California Water Service Group	0.70	0.48	2.9094	0.1047
Middlesex Water Co.	0.70	0.54	3.3409	0.1202
York Water Co.	0.75	0.55	3.4957	0.1258
Average	0.68	0.46	3.0023	0.1081
Beta Range (+/- 2 std. Devs. of Beta) 2 std. Devs. of Beta	0.24 0.22	0.68		
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.7385	3.2661		
Std. dev. of the Res. Std. Err.	0.1319			
2 std. devs. of the Res. Std. Err.	0.2638			

Source of Information: Valueline Proprietary Database, September 2019

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Carolina Water Service, Inc. of North Carolina Proxy Group of Non-Price Regulated Companies Comparable in Total Risk to the Proxy Group of Six Water Companies

	[1]	[2]	[3]	[4]
Proxy Group of Ten Non-Price Regulated Companies	VL Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression	Standard Deviation of Beta
AutoZone Inc.	0.80	0.64	2.8861	0.1039
Cheesecake Factory	0.75	0.55	2.8814	0.1037
Casey's Gen'l Stores	0.75	0.56	3.0241	0.1088
Cracker Barrel	0.70	0.54	3.0683	0.1104
Campbell Soup	0.65	0.46	2.9384	0.1057
Dunkin' Brands Group	0.70	0.47	2.8395	0.1022
Darden Restaurants	0.80	0.63	2.9091	0.1047
Tyson Foods 'A'	0.75	0.59	3.2539	0.1171
Texas Roadhouse	0.80	0.67	3.1481	0.1133
Viad Corp.	0.80	0.64	3.0017	0.1080
Average	0.75	0.58	3.0000	0.1100
Proxy Group of Six Water				
_				

0.68

Source of Information:

Companies

Valueline Proprietary Database, September 2019

0.46

3.0023

0.1081

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Carolina Water Service, Inc. of North Carolina Summary of Cost of Equity Models Applied to Proxy Group of Ten Non-Price Regulated Companies Comparable in Total Risk to the Proxy Group of Six Water Companies

Principal Methods	Proxy Group of Ten Non-Price Regulated Companies
Discounted Cash Flow Model (DCF) (1)	11.63 %
Risk Premium Model (RPM) (2)	11.23
Capital Asset Pricing Model (CAPM) (3)	10.39
Me	an <u>11.08</u> %
Medi	an <u>11.23</u> %
Average of Mean and Media	an <u>11.16</u> %

Notes:

- (1) From page 27 of this Schedule.
- (2) From page 28 of this Schedule.
- (3) From page 31 of this Schedule.

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DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the Carolina Water Service, Inc. of North Carolina Proxy Group of Six Water Companies

	[8]	Indicated Common Equity Cost Rate (1)	NA %	12.52	8.29	13.32	89.9	11.09	12.60	7.66	13.20	12.39	10.86 %	12.39 %	11.63 %
	[2]	Adjusted Dividend Yield	% -	3.76	0.80	3.32	3.18	1.96	3.09	0.78	2.42	0.64	Mean	Median	and Median
	[9]	Average Projected Five Year Growth Rate in EPS	11.98 %	8.76	7.49	10.00	3.50	9.13	9.51	98.9	10.78	11.75			Average of Mean and Median
<u>. companies</u>	[5]	Yahoo! Finance Projected Five Year Growth in EPS	10.25 %	86'9	7.88	(0.40)	(4.00)	7.58	8.63	6.25	8.55	14.00			
Proxy Group of Six Water Companies	[4]	Zack's Five Year Projected Growth Rate in EPS	12.20 %	11.80	9.10	10.00	00.9	9.80	8.90	NA	11.30	NA			
Pro	[2]	Value Line Projected Five Year Growth in EPS	13.50 %	7.50	5.50	10.00	1.00	10.00	11.00	7.50	12.50	9.50			
	[1]	Average Dividend Yield	%	3.60	0.77	3.16	3.13	1.87	2.95	0.75	2.30	09.0			
		Proxy Group of Ten Non- Price Regulated Companies	AutoZone Inc.	Cheesecake Factory	Casey's Gen'l Stores	Cracker Barrel	Campbell Soup	Dunkin' Brands Group	Darden Restaurants	Tyson Foods 'A'	Texas Roadhouse	Viad Corp.			

NMF= Not Meaningful Figure NA= Not Available

utility proxy group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of October 18, 2019. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS The application of the DCF model to the domestic, non-price regluated comparable risk companies is identical to the application of the DCF to the provided by Value Line, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield. (1)

Source of Information:

www.reuters.com Downloaded on 10/18/2019 www.yahoo.com Downloaded on 10/18/2019 www.zacks.com Downloaded on 10/18/2019 Value Line Investment Survey

Carolina Water Service, Inc. of North Carolina Indicated Common Equity Cost Rate Through Use of a Risk Premium Model Using an Adjusted Total Market Approach

<u>Line No.</u>			Proxy Group of Ten Non-Price Regulated Companies	l
1.		Yield on Baa Rated		
1.		Corporate Bonds (1)	4.31 %)
2.		Equity Risk Premium (2)	6.92	
3.		Risk Premium Derived Common Equity Cost Rate	11.23 %	,
Notes:	(1)	Six-month average Baa corporate bond yield ended S shown below:	September 2019 as	
		Apr-19	4.70 %)
		May-19	4.63	
		Jun-19	4.46	
		Jul-19	4.28	
		Aug-19	3.87	
		Sep-19	3.91	
		Average	4.31 %)

(2) From page 30 of this Schedule.

Source of Information: Bloomberg Investment Services

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Carolina Water Service, Inc. of North Carolina Comparison of Long-Term Issuer Ratings for the Proxy Group of Ten Non-Price Regulated Companies of Comparable risk to the Proxy Group of Six Water Companies

	Long-Tern	oody's n Issuer Rating ber 2019	Standard & Poor's Long-Term Issuer Rating October 2019			
Proxy Group of Ten Non- Price Regulated Companies	Long- Term Issuer Rating	Numerical Weighting (1)	Long- Term Issuer Rating	Numerical Weighting (1)		
AutoZone Inc.	Baa1	8.0	BBB	9.0		
Cheesecake Factory	NR		NR			
Casey's Gen'l Stores	NR		NR			
Cracker Barrel	WR		NR			
Campbell Soup	Baa2	9.0	BBB-	10.0		
Dunkin' Brands Group	NR		NR			
Darden Restaurants	Baa2	9.0	BBB	9.0		
Tyson Foods 'A'	Baa2	9.0	BBB	9.0		
Texas Roadhouse	NR		NR			
Viad Corp.	WR		NR			
Average	Baa2	8.8	BBB	9.3		

Notes:

(1) From page 6 of Schedule DWD-4 (direct testimony).

Source of Information:

Bloomberg Professional Services

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Carolina Water Service, Inc. of North Carolina Derivation of Equity Risk Premium Based on the Total Market Approach Using the Beta for

Proxy Group of Ten Non-Price Regulated Companies of Comparable risk to the <u>Proxy Group of Six Water Companies</u>

Line No.	Equity Risk Premium Measure	Proxy Group of T Non-Price Regulated Companies	Геп
<u>Ibbo</u>	otson-Based Equity Risk Premiums:		
1.	Ibbotson Equity Risk Premium (1)	5.54	%
2.	Regression on Ibbotson Risk Premium Data (2)	8.92	
3.	Ibbotson Equity Risk Premium based on PRPM (3)	8.12	
5.	Equity Risk Premium Based on <u>Value Line</u> Summary and Index (4)	10.48	
6.	Equity Risk Premium Based on <u>Value Line</u> S&P 500 Companies (5)	11.10	
7.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.74	_
8.	Conclusion of Equity Risk Premium	8.99	%
9.	Adjusted Beta (7)	0.77	_
10.	Forecasted Equity Risk Premium	6.92	_%
Notes:			

- (1) From note 1 of page 16 of this Schedule.
- (2) From note 2 of page 16 of this Schedule.
- (3) From note 3 of page 16 of this Schedule.
- (4) From note 4 of page 16 of this Schedule.
- (5) From note 5 of page 16 of this Schedule.
- (6) From note 6 of page 16 of this Schedule.
- (7) Average of mean and median beta from page 31 of this Schedule.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2019 SBBI Yearbook, John Wiley & Sons, Inc. <u>Value Line</u> Summary and Index Bloomberg Professional Services

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Carolina Water Service, Inc. of North Carolina

	[8]	Indicated Common Equity Cost Rate (3)	9.95 %	10.38	10.47	9.95	9.43	10.47	10.64	10.38	10.99	10.82	10.35 %	10.43 %	10.39 %
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the <u>Proxy Group of Six Water Companies</u>	[7]	ECAPM Cost Rate	10.31 %	10.68	10.76	10.31	98.6	10.76	10.91	10.68	11.20	11.05	10.65 %	10.72 %	10.69 %
	[9]	Traditional CAPM Cost Rate	6.59 %	10.09	10.18	9.59	8.99	10.18	10.38	10.09	10.78	10.58	10.05 %	10.14 %	10.10 %
	[5]	Risk-Free Rate (2)	2.53 %	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53			
	[4]	Market Risk Premium (1)	9.94 %	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94	9.94			
	[3]	Average Beta	0.71	0.76	0.77	0.71	0.65	0.77	0.79	0.76	0.83	0.81	0.76	0.77	0.77
M Results for th	[2]	Bloomberg Beta	0.67	0.76	0.78	0.72	0.64	0.83	0.78	0.77	98.0	0.82			
l CAPM and ECAPN	[1]	Value Line Adjusted Beta	0.75	0.75	0.75	0.70	0.65	0.70	080	0.75	0.80	0.80			
Tradition		Proxy Group of Ten Non-Price Regulated Companies	AutoZone Inc.	Cheesecake Factory	Casey's Gen'l Stores	Cracker Barrel	Campbell Soup	Dunkin' Brands Group	Darden Restaurants	Tyson Foods 'A'	Texas Roadhouse	Viad Corp.	Mean	Median	Average of Mean and Median

Notes:

From note 1, page 22 of this Schedule.
 From note 2, page 22 of this Schedule.
 Average of CAPM and ECAPM cost rates.