

**NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION**

October 26, 2022

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. W-354, Sub 400 – Application by Carolina Water Service, Inc. of North Carolina for Authority to Adjust and Increase Rates and Charges for Water and Sewer Utility Service in All Service Areas of North Carolina and Approval of a Three-Year Water and Sewer Investment Plan

Dear Ms. Dunston:

Attached for filing on behalf of the Public Staff in the above-referenced docket is the testimony of John R. Hinton, Director of the Economic Research Division.

By copy of this letter, I am forwarding a copy to all parties of record by electronic delivery.

Sincerely,

Electronically submitted

/s/ Gina C. Holt

Manager, Legal Division, Water, Sewer,
Telephone, & Transportation Sections

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/s/ John D. Little

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. W-354, SUB 400

In the Matter of
Application by Carolina Water Service,)
Inc. of North Carolina for Authority to)
Adjust and Increase Rates and) **TESTIMONY OF**
Charges for Water and Sewer Utility) **JOHN R. HINTON**
Service in All Service Areas of North) **PUBLIC STAFF –**
Carolina and Approval of a Three-Year) **NORTH CAROLINA**
Water and Sewer Investment Plan) **UTILITIES COMMISSION**

October 26, 2022

1 **Q. Please state your name, business address, and present position.**

2 A. My name is John R. Hinton, and my business address is 430 North
3 Salisbury Street, Raleigh, North Carolina. I am the Director of the Economic
4 Research Division of the Public Staff. My qualifications and experience are
5 provided in Appendix A.

6 **Q. What is the purpose of your testimony in this proceeding?**

7 A. The purpose of my testimony is to present to the North Carolina Utilities
8 Commission (Commission) the results of my analysis and my
9 recommendations as to the fair rate of return to be used in establishing rates
10 for water and sewer utility service provided by Carolina Water Service, Inc.
11 of North Carolina (CWSNC or Company) in connection with the Company's
12 Application for Authority to Adjust and Increase Rates and Charges for
13 Water and Sewer Utility Service in All Service Areas of North Carolina and
14 Approval of a Three-Year Water and Sewer Investment Plan (Application).
15 The testimony that follows covers the following topics: (1) the fair rate of
16 return for the Company's base case¹ filing, which is for the 12-month test
17 year ending March 31, 2022, updated through August 31, 2022 (Base Year);
18 and (2) the way in which I determined that rate of return. It does not include

¹ A base year is the multi-year rate plan (MYRP) equivalent of the test year or test period in traditional historic test year ratemaking. The base year is the foundation of a MYRP because all future expenses, revenues, etc., are based upon the levels in the established in the base year. All data supporting a utility's base year can be referred to as the utility's base case.

1 a substantive discussion of my analysis and recommendations relating to
2 the fair rate of return if the Commission approves the Company's request
3 for approval of a Three-Year Water and Sewer Investment Plan (WSIP)
4 (hereinafter also referred to as Multi-Year Rate Plan or MYRP). My views
5 on the Company's request for a MYRP are discussed in detail in the
6 contemporaneously filed Joint Testimony of Public Staff witnesses Hinton,
7 Junis, Sun, and Zhang (Joint Testimony).

8 **Q. What is the Company's currently approved cost of capital for CWSNC?**

9 A. In the Company's most recent general rate case filed in Docket No. W-354,
10 Sub 384 (Sub 384 Rate Case), the Commission approved a capital structure
11 comprised of 50.20% long-term debt and 49.80% common equity, a cost
12 rate of long-term debt of 4.85%, and a rate of return on common equity
13 (ROE) of 9.40% for an overall weighted cost of capital of 7.14%.

14 **Q. Summarize the Company's Commission-approved cost of capital**
15 **since 2017.**

16 A. The table below shows the Commission-approved cost of capital for the
17 Company's last four general rate cases.

1

TABLE – COST OF CAPITAL

Docket No.	Date Filed	Approved Overall Return	% Equity	ROE %	% Debt	Cost Rate of Debt
Sub 356	March, 2017	7.84%	52.0%	9.6%	48.0%	5.93%
Sub 360	April, 2018	7.75%	50.91%	9.75%	49.09%	5.68%
Sub 364	June, 2019	7.39%	49.1%	9.5%	50.9%	5.36%
Sub 384	July, 2021	7.14%	49.8%	9.4%	50.2%	4.85%

2 **Q. What is the cost of capital requested by CWSNC?**

3 A. Company witness D'Ascendis has proposed a midpoint ROE of 10.45% and
4 a cost rate of debt of 4.64%, for an overall weighted cost of capital of 7.55%.
5 This applied for rate of return is based on a capital structure as of December
6 31, 2021, that is comprised of 50.00% long-term debt, 50.00% common
7 equity. For the projected years 1 through 3 of the proposed MYRP
8 (Projected Years), the Company has increased its proposed ROE by 25
9 basis points to 10.70%.

1 **Q. What is the cost of capital recommended by the Public Staff using**
2 **traditional historic test year ratemaking principles?**

3 A. The Public Staff recommends an overall rate of return of 7.05% based on
4 the Company's proposed capital structure consisting of 50.00% common
5 equity and 50.00% long-term debt, a recommended debt cost rate of 4.64%,
6 and a 9.45% return on common equity (ROE) shown in the following table:

7 TABLE – PUBLIC STAFF PROPOSED COST OF CAPITAL

Overall Return (Proposed)	% Equity	ROE %	% Debt	Cost Rate of Debt
7.045%	50.00%	9.45%	50.00%	4.64%

8 Note that the aforementioned recommendation does not take into account
9 the reduction in risk associated with an approved MYRP. The impact an
10 approved MYRP has on the Public Staff's recommendation is discussed in
11 the Joint Testimony.

12 **Q. How does Company witness D'Ascendis develop his requested cost**
13 **of equity?**

14 A. Company witness Dylan D'Ascendis utilizes three cost of equity methods:
15 (1) Discounted Cash Flow (DCF); (2) the Risk Premium Model, which relies
16 on the Predictive Risk Premium method (PRPM) and the Total Market
17 Approach RPM; and (3) the Capital Asset Pricing Model (CAPM). He uses

1 a proxy group of seven publicly traded water companies to calculate his
2 DCF and uses the same proxy group of water utility companies along with
3 a group of non-price regulated companies to develop his CAPM.

4 Witness D'Ascendis' first method relies on the DCF model which produces
5 an average 9.37% ROE as shown on his page 1 of Schedule DWD-3.

6 Mr. D'Ascendis' second method employs the Risk Premium model. His
7 application of the Risk Premium model incorporates a Predicted Model and
8 a Total Market Approach, with both relying on current and predicted interest
9 rates. For the Base Year, his model generated an 11.12% ROE. For the
10 Projected Years 1 - 3, his model generated ROEs ranging from 11.69% to
11 11.90% as shown on page 1 of his Schedule DWD-4.

12 Mr. D'Ascendis' third method employs the mean and medium results of his
13 traditional and empirical capital asset pricing model (CAPM) and (ECAPM),
14 respectively. For the base year, his model generated an 11.32% ROE. For
15 the Projected Years 1 - 3, his CAPM and ECAPM applications using the
16 water utility proxy group generated three results ranging from 11.66% to
17 11.79% as shown in Schedule DWD-5. Mr. D'Ascendis also applied his
18 CAPM and ECAPM to twenty-four non-price regulated companies that
19 generated a Base Year ROE of 11.18%, and Projected Years 1 - 3 ROEs

1 ranging from 11.53% to 11.66% as shown on pages 6 – 9 of Schedule
2 DWD-7.

3 In addition, the witness argues that the small size of CWNSC relative to the
4 larger companies within his proxy groups indicates a higher level of
5 investment risk and warrants an increase in the cost of equity by 0.10%.

6 **Q. How is the remainder of your testimony structured?**

7 A. The remainder of my testimony is presented in the following six sections:

8 I. Legal and Economic Guidelines for Fair Rate of Return

9 II. Present Financial Market Conditions

10 III. Appropriate Capital Structure and Cost of Long-Term Debt

11 IV. The Cost of Common Equity Capital

12 V. Concerns with Company Witness D'Ascendis' Testimony

13 VI. Summary and Recommendations

14 **I. LEGAL AND ECONOMIC GUIDELINES FOR FAIR RATE OF RETURN**

15 **Q. Briefly describe the economic and legal framework of your analysis.**

16 A. Public utilities possess certain characteristics of natural monopolies. For
17 instance, it is more efficient for a single firm to provide a service such as
18 water production and distribution or wastewater collection and treatment
19 than for two or more firms offering the same service in the same area to do
20 so. Therefore, regulatory bodies have assigned franchised territories to

1 public utilities to provide services more efficiently and at a lower cost to
2 consumers.

3 **Q. What is the economic relationship between risk and the cost of**
4 **equity?**

5 A. The cost of equity capital to a firm is equal to the rate of return investors
6 expect to earn on the firm's securities given the securities' level of risk.
7 Investors will require a higher expected return from an investment with a
8 greater risk. In *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S.
9 591, 603 (1944) (*Hope*), the United States Supreme Court stated:

10 [T]he return to the equity owner should be commensurate with
11 returns on investments in other enterprises having
12 corresponding risks. That return, moreover, should be
13 sufficient to assure confidence in the financial integrity of the
14 enterprise, so as to maintain its credit and to attract capital.

15 In *Bluefield Waterworks & Impr. Co. v. Public Service Comm'n*, 262 U.S.
16 679, 692-93 (1923) (*Bluefield*) the United States Supreme Court stated:

17 A public utility is entitled to such rates as will permit it to earn
18 a return on the value of the property which it employs for the
19 convenience of the public equal to that generally being made
20 at the same time and in the same general part of the country
21 on investments in other business undertakings which are
22 attended by corresponding risks and uncertainties, but it has
23 no constitutional right to profits such as are realized or
24 anticipated in highly profitable enterprises or speculative
25 ventures. The return should be reasonably sufficient to assure
26 confidence in the financial soundness of the utility and should
27 be adequate, under efficient and economical management, to
28 maintain and support its credit and enable it to raise the

1 money necessary for the proper discharge of its public duties.
2 A rate of return may be reasonable at one time and become
3 too high or too low by changes affecting opportunities for
4 investment, the money market, and business conditions.

5 These two decisions recognize that utilities are competing for the capital of
6 investors and provide legal guidelines as to how the allowed rate of return
7 should be set. The decisions specifically speak to the standards or criteria
8 of capital attraction, financial integrity, and comparable earnings. The *Hope*
9 decision, in particular, recognizes that the cost of common equity is
10 commensurate with the risk relative to investments in other enterprises. In
11 competitive capital markets, the required return on common equity will be
12 the expected return foregone by not investing in alternative stocks of
13 comparable risk. Thus, in order for the utility to attract capital, possess
14 financial integrity, and exhibit comparable earnings, the return allowed on a
15 utility's common equity should be that return required by investors for stocks
16 with comparable risk. As such, the return requirements of debt and equity
17 investors, which is shaped by expected risk and return, are paramount in
18 attracting capital.

19 It is widely recognized that a public utility should be allowed a rate of return
20 on capital, which will allow the utility, under prudent management, to attract
21 capital under the criteria or standards referenced by the *Hope* and *Bluefield*
22 decisions. If the allowed rate of return is set too high, consumers are

1 burdened with excessive costs, current investors receive a windfall, and the
2 utility has an incentive to overinvest. Likewise, customers will be charged
3 prices that are greater than the true economic costs of providing these
4 services. Consumers will consume too few of these services from a point of
5 view of efficient resource allocation. If the return is set too low, then the utility
6 stockholders would suffer because a declining value of the underlying
7 property will be reflected in a declining value of the utility's equity shares.
8 This could happen because the utility would not be earning enough to
9 maintain and expand its facilities to meet customer demand for service,
10 cover its operating costs, and attract capital on reasonable terms. Lenders
11 will shy away from the company because of the increased risk that the utility
12 will default on its debt obligations. Because a public utility is capital
13 intensive, the cost of capital is a very large part of its overall revenue
14 requirement and is a crucial issue for a company and its ratepayers.

15 The *Hope* and *Bluefield* standards are embodied in N.C. Gen. Stat.
16 § 62-133(b)(4), which requires that the allowed rate of return be sufficient to
17 enable a utility by sound management:

18 to produce a fair return for its shareholders, considering
19 changing economic conditions and other factors, . . . to
20 maintain its facilities and services in accordance with the
21 reasonable requirements of its customers in the territory
22 covered by its franchise, and to compete in the market for
23 capital funds on terms that are reasonable and are fair to its
24 customers and to its existing investors.

1 In *State ex rel. Utils. Comm'n v. Cooper*, 366 N.C. 484, 739 S.E.2d 541
2 (2013) (*Cooper*), the North Carolina Supreme Court reversed and
3 remanded the Commission's Order in Docket No. E-7, Sub 989, approving
4 a stipulated return on equity of 10.50% for Duke Energy Carolinas, LLC. In
5 its decision, the Court held that (1) the 10.50% return on equity was not
6 supported by the Commission's own independent findings and analysis as
7 required by *State ex rel. Utils. Comm'n v. Carolina Util. Customers Ass'n*,
8 348 N.C. 452, 500 S.E.2d 693 (1988) (*CUCA I*), in cases involving
9 nonunanimous stipulations, and (2) the Commission must make findings of
10 fact regarding the impact of changing economic conditions on consumers
11 when determining the proper return on equity for a public utility. In *Cooper*,
12 however, the Court held that the Commission must consider changing
13 economic conditions and the impact of those changes when approving a
14 return on equity in all cases that come before it. The foregoing analysis is
15 required without regard to whether a stipulation is present.

16 In considering this new element, the Commission is guided by ratemaking
17 principles laid down by statute and interpreted by a body of North Carolina
18 case law developed over many years. According to these principles, the test
19 of a fair rate of return is a return on equity that will provide a utility, by sound
20 management, the opportunity to (1) produce a fair profit for its shareholders
21 in view of current economic conditions, (2) maintain its facilities and service,

1 and (3) compete in the marketplace for capital. *State ex rel. Utils. Comm'n*
2 *v. General Tel. Co.*, 281 N.C. 318, 370, 189 S.E.2d 705, 738 (1972). Rates
3 should be set as low as reasonably possible consistent with constitutional
4 constraints. *State ex rel. Utils. Comm'n v. Pub. Staff-N. Carolina Utils.*
5 *Comm'n*, 323 N.C. 481, 490, 374 S.E.2d 361, 366 (1988). The exercise of
6 subjective judgment is a necessary part of setting an appropriate return on
7 equity. *Id.* Thus, in a particular case, the Commission must strike a balance
8 that (1) avoids setting a return so low that it impairs the utility's ability to
9 attract capital, (2) avoids setting a return any higher than needed to raise
10 capital on reasonable terms, and (3) considers the impact of changing
11 economic conditions on consumers.

12 **Q. What is the fair rate of return?**

13 A. The fair rate of return is simply a percentage which when multiplied by a
14 utility's rate base investment will yield the dollars of net operating income
15 that a utility should reasonably have the opportunity to earn. This dollar
16 amount of net operating income is available to pay the interest cost on a
17 utility's debt capital and a return to the common equity investor. The fair rate
18 of return multiplied by the utility's rate base yields the dollars a utility needs
19 to recover in order to earn the investors' required return on capital.

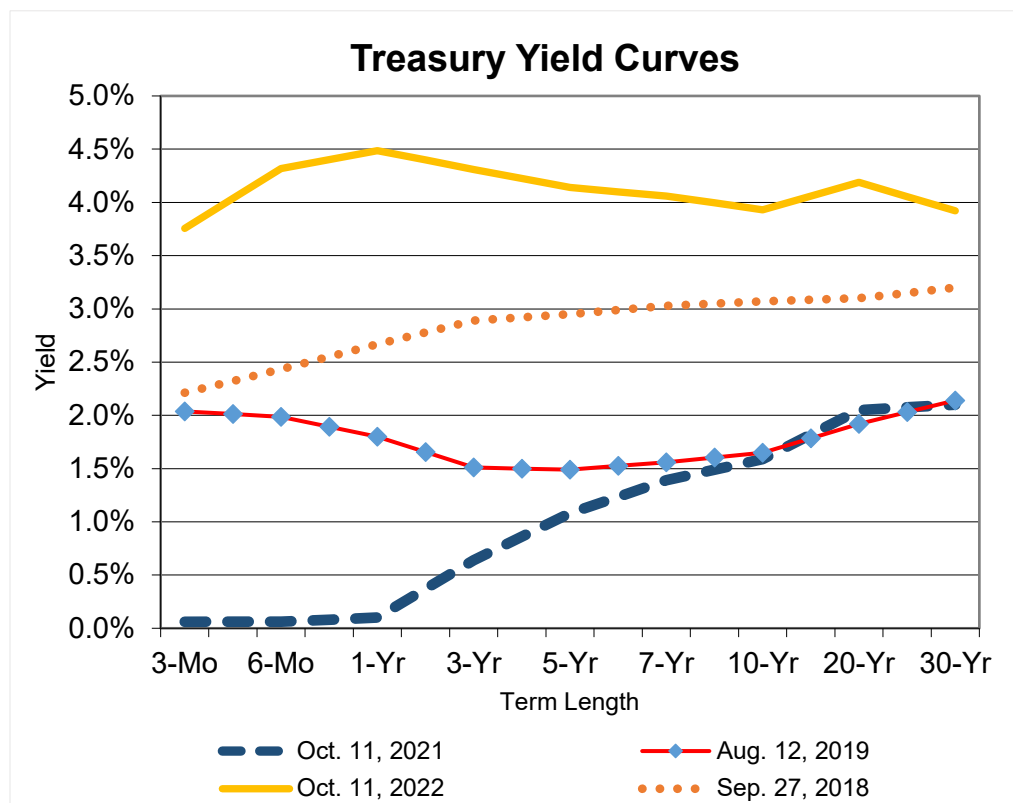
1 **Q. How did you determine the fair rate of return that you recommend in**
2 **this proceeding?**

3 A. To determine the fair rate of return, I performed a cost of capital study
4 consisting of three steps. First, I determined the appropriate capital
5 structure for ratemaking purposes, i.e., the proper proportion of each form
6 of capital. Utilities normally finance assets with debt and common equity.
7 Because each of these forms of capital has different costs, especially after
8 income tax considerations, the relative amounts of each form employed to
9 finance the assets can have a significant influence on the overall cost of
10 capital, revenue requirements, and rates. Thus, the determination of the
11 appropriate capital structure for ratemaking purposes is important to the
12 utility and to ratepayers. Second, I determined the cost rate of each form of
13 capital. The individual debt issues have contractual agreements explicitly
14 stating the cost of each issue. The embedded annual cost rate of debt is
15 generally calculated with the annual interest cost divided by the debt
16 outstanding. The cost of common equity is more difficult to determine
17 because it is based on the investor's opportunity cost of capital. Third, by
18 combining the appropriate capital structure ratios for ratemaking purposes
19 with the associated cost rates, I calculate an overall weighted cost of capital
20 or fair rate of return.

1

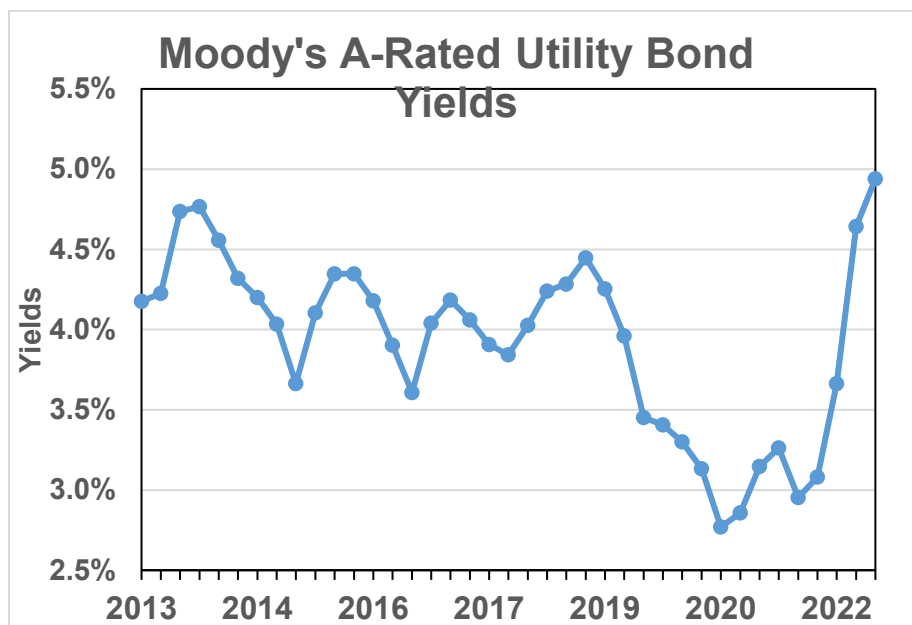
II. PRESENT FINANCIAL MARKET CONDITIONS2 **Q. Can you briefly describe the current financial market conditions?**

3 A. Yes. As compared to the last 30 years there has been a resurgence of inflation,
4 which has contributed to an increase in inflationary expectations and increases
5 in interest rates. The changes in the U.S. Treasury bond yield curves illustrate
6 differences in increases in interest rates over various terms. The largest
7 increase in the difference from current yields compared to the last 12 months
8 is with the short-term securities of one year or less which have increased by
9 over 400 basis points. However, the increases in the 30-year term U.S.
10 Treasury yields are significantly less with an approximately 180 basis points
11 increase relative to the prior 12-months.



1

2 With particular importance to utility financings, yields on long-term “A” rated
 3 utility bonds as reported by Moody’s *Bond Survey* have increased to 4.94%
 4 for the third quarter of 2022, as compared to 2.95% observed during the third
 5 quarter of 2021. The changes in the A-rated Public Utility bond yields are
 6 shown below:



1

2

As noted, the economy is experiencing annual inflation rates that have not

3

been observed for the last 30 years. As of September 2022, the annual

4

inflation rate is 8.2% as measured by the Consumer Price Index for all items

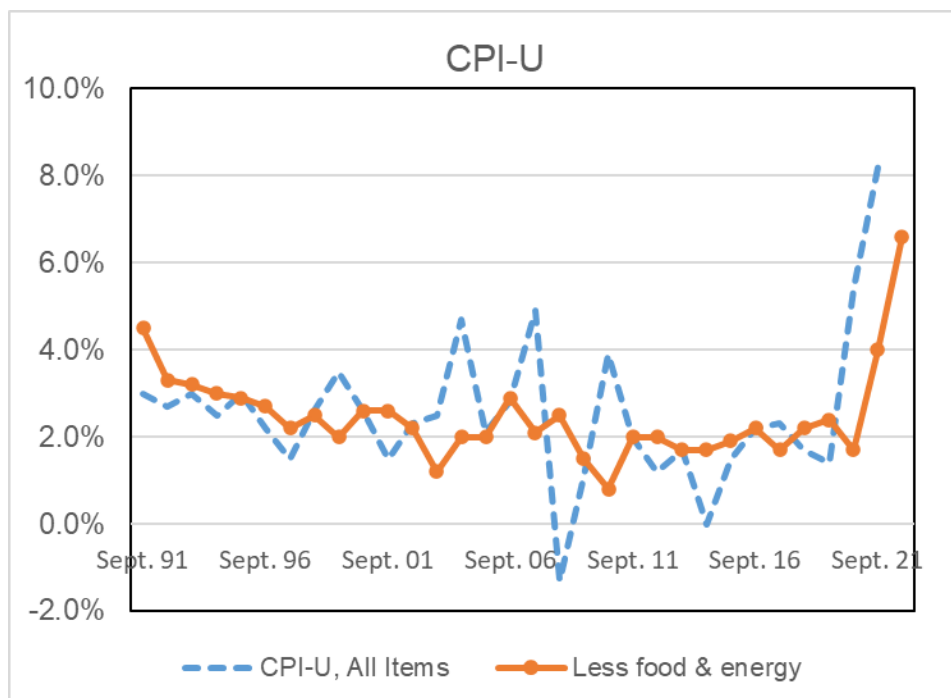
5

with urban consumers (CPI-U) and 6.6%, excluding food and energy shown

6

in the following graph.²

² U.S. Bureau of Labor Statistics, CPI-U, Items less food and energy, downloaded on October 13, 2022, <https://www.bls.gov/cpi/data.htm>.

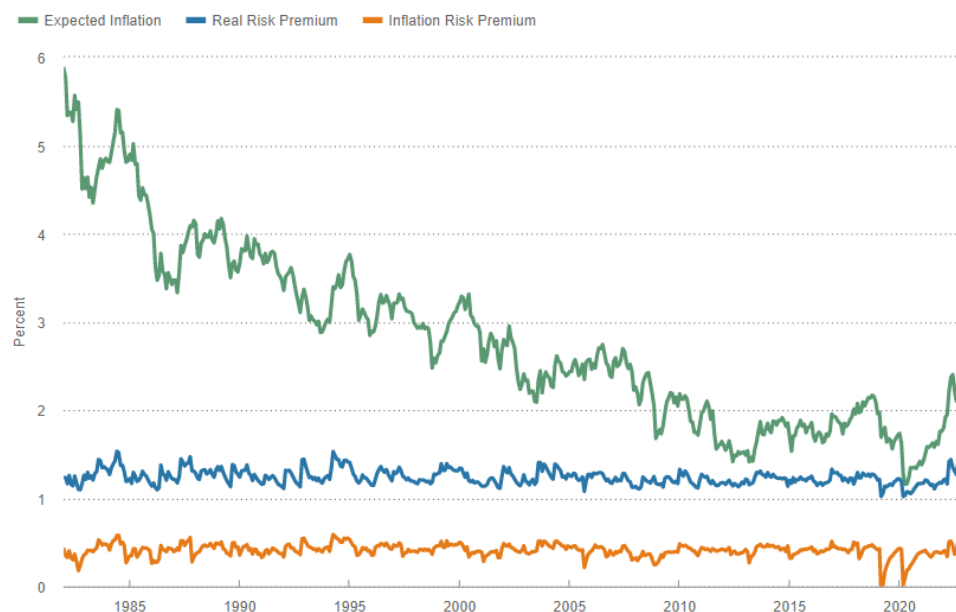


1

2 However, it is reasonable to believe that the above increases in utility bond
 3 yields reflect expected future inflation rates, and changes in the yield curve
 4 suggest that inflationary expectations are greater in the short term relative to
 5 a longer term. Lower long-term inflation expectations are observed in the
 6 analysis performed by the Federal Reserve Bank of Cleveland. As of
 7 September 1, 2022, the Federal Reserve Bank of Cleveland estimated the
 8 expected annual inflation rate³ over the next 10-years of 2.35% shown below:

³ Federal Reserve Bank of Cleveland, Inflation Expectations, downloaded on Oct. 13, 2022, <https://www.clevelandfed.org/en/our-research/indicators-and-data/inflation-expectations.aspx>

Ten-Year Expected Inflation and Real and Inflation Risk Premia



Source: Federal Reserve Bank of Cleveland calculations based on data from Blue Chip, Bloomberg, Bureau of Labor Statistics, Federal Reserve Bank of Philadelphia, Federal Reserve Board, Haver Analytics, and the model of Haubrich, Pennacchi, and Ritchken, 2012. "Inflation Expectations, Real Rates, and Risk Premia: Evidence from Inflation Swaps." Review of Financial Studies, 25(5).

1

2

The discussion above demonstrates that I considered present market conditions and changing economic conditions in arriving at the Public Staff's recommended return on equity and overall cost of capital.

3

4

5

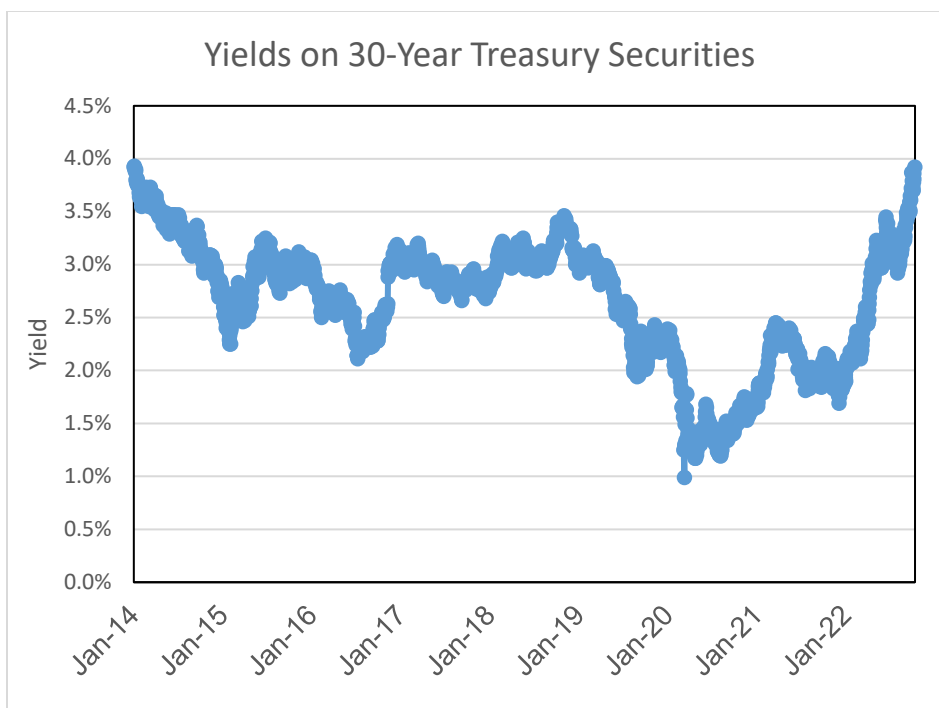
1 **Q. With these recent increases in interest rates, do you rely on interest rate**
2 **forecasts in your investigation?**

3 A. No. I do not rely on interest rate forecasts to determine the cost of equity.
4 Rather, I believe that relying on current interest rates, especially in relation to
5 yields on long-term bonds, is more appropriate for ratemaking because it is
6 reasonable to expect that as investors are pricing bonds in the marketplace,
7 their pricing is based on expectations of domestic and international demand
8 and supply of capital, future interest rates, future inflation rates, and other
9 relevant factors.

10 While I have a healthy respect for forecasting, I am aware of the risk of relying
11 on predictions of rising interest rates to determine utility rates. An example of
12 the danger of relying on forecasts is found in the testimony of Aqua witness
13 Pauline Ahern in the 2013 Aqua rate case filed January 28, 2014, in Docket
14 No. W-218, Sub 363. In that proceeding, she identified several interest rate
15 forecasts by *Blue Chip Financial Forecasts (Blue Chip)* of 30-year Treasury
16 Bonds yields that were predicted to rise to 4.3% in 2015, 4.7% in 2016, 5.2%
17 in 2017, and 5.5% for 2020 – 2024.⁴ As illustrated in the graph below, these
18 forecasts significantly over-estimated actual interest rates for 30-year
19 Treasury Bonds. Similar overestimated forecasts are found in Exhibit DWD-

⁴ Docket No. W-218, Sub 363, Tr. Vol. 2, 171: 8-9.

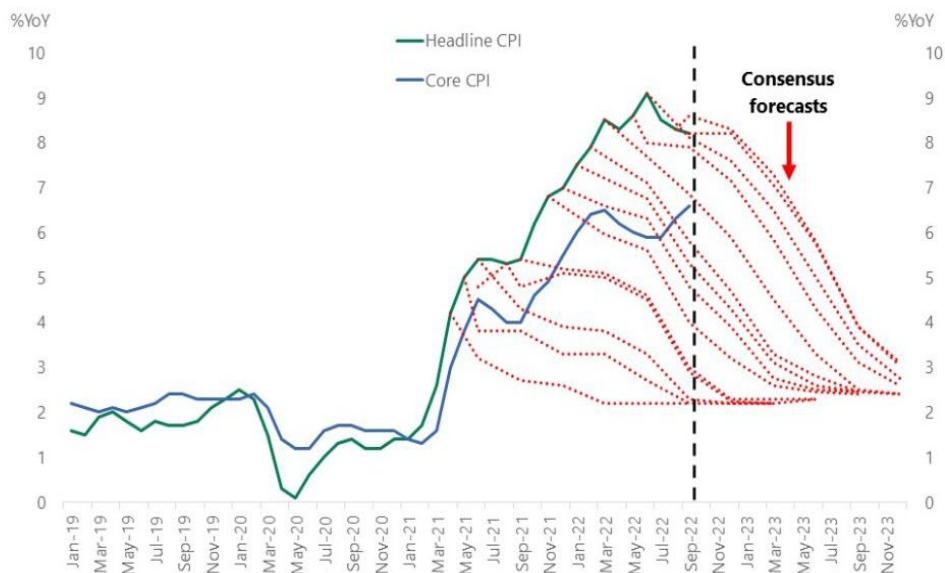
1 4 to Company witness D'Ascendis' testimony filed July 1, 2022, in Docket
2 No. W-354, Sub 360, where the *Blue Chip* predicted the 30-year Treasury
3 Bonds would rise to 3.8% by the third quarter of 2019. According to the
4 Federal Reserve, the highest observed yield on 30-year Treasury Bonds for
5 the third quarter of 2019 was 2.65%, and the average for the quarter was
6 2.29%, a forecasting error between 115 to 151 basis points. In my opinion,
7 these types of errors make these forecasts inappropriate for ratemaking.



8

9 In addition, the tendency of economists to make poor interest rate predictions
10 in the last ten years was addressed in a December 14, 2019, Wall Street
11 Journal article entitled: *Economists Got the Decade All Wrong. They're Trying*

1 to Figure Out Why and attached as Hinton Exhibit 1. Additionally, the chart
 2 below shows economists' disparate predictions regarding inflation:⁵



3
 4 The foregoing examples illustrate why I tend to place more weight on current
 5 market interest rates that are inherently forward looking as they reflect
 6 investor expectations of both current and future returns on bonds and, to
 7 some extent, future rates of inflation.

8

⁵ Source: Torsten Sløk, Apollo Chief Economist, Cleveland Fed, Bloomberg running survey of Wall Street economists, Haver Analytics.

1 related to both the common equity ratio in the capital structure and the cost
2 of common equity.

3 Second, the cost of common equity is set at an expected cost rate over the
4 Base Year and Predicted Years. Conversely, the cost of debt is set at an
5 embedded rate because the utility is incurring costs that are previously
6 established in contracts with security holders.

7 Because the Commission has the duty to promote economic utility service,
8 it must decide whether a utility's requested capital structure is appropriate
9 for ratemaking purposes. An example of the cost difference can be seen in
10 the Company's Application. Based upon the Company's requested capital
11 cost rates, each dollar of its common equity and long-term debt that
12 supports the retail rate base has the following approximate annual costs
13 (including income tax, regulatory fee, and gross receipts tax expense) to
14 ratepayers:

15 (1) Each \$1 of common equity costs a ratepayer approximately 12
16 cents per year.
17

18 (2) Each \$1 of long-term debt costs a ratepayer approximately 5
19 cents per year.

20

1 **Q. Do you support the capital structure proposed by the Company in this**
2 **proceeding?**

3 A. Yes. The proposed capital structure consisting of 50% common equity and
4 50% debt is reasonable, and it is reflective of other capitalizations observed
5 in the capital structures of publicly traded water utilities. Additionally, the
6 proposed ratios are consistent with Commission-approved common equity
7 ratios for CWSNC and other water and wastewater utilities.

8 **Q. What is your recommended cost of long-term debt?**

9 A. I recommend the use of the Company's proposed 4.64% embedded cost of
10 debt. The reduction from the 4.85% embedded cost rate in the Sub 384
11 Rate Case reflects the amortization of the outstanding loans, particularly,
12 the scheduled \$9,000,000 payments on the 6.58% note. This series of debt
13 is associated with a Master Note Purchase Agreement of Collateral Trust
14 Notes totaling \$180,000,000 with \$9,000,000 annual payments that began
15 in 2017 and continue through 2035. The Company maintains that the "make
16 whole provisions" contained in those notes make it uneconomical for
17 refinancing. The Public Staff continues to urge the Company to investigate
18 sources of capital that minimize the embedded cost rate for long-term debt.
19 In addition, the 4.64% embedded cost rate contains \$8,000,000 in a
20 revolving credit balance with a relatively lower debt cost rate. The following

1 table shows my recommended capital structure and cost rate of long-term
2 debt:

3 CAROLINA WATER INC. OF NORTH CAROLINA

Item	Ratio	Cost Rate
Long-term Debt	50.0%	4.64%
Common Equity	50.0%	<i>discussed below</i>

4 **IV. THE COST OF COMMON EQUITY CAPITAL**

5 **Q. How do you define the cost of common equity?**

6 A. The cost of equity capital for a firm is the expected rate of return on common
7 equity that investors require to induce them to purchase shares of the firm's
8 common stock. The return is expected given that, when investors buy a
9 share of the firm's common stock, those investors do not know with certainty
10 what their returns will be in the future.

11 **Q. How did you determine the cost of common equity capital for the**
12 **Company?**

13 A. I used the Discounted Cash Flow method and the Risk Premium Model to
14 determine the cost of equity for the Company. These are discussed below.

1

A. Discounted Cash Flow (DCF) Method2 **Q. Please describe your DCF model analysis.**

3 A. I incorporated the DCF model, which is a method of evaluating the expected
 4 cash flows from an investment by giving appropriate consideration to the
 5 time value of money. The DCF model is based on the theory that the price
 6 of the investment will equal the discounted cash flows of returns. The return
 7 to an equity investor comes in the form of expected future dividends and
 8 price appreciation. However, as the new price will again be the sum of the
 9 discounted cash flows, price appreciation is ignored, and attention focuses
 10 on the expected stream of dividends. Mathematically, this relationship is
 11 expressed as follows:

12 Let

13 D_1 = expected dividends per share over the next twelve months;14 g = expected growth rate of dividends;15 k = cost of equity capital; and16 P = price of stock or present value of the future income stream.

17 Then

$$18 \quad P = \frac{D_1}{1+k} + \frac{D_1(1+g)}{(1+k)^2} + \frac{D_1(1+g)^2}{(1+k)^3} + \dots + \frac{D_1(1+g)^{t-1}}{(1+k)^t}$$

19

20

1 This equation represents the amount an investor would be willing to pay for
2 a share of common stock with a dividend stream over the future periods.
3 Using the formula for a sum of an infinite geometric series, this equation is
4 reduced to:

$$5 \quad P = \frac{D_1}{k-g}$$

8 Solving for k yields the following DCF equation:

$$9 \quad k = \frac{D_1}{P} + g$$

12 Therefore, the rate of return on equity capital required by investors is the
13 sum of the dividend yield (D_1/P) plus the expected long-term growth rate in
14 dividends (g).

15 **Q. Did you apply the DCF method directly to CWSNC?**

16 A. No. While Corix Infrastructure Inc. (Corix) is the parent company of
17 CWSNC, British Columbia Investment Management Corporation (BCIMC)
18 is the ultimate parent company of Corix and, by extension, CWSNC. BCIMC
19 is a private equity fund, and its shares of common equity are not publicly
20 traded. Therefore, to estimate the investor required rate of return, I applied
21 the DCF method to a risk-comparable investment comprised of six water

1 utilities followed by *Value Line Investment Survey (Value Line)*. This risk-
2 comparable investment group is discussed below.

3 **Q. What measures of risk did you review to determine the**
4 **comparability of investing in water utilities?**

5 A. I reviewed standard risk measures that are widely available to investors
6 and are considered by most investors when making investment
7 decisions. The beta coefficient is a measure of the sensitivity of a stock's
8 price to overall fluctuations in the market. The *Value Line* beta coefficient
9 describes the relationship between a company's stock price and the
10 New York Stock Exchange Composite. A beta value of less than 1.0
11 means that the stock's price is less volatile than the movement in the
12 market; conversely, a beta value greater than 1.0 indicates that the stock
13 price is more volatile than the market.

14 I reviewed the *Value Line* Safety Rank, which is defined as a measure
15 of the total risk of a stock. The Safety Rank is calculated by averaging
16 two variables: (1) the stock's index of price stability and (2) the Financial
17 Strength rating of the company. In addition, I reviewed the S&P Common
18 Stock Rating. The stock rating system takes into consideration two
19 important factors in the determination of a stock's rating: the stability and
20 growth of earnings and dividends. However, the stock rating does not

1 consider a company's balance sheet or other factors. The stock rating
2 system has seven grades, with A+ being the highest rating possible.

3 I also reviewed Moody's and S&P's Bond Rating, which are
4 assessments of a company's creditworthiness. Credit rating agencies
5 focus on the creditworthiness of the particular bond issuer, which
6 includes a detailed and thorough review of the potential areas of
7 business risk and financial risk of the company. These and other risk
8 measures for the comparable groups are shown in Hinton Exhibit 2 and
9 are further explained in Appendix B.

10 **Q. How did you determine the dividend yield component of the DCF**
11 **model?**

12 A. The dividend yield component is the fraction (D_1/P) in the DCF model above.
13 I calculated the dividend yield by using the *Value Line* estimate of dividends
14 to be declared over the next 12 months divided by the price of the stock as
15 reported in the *Value Line* Summary and Index sections for each week of
16 the 13-week period of July 15, 2022, through October 7, 2022. A 13-week
17 averaging period tends to smooth out short-term variations in the stock
18 prices. This process resulted in an average dividend yield of 1.87% for the
19 comparable group of water utilities.

1 **Q. How did you determine the expected growth rate component of the**
2 **DCF model?**

3 A. The expected long-term growth rate in dividends is the additur (g) in the
4 DCF model above. I employed the growth rates of the risk-comparable
5 investment group in earnings per share (EPS), dividend per share (DPS),
6 and book value per share (BPS) as reported in *Value Line* over the past ten
7 and five years. I also employed the forecasts of the growth rates of the
8 comparable groups in EPS, DPS, and BPS, as reported in *Value Line*. The
9 historical and forecasted growth rates are prepared by analysts employed
10 by an independent advisory service that is widely available to investors and
11 should also provide an estimate of investor expectations. I include both
12 known historical growth rates and forecasted growth rates because it is
13 reasonable to expect that investors consider both sets of data in deriving
14 their expectations.

15 Finally, I incorporated the consensus of various analysts' forecasts of five-
16 year EPS growth rate projections, as reported in Yahoo Finance. The
17 dividend yields and growth rates for each of the companies and the average
18 for the comparable group are shown in Hinton Exhibit 3.

19 Hinton Exhibit 3 contains three broad categories: (1) Value Line Historical;
20 (2) Value Line Forecast; and (3) Yahoo Finance Forecast. They are
21 described below.

1 Category (1) is a historical-looking calculation. An
 2 average of the results of category (1) yields a 7.48% expected
 3 long-term growth rate (the (g) component in the DCF
 4 calculation). Based on the average historical growth rate of the
 5 group, I believe a 7.48% expected growth rate is reasonable for
 6 investors.

7 Categories (2) and (3) are future-looking prediction
 8 forecasts. An average of categories (2) and (3) yields a 6.73%
 9 expected long-term growth rate (the (g) component in the DCF
 10 calculation). Assuming that investors give weight to forecasted
 11 growth rates, I believe that a 6.73% expected growth rate is also
 12 reasonable.

13 Finally, I calculated an average of the historical and
 14 future looking forecast. An average of categories (1), (2), and (3)
 15 yields a 7.18% expected long-term growth rate (the (g)
 16 component in the DCF calculation). Based on the average
 17 historical and forecasted growth rates, it is reasonable for
 18 investors to expect a 7.18% growth rate.

19 **Q. What is your conclusion based on the DCF model?**

20 A. Based upon my DCF model analysis for the comparable group of water
 21 utilities, the combination of expected dividend yield and the expected growth
 22 rate yields a cost of equity range of 8.6% to 9.4%, as follows:

DCF Method	Long-Term Growth Rate	Dividend Yield Component	Sum
	(g)	(D ₁ /P)	Cost of Equity
Average Historical	7.48%	1.87%	9.35%
Average Forecast	6.73%	1.87%	8.60%
Average Historical and Forecast	7.18%	1.87%	9.05%

23

1

B. Risk Premium Model

2 **Q. Please describe your application of the risk premium model (RPM)**
3 **using a regression analysis.**

4 A. The equity risk premium method can be defined as the difference between
5 the expected return on a common stock and the expected return on a debt
6 security. The differential between the two rates of return is indicative of the
7 rate of return investors require in order to accept the additional risk involved
8 with an investment in the Company's common stock over a fixed investment
9 with bonds.

10 In order to quantify the risk premium, I need estimates of the cost of equity
11 and the cost of debt at contemporaneous points in time. This method relies
12 on approved returns on common equity for water utility companies from
13 various public utility commissions that are published by the Regulatory
14 Research Associates, Inc. (RRA), within SNL Global Market Intelligence. In
15 order to estimate the relationship with a representative cost of debt capital,
16 I have regressed the average annual allowed equity returns with the
17 average Moody's A-rated yields for Public Utility bonds from 2009 through
18 2022. The regression analysis quantifies the historical relationship between
19 approved ROEs and A-rated public utility bond yields, which is combined with
20 recent monthly yields to provide an estimate of the current cost of common
21 equity.

1 **Q. What are the strengths of using allowed equity returns in the model?**

2 A. The use of allowed returns as the basis for the expected equity return has
3 strengths over other approaches that involve models that subtract a cost rate
4 of debt from the estimated equity return. One strength of my approach is that
5 authorized returns on equity are generally arrived at through lengthy
6 investigations by various parties with opposing views on the rate of return
7 required by investors. Thus, it is reasonable to conclude that the approved
8 allowed returns are good estimates of the cost of equity. Another strength of
9 this method is the use of observed data on the investor-required ROE and
10 the cost of debt as compared to other risk premium methods that generally
11 involve complex models and assumptions with the investor-required rate of
12 return.

13 **Q. What are the results of your RPM analysis?**

14 A. The summary data of risk premiums shown on Hinton Exhibit 4. The first
15 page of that exhibit shows that the average risk premium is 5.46%. The
16 second page of that exhibit shows the average of the last six months of
17 Moody's A-rated public utility bond yields of 4.79%. Summing these two
18 yields an average cost of equity of 10.25%. However, I believe this is an
19 inappropriate outcome because it ignores the historical relationship between
20 approved ROEs and bond yields. It has been acknowledged in risk premium
21 studies that as interest rates decrease the risk premium increases. For this

1 reason, the use of the regression equation quantifies the historical
2 relationship and provides a better estimate of the current cost of equity as
3 shown in Hinton Exhibit 4. The equation diagnostics indicate that a significant
4 statistical relationship exists between allowed equity returns and bond costs,
5 such that a 100-basis point increase in the bond cost corresponds to an
6 increase of approximately 29-basis points in the cost of equity and risk
7 premium.⁶ While various studies on the cost of equity capital have differed
8 on the level of the negative relationship of interest rates and risk premiums,
9 there has been agreement that as interest rates fall, there is an increase in
10 the premium. See Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson,
11 *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial
12 Management, Spring 1985, 33. Applying this relationship to the current utility
13 bond cost of 4.79%⁷ results in a current estimate of the cost of equity of
14 9.88%.

15 **Q. Based upon your study, what are your findings on the cost of equity?**

16 A. Averaging the three results of my DCF model analysis yields an average
17 estimate of 9.0%. My RPM analysis indicates a cost of equity of 9.88%, which
18 I rounded to 9.9%. As shown in Hinton Exhibit 5, the average of those two

⁶ The regression indicated a significant statistical relationship of $ROE = 0.08599 + 0.261495$, with an adjusted $R^2 = 0.8322$.

⁷ The 3.11% current bond yield was determined using the most recent six-month average yield-to-maturity rate of Moody's A-rated Utility Bond Yields.

1 methods is 9.45%. This ROE is appropriate for use if the Commission does
2 not approve the Company's MYRP. As previously discussed, this
3 recommendation does not reflect the expected impact of the Company's
4 requested MYRP on the investor-required rate of return.

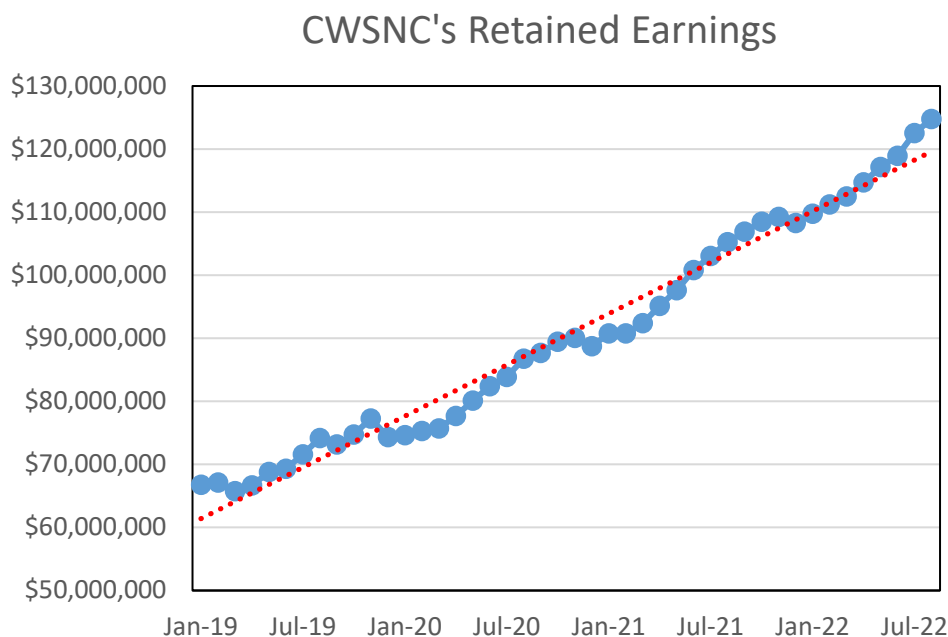
5 **Q. What other evidence did you consider in your assessment of the**
6 **reasonableness of your recommendations?**

7 A. In regard to my reasonableness assessment, I considered the pre-tax
8 interest coverage ratio produced by my recommended cost of capital.
9 Based on the recommended capital structure, cost of debt, and return on
10 equity, the pre-tax interest coverage ratio is approximately 3.7 times as
11 shown in Hinton Exhibit 6.⁸ This level of pre-tax interest coverage and funds
12 flow coverage should allow CWSNC to qualify for a single "A" bond rating.

13 Another factor in my reasonableness assessment is the strong and
14 relatively stable growth of the Company's retained earnings. The graph of
15 its retained earnings reveals an annual growth rate that is in excess of 15%.
16 Furthermore, the trend line of the earnings shows the stability over time

⁸ The pre-tax interest coverage ratio of 3.7 is based on a ROE of 9.45%. As previously discussed, the 9.45% ROE does not reflect the reduced ROE I recommend should the Commission approve the Company's MYRP request.

1 which underlie the relative lower investment risks associated with water
 2 utilities.



3

4 **V. CONCERNS WITH COMPANY WITNESS D'ASCENDIS'**
 5 **TESTIMONY**

6 **Q. Do you have concerns about Company witness D'Ascendis'**
 7 **testimony?**

8 **A.** Yes. I have two areas of concern with his testimony.

9 **A. Interest Rate Forecasts for Ratemaking**

10 As noted, I have concerns with the use of interest rate forecasts to
 11 determine the cost of equity. In this proceeding, Company witness
 12 D'Ascendis relies on the *Blue Chip* of 30-year treasury yields in his CAPM

1 analysis, as shown in his Exhibit 1, Schedule DWD-4. Although the interest
2 rate forecast for 30-year treasury securities represents a reasonable
3 forecast, that does not alter my position that interest rate forecasts are not
4 appropriate for ratemaking. Company witness D'Ascendis relied on similar
5 forecasts for 30-year yields in his predictive CAPM analysis in the
6 Company's general rate case filed in July 2021 in Docket No. W-384, Sub
7 364. A comparison of the *Blue-Chip* predictions of forecasts through the
8 third quarter of 2020 and the maximum observed daily yields on 30-year
9 Treasury Securities reveal an average overestimation of approximately 127
10 basis points. It is my observation that interest rate forecasts have shown a
11 tendency to over-estimate the future level of interest rates by a significant
12 degree, and, for that reason, I maintain that these forecasts are
13 inappropriate for ratemaking.

14 **B. Risk Adjustment for Small Size**

15 My other concern with Company witness D'Ascendis' testimony is his 10-
16 basis point adjustment for the size of CWSNC. I do not believe that it is
17 appropriate to add a risk premium to the cost of equity due to the size of a
18 regulated utility. CWSNC is owned by Corix, which is owned by BCIMC. As
19 such, Corix and BCIMC have a significant influence over the balances of
20 common equity and long-term debt of CWSNC. BCIMC determines the

1 amount of dividend payments paid by Corix and the frequency of those
2 payments.

3 I do not support a small size adjustment for the reasons set forth below.
4 From a regulatory policy perspective, ratepayers should not be required to
5 pay higher rates because they are served by a utility of a size that is
6 arbitrarily considered to be small. Further, if such adjustments were
7 routinely allowed, an incentive would exist for large existing utilities to form
8 subsidiaries when merging or even to form smaller subsidiaries to obtain
9 higher allowed returns. Lastly, CWSNC operates in a franchise environment
10 that insulates the Company from competition, and it operates with
11 procedures in place that allow for rate adjustments for eligible capital
12 improvements and other unusual circumstances that impact its earnings.

13 Furthermore, CWSNC operates in the water and sewer industry, where
14 expensive bottled water provides the only alternative to water utility service.
15 It is factually correct that rating agencies and investors add a risk factor for
16 small companies with relatively limited capital resources; however, the
17 inherent protection from competition and the ability to recover capital costs
18 and operating costs removes this risk, which would otherwise be a concern
19 to investors.

1 I testified to these same concerns in CWSNC's rate case in Docket No. W-
2 354, Sub 360, where the Commission found that a size adjustment was not
3 warranted. Similar arguments were made in Docket No. W-778, Sub 31,
4 where CWS System, Inc.'s witness Hanley with AUS Consultants relied on
5 cost of capital methods similar to those used by Company witness
6 D'Ascendis, as noted on pages 824-825 in the Commission's Eighty-
7 Seventh Report of Orders and Decisions. The Commission also considered
8 a small size adjustment in a 1994 CWSNC rate case and was not
9 persuaded to accept an adjustment for small size and elevated risk, as
10 noted on page 520 in its Eighty-Fourth Report of Orders and Decisions. The
11 explicit consideration of the small size of a regulated utility was argued
12 before this Commission in a rate case involving North Carolina Natural Gas,
13 Inc. (NCNG) filed in Docket No. G-21, Sub 293. In an Order dated
14 December 6, 1991, the Commission disagreed with NCNG's witness who
15 testified that the Company's small size warranted the selection of other
16 small sized companies in his proxy group. The Commission stated on page
17 563 in its Eighty-First Report of Orders and Decisions:

18 Dr. Andrews selected a group of 16 companies, including NCNG,
19 in his DCF model (and his CAPM) because they are all publicly
20 traded, they are all small in size, and they are all principally in the
21 local gas distribution business. He testified that these companies
22 were the "best available" in terms of being comparable to NCNG.
23 In contrasting his comparable group to those of witness Hinton,
24 Dr. Andrews stated that it was better to have some similarity in
25 size among the companies even if this meant some dissimilarity

1 in financial attributes. The Commission disagrees. If a group of
2 companies is to be screened for comparability in terms of investor
3 expectations, financial attributes are far more relevant than size.

4 While there are published studies that address how the small size of a
5 company relates to higher risks, I am aware of only one study that focuses
6 on the size of regulated utilities and risk. See Annie Wong, Utility Stocks
7 and the Size Effect: An Empirical Analysis, Journal of the Midwest Finance
8 Association, 95 (1993).

9 Whereas, published journal articles generally rely on company size and
10 return data for a multitude of privately held companies covered by the
11 Center for Research in Security Prices⁹ (CRSP), any correlation between
12 the smaller size of a company and higher stock returns occurs for industrial
13 not utility stocks as Dr. Wong notes I. Dr. Wong tested the data to determine
14 whether there was a size premium in utilities and concluded the following:

15 [U]nlike industrial stocks, utility stocks do not exhibit a
16 significant size premium. As explained, there are several
17 reasons why such a size premium would not be attributable to
18 utilities because they are regulated closely by state and
19 federal agencies and commissions, and hence, their financial
20 performance is monitored on an ongoing basis by both the
21 state and federal governments.

⁹ Center for Research in Security Prices, University of Chicago, Booth School of Business, Chicago, IL.

1

VI. SUMMARY AND RECOMMENDATIONS2 **Q. Please summarize your cost of capital recommendations.**

3 A. My recommended overall weighted cost of capital for use in this proceeding
4 in the absence of a Commission-approved MYRP and as shown in Hinton
5 Exhibit 6 is 7.05%. The aforementioned cost is based upon a capital
6 structure that consists of 50.00% long-term debt and 50.00% common
7 equity, an embedded cost of long-term debt of 4.64%, and a cost of
8 common equity of 9.45%.

9 **Q. Does this conclude your testimony?**

10 A. Yes.

QUALIFICATIONS AND EXPERIENCE

JOHN ROBERT HINTON

I received a Bachelor of Science degree in Economics from the University of North Carolina at Wilmington in 1980 and a Master of Economics degree from North Carolina State University in 1983. I joined the Public Staff in May of 1985. I filed testimony on the long-range electrical forecast in Docket No. E-100, Sub 50. In 1986, 1989, and 1992, I developed the long-range forecasts of peak demand for electricity in North Carolina. I filed testimony on electricity weather normalization in Docket Nos. E-7, Sub 620, E-2, Sub 833, and E-7, Sub 989. I filed testimony on customer growth and the level of funding for nuclear decommissioning costs in Docket No. E-2, Sub 1023. I filed testimony on the level of funding for nuclear decommissioning costs in Docket Nos. E-7, Sub 1026 and E-7, Sub 1146. I have filed testimony on the Integrated Resource Plans (IRPs) filed in Docket No. E-100, Subs 114 and 125, and I have reviewed numerous peak demand and energy sales forecasts and the resource expansion plans filed in electric utilities' annual IRPs and IRP updates.

I have been the lead analyst for the Public Staff in numerous avoided cost proceedings, filing testimony in Docket No. E-100, Subs 106, 136, 140, 148, and Sub 158. I have filed a Statement of Position in the arbitration case involving EPCOR and Progress Energy Carolinas in Docket No. E-2, Sub 966. I have filed testimony in avoided cost related to the cost recovery of energy efficiency programs and demand side management programs in Dockets Nos. E-7, Sub 1032, E-7, Sub 1130, E-2, Sub 1145, and E-2, Sub 1174.

I have filed testimony on the issuance of certificates of public convenience and necessity (CPCN) in Docket Nos. E-2, Sub 669, SP-132, Sub 0, E-7, Sub 790, E-7, Sub 791, and E-7, Sub 1134.

I filed testimony on the merger of Dominion Energy, Inc. and SCANA Corp. in Docket Nos. E-22, Sub 551, and G-5, Sub 585.

I have filed testimony on the issue of fair rate of return in Docket Nos. E-22, Subs 333 412, and 532; P-26, Sub 93; P-12, Sub 89; G-21, Sub 293; P-31, Sub 125; P-100, Sub 133b; P-100, Sub 133d (1997 and 2002); G-21, Sub 442; G-5, Subs 327, 386; and 632; G-9, Subs 351, 382, 722 and Sub 781, G-39, Sub 47, W-778, Sub 31; W-218, Subs 319, 497, 526; W-354, Sub 360; 364, and in several smaller water utility rate cases. I have filed testimony on credit metrics and the risk of a downgrade in Docket No. E-7, Sub 1146.

I have filed testimony on the hedging of natural gas prices in Docket No. E-2, Subs 1001 and 1018. I have filed testimony on the expansion of natural gas in Docket No. G-5, Subs 337 and 372. I performed the financial analysis in the two audit reports on Mid-South Water Systems, Inc., Docket No. W-100, Sub 21. I testified in the application to transfer the CPCN from North Topsail Water and Sewer, Inc. to Utilities, Inc., in Docket No. W-1000, Sub 5. I have filed testimony on rainfall normalization with respect of water sales in Docket No. W-274, Sub 160.

With regard to the 1996 Safe Drinking Water Act, I was a member of the Small Systems Working Group that reported to the National Drinking Water Advisory Council of the U.S. Environmental Protection Agency. I have published an article in

the National Regulatory Research Institute's Quarterly Bulletin entitled Evaluating Water Utility Financial Capacity.

RISK MEASURES

VALUE LINE SAFETY RANK

The Safety Rank is a measure of the total risk of a stock. It includes factors unique to the company's business such as its financial condition, management competence, etc. The Safety Rank is derived by averaging two variables: the stock's Price Stability Index, and the Financial Strength Rating of the company. The Safety Rank ranges from 1 (Highest) to 5 (Lowest).

VALUE LINE BETA (β)

The Beta is derived from a regression analysis between weekly percent changes in the price of a stock and weekly percent price changes in the New York Stock Exchange Composite Index over a period of five years.

There has been a tendency over the years for high Beta stocks to become lower and for low Beta stocks to become higher. This tendency can be measured by studying Betas of stocks in five consecutive intervals. The Betas published in the *Value Line Investment Survey* are adjusted for this tendency and hence are likely to be better predictors of future Betas than those based exclusively on the experience of the past five years.

The New York Stock Exchange Composite Index is used as the basis for calculating the Beta because this index is a good proxy for the complete equity portfolio. Since Beta's significance derives primarily from its usefulness in portfolios rather than individual stocks, it is best constructed by relating to an overall market portfolio. The *Value Line* Index, because it weights all stocks equally, would not serve as well.

The security's return is regressed against the return on the New York Stock Exchange Composite Index over the past five years so that 259 observations of weekly price changes are used. *Value Line* adjusts its estimate of Beta (β_i) for regression described by Blume (1971). The estimated Beta is adjusted as follows:

$$\text{Adjusted } \beta_i = 0.35 + 0.67\beta$$

VALUE LINE FINANCIAL STRENGTH RATING

The Financial Strength Ratings are primarily a measure of the relative financial strength of a company. The rating considers key variables such as coverage of debt, variability of return, stock price stability, and company size. The Financial Strength Ratings range from the highest at A++ to the lowest at C.

VALUE LINE PRICE STABILITY INDEX

The Price Stability Index is based upon a ranking of the standard deviation of weekly percent changes in the price of a stock over the last five years. The top 5% carry a Price Stability Index of 100; the next 5%, 95; and so on down to an Index of 5.

VALUE LINE EARNINGS PREDICTABILITY INDEX

The Earnings Predictability Index is a measure of the reliability of an earnings forecast. The most reliable forecasts tend to be those with the highest rating (100), the least reliable (5).

S&P BETA (β)

The Beta is derived from a regression analysis between 60 months of price changes in a company's stock price (plus corresponding dividend yield) and the monthly price changes in the S&P 500 Index (plus corresponding dividend yield). Prices and dividends are adjusted for all subsequent stock splits and stock dividends.

S&P BOND RATING

The S&P Bond Ratings is an appraisal of the credit quality based on relevant risk factors. S&P reviews both the company's financial and business profiles. Shown below are the rankings:

INVESTMENT GRADE:

- AAA Extremely strong capacity to meet financial commitments (highest rating)
- AA Very strong capacity to meet financial commitments
- A Strong capacity to meet financial commitments, but somewhat susceptible to adverse economic conditions and changes in circumstances
- BBB Adequate capacity to meet financial commitments, but more subject to adverse economic conditions
- BBB- considered the lowest investment-grade by market participants

SPECULATIVE GRADE:

- BB+ Considered highest speculative grade by market participants

- BB Less vulnerable in the near-term by faces major ongoing uncertainties to adverse business, financial, and economic conditions
- B More vulnerable to adverse business, financial, and economic conditions but currently has the capacity to meet financial commitments
- CCC Currently vulnerable and dependent on favorable business, financial, and economic conditions to meet financial commitments
- CC Highly vulnerable; default has not yet occurred, but is expected to be a virtual certainty
- C Currently highly vulnerable to non-payment, and ultimate recovery is expected to be lower than that of higher rated obligations
- D Payment default on a financial commitment or breach of an imputed promise; also used when a bankruptcy petition has been filed or similar action taken

Note that ratings from “AA” to “CCC” may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories.

S&P STOCK RANKING

The S&P Stock Rankings is an appraisal of the growth and stability of the company’s earnings and dividends over the past 10 years. The final score for each stock is measured against a scoring matrix determined by an analysis of the scores of a large and representative sample of stocks. Shown below are the rankings:

A+	Highest
A	High
A-	Above average
B+	Average
B	Below Average
B-	Lower
C	Lowest
D	In Reorganization
NR	Not rated

MOODY'S BOND RATING

Moody's Bond Ratings assign a rating on the creditworthiness of an obligor. Such ratings reflect both the likelihood of default and any financial loss suffered in the event of a default. Shown below are the rankings:

- Aaa Obligations rated Aaa are judged to be of the highest quality with minimal risk.
- Aa Obligations rated Aa are judged to be of the high quality and are subject to low credit risk.
- A Obligations rated A are considered upper-medium-grade and are subject to low credit risk.
- Baa Obligations rated Baa are subject to moderate credit-risk. They are considered medium-grade and are subject to substantial credit risk.
- Ba Obligations rated Ba are subject to have speculative and are subject to substantial credit risk.
- B Obligations rated B are considered speculative and are subject to high credit risk.
- Caa Obligations rated Caa are judged to be of poor standing and are subject to very high credit risk.
- Ca Obligations rated Ca are highly speculative and are likely in, or very near default with some prospect of recovery in principle and interest.
- C Obligations rated C are the lowest-grade class of bonds and are typically in default, with little prospect of recovery in principle and interest.

Sources:

1. *Value Line Investment Analyzer, Version 3.0.15a*, New York, NY.
2. Standard & Poor's, *Utility Compustat II*, September 15, 1993, New York, NY.

THE WALL STREET JOURNAL.

Economists Got the Decade All Wrong. They're Trying to Figure Out Why.

The U.S. has enjoyed its longest economic expansion on record without triggering inflation as interest rates remain historically low

by Greg Ip

Dec. 14, 2019 1:00 pm ET



In the fall of 2009, the global financial crisis had only just ended, and interest rates were a mere 0.1%. Peering ahead, economists assumed the recovery would resemble previous recoveries, though a tad slower, and thus rates would start rising the next year and plateau at 4.2% by 2015.

But by the fall of 2010, rates hadn't budged. Like Charlie Brown taking another run at the football, economists gamely made the same forecast that year, and the year after that and the year after that. Rates remained stuck near zero until 2015, a stretch of free money unseen since the 1940s.

When rates started to rise, they didn't come close to levels once considered normal, ending the decade between 1.5% and 1.75%. Private-sector economists now expect them to average 2.4% over the long term, according to Blue Chip Economic Indicators. Judging by the bond market, they might have guessed high again: Ten-year Treasury note yields are just 1.8%—roughly zero, adjusted for inflation.

How could economists have gotten something so basic so spectacularly wrong? What was it about this past decade that made all their predictions go awry?



Fed Chairman Jerome Powell and former chairmen Janet Yellen and Ben Bernanke. The financial crisis was followed by a stretch of free money

Economists have been casting around for the answer, a theory to explain their inability to peer accurately into the months ahead, let alone the years. Such a theory must do more than say “The Federal Reserve did it.” It must explain why growth was the most subdued of any expansion since the 1940s and inflation consistently ran below the Fed’s 2% target, the reasons the Fed kept rates so low.

And, no less difficult, it would have to explain why, in spite of that subdued growth, the U.S. has enjoyed its longest economic expansion on record, one marked by a record-breaking bull market in stocks and unemployment falling to a 50-year low.

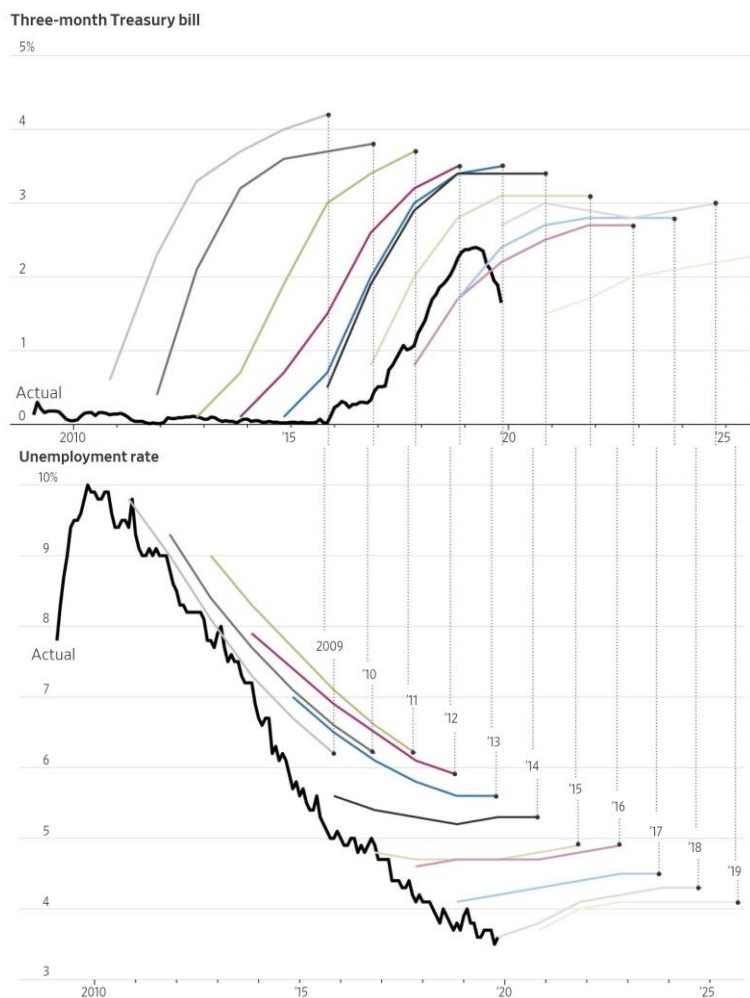
One explanation is the “debt hangover” theory popularized by Carmen Reinhart and Kenneth Rogoff, whose history of financial crises, “This Time Is Different: Eight Centuries of Financial Folly,” was a sleeper hit in 2009. They found that in the wake of financial crises, households, banks, businesses and sometimes governments are fixated on paying down debts and wary that another crisis is around the corner, so they avoid borrowing and investing. This holds down growth, inflation and interest rates.

The U.S. initially tracked this model. It had barely exited its own crisis when another erupted in the eurozone, pushing Greece into default and others to the brink of it.

But as those crises faded from view, low growth, inflation and rates persisted.

A Confounding Decade

Since 2009 economists’ projections of interest rates and unemployment (shown with year made) have consistently proved too high.



Sources: Blue Chip Economic Indicators (forecasts); Federal Reserve Bank of St. Louis (actual T-bill, unemployment rates)

So in 2013 Larry Summers, a former top adviser to Presidents Bill Clinton and Barack Obama and now an economist at Harvard University, advanced an alternative explanation: [“secular stagnation.”](#) He borrowed the phrase from an earlier Harvard economist, Alvin Hansen who used it in 1938 to describe the Great Depression’s persistently weak growth and high unemployment. Mr. Hansen tied it to weak investment due to slow population growth: Businesses had less need to invest when there were fewer new workers and customers and when aging households bought fewer big-ticket products like houses.

Slow population growth is once again weighing on growth and interest rates, Mr. Summers noted, and he added several other factors: the fastest-growing businesses, such as social-media platforms, invest little of their rich profits. Higher inequality meant more income flows to the high-saving, low-spending rich.

Though initially skeptical of Mr. Summers’s thesis, many economists have since warmed to it, at least for other parts of the world, if not the U.S. In some countries like Germany a persistent

excess of savings manifests itself as a trade surplus which flows into other countries' bonds, holding down interest rates around the world.

Secular stagnation has several profound implications. First, with interest rates closer to zero, central banks are less able to combat future recessions. Second, a structural shortage of private borrowing means governments can run big deficits without pushing up interest rates. Indeed, given central banks' lack of ammunition, governments should run deficits, or the economy will stagnate. Reducing entitlements such as future Social Security benefits in the name of fiscal prudence may worsen the problem by encouraging households to save more.

Secular stagnation also increases the risk of protectionism. Any country with too little domestic demand to achieve full employment and 2% inflation will be tempted to foist the problem on its neighbors by cheapening its currency or erecting tariffs so as to export more and import less.

Yet in key respects the past decade doesn't conform to the gloomy prognosis of secular stagnation: The stock market has romped to one record after another, and job growth has remained consistently strong.

As with interest rates, economists have been surprised by unemployment, which peaked at almost 10% in 2010. Year after year, they expected it to bottom out around 5%. It's now down to 3.5%, a 50-year low, and likely headed lower.

The expansion is now the longest since records begin in the mid-1800s. It bears little resemblance to the 1930s, which Mr. Hansen described as "sick recoveries which die in their infancy and...leave a hard and seemingly immovable core of unemployment."



Job seekers and recruiters at a fair in Los Angeles. Economists have been surprised by the continued decline of unemployment.

This points to a third possible theory. The so-called natural rate of unemployment, the lowest the U.S. can sustain without running out of workers or pushing up inflation (called u^* or "u-star" in economists' equations) is much lower than previously thought. So the recovery has had more ground to cover than many realized, and as a result the economy has spent much of the past decade operating well below capacity.

Jan Hatzius, chief economist at Goldman Sachs, says there isn't a lot of mystery about the behavior of inflation and interest rates: "We fell into a deep hole so we had a lot of spare capacity, and it took a long time to climb out."

The U.S. may have finally climbed out, but until Europe has as well, interest rates may remain low, he says. “How secular is it? How cyclical? Until you’ve seen economies really normalize from a cyclical perspective it’s going to be hard to fully distinguish between those two things.”

In other words, it might take the next decade to answer what really happened in the last.

Mr. Ip is The Wall Street Journal’s chief economics commentator, in Washington. He can be reached at greg.ip@wsj.com.

Investment Risk Measures

Group of Water Utility Companies

Company Name	Value Line ¹					S&P ² Beta	S&P ² Quality Ranking	S&P ³ Bond Rating	Moody's ³ Bond Rating
	Safety Rank	Beta	Price Stability	Earnings Predict.	Financial Strength				
1 American States Water	2	0.65	100	95	A	0.32	A	A+	NA
2 American Water Works	3	0.90	80	80	B++	0.43	A	A	Baa1
3 California Water	3	0.70	95	55	B++	0.38	A-	A+	NA
4 Essential Utilities	3	0.95	90	60	B++	-0.14	A	A	Baa2
5 Middlesex Water	2	0.70	85	90	B++	-0.12	A	A	NA
6 SJW Group	3	0.80	85	45	B+	-0.04	B+	A-	NA
Average	2.7	0.78	89	71		0.14			

Sources:

¹ *Value Line Investment Survey*, Standard Edition, October 7, 2022.

² *S&P Global Market Intelligence*, CFRA Stock Report, September 30, 2022 and October 3, 2022.

³ *S&P Global Market Intelligence*, downloaded on October 7, 2022.

Public Staff
Hinton Exhibit 3

Ticker	Company Name	Yield ¹	Value Line ² Historical						Value Line ² Forecast			Yahoo
			EPS	DPS	BPS	EPS	DPS	BPS	EPS	DPS	BPS	Forecast ³
			10-Yr	10-Yr	10-Yr	5-Yr	5-Yr	5-Yr	5-Yr	5-Yr	5-Yr	5-Yr
AWR	1 Amer. States Water	1.9	9.0	9.5	5.5	8.5	8.0	6.0	5.5	9.0	5.5	4.4
AWK	2 Amer. Water Works	1.8	12.0	9.5	4.5	13.5	10.0	5.0	3.0	8.5	8.0	8.3
CWT	3 California Water	1.7	6.5	3.5	6.0	11.0	5.0	7.0	6.5	6.5	5.0	11.7
WTRG	4 Essential Util.	2.4	6.0	7.5	11.0	1.0	7.0	14.0	10.0	8.0	6.0	6.8
MSEX	5 Middlesex Water	1.3	9.5	3.5	6.0	11.0	6.0	9.0	4.5	5.0	2.5	2.7
SJW	6 SJW Group	2.2	6.0	6.5	9.0	-6.5	10.5	11.5	14.0	5.5	4.0	9.8
	Average	1.9	8.20	6.70	7.00	6.40	7.80	8.80	7.30	7.10	5.20	7.30
	Estimated Cost of Equity		10.1	8.6	8.9	8.3	9.7	10.7	9.2	9.0	7.1	9.2

Sources:

¹ *Value Line Investment Survey* Summary and Index from June 15, 2022 to October 7, 2022.

² *Value Line Investment Survey* Standard Edition, October 7, 2022.

³ Yahoo Earnings Forecast as of October 13, 2022.

REGRESSION ANALYSIS OF ALLOWED RETURNS ON EQUITY

Year	[A] Water Utilities Approved Returns on Equity ¹	[B] Moody's A-Rated Bond Yields ²	[C]=[A]-[B] Water Utility Risk Premium
2009	10.21%	6.04%	4.18%
2010	10.18%	5.47%	4.71%
2011	10.01%	5.04%	4.97%
2012	9.90%	4.13%	5.77%
2013	9.72%	4.48%	5.24%
2014	9.59%	4.28%	5.31%
2015	9.76%	4.12%	5.65%
2016	9.71%	3.93%	5.78%
2017	9.56%	4.00%	5.56%
2018	9.46%	4.25%	5.21%
2019	9.63%	3.77%	5.86%
2020	9.36%	3.02%	6.35%
2021	9.46%	3.11%	6.35%
2022	9.73%	4.24%	5.49%
		Average	5.46%

Sources:

¹ *Regulatory Research Associates*, Water Utility Reports, July 28, 2022.

² *Moody's Credit* trends with yield data as of July 31, 2022.

Note:

I excluded the 2020 Blue Granite Water Service Decision by the SC Public Service Commission in Docket No.2019-290-WS Approving a 7.46% ROE because, I believe that it reflects a penalty due to inadequate service.

REGRESSION ANALYSIS OF APPROVED RETURNS ON EQUITY

<i>Regression Statistics</i>	
Multiple R	0.891808
R Square	0.795321
Adjusted R Square	0.778265
Standard Error	0.001227
Observations	14

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	7.01905E-05	7.01905E-05	46.62842	1.82721E-05
Residual	12	1.80638E-05	1.50532E-06		
Total	13	8.82543E-05			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.08512436	0.0018191	46.7938749	0.000000
X Variable 1	0.28579915	0.0418539	6.8285006	0.000018

Moody's A-Rated Public Utility Bond Yield	
Apr-22	4.32%
May-22	4.75%
Jun-22	4.86%
Jul-22	4.78%
Aug-22	4.76%
Sep-22	5.28%
Average	4.79%

Predicted Cost of Equity **9.88%**

Note:
Predicted Cost of Equity of 9.88% = 0.08512436 + 0.28579915 * 4.79

Cost of Equity Summary

<hr/>	
<u>DCF Method</u>	
Based on Average Historical	9.35%
Based on Historical & Forecasted Growth Rates	9.05%
Based on Predicted Growth Rates	8.60%
	<hr/>
	Average 9.00%
<u>Risk Premium Method</u>	9.90%
	<hr/>
Average of DCF and Risk Premium	9.45%

Carolina Water Service, Inc. of North Carolina
Cost of Capital as of August 31, 2022
(Without WSIP)

Item	Ratios	Cost Rate	Weighted Cost Rate	Pre-Tax Cost of Capital
Long-Term Debt	50.00%	4.64%	2.32%	2.32%
Common Equity	50.00%	9.45%	4.73%	6.18%
Total	100.00%		7.05%	8.50%
			Pre-Tax Interest Coverage	3.7