

**BEFORE THE
STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES
OFFICE OF ADMINISTRATIVE LAW**

In the Matter of:

**THE PETITION OF NEW JERSEY
AMERICAN WATER COMPANY, INC.
FOR APPROVAL OF INCREASED TARIFF
RATES AND CHARGES FOR WATER AND
SEWER SERVICE; CHANGE IN
DEPRECIATION RATES; AND OTHER
TARIFF MODIFICATIONS**

**BPU Docket No.
WR11070460
OAL Docket No.
PUC09799-2011N**

**DIRECT TESTIMONY OF

DAVID C. PARCELL

ON BEHALF OF THE
NEW JERSEY
DIVISION OF RATE COUNSEL**

**STEFANIE A. BRAND, ESQ.
DIRECTOR, DIVISION OF RATE COUNSEL**

**DVISION OF RATE COUNSEL
31 CLINTON STREET, 11th FLOOR
P.O. BOX 46005
NEWARK, NEW JERSEY 07101**

Filed: January 13, 2012

TABLE OF CONTENTS

	<u>PAGE</u>
I. <u>INTRODUCTION</u>	1
II. <u>RECOMMENDATIONS AND SUMMARY</u>	2
III. <u>ECONOMIC/LEGAL PRINCIPLES AND METHODOLOGIES</u>	3
IV. <u>GENERAL ECONOMIC CONDITIONS</u>	5
V. <u>NJAWC'S OPERATIONS AND RISKS</u>	10
VI. <u>CAPITAL STRUCTURE AND COST OF DEBT</u>	11
VII. <u>SELECTION OF PROXY GROUP</u>	15
VIII. <u>DISCOUNTED CASH FLOW ("DCF") ANALYSIS</u>	15
IX. <u>CAPITAL ASSET PRICING MODEL ("CAPM") ANALYSIS</u>	18
X. <u>COMPARABLE EARNINGS ("CE") ANALYSIS</u>	21
XI. <u>RETURN ON EQUITY RECOMMENDATIONS</u>	24
XII. <u>TOTAL COST OF CAPITAL</u>	25
XIII. <u>CRITIQUE OF COMPANY TESTIMONY</u>	26
XIV. <u>ATTACHMENT 1 - QUALIFICATIONS</u>	33

1 **I. INTRODUCTION**

2
3 **Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.**

4 A. My name is David C. Parcell. I am President and Senior Economist of Technical
5 Associates, Inc. My business address is Suite 580, 9030 Stony Point Parkway,
6 Richmond, Virginia 23235.

7
8 **Q. PLEASE BRIEFLY DESCRIBE YOUR BACKGROUND AND EXPERIENCE.**

9 A. I hold B.A. (1969) and M.A. (1970) degrees in economics from Virginia Polytechnic
10 Institute and State University (Virginia Tech) and a M.B.A. (1985) from Virginia
11 Commonwealth University. I have been a consulting economist with Technical
12 Associates since 1970. In connection with this, I have previously filed cost of capital
13 testimony in about 480 public utility ratemaking proceedings before some 50 regulatory
14 agencies in the United States and Canada. Attachment 1 provides a more complete
15 description of my education and relevant work experience.

16
17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

18 A. I have been retained by the Division of Rate Counsel (“Rate Counsel”) to evaluate the
19 cost of capital aspects of the current filing of New Jersey-American Water Company
20 (“NJAWC” or “Company”). I have performed independent studies and am making
21 recommendations of the current cost of capital for NJAWC. In addition, since NJAWC is
22 a subsidiary of American Water Works Company, Inc. (“AWW” or “Parent”), I have also
23 evaluated AWW in my analyses.

24
25 **Q. HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR TESTIMONY?**

26 A. Yes, I have prepared one exhibit, identified as Schedule DCP-1 through Schedule DCP-
27 13. This exhibit was prepared either by me or under my direction. The information
28 contained in this exhibit is correct to the best of my knowledge and belief.

1 **II. RECOMMENDATIONS AND SUMMARY**

2
3 **Q. WHAT ARE YOUR RECOMMENDATIONS IN THIS PROCEEDING?**

4 A. My overall cost of capital recommendation for NJAWC is shown on Schedule DCP-1
5 and can be summarized as follows:

6

	<u>Percent</u>	<u>Cost</u>	<u>Return</u>
7 Long-Term Debt	47.97%	5.75%	2.76%
8 Preferred Stock	0.03%	4.74%	0.00%
9 Common Equity	<u>52.00%</u>	<u>9.75%</u>	<u>5.07%</u>
Total	100.00%		7.83%

10

11 **Q. PLEASE SUMMARIZE YOUR ANALYSES AND CONCLUSIONS.**

12 A. This proceeding is concerned with NJAWC's regulated water utility operations in New
13 Jersey. My analyses are concerned with the Company's total cost of capital. The first
14 step in performing these analyses is the development of the appropriate capital structure.
15 I have used the Company's estimated July 31, 2012 capital structure, as proposed in its
16 filing, in my analyses.

17 The second step in a cost of capital calculation is a determination of the embedded
18 cost rates of debt and preferred stock. I have used the cost rates for long-term debt and
19 preferred stock proposed by NJAWC.

20 The third step in the cost of capital calculation is the estimation of the cost of
21 common equity. I have employed three recognized methodologies to estimate the cost of
22 equity for NJAWC. Each of these methodologies is applied to a group of proxy water
23 utilities. These three methodologies and my findings are:

24
25

<u>Methodology</u>	<u>Ranges</u>
26 Discounted Cash Flow (DCF)	9.1-9.8% (9.5% mid-point)
27 Capital Asset Pricing Model (CAPM)	6.8%
28 Comparable Earnings (CE)	9.5-10.5% (10.0% mid-point)

29 Based upon these findings, it is my conclusion that the cost of common equity for
30 NJAWC is within a range of 9.5 percent to 10.0 percent (9.75 percent mid-point), which
31 is based upon the mid-points for the DCF and CE results. I recommend 9.75 percent as

1 the cost of equity for NJAWC. Combining these three steps into weighted cost of capital
2 results in an overall rate of return of 7.83 percent (which incorporates a cost of common
3 equity of 9.75 percent).

4
5 **III. ECONOMIC/LEGAL PRINCIPLES AND METHODOLOGIES**

6
7 **Q. WHAT ARE THE PRIMARY ECONOMIC AND LEGAL PRINCIPLES THAT**
8 **ESTABLISH THE STANDARDS FOR DETERMINING A FAIR RATE OF**
9 **RETURN FOR A REGULATED UTILITY?**

10 A. Public utility rates are normally established in a manner designed to allow the recovery of
11 their costs, including capital costs. This is frequently referred to as “cost of service”
12 ratemaking. Rates for regulated public utilities traditionally have been primarily
13 established using the “rate base - rate of return” concept. Under this method, utilities are
14 allowed to recover a level of operating expenses, taxes, and depreciation deemed
15 reasonable for rate-setting purposes, and are granted an opportunity to earn a fair rate of
16 return on the assets utilized (*i.e.* rate base) in providing service to their customers.

17 The rate base is derived from the asset side of the utility’s balance sheet as a
18 dollar amount and the rate of return is developed from the liabilities/owners’ equity side
19 of the balance sheet as a percentage. Thus, the revenue impact of the cost of capital is
20 derived by multiplying the rate base by the rate of return, including income taxes.

21 The rate of return is developed from the cost of capital, which is estimated by
22 weighting the capital structure components (*i.e.* debt, preferred stock, and common
23 equity) by their percentages in the capital structure and multiplying these values by their
24 cost rates. This is also known as the weighted cost of capital.

25 Technically, “fair rate of return” is a legal and accounting concept that refers to an
26 ex post (after the fact) earned return on an asset base, while the cost of capital is an
27 economic and financial concept which refers to an ex ante (before the fact) expected, or
28 required, return on a capital base. In regulatory proceedings, however, the two terms are
29 often used interchangeably, and I have equated the two concepts in my testimony.

30 From an economic standpoint, a fair rate of return is normally interpreted to mean
31 that an efficient and economically managed utility will be able to maintain its financial

1 integrity, attract capital, and establish comparable returns for similar risk investments.
2 These concepts are derived from economic and financial theory and are generally
3 implemented using financial models and economic concepts.

4 Although I am not a lawyer and I do not offer a legal opinion, my testimony is
5 based on my understanding that two United States Supreme Court decisions provide the
6 controlling standards for a fair rate of return. The first decision is Bluefield Water Works
7 and Improvement Co. v. Public Serv. Comm'n of West Virginia, 262 U.S. 679 (1923). In
8 this decision, the Court stated:

9 The annual rate that will constitute just compensation depends
10 upon many circumstances and must be determined by the exercise
11 of fair and enlightened judgment, having regard to all relevant
12 facts. A public utility is entitled to such rates as will permit it to
13 earn a return on the value of the property which it employs for the
14 convenience of the public equal to that generally being made at the
15 same time and in the same general part of the country on
16 investments in other business undertakings which are attended by
17 corresponding risks and uncertainties; but it has no constitutional
18 right to profits such as are realized or anticipated in highly
19 profitable enterprises or speculative ventures. The return should be
20 reasonably sufficient to assure confidence in the financial
21 soundness of the utility, and should be adequate, under efficient
22 and economical management, to maintain and support its credit
23 and enable it to raise the money necessary for the proper discharge
24 of its public duties. A rate of return may be reasonable at one time,
25 and become too high or too low by changes affecting opportunities
26 for investment, the money market, and business conditions
27 generally.

28
29 It is generally understood that the Bluefield decision established the following
30 standards for a fair rate of return: comparable earnings, financial integrity, and capital
31 attraction. It also noted that required returns change over time, and there is an underlying
32 assumption that the utility be operated efficiently.

33 The second decision is Federal Power Comm'n v. Hope Natural Gas Co., 320
34 U.S. 591 (1942). In that decision, the Court stated:

35 The rate-making process under the [Natural Gas] Act, i.e., the
36 fixing of 'just and reasonable' rates, involves a balancing of the
37 investor and consumer interests From the investor or company
38 point of view it is important that there be enough revenue not only
39 for operating expenses but also for the capital costs of the business.

1 These include service on the debt and dividends on the stock. By
2 that standard the return to the equity owner should be
3 commensurate with returns on investments in other enterprises
4 having corresponding risks. That return, moreover, should be
5 sufficient to assure confidence in the financial integrity of the
6 enterprise, so as to maintain its credit and to attract capital.
7

8 The three economic and financial parameters in the Bluefield and Hope decisions
9 - comparable earnings, financial integrity, and capital attraction - reflect the economic
10 criteria encompassed in the “opportunity cost” principle of economics. The opportunity
11 cost principle provides that a utility and its investors should be afforded an opportunity
12 (not a guarantee) to earn a return commensurate with returns they could expect to achieve
13 on investments of similar risk. The opportunity cost principle is consistent with the
14 fundamental premise on which regulation rests, namely, that it is intended to act as a
15 surrogate for competition.
16

17 **Q. HOW CAN THESE PARAMETERS BE EMPLOYED TO ESTIMATE THE COST**
18 **OF CAPITAL FOR A UTILITY?**

19 A. Neither the courts nor economic/financial theory has developed exact and mechanical
20 procedures for precisely determining the cost of capital. This is the case because the cost
21 of capital is an opportunity cost and is prospective-looking, which dictates that it must be
22 estimated. However, there are several useful models that can be employed to assist in
23 estimating the cost of equity (“COE”) capital, which is the capital structure item that is
24 the most difficult to determine. These include the DCF, CAPM, CE and risk premium
25 (“RP”) methods. I use three methodologies to determine NJAWC’s COE: the DCF,
26 CAPM, and CE methods. I have not directly employed a RP model in my analyses
27 although, as discussed later, my CAPM analysis is a form of the RP methodology. Each
28 of these methodologies will be described in more detail later in my testimony.
29

30 **IV. GENERAL ECONOMIC CONDITIONS**

31
32 **Q. ARE ECONOMIC AND FINANCIAL CONDITIONS IMPORTANT IN**
33 **DETERMINING THE COSTS OF CAPITAL?**

1 A. Yes. The costs of capital, for both fixed-cost (debt and preferred stock) components and
2 common equity, are determined in part by current and prospective economic and
3 financial conditions. At any given time, each of the following factors has an influence on
4 the costs of capital:

- 5 • the level of economic activity (*i.e.*, growth rate of the economy);
- 6 • the stage of the business cycle (*i.e.*, recession, expansion, or transition);
- 7 • the level of inflation;
- 8 • the level and trend of interest rates; and,
- 9 • expected economic conditions.

10
11 My understanding is that this position is consistent with the Bluefield decision
12 that noted “[a] rate of return may be reasonable at one time, and become too high or too
13 low by changes affecting opportunities for investment, the money market, and business
14 conditions generally.” Bluefield, 262 U.S. at 679.

15
16 **Q. WHAT INDICATORS OF ECONOMIC AND FINANCIAL ACTIVITY DID YOU**
17 **EVALUATE IN YOUR ANALYSES?**

18 A. I examine several sets of economic statistics from 1975 to the present. I chose this time
19 period because it permits the evaluation of economic conditions over four full business
20 cycles, allowing for an assessment of changes in long-term trends. This period also
21 approximates the beginning and continuation of active rate case activities by public
22 utilities.

23 A business cycle is commonly defined as a complete period of expansion
24 (recovery and growth) and contraction (recession). A full business cycle is a useful and
25 convenient period over which to measure levels and trends in long-term capital costs
26 because it incorporates the cyclical (*i.e.*, stage of business cycle) influences, and thus
27 permits a comparison of structural (or long-term) trends.

28
29 **Q. PLEASE DESCRIBE THE TIMEFRAME OF THE FOUR PRIOR BUSINESS**
30 **CYCLES AND THE MOST RECENT CYCLE.**

31 A. The four prior complete cycles and current cycle cover the following periods:

<u>Business Cycle</u>	<u>Expansion Cycle</u>	<u>Contraction Period</u>
1975-1982	Mar. 1975-July 1981	Aug. 1981-Oct. 1982
1982-1991	Nov. 1982-July 1990	Aug. 1990-Mar. 1991
1991-2001	Apr. 1991-Mar. 2001	Apr. 2001-Nov. 2001
2001-2009	Dec. 2001-Nov. 2007	Dec. 2007-June 2009
Current	July 2009-	

Source: National Bureau of Economic, Research, "Business Cycle Expansions and Contractions."

Q. DO YOU HAVE ANY GENERAL OBSERVATIONS CONCERNING THE RECENT TRENDS IN ECONOMIC CONDITIONS AND THEIR IMPACT ON CAPITAL COSTS OVER THIS BROAD PERIOD?

A. Yes, I do. As I will describe below, until the end of 2007, the United States economy had enjoyed general prosperity and stability since the early 1980s. This period had been characterized by longer economic expansions, relatively tame contractions, relatively low and declining inflation, and declining interest rates and other capital costs.

However, in 2008 and 2009, the economy declined significantly, initially as a result of the 2007 collapse of the "sub-prime" mortgage market and the related liquidity crisis in the financial sector of the economy. Subsequently, this financial crisis intensified with a more broad-based decline, initially based on a substantial increase in petroleum prices and a dramatic decline in the U.S. financial sector, culminating with the collapse and/or bailouts of a significant number of well-known institutions such as Bear Stearns, Lehman Brothers, Merrill Lynch, Freddie Mac, Fannie Mae, AIG and Wachovia. The recession also witnessed the demise of national companies such as Circuit City, and the bankruptcies of automotive manufacturers such as Chrysler and General Motors.

This decline has been described as the worst financial crisis since the Great Depression and has been referred to as the "Great Recession." The U.S. and other governments have implemented and continue to implement unprecedented actions to attempt to correct or minimize its scope and effects.

It appears that the recession reached its low point in mid-2009 and that the economy has since begun to expand again, although at a slow and uneven rate. However, the length and severity of the recession, as well as a relatively slow recovery, indicates that the impacts of the recession have been and will be felt for an extended period of

1 time. As an example of this, the U.S. unemployment rate still stands at about 9 percent –
2 near the highest rate in decades.

3
4 **Q. PLEASE DESCRIBE RECENT AND CURRENT ECONOMIC AND FINANCIAL**
5 **CONDITIONS AND THEIR IMPACT ON THE COSTS OF CAPITAL.**

6 A. Schedule DCP-2 shows several sets of relevant economic data for the cited time period.
7 Pages 1 and 2 contain general macroeconomic statistics; pages 3 and 4 show interest
8 rates; and pages 5 and 6 contain equity market statistics.

9 Pages 1 and 2 show that 2007 was the sixth year of an economic expansion but, as
10 I previously noted, the economy subsequently entered a significant decline, as indicated
11 by the growth in real (*i.e.*, adjusted for inflation) Gross Domestic Product (“GDP”),
12 industrial production, and an increase in the unemployment rate. This recession lasted
13 until mid-2009, making it a longer-than-normal recession, as well as a deeper recession.
14 Since then, economic growth has been erratic and lower than the initial periods of prior
15 expansions, giving concern to a renewed recession, or “double dip.”

16 Pages 1 and 2 also show the rate of inflation. As reflected in the Consumer Price
17 Index (“CPI”), for example, inflation rose significantly during the 1975-1982 business
18 cycle and reached double-digit levels in 1979-1980. The rate of inflation declined
19 substantially beginning in 1981, and remained at or below 6.1 percent during the 1983-
20 1991 business cycle. Since 1991, the CPI has been 4.1 percent or lower. The 0.1 percent
21 rate of inflation in 2008, the 2.7 percent level in 2009 and the 1.5 percent rate in 2010
22 were among the lowest levels of the past 35 years. This is indicative of virtually no
23 inflation, which is reflective of lower capital costs.

24
25 **Q. WHAT HAVE BEEN THE TRENDS IN INTEREST RATES OVER THE FOUR**
26 **PRIOR BUSINESS CYCLES AND THE CURRENT TIME?**

27 A. Pages 3 and 4 of Schedule DCP-2 show several series of interest rates. Rates rose
28 sharply to record levels in 1975-1981 when the inflation rate was high and generally
29 rising. Interest rates declined substantially in conjunction with inflation rates during the
30 remainder of the 1980s and throughout the 1990s. Interest rates declined even further
31 from 2000-2005 and generally recorded their then-lowest levels since the 1960s.

1 Most recently, the Federal Reserve has lowered the Federal Funds rate (i.e., short-
2 term rate) on several occasions; currently it is 0.25 percent, an all-time low. In 2008,
3 there was a pronounced decline in short-term rates and long-term U.S. Treasury
4 Securities yields, and an increase in corporate bond yields, reflecting the “flight to
5 safety,” wherein there was a reluctance of investors to purchase common stocks and
6 corporate bonds while concomitantly moving their money into very safe government
7 bonds. Since then, as seen on page 4, U.S. and corporate bond yields have declined to
8 their lowest levels in the past four business cycles and in more than 35 years, with
9 lending rates remaining at historically low levels, again reflective of lower capital costs.

10
11 **Q. WHAT DOES SCHEDULE DCP-2 SHOW FOR TRENDS OF COMMON SHARE**
12 **PRICES?**

13 A. Pages 5 and 6 show several series of common stock prices and ratios. These indicate that
14 share prices were essentially stagnant during the high inflation/high interest rate
15 environment of the late 1970s and early 1980s. The 1983-1991 business cycle and the
16 more recent cycles witnessed a significant upward trend in stock prices. The beginning
17 of the recent financial crisis saw stock prices decline precipitously. Stock prices in 2008
18 and early 2009 were down significantly from 2007 levels, reflecting the
19 financial/economic crises. Beginning in the second quarter of 2009, prices have
20 recovered substantially but remain below the levels prevailing prior to the current
21 recession. Through the third quarter of 2011, it is evident that stock prices maintained
22 much of the volatility that was present during the recent financial crisis. In spite of this
23 volatility, it is evident that the cost of equity, like the cost of debt, has declined.

24
25 **Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR DISCUSSION OF**
26 **ECONOMIC AND FINANCIAL CONDITIONS?**

27 A. It is apparent that recent economic and financial circumstances have been radically
28 different from any that have prevailed since at least the 1930s. The late 2008-early 2009
29 deterioration in stock prices (as well as the August 2011 volatility), the decline in U.S.
30 Treasury bond yields, and an increase in corporate bond yields were evidenced in that
31 recent “flight to safety.” On the other side of this “flight to safety” is the negative

1 perception of the recent declines, which have significantly reduced the value of most
2 retirement accounts, investment portfolios and other assets. One significant aspect of this
3 has been a decline in investor expectations of returns, including stock returns. Finally, as
4 noted above, interest rates currently are at levels below those prevailing prior to the
5 financial crisis of late 2008-early 2009 and are near the lowest level in the past 35 years.
6 This “flight to safety” does not represent an increase in the cost of capital; rather, it more
7 properly reflects an “availability of capital” since investors were temporarily unwilling to
8 invest in many assets other than U.S. Treasury bonds. Further reflecting a decreased cost
9 of capital, utility bond rates are at their lowest levels in the past four business cycles,
10 which reflects a very favorable environment in which to raise capital. I also note that the
11 events of the past four years have made public utility stocks, with their consistent and
12 rising dividend rates, relatively more attractive to investors.

13
14 **V. NJAWC’S OPERATIONS AND RISKS**

15
16 **Q. PLEASE SUMMARIZE NJAWC AND ITS OPERATIONS.**

17 A. NJAWC is a public utility that delivers water and wastewater services through its
18 distribution system in New Jersey. NJAWC provides service to about 645,000 customers
19 in New Jersey. NJAWC is the largest water company in New Jersey. NJAWC, in turn, is
20 the largest subsidiary of AWW, accounting for about 25 percent of AWW’s 2010
21 regulated operating revenues.

22
23 **Q. PLEASE DESCRIBE AWW.**

24 A. AWW is a holding company whose major regulated subsidiaries provide water and
25 wastewater services in twenty states. AWW is the largest publicly-traded water and
26 wastewater company in the United States.

27 AWW has undertaken several ownership changes over the past several years.
28 Until 2003, AWW was a publicly-traded company headquartered in Voorhees, N.J. In
29 2003, AWW’s stock was acquired by RWE Aktiengesellschaft (a German company),
30 and AWW became a wholly-owned subsidiary of RWE. In 2005, RWE announced its
31 intention to exit its water activities in the U.S. and elsewhere and, in connection with this,

1 sold about 63.2 million shares in an initial public offering (“IPO”) of AWW’s shares. In
2 2009, RWE continued to divest its AWW shares through three public offerings. AWW is
3 now fully divested from RWE.

4 As noted above, AWW owns a number of water and wastewater subsidiaries that
5 operate in twenty states throughout the U.S. One of these is NJAWC. AWW also owns
6 non-regulated subsidiaries. AWW raises a portion of debt capital for its subsidiaries,
7 including NJAWC, through its financing subsidiary American Water Capital Corp.
8 (“AWCC”).

9
10 **Q. WHAT ARE THE SECURITY RATINGS OF NJAWC, AWW AND AWCC?**

11 A. NJAWC, AWW and AWCC presently maintain the following credit ratings:

	<u>NJAWC</u>	<u>AWW</u>	<u>AWCC</u>
Moody’s	Baa1	Baa2	Baa2
Standard & Poor’s	A	BBB+	BBB+

16 Source: Response to RCR-ROR-4.

17 This indicates that NJAWC has higher security ratings than AWW and AWCC. This is
18 reflective of lower risk for NJAWC.

19
20 **VI. CAPITAL STRUCTURE AND COST OF DEBT**

21
22 **Q. WHAT IS THE IMPORTANCE OF DETERMINING A PROPER CAPITAL
23 STRUCTURE IN A REGULATORY FRAMEWORK?**

24 A. A utility’s capital structure is important because the concept of rate base – rate of return
25 regulation requires that a utility’s capital structure be determined and utilized in
26 estimating the total cost of capital. Within this framework, it is proper to ascertain
27 whether the utility’s capital structure is appropriate relative to its level of business risk
28 and relative to other utilities.

29 As discussed in Section III of my testimony, the purpose of determining the
30 proper capital structure for a utility is to help ascertain its capital costs. The rate base –
31 rate of return concept recognizes the assets employed in providing utility services and

1 provides for a return on these assets by identifying the liabilities and common equity (and
2 their cost rates) used to finance the assets. In this process, the rate base is derived from
3 the asset side of the balance sheet and the cost of capital is derived from the
4 liabilities/owners' equity side of the balance sheet. The inherent assumption in this
5 procedure is that the dollar values of the capital structure and the rate base are
6 approximately equal, and the former is utilized to finance the latter.

7 The common equity ratio (*i.e.*, the percentage of common equity in the capital
8 structure) is the capital structure item which normally receives the most attention. This is
9 the case because common equity: (1) usually commands the highest cost rate; (2)
10 generates associated income tax liabilities; and (3) causes the most controversy since its
11 cost cannot be precisely determined.

12
13 **Q. HOW HAVE YOU EVALUATED THE CAPITAL STRUCTURE OF NJAWC**
14 **AND AWW?**

15 A. I have first examined the historic (2006-2011) capital structure ratios of NJAWC. These
16 are shown on page 1 of Schedule DCP-3. I have summarized below the common equity
17 ratios for NJAWC:

	<u>Including S-T Debt</u>	<u>Excluding S-T Debt</u>
18 2006	48.1%	51.5%
19 2007	47.4%	49.2%
20 2008	50.0%	52.5%
21 2009	49.6%	49.6%
22 2010	50.2%	50.2%
23 August, 2011	51.7%	51.7%

24 Page 2 of Schedule 3 shows the capital structure ratios of AWW. The equity ratios for
25 recent years are:
26

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

	<u>Including S-T Debt</u>	<u>Excluding S-T Debt</u>
2006	39.4%	42.5%
2007	47.5%	48.6%
2008	43.6%	45.9%
2009	42.2%	42.7%
2010	41.9%	42.9%
August, 2011	42.3%	44.1%

These equity ratios are substantially lower than those of AWW and are less than those of NJAWC.

Q. HOW DO THESE CAPITAL STRUCTURES COMPARE TO THOSE OF INVESTOR-OWNED WATER UTILITIES?

A. Schedule DCP-4 shows the common equity ratios (including short-term debt in capitalization) for the group of utilities utilized in my cost of equity analyses. These are:

<u>Year</u>	<u>Value Line Water Group</u>
2006	49%
2007	50%
2008	50%
2009	49%
2010	46%

These common equity ratios are similar to those of NJAWC.

Q. WHAT CAPITAL STRUCTURE RATIOS HAS NJAWC REQUESTED IN THIS PROCEEDING?

A. The Company requests use of the following capital structure:

Long-Term Debt	47.97%
Preferred Stock	0.03%
Common Equity	52.00%

According to NJAWC's filing, this is the estimated capital structure of the Company at July 31, 2012.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

Q. WHAT CAPITAL STRUCTURE DO YOU PROPOSE TO USE IN THIS PROCEEDING?

A. I use the capital structure ratios as proposed by NJAWC. I note that the capital structure proposed by NJAWC does not include short-term debt. I generally favor the inclusion of short-term debt in a utility's capital structure for ratemaking purposes, especially when it can be shown to be consistently financing a portion of rate base. It is evident that NJAWC has frequently utilized short-term debt in recent years, as is indicated on my Schedule DCP-3, page 1. It is further apparent, from the response to RCR-ROR-6, that NJAWC has not had short-term debt levels since 2009. Therefore, I have not included short-term debt.

Q. WHAT ARE THE COST RATES OF DEBT AND PREFERRED STOCK IN THE COMPANY'S FILING?

A. The Company's filing cites a cost of long-term debt of 5.75 percent and a cost of preferred stock of 4.74 percent. This is represented to be the Company's estimated cost at July 31, 2012. I also use these cost rates in my cost of capital analyses.

Q. CAN THE COST OF COMMON EQUITY BE DETERMINED WITH THE SAME DEGREE OF PRECISION AS THE COSTS OF DEBT AND PREFERRED STOCK?

A. No. The cost rates of debt and preferred stock are largely determined by interest payments, issue prices, and related expenses. The cost of common equity, on the other hand, cannot be precisely quantified, primarily because this cost is an opportunity cost. There are, however, several models that can be employed to estimate the cost of common equity. Three of the primary methods – DCF, CAPM, and CE – are developed in the following sections of my testimony.

1 **VII. SELECTION OF PROXY GROUP**

2
3 **Q. HOW HAVE YOU ESTIMATED THE COST OF COMMON EQUITY FOR**
4 **NJAWC?**

5 A. NJAWC is not a publicly-traded company. Consequently, it is not possible to directly
6 apply cost of equity models to this entity. AWW, however, is publicly-traded. As a
7 result, it is possible to conduct direct analyses of its cost of common equity. However, in
8 cost of capital analyses, it is customary to analyze groups of comparison, or "proxy,"
9 companies as a substitute for NJAWC and AWW to determine their cost of common
10 equity.

11 Schedule DCP-5 examines one such group for comparison to NJAWC and AWW.
12 This proxy group is selected from the group of ten water utilities included in Value Line
13 Investment Survey. For purposes of these analyses, I have excluded Pennichuck Corp.
14 since it is being acquired. This leaves a group of nine proxy water companies.

15
16 **VIII. DCF ANALYSIS**

17
18 **Q. WHAT IS THE THEORY AND METHODOLOGICAL BASIS OF THE DCF**
19 **MODEL?**

20 A. The DCF model is one of the oldest and most commonly-used models for estimating the
21 COE for public utilities. The DCF model is based on the "dividend discount model" of
22 financial theory, which maintains that the value (price) of any security or commodity is
23 the discounted present value of all future cash flows.

24 The most common variant of the DCF model assumes that dividends are expected
25 to grow at a constant rate (the "constant growth" or "Gordon DCF model"). In this
26 framework, the cost of capital is derived from the following formula:

27
28
$$K = \frac{D}{P} + g$$

29
30

1 where: P = current price
2 D = current dividend rate
3 K = discount rate (cost of capital)
4 g = constant rate of expected growth
5

6 This formula essentially recognizes that the return expected or required by investors is
7 comprised of two factors: the dividend yield (current income) and expected growth in
8 dividends (future income).
9

10 **Q. PLEASE EXPLAIN HOW YOU EMPLOY THE DCF MODEL.**

11 A. I use the constant growth DCF model. In doing so, I combine the current dividend yield
12 for each group of proxy utility stocks described in the previous section with several
13 indicators of expected dividend growth.
14

15 **Q. HOW DID YOU DERIVE THE DIVIDEND YIELD COMPONENT OF THE DCF**
16 **EQUATION?**

17 A. Several methods can be used to calculate the dividend yield component. These methods
18 generally differ in the manner in which the dividend rate is employed (*i.e.* current versus
19 future dividends or annual versus quarterly compounding of dividends). I believe the
20 most appropriate dividend yield component is a quarterly compounding variant, which is
21 expressed as follows:

$$Yield = \frac{D_0(1 + 0.5g)}{P_0}$$

22 This dividend yield component recognizes the timing of dividend payments and dividend
23 increases.
24

25 The P_0 in my yield calculation is the average of the high and low stock price for
26 each proxy company for the most recent three month period (October-December 2011).
27 The D_0 is the current annualized dividend rate for each proxy company.
28

29 **Q. HOW DO YOU ESTIMATE THE DIVIDEND GROWTH COMPONENT OF THE**
30 **DCF EQUATION?**

1 A. The DCF model's dividend growth rate component is usually the most crucial and
2 controversial element involved in using this methodology. The objective of estimating
3 the dividend growth component is to reflect the growth expected by investors that is
4 embodied in the price (and yield) of a company's stock. As such, it is important to
5 recognize that individual investors have different expectations and consider alternative
6 indicators in deriving their expectations. This is evidenced by the fact that every
7 investment decision resulting in the purchase of a particular stock is matched by another
8 investment decision to sell that stock.

9 A wide array of indicators exists for estimating investors' growth expectations.
10 As a result, it is evident that investors do not always use one single indicator of growth.
11 It therefore, is necessary to consider alternative dividend growth indicators in deriving
12 the growth component of the DCF model. I have considered five indicators of growth in
13 my DCF analyses. These are:

- 14 1. Years 2006-2010 (5-year average) earnings retention, or fundamental
15 growth;
- 16 2. Five-year average of historic growth in earnings per share (EPS),
17 dividends per share (DPS), and book value per share (BVPS);
- 18 3. Years 2011, 2012, and 2014-2016 projections of earnings retention growth
19 (per Value Line);
- 20 4. Years 2008-2010 to 2014-2016 projections of EPS, DPS, and BVPS (per
21 Value Line); and
- 22 5. Five-year projections of EPS growth as reported by First Call (per Yahoo!
23 Finance).

24 I believe this combination of growth indicators is a representative and appropriate
25 set with which to begin the process of estimating investor expectations of dividend
26 growth for the group of proxy companies. I also believe that these growth indicators
27 reflect the types of information that investors consider in making their investment
28 decisions. As I indicated previously, investors have an array of information available to
29 them, all of which should be expected to have some impact on their decision-making
30 process.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

Q. PLEASE DESCRIBE YOUR DCF CALCULATIONS.

A. Schedule DCP-6 presents my DCF analysis. Page 1 shows the calculation of the "raw" (i.e. prior to adjustment for growth) dividend yield for each proxy company. Pages 2 and 3 show the growth rate for the group of proxy companies. Page 4 shows the "raw" DCF calculations, which are presented on several bases: mean, median, and high values. These results can be summarized as follows:

	<u>Mean</u>	<u>Median</u>	<u>Mean High¹</u>	<u>Median High¹</u>
Value Line Water Group	8.1%	8.5%	10.9%	10.6%

¹Using only the highest growth rate.

I note that the individual DCF calculations shown on Schedule DCP-6 should not be interpreted to reflect the expected cost of capital for individual companies in the proxy groups; rather, the individual values shown should be interpreted as alternative information considered by investors.

Q. WHAT DO YOU CONCLUDE FROM YOUR DCF ANALYSES?

A. The DCF rates resulting from the analysis of the proxy group falls into a wide range between 8.1 percent and 11.0 percent. The highest DCF rates are in a range of 10.0 percent to 10.9 percent. I believe a range of 9.0 percent to 10.0 percent represents the current DCF-derived COE for the proxy group. I recommend a cost of equity of 9.0 percent to 10.0 percent (9.5 percent mid-point) for NJAWC, which focuses on the middle portion of the broad DCF range. In particular, the 10.9 percent high end results from two very high EPS forecasts (12.4 percent for California Water Service and 14.0 percent for SJW Corp.) which are not sustainable in the long-run.

IX. CAPM ANALYSIS

Q. PLEASE DESCRIBE THE THEORY AND METHODOLOGICAL BASIS OF THE CAPM.

1 A. CAPM, was developed in the 1960s and 1970s as an extension of modern portfolio
2 theory (MPT), which studies the relationships among risk, diversification, and expected
3 returns. The CAPM describes and measures the relationship between a security's
4 investment risk and its market rate of return.

5
6 **Q. HOW IS THE CAPM DERIVED?**

7 A. The general form of the CAPM is:

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

8
9
10 where: K = cost of equity

11 R_f = risk free rate

12 R_m = return on market

13 β = beta

14 $R_m - R_f$ = market risk premium
15

16 The CAPM is a variant of the RP method. I believe the CAPM is generally superior to
17 the simple RP method because the CAPM specifically recognizes the risk of a particular
18 company or industry (*i.e.*, beta), whereas the simple RP method assumes the same COE
19 for all companies exhibiting similar bond ratings or other characteristics.

20
21 **Q. WHAT DO YOU USE FOR THE RISK-FREE RATE?**

22 A. The first input into the CAPM is the risk-free rate (R_f). The risk-free rate reflects the
23 level of return that can be achieved without accepting any risk.

24 In CAPM applications, the risk-free rate is generally recognized by use of U.S.
25 Treasury securities. Two general types of U.S. Treasury securities are often utilized as
26 the R_f component, short-term U.S. Treasury bills and long-term U.S. Treasury bonds.

27 I have performed CAPM calculations using the three-month average yield
28 (October-December 2011) for 20-year U.S. Treasury bonds. I use the yields on long-term
29 Treasury bonds since this matches the long-term perspective of COE analyses. Over this
30 three-month period, these bonds had an average yield of 2.75 percent.

31

1 **Q. WHAT IS BETA AND WHAT BETAS DO YOU EMPLOY IN YOUR CAPM?**

2 A. Beta is a measure of the relative volatility (and thus risk) of a particular stock in relation
3 to the overall market. Betas less than 1 are considered less risky than the market,
4 whereas betas greater than 1 are more risky. Utility stocks traditionally have had betas
5 below 1. I utilize the most recent Value Line betas for each company in my proxy
6 groups.

7
8 **Q. HOW DO YOU ESTIMATE THE MARKET RISK PREMIUM COMPONENT?**

9 A. The market risk premium component ($R_m - R_f$) represents the investor-expected premium
10 of common stocks over the risk-free rate, or government bonds. For the purpose of
11 estimating the market risk premium, I considered alternative measures of returns of the
12 S&P 500 (a broad-based group of large U.S. companies) and 20-year U.S. Treasury
13 bonds.

14 First, I compared the actual annual returns on equity of the S&P 500 with the
15 actual annual yields of U.S. Treasury bonds. Schedule DCP-7 shows the return on equity
16 for the S&P 500 group for the period 1978-2010 (all available years reported by S&P).
17 This schedule also indicates the annual yields on 20-year U.S. Treasury bonds and the
18 annual differentials (*i.e.* risk premiums) between the S&P 500 and U.S. Treasury 20-year
19 bonds. Based upon these returns, I conclude that the risk premium from this analysis is
20 6.34 percent.

21 I next considered the total returns (*i.e.* dividends/interest plus capital gains/losses)
22 for the S&P 500 group as well as for long-term government bonds, as tabulated by
23 Morningstar (formerly Ibbotson Associates), using both arithmetic and geometric means.
24 I considered the total returns for the entire 1926-2010 period, which are as follows:

25

	<u>S&P 500</u>	<u>L-T Gov't Bonds</u>	<u>Risk Premium</u>
26 Arithmetic	11.9%	5.9%	6.0%
27 Geometric	9.9%	5.5%	4.4%

28 I conclude from this analysis that the expected risk premium is about 5.58 percent (*i.e.*
29 average of all three risk premiums: 6.34 percent from Schedule DCP-7; 6.0 percent
30 arithmetic and 4.4 percent geometric from Morningstar). I believe that a combination of
31 arithmetic and geometric means is appropriate since investors have access to both types

1 of means and presumably, both types are reflected in investment decisions and thus, stock
2 prices and the cost of capital.

3
4 **Q. WHAT ARE YOUR CAPM RESULTS?**

5 A. Schedule DCP-8 shows my CAPM calculations using this 5.58 percent risk premium.
6 The results are:

7
8

	<u>Mean</u>	<u>Median</u>
Value Line Water Group	6.8%	6.7%

9
10

11 **Q. WHAT IS YOUR CONCLUSION CONCERNING THE CAPM COE?**

12 A. The CAPM results collectively indicate a COE of 6.8 percent for the group of proxy
13 utilities. I conclude that an appropriate COE estimation for NJAWC is 6.8 percent.

14
15 **X. CE ANALYSIS**

16
17 **Q. PLEASE DESCRIBE THE BASIS OF THE CE METHODOLOGY.**

18 A. The CE method is derived from the "corresponding risk" concept discussed in the
19 Bluefield and Hope cases. This method is thus based upon the economic concept of
20 opportunity cost. As previously noted, the cost of capital is an opportunity cost: the
21 prospective return available to investors from alternative investments of similar risk.

22 The CE method is designed to measure the returns expected to be earned on the
23 original cost book value of similar risk enterprises. Thus, it provides a direct measure of
24 the fair return, since it translates into practice the competitive principle upon which
25 regulation rests.

26 The CE method normally examines the experienced and/or projected returns on
27 book common equity. The logic for examining returns on book equity follows from the
28 use of original cost rate base regulation for public utilities, which uses a utility's book
29 common equity to determine the cost of capital. This cost of capital is, in turn, used as
30 the fair rate of return which is then applied (multiplied) to the book value of rate base to

1 establish the dollar level of capital costs to be recovered by the utility. This technique is
2 thus consistent with the rate base methodology used to set utility rates.

3
4 **Q. HOW DO YOU APPLY THE CE METHODOLOGY IN YOUR ANALYSIS OF**
5 **NJAWC'S COMMON EQUITY COST?**

6 A. I apply the CE methodology by examining realized returns on equity for two groups of
7 companies and evaluating investor acceptance of these returns by reference to the
8 resulting market-to-book ratios. In this manner it is possible to assess the degree to
9 which a given level of return equates to the cost of capital. It is generally recognized for
10 utilities that market-to-book ratios of greater than one (*i.e.* 100 percent) reflect a situation
11 where a company is able to attract new equity capital without dilution (*i.e.* above book
12 value). As a result, one objective of a fair cost of equity is the maintenance of stock
13 prices at or above book value. There is no regulatory obligation to set rates designed to
14 maintain a market-to-book ratio significantly above one.

15 I further note that my CE analysis is based upon market data (through the use of
16 market-to-book ratios) and is thus essentially a market test. As a result, my CE analysis
17 is not subject to the criticisms occasionally made by some who maintain that past earned
18 returns do not represent the cost of capital. In addition, my CE analysis uses prospective
19 returns and thus is not backward looking.

20
21 **Q. WHAT TIME PERIODS DO YOU EXAMINE IN YOUR CE ANALYSIS?**

22 A. My CE analysis considers the experienced equity returns of the proxy groups of utilities
23 for the period 1992-2010 (*i.e.* the last nineteen years). The CE analysis requires that I
24 examine a relatively long period of time in order to determine trends in earnings over at
25 least a full business cycle. Further, in estimating a fair level of return for a future period,
26 it is important to examine earnings over a diverse period of time in order to avoid any
27 undue influence from unusual or abnormal conditions that may occur in a single year or
28 shorter period. Therefore, in forming my judgment of the current cost of equity, I
29 focused on two periods: 2002-2010 (the most recent business cycle) and 1992-2001 (the
30 previous business cycle).

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

Q. HOW CAN THE ABOVE INFORMATION BE USED TO ESTIMATE NJAWC'S COE?

A. The recent earnings of the proxy utilities and S&P 500 groups can be viewed as an indication of the level of return realized and expected in the regulated and competitive sectors of the economy. In order to apply these returns to the COE for the proxy utilities, however, it is necessary to compare the risk levels of the water utilities and the competitive companies. I do this in Schedule DCP-10, which compares several risk indicators for the S&P 500 group and the utility group. The information in Schedule DCP-10 indicates that the S&P 500 group is slightly more risky than the utility proxy group.

Q. WHAT COE IS INDICATED BY YOUR CE ANALYSIS?

A. Based on recent earnings and market-to-book ratios, my CE analysis indicates that the COE for the proxy utilities is no more than 9.5 percent to 10.5 percent. Recent returns of 9.5 percent to 11.4 percent have resulted in market-to-book ratios more than 170 percent. Prospective returns of 9.3 percent to 10.8 percent have been accompanied by market-to-book ratios over 180 percent. As a result, it is apparent that authorized returns below this level would continue to result in market-to-book ratios of well above 100 percent. An earned return of 9.5 percent to 10.5 percent should thus result in a market-to-book ratio well above 100 percent. As I indicated earlier, the fact that market-to-book ratios substantially exceed 100 percent indicates that historic and prospective returns of over 10.5 percent reflect earnings levels that are well above the actual cost of equity for those regulated companies. I also note that a company whose stock sells above book value can attract capital in a way that enhances the book value of existing stockholders, thus creating a favorable environment for financial integrity.

XI. RETURN ON EQUITY RECOMMENDATION

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR THREE COE ANALYSES.

A. My three analyses produce the following:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

DCF	9.0-10.0%	(9.5% midpoint)
CAPM	6.8%	
CE	9.5-10.5%	(10.0% mid-point)

These results indicate an overall broad range of 6.9 percent to 10.5 percent, which focuses on the respective ranges of my individual model results. Focusing on the respective midpoints, the range is 6.9 percent to 10.0 percent. I recommend a COE range of 9.5 percent to 10.0 percent for NJAWC. Though this recommendation is higher than my CAPM findings, it includes the mid-point of my DCF range (9.5 percent) and the mid-point of my CE range (10.0 percent). For the purposes of this proceeding, I recommend the mid-point of this range, which is 9.75 percent.

Q. IT APPEARS THAT YOUR CAPM RESULTS ARE SOMEWHAT LOWER THAN YOUR DCF RESULTS. DOES THIS INDICATE THAT THE CAPM RESULTS SHOULD NOT BE USED AT THIS TIME?

A. No, this is not the case. Although my recommended range is above the CAPM results, I have not disregarded the CAPM results. It is apparent that the CAPM results are lower than the DCF results, as well as being lower than CAPM results in recent years. The two reasons for this are the current relatively low yields on U.S. Treasury bonds (i.e., risk-free rate) and a lower risk premium that reflects the decline in stock prices of the past few years. However, these currently lower CAPM results are only one-half of the impact of recent economic conditions. The other impact is on the DCF results, which are somewhat higher currently due to the higher yields attributable to the decline in stock prices. It would not be proper to disregard the lower CAPM results while not discounting the higher DCF results.

XII. TOTAL COST OF CAPITAL

Q. WHAT IS THE TOTAL COST OF CAPITAL FOR NJAWC?

1 A. Schedule DCP-1 reflects the total cost of capital for NJAWC using the Company's
2 proposed capital structure and embedded cost of long-term debt and preferred stock, as
3 well as my COE recommendations. The resulting total cost of capital is a range of 7.70
4 percent to 7.96 percent. I recommend a 7.83 percent total cost of capital for NJAWC.
5

6 **Q. DOES YOUR COST OF CAPITAL RECOMMENDATION PROVIDE NJAWC**
7 **WITH A SUFFICIENT LEVEL OF EARNINGS TO MAINTAIN ITS FINANCIAL**
8 **INTEGRITY?**

9 A. Yes, it does. Schedule DCP-11 shows the pre-tax coverage that would result if NJAWC
10 earned my cost of capital recommendation. As the results indicate, the mid-point of my
11 recommended range produces a coverage level near the benchmark range for an A-rated
12 utility. In addition, the debt ratio is superior to the benchmark level for an A-rated utility.
13

14 **XIII. CRITIQUE OF COMPANY TESTIMONY**

15
16 **Q. WHAT COST OF CAPITAL HAS NJAWC REQUESTED IN ITS**
17 **APPLICATION?**

18 A. The Company's filing requests a total cost of capital of 8.74 percent, which incorporates
19 a cost of equity of 11.50 percent. The 11.50 percent requested cost of equity is developed
20 in the testimony of NJAWC witness Paul R. Moul.
21

22 **Q. PLEASE SUMMARIZE YOUR UNDERSTANDING OF MR. MOUL'S COST OF**
23 **EQUITY ANALYSES AND RECOMMENDATIONS.**

24 A. Mr. Moul's cost of equity analyses focus on four sets of studies, whose results are
25 summarized below:

	Cost of Equity Findings	
	Excl. Flot. Costs	Incl. Flot. Costs
Discounted Cash Flow Analysis	10.20%	10.40%
Risk Premium Analysis	11.50%	11.70%
Capital Asset Pricing Model Analysis	12.17%	12.37%
Comparable Earnings	11.90%	11.90%
Average	11.44%	11.59%

31 Mr. Moul recommends a cost of common equity for NJAWC of 11.50 percent.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

Q. DO YOU WISH TO COMMENT ON PORTIONS OF MR. MOUL'S TESTIMONY?

A. Yes. I will comment on each of the four methods Mr. Moul utilizes to determine the cost of common equity for NJAWC.

Q. PLEASE SUMMARIZE YOUR UNDERSTANDING OF MR. MOUL'S DCF ANALYSIS.

A. Mr. Moul performs DCF analyses for a group of nine water utilities. His results are as follows:

	<u>Water Group</u>
Yield	3.42%
Growth	6.00%
Leverage	0.78%
DCF	10.20%
Flotation	0.20%
DCF with Flotation	11.40%

Q. WHICH COMPONENTS OF MR. MOUL'S DCF ANALYSES DO YOU DISAGREE WITH?

A. I disagree with three of the components of Mr. Moul's DCF analyses. These are his proposed 6.0 percent growth rate, his 1.02 percent leverage adjustment, and his 0.20 percent flotation adjustment.

Q. WHAT COMMENTS DO YOU HAVE CONCERNING MR. MOUL'S GROWTH RATE RECOMMENDATION?

A. Mr. Moul recommends a 6.00 percent growth rate for his water group. It is evident that this conclusion substantially exceeds investor expectations and is not even supported by Mr. Moul's analyses. As is indicated on Mr. Moul's Schedules 10 and 11, most of the historic and projected growth rates of EPS, DPS, BVPS and cash flow per share (CFPS) are well below his recommendations. Of the eight historical growth rates he examined, only one is as high as 6.0 percent. Further, of the eight projected long-term growth rates he considered, only two are as high as 6.0 percent and two of these relates to EPS

1 projections. Mr. Moul's recommendation for 6.0 percent growth rate can thus only be
2 derived by relying on three of sixteen growth indicators he examined. Further, of the few
3 growth rates that are as high as 6.0 percent, most of these are EPS projections.
4

5 **Q. WHY IS IT IMPROPER TO RELY PRIMARILY ON EPS PROJECTIONS AS**
6 **THE GROWTH RATE IN A DCF ANALYSIS?**

7 A. There are several reasons why it is not proper to rely exclusively on analysts' forecasts in
8 a DCF context.

9 First, it is not realistic to believe that investors rely exclusively on a single factor,
10 such as analysts' forecasts, in making their investment decisions. Investors have an
11 abundance of available information to assist them in evaluating stocks, and EPS forecasts
12 are only one of many such statistics.

13 Second, Value Line, one of the sources of EPS projections, publishes a large
14 number of individual company data and ratios. Presumably these are published for the
15 consideration of subscribers/investors. It is also apparent that Value Line publishes both
16 historic and forecast data – yet Mr. Moul considers only one factor and only the forecast
17 version of this factor.

18 Third, the vast majority of information available to investors, by both individual
19 companies in the form of annual reports and offering circulars, and by investment
20 publications such as Value Line, is historic data. It is neither realistic nor logical to
21 maintain that investors only consider projected (estimated) data to the exclusion of
22 historic (actual) data.

23 Fourth, the experience over the past four years should be a clear signal to
24 investors that analysts cannot accurately predict EPS levels. Hardly any security analysts
25 predicted the decline in profits that occurred in 2008 and 2009 to-date.

26 In summary, investors are now very much aware of the accuracy of recent
27 predictions of security analysts. These problems clearly call into question the reliance of
28 analysts' forecasts as the only source of growth in a DCF context. The landscape has
29 changed in recent years, and investors have ample reasons to doubt the reliability of such
30 forecasts at the present time.
31

1 **Q. ARE YOU AWARE OF ANY RECENT ANALYSES AND COMMENTS ON THE**
2 **ACCURACY OF ANALYSTS' FORECASTS?**

3 A. Yes, I am. A 2010 study by McKinsey & Company, titled "Equity Analysts: Still Too
4 Bullish" concluded that "after almost a decade of stricter regulation, analysts' earnings
5 forecasts continue to be excessively optimistic." I have attached a copy of this study as
6 Schedule DCP-13. The significance of this study, as well as the points I raised
7 previously, is that investors should be hesitant to rely exclusively on analysts' forecasts in
8 making investment decisions.

9
10 **Q. DO YOU HAVE ANY COMMENTS CONCERNING MR. MOUL'S PROPOSED**
11 **LEVERAGE ADJUSTMENT?**

12 A. Yes. Mr. Moul is proposing a "leverage adjustment," which is essentially an adjustment
13 to the DCF cost rate to offset Mr. Moul's concern that the divergence of stock prices
14 from book values creates a conflict when the results of a market-derived cost of equity
15 are applied to the common equity ratio measured at book value. Mr. Moul further claims
16 that the existence of utility stock prices above book value creates greater financial risk for
17 a book value capital structure versus a market value capital structure since the book value
18 capital structure has a lower common equity ratio than the market value capital structure.
19 As a result, Mr. Moul claims that because the ratesetting process utilizes the book value
20 capitalization, when computing the weighted average cost of capital, it is necessary to
21 adjust the market-determined cost of equity for the higher financial risk related to the
22 book value of the capitalization. Mr. Moul employs a formula to quantify the differential
23 between the book value and market value capital structure and concludes a 1.02 percent
24 upward adjustment to the DCF cost of equity is warranted.

25 I strongly disagree with Mr. Moul's proposed adjustment. Investors are well
26 aware that water utilities have their rates established based upon the book value of their
27 assets (rate base) and capitalization. As a result, investors are not expecting a regulatory
28 award on any other basis, nor should they be compensated for any difference between the
29 book value and market value of their common equity.

1 I further note that, during the depressed stock price period of the 1970's and early
2 1980's, utility witnesses did not propose any negative leverage adjustments to lower the
3 DCF cost of equity for the fact that utility market-to-book ratios were below 100 percent.
4

5 **Q. PLEASE SUMMARIZE MR. MOUL'S RISK PREMIUM ANALYSIS.**

6 A. Mr. Moul performs his risk premium analysis by combining the prospective yield on
7 long-term A-rated public utility bonds (6.00 percent) with a 5.50 percent risk premium to
8 derive a 11.50 percent cost of equity, which then adds 0.20 percent for flotation.

9 I primarily disagree with the risk premium components of Mr. Moul's risk
10 premium method. His proposed risk premium is excessive and his conclusion thus over-
11 states the cost of equity for NJAWC.
12

13 **Q. PLEASE COMMENT ON MR. MOUL'S 5.50 PERCENT RISK PREMIUM.**

14 A. Mr. Moul's risk premium conclusion of 5.50 percent was developed by computing total
15 returns (dividends/interest income plus capital gains/losses) for various classes of
16 securities over various periods of time dating back to 1928 and ending in 2007.

17 On page 48 and Schedule 18 of Mr. Moul's testimony, he first averages his risk
18 premium findings over four periods, and concludes that 6.23 percent is the "reasonable
19 risk premium" for the S&P utilities. Based upon "differences in risk characteristics"
20 between the S&P Public Utilities group and the water group, he concludes that 5.50
21 percent is a reasonable equity risk premium for this case, which represents 88 percent of
22 the risk premium of the S&P Utilities Group.

23 Mr. Moul's risk premium analyses are based on an erroneous assumption that past
24 relationships between stock returns and bond returns are expected to prevail in the future.
25 My Schedule DCP-12 shows that the relationship between stock and bond returns has
26 been very volatile over the periods examined by Mr. Moul. In fact the decade of the
27 1990's (most recent decade shown) showed an average differential (i.e. risk premium) of
28 only 1.57 percent. This demonstrates that risk premiums are volatile in nature and vary
29 substantially over various time periods. As a result, risk premiums such as those
30 proposed by Mr. Moul should not be relied upon to estimate utility cost of capital. I also
31 note that Mr. Moul's Schedule 18 does not include 2008, 2009 and 2010 data. It is

1 evident, given the decline in the equity markets in 2008 and 2009, that the years 2008 and
2 2009 will show large negative returns. This will impact Mr. Moul's risk premiums in a
3 downward manner.

4
5 **Q. PLEASE SUMMARIZE MR. MOUL'S CAPM METHOD.**

6 A. Mr. Moul's CAPM method has the following results:

$$R_f + \beta(R_m - R_f) = k + size + adj. + flot. = K$$

$$4.75\% + 0.86 \times 7.23\% = 10.97\% + 1.20\% + 0.20\% = 12.37\%$$

7
8
9
10 **Q. DO YOU AGREE WITH MR. MOUL'S 4.75 PERCENT RISK-FREE RATE?**

11 A. No, I do not. Current yields on long-term U.S. Treasury bonds are well below 4.75
12 percent, and in fact are below 3 percent.

13
14 **Q. DO YOU HAVE ANY COMMENTS CONCERNING MR. MOUL'S
15 "LEVERAGED" BETA?**

16 A. Yes, I do. Mr. Moul claims that "Value Line betas cannot be used directly in the CAPM,
17 unless those betas are applied to a capital structure measured with market values." He,
18 therefore, employs a formula to adjust Value Line published betas to reflect tax rates and
19 market value capital structures. The impact of this adjustment is to raise the average beta
20 value for his water group from 0.72 to 0.86.

21 I disagree with this adjustment. In essence, this is a similar adjustment to his
22 "leverage adjustment" in his DCF analysis. The same reasons I stated in my response to
23 this DCF adjustment apply to his CAPM leverage adjustment.

24
25 **Q. PLEASE COMMENT ON MR. MOUL'S RISK PREMIUM.**

26 A. Mr. Moul's 7.23 percent risk premium ($R_m - R_f$) was developed from two types of
27 analyses. First, he estimates the total market forecast return for the 1,700 stocks followed
28 by Value Line (13.48 percent) and the S&P 500 index (12.20 percent) in comparison to
29 his forecast of Treasury bonds (4.75 percent), as well as a similar calculation for the
30 difference in these two numbers is 8.10 percent. He also computes the 1926-2010 risk
31 premium based upon the Ibbotson Associates total return (6.35 percent).

1 If the expected return of the 1,700 Value Line stocks and S&P 500 is indeed
2 12.20 percent or greater, then it is improper to maintain that a less risky company, such as
3 NJAWC, should have the same cost of equity. Yet, this is what Mr. Moul assumes.

4 Mr. Moul's second risk premium estimate, 6.35 percent from Ibbotson Associates
5 for the period 1926-2010, has the same problems I described earlier in connection with
6 Mr. Moul's risk premium analysis.

7
8 **Q. PLEASE SUMMARIZE MR. MOUL'S COMPARABLE EARNINGS METHOD.**

9 A. Mr. Moul's comparable earnings analysis examines the historic and forecasted returns for
10 non-utility companies which he perceives as being of similar risk to his water group. For
11 these companies he calculated a 5-year historic mean and average return on equity of
12 11.6 percent and a forecasted return of 12.2 percent, which average 11.9 percent, his
13 comparable earnings conclusion.

14 I believe this analysis is an improper mechanism for estimating the cost of
15 common equity for NJAWC. The equivalence of timeliness, safety, financial strength,
16 price stability, beta, and technical rank does not indicate that the expected earnings and
17 cost of common equity for these non-utilities and utilities are the same. The 5-year
18 historic and projected 3-5 year returns for the non-utilities is 12.2 percent and 11.9
19 percent respectively in Mr. Moul's Schedule 26, whereas the 5-year historic and expected
20 returns for Mr. Moul's proxy group of water utility companies is only 9.5 percent and
21 10.8 percent (my Schedule DCP-8). This difference in returns demonstrates that utilities
22 are able to maintain similar Value Line rankings to non-utilities while earning lower
23 returns. This result indicates that the expected earnings for the non-utilities are greater
24 than for utilities such as NJAWC.

25 **Q. DOES THIS COMPLETE YOUR TESTIMONY?**

26 A. Yes, it does.

ATTACHMENT 1 – QUALIFICATIONS

BACKGROUND AND EXPERIENCE PROFILE
DAVID C. PARCELL, MBA, CRRA
PRESIDENT/SENIOR ECONOMIST

EDUCATION

1985	M.B.A., Virginia Commonwealth University
1970	M.A., Economics, Virginia Polytechnic Institute and State University, (Virginia Tech)
1969	B.A., Economics, Virginia Polytechnic Institute and State University, (Virginia Tech)

POSITIONS

2007-Present	President, Technical Associates, Inc.
1995-2007	Executive Vice President and Senior Economist, Technical Associates, Inc.
1993-1995	Vice President and Senior Economist, C. W. Amos of Virginia
1972-1993	Vice President and Senior Economist, Technical Associates, Inc.
1969-1972	Research Economist, Technical Associates, Inc.
1968-1969	Research Associate, Department of Economics, Virginia Polytechnic Institute and State University

ACADEMIC HONORS

Omicron Delta Epsilon - Honor Society in Economics
Beta Gamma Sigma - National Scholastic Honor Society of Business Administration
Alpha Iota Delta - National Decision Sciences Honorary Society
Phi Kappa Phi - Scholastic Honor Society

PROFESSIONAL DESIGNATIONS

Certified Rate of Return Analyst - Founding Member

RELEVANT EXPERIENCE

Financial Economics -- Advised and assisted many Virginia banks and savings and loan associations on organizational and regulatory matters. Testified approximately 25 times before the Virginia State Corporation Commission and the Regional Administrator of National Banks on matters related to branching and organization for banks, savings and loan associations, and consumer finance companies. Advised financial institutions on interest rate structure and loan maturity. Testified before Virginia State Corporation Commission on maximum rates for consumer finance companies.

Testified before several committees and subcommittees of Virginia General Assembly on numerous banking matters.

Clients have included First National Bank of Rocky Mount, Patrick Henry National Bank, Peoples Bank of Danville, Blue Ridge Bank, Bank of Essex, and Signet Bank.

Published articles in law reviews and other periodicals on structure and regulation of banking/financial services industry.

Utility Economics -- Performed numerous financial studies of regulated public utilities. Testified in over 300 cases before some thirty state and federal regulatory agencies.

Prepared numerous rate of return studies incorporating cost of equity determination based on DCF, CAPM, comparable earnings and other models. Developed procedures for identifying differential risk characteristics by nuclear construction and other factors.

Conducted studies with respect to cost of service and indexing for determining utility rates, the development of annual review procedures for regulatory control of utilities, fuel and power plant cost recovery adjustment clauses, power supply agreements among affiliates, utility franchise fees, and use of short-term debt in capital structure.

Presented expert testimony before federal regulatory agencies Federal Energy Regulatory Commission, Federal Power Commission, and National Energy Board (Canada), state regulatory agencies in Alabama, Alaska, Arizona, Arkansas, California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, Ohio, Oklahoma, Ontario (Canada), Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, West Virginia, Washington, Wisconsin, and Yukon Territory (Canada).

Published articles in law reviews and other periodicals on the theory and purpose of regulation and other regulatory subjects.

Clients served include state regulatory agencies in Alaska, Arizona, Delaware, Missouri, North Carolina, Ontario (Canada), and Virginia; consumer advocates and attorneys general in Alabama, Arizona, District of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Maryland, Nevada, New Mexico, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Virginia, and West Virginia; federal agencies including Defense Communications Agency, the Department of Energy, Department of the Navy, and General Services Administration; and various organizations such as Bath Iron Works, Illinois Citizens' Utility Board, Illinois Governor's Office of Consumer Services, Illinois Small Business Utility Advocate, Wisconsin's Environmental Decade, Wisconsin's Citizens Utility Board, and Old Dominion Electric Cooperative.

Insurance Economics -- Conducted analyses of the relationship between the investment income earned by insurance companies on their portfolios and the premiums charged for insurance. Analyzed impact of diversification on financial strength of Blue Cross/Blue Shield Plans in Virginia.

Conducted studies of profitability and cost of capital for property/casualty insurance industry. Evaluated risk of and required return on surplus for various lines of insurance business.

Presented expert testimony before Virginia State Corporation Commission concerning cost of capital and expected gains from investment portfolio. Testified before insurance bureaus of Maine, New Jersey, North Carolina, Rhode Island, South Carolina and Vermont concerning cost of equity for insurance companies.

Prepared cost of capital and investment income return analyses for numerous insurance companies concerning several lines of insurance business. Analyses used by Virginia Bureau of Insurance for purposes of setting rates.

Special Studies -- Conducted analyses which evaluated the financial and economic implications of legislative and administrative changes. Subject matter of analyses include returnable bottles, retail beer sales, wine sales regulations, taxi-cab taxation, and bank regulation. Testified before several Virginia General Assembly subcommittees.

Testified before Virginia ABC Commission concerning economic impact of mixed beverage license.

Clients include Virginia Beer Wholesalers, Wine Institute, Virginia Retail Merchants Association, and Virginia Taxicab Association.

Franchise, Merger & Anti-Trust Economics -- Conducted studies on competitive impact on market structures due to joint ventures, mergers, franchising and other business restructuring. Analyzed the costs and benefits to parties involved in mergers. Testified in federal courts and before banking and other regulatory bodies concerning the structure and performance of markets, as well as on the impact of restrictive practices.

Clients served include Dominion Bankshares, asphalt contractors, and law firms.

Transportation Economics -- Conducted cost of capital studies to assess profitability of oil pipelines, trucks, taxicabs and railroads. Analyses have been presented before the Federal Energy Regulatory Commission and Alaska Pipeline Commission in rate proceedings. Served as a consultant to the Rail Services Planning Office on the reorganization of rail services in the U.S.

Economic Loss Analyses -- Testified in federal courts, state courts, and other adjudicative forums regarding the economic loss sustained through personal and business injury whether due to bodily harm, discrimination, non-performance, or anticompetitive practices. Testified on economic loss to a commercial bank resulting from publication of adverse information concerning solvency. Testimony has been presented on behalf of private individuals and

business firms.

MEMBERSHIPS

American Economic Association
Virginia Association of Economists
Richmond Society of Financial Analysts
Financial Analysts Federation
Society of Utility and Regulatory Financial Analysts
Board of Directors 1992-2000
Secretary/Treasurer 1994-1998
President 1998-2000

RESEARCH ACTIVITY

Books and Major Research Reports

"Stock Price As An Indicator of Performance," Master of Arts Thesis, Virginia Tech, 1970

"Revision of the Property and Casualty Insurance Ratemaking Process Under Prior Approval in the Commonwealth of Virginia," prepared for the Bureau of Insurance of the Virginia State Corporation Commission, with Charles Schotta and Michael J. Ileo, 1971

"An analysis of the Virginia Consumer Finance Industry to Determine the Need for Restructuring the Rate and Size Ceilings on Small Loans in Virginia and the Process by which They are Governed," prepared for the Virginia Consumer Finance Association, with Michael J. Ileo, 1973

State Banks and the State Corporation Commission: A Historical Review, Technical Associates, Inc., 1974

"A Study of the Implications of the Sale of Wine by the Virginia Department of Alcoholic Beverage Control", prepared for the Virginia Wine Wholesalers Association, Virginia Retail Merchants Association, Virginia Food Dealers Association, Virginia Association of Chain Drugstores, Southland Corporation, and the Wine Institute, 1983.

"Performance and Diversification of the Blue Cross/Blue Shield Plans in Virginia: An Operational Review", prepared for the Bureau of Insurance of the Virginia State Corporation Commission, with Michael J. Ileo and Alexander F. Skirpan, 1988.

The Cost of Capital - A Practitioners' Guide, Society of Utility and Regulatory Financial Analysts, 1997 (previous editions in 1991, 1992, 1993, 1994, and 1995).

Papers Presented and Articles Published

"The Differential Effect of Bank Structure on the Transmission of Open Market Operations," Western Economic Association Meeting, with Charles Schotta, 1971

"The Economic Objectives of Regulation: The Trend in Virginia," (with Michael J. Ileo), William and Mary Law Review, Vol. 14, No. 2, 1973

"Evolution of the Virginia Banking Structure, 1962-1974: The Effects of the Buck-Holland Bill", (with Michael J. Ileo), William and Mary Law Review, Vol. 16, No. 3, 1975

"Banking Structure and Statewide Branching: The Potential for Virginia", William and Mary Law Review, Vol. 18, No. 1, 1976

"Bank Expansion and Electronic Banking: Virginia Banking Structure Changes Past, Present, and Future," William and Mary Business Review," Vol. 1, No. 2, 1976

"Electronic Banking - Wave of the Future?" (with James R. Marchand), Journal of Management and Business Consulting, Vol. 1, No. 1, 1976

"The Pricing of Electricity" (with James R. Marchand), Journal of Management and Business Consulting, Vol. 1, No. 2, 1976

"The Public Interest - Bank and Savings and Loan Expansion in Virginia" (with Richard D. Rogers), University of Richmond Law Review, Vol. 11, No. 3, 1977

"When Is It In the 'Public Interest' to Authorize a New Bank?", University of Richmond Law Review, Vol. 13, No. 3, 1979

"Banking Deregulation and Its Implications on the Virginia Banking Structure," William and Mary Business Review, Vol. 5, No. 1, 1983

"The Impact of Reciprocal Interstate Banking Statutes on The Performance of Virginia Bank Stocks", with William B. Harrison, Virginia Social Science Journal, Vol. 23, 1988

"The Financial Performance of New Banks in Virginia", Virginia Social Science Journal, Vol. 24, 1989

"Identifying and Managing Community Bank Performance After Deregulation", with William B. Harrison, Journal of Managerial Issues, Vol. II, No. 2, Summer 1990

"The Flotation Cost Adjustment To Utility Cost of Common Equity - Theory, Measurement and Implementation," presented at Twenty-Fifth Financial Forum, National

Society of Rate of Return Analysts, Philadelphia, Pennsylvania, April 28, 1993.

Biography of Myon Edison Bristow, Dictionary of Virginia Biography, Volume 2, 2001.

DAVID C. PARCELL

SCHEDULES

DCP 1 through 13

NEW JERSEY AMERICAN WATER COMPANY
TOTAL COST OF CAPITAL
(000)

Item	Percent 1/	Cost			Weighted Cost		
Long-Term Debt	47.97%	5.75%	2/		2.76%		
Preferred Stock	0.03%	4.74%	2/		0.00%		
Common Equity	52.00%	9.50%	--	10.00%	4.94%	--	5.20%
Total	100.00%				7.70%	--	7.96%
						7.83%	
						(Mid-point)	

1/ Estimated as of July 31, 2012.

2/ Estimated July 31, 2012 costs of long-term debt and preferred stock.

ECONOMIC INDICATORS

Year	Real GDP* Growth	Industrial Production Growth	Unemployment Rate	Consumer Price Index	Producer Price Index
1975 - 1982 Cycle					
1975	-1.1%	-8.9%	8.5%	7.0%	6.6%
1976	5.4%	10.8%	7.7%	4.8%	3.7%
1977	5.5%	5.9%	7.0%	6.8%	6.9%
1978	5.0%	5.7%	6.0%	9.0%	9.2%
1979	2.8%	4.4%	5.8%	13.3%	12.8%
1980	-0.2%	-1.9%	7.0%	12.4%	11.8%
1981	1.8%	1.9%	7.5%	8.9%	7.1%
1982	-2.1%	-4.4%	9.5%	3.8%	3.6%
1983 - 1991 Cycle					
1983	4.0%	3.7%	9.5%	3.8%	0.6%
1984	6.8%	9.3%	7.5%	3.9%	1.7%
1985	3.7%	1.7%	7.2%	3.8%	1.8%
1986	3.1%	0.9%	7.0%	1.1%	-2.3%
1987	2.9%	4.9%	6.2%	4.4%	2.2%
1988	3.8%	4.5%	5.5%	4.4%	4.0%
1989	3.5%	1.8%	5.3%	4.6%	4.9%
1990	1.8%	-0.2%	5.6%	6.1%	5.7%
1991	-0.5%	-2.0%	6.8%	3.1%	-0.1%
1992 - 2001 Cycle					
1992	3.0%	3.1%	7.5%	2.9%	1.6%
1993	2.7%	3.4%	6.9%	2.7%	0.2%
1994	4.0%	5.5%	6.1%	2.7%	1.7%
1995	3.7%	4.8%	5.6%	2.5%	2.3%
1996	4.5%	4.3%	5.4%	3.3%	2.8%
1997	4.5%	7.3%	4.9%	1.7%	-1.2%
1998	4.2%	5.8%	4.5%	1.6%	0.0%
1999	3.7%	4.5%	4.2%	2.7%	2.9%
2000	4.1%	4.0%	4.0%	3.4%	3.6%
2001	1.1%	-3.4%	4.7%	1.6%	-1.6%
2002 - 2009 Cycle					
2002	1.8%	0.2%	5.8%	2.4%	1.2%
2003	2.5%	1.3%	6.0%	1.9%	4.0%
2004	3.5%	2.3%	5.5%	3.3%	4.2%
2005	3.1%	3.2%	5.1%	3.4%	5.4%
2006	2.7%	2.2%	4.6%	2.5%	1.1%
2007	1.9%	2.7%	4.6%	4.1%	6.2%
2008	-0.3%	-3.7%	5.8%	0.1%	-0.9%
2009	-3.5%	-11.2%	9.3%	2.7%	4.3%
Current Cycle					
2010	3.0%	5.3%	9.6%	1.5%	3.8%

*GDP=Gross Domestic Product

Source: Council of Economic Advisors, Economic Indicators, various issues.

ECONOMIC INDICATORS

Year	Real GDP* Growth	Industrial Production Growth	Unemployment Rate	Consumer Price Index	Producer Price Index
2002					
1st Qtr.	2.7%	-3.8%	5.6%	2.8%	4.4%
2nd Qtr.	2.2%	-1.2%	5.9%	0.9%	-2.0%
3rd Qtr.	2.4%	0.8%	5.8%	2.4%	1.2%
4th Qtr.	0.2%	1.4%	5.9%	1.6%	0.4%
2003					
1st Qtr.	1.2%	1.1%	5.8%	4.8%	5.6%
2nd Qtr.	3.5%	-0.9%	6.2%	0.0%	-0.5%
3rd Qtr.	7.5%	-0.9%	6.1%	3.2%	3.2%
4th Qtr.	2.7%	1.5%	5.9%	-0.3%	2.8%
2004					
1st Qtr.	3.0%	2.8%	5.6%	5.2%	5.2%
2nd Qtr.	3.5%	4.9%	5.6%	4.4%	4.4%
3rd Qtr.	3.6%	4.6%	5.4%	0.8%	0.8%
4th Qtr.	2.5%	4.3%	5.4%	3.6%	7.2%
2005					
1st Qtr.	4.1%	3.8%	5.3%	4.4%	5.6%
2nd Qtr.	1.7%	3.0%	5.1%	1.6%	-0.4%
3rd Qtr.	3.1%	2.7%	5.0%	8.8%	14.0%
4th Qtr.	2.1%	2.9%	4.9%	-2.0%	4.0%
2006					
1st Qtr.	5.4%	3.4%	4.7%	4.8%	-0.2%
2nd Qtr.	1.4%	4.5%	4.6%	4.8%	5.6%
3rd Qtr.	0.1%	5.2%	4.7%	0.4%	-4.4%
4th Qtr.	3.0%	3.5%	4.5%	0.0%	3.6%
2007					
1st Qtr.	0.9%	2.5%	4.5%	4.8%	6.4%
2nd Qtr.	3.2%	1.6%	4.5%	5.2%	6.8%
3rd Qtr.	2.3%	1.8%	4.6%	1.2%	1.2%
4th Qtr.	2.9%	1.7%	4.8%	6.4%	10.8%
2008					
1st Qtr.	-1.8%	1.9%	4.9%	2.8%	9.6%
2nd Qtr.	1.3%	0.2%	5.3%	7.6%	14.0%
3rd Qtr.	-3.7%	-3.0%	6.0%	2.8%	-0.4%
4th Qtr.	-8.9%	6.0%	6.9%	-13.2%	-28.4%
2009					
1st Qtr.	-6.7%	-11.6%	8.1%	2.4%	-0.4%
2nd Qtr.	-0.7%	-12.9%	9.3%	3.2%	9.2%
3rd Qtr.	1.7%	-9.3%	9.6%	2.0%	-0.8%
4th Qtr.	3.8%	-4.5%	10.0%	2.5%	8.8%
2010					
1st Qtr.	3.9%	2.7%	9.7%	0.9%	6.5%
2nd Qtr.	3.8%	6.5%	9.7%	-1.2%	-2.4%
3rd Qtr.	2.5%	6.9%	9.6%	2.8%	4.0%
4th Qtr.	2.3%	6.2%	9.6%	2.8%	9.2%
2011					
1st Qtr.	0.4%	5.4%	8.9%	5.6%	8.8%
2nd Qtr.	1.3%	4.4%	9.1%	1.6%	2.8%
3rd Qtr.	2.5%	3.3%	9.1%	4.8%	4.0%

*GDP=Gross Domestic Product

Source: Council of Economic Advisors, Economic Indicators, various issues.

INTEREST RATES

Year	Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aaa	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
1975 - 1982 Cycle							
1975	7.86%	5.84%	7.99%	9.03%	9.44%	10.09%	10.96%
1976	6.84%	4.99%	7.61%	8.63%	8.92%	9.29%	9.82%
1977	6.83%	5.27%	7.42%	8.19%	8.43%	8.61%	9.06%
1978	9.06%	7.22%	8.41%	8.87%	9.10%	9.29%	9.62%
1979	12.67%	10.04%	9.44%	9.86%	10.22%	10.49%	10.96%
1980	15.27%	11.51%	11.46%	12.30%	13.00%	13.34%	13.95%
1981	18.89%	14.03%	13.93%	14.64%	15.30%	15.95%	16.60%
1982	14.86%	10.69%	13.00%	14.22%	14.79%	15.86%	16.45%
1983 - 1991 Cycle							
1983	10.79%	8.63%	11.10%	12.52%	12.83%	13.66%	14.20%
1984	12.04%	9.58%	12.44%	12.72%	13.66%	14.03%	14.53%
1985	9.93%	7.48%	10.62%	11.68%	12.06%	12.47%	12.96%
1986	8.33%	5.98%	7.68%	8.92%	9.30%	9.58%	10.00%
1987	8.21%	5.82%	8.39%	9.52%	9.77%	10.10%	10.53%
1988	9.32%	6.69%	8.85%	10.05%	10.26%	10.49%	11.00%
1989	10.87%	8.12%	8.49%	9.32%	9.56%	9.77%	9.97%
1990	10.01%	7.51%	8.55%	9.45%	9.65%	9.86%	10.06%
1991	8.46%	5.42%	7.86%	8.85%	9.09%	9.36%	9.55%
1992 - 2001 Cycle							
1992	6.25%	3.45%	7.01%	8.19%	8.55%	8.69%	8.86%
1993	6.00%	3.02%	5.87%	7.29%	7.44%	7.59%	7.91%
1994	7.15%	4.29%	7.09%	8.07%	8.21%	8.31%	8.63%
1995	8.83%	5.51%	6.57%	7.68%	7.77%	7.89%	8.29%
1996	8.27%	5.02%	6.44%	7.48%	7.57%	7.75%	8.16%
1997	8.44%	5.07%	6.35%	7.43%	7.54%	7.60%	7.95%
1998	8.35%	4.81%	5.26%	6.77%	6.91%	7.04%	7.26%
1999	8.00%	4.66%	5.65%	7.21%	7.51%	7.62%	7.88%
2000	9.23%	5.85%	6.03%	7.88%	8.06%	8.24%	8.36%
2001	6.91%	3.44%	5.02%	7.47%	7.59%	7.78%	8.02%
2002 - 2009 Cycle							
2002	4.67%	1.62%	4.61%		[1] 7.19%	7.37%	8.02%
2003	4.12%	1.01%	4.01%		6.40%	6.58%	6.84%
2004	4.34%	1.38%	4.27%		6.04%	6.16%	6.40%
2005	6.19%	3.16%	4.29%		5.44%	5.65%	5.93%
2006	7.96%	4.73%	4.80%		5.84%	6.07%	6.32%
2007	8.05%	4.41%	4.63%		5.94%	6.07%	6.33%
2008	5.09%	1.48%	3.66%		6.18%	6.53%	7.25%
2009	3.25%	0.16%	3.26%		5.75%	6.04%	7.06%
Current Cycle							
2010	3.25%	0.14%	3.22%		5.24%	5.46%	5.96%

[1] Note: Moody's has not published Aaa utility bond yields since 2001.

Sources: Council of Economic Advisors, Economic Indicators; Moody's Bond Record; Federal Reserve Bulletin; various issues.

INTEREST RATES

	Prime Rate	US Treasury T Bills 3 Month	US Treasury T Bonds 10 Year	Utility Bonds Aaa [1]	Utility Bonds Aa	Utility Bonds A	Utility Bonds Baa
2006							
Jan	7.50%	4.20%	4.42%		5.50%	5.75%	6.06%
Feb	7.50%	4.41%	4.57%		5.55%	5.82%	6.11%
Mar	7.75%	4.51%	4.72%		5.71%	5.98%	6.28%
Apr	7.75%	4.59%	4.99%		6.02%	6.29%	6.54%
May	8.00%	4.72%	5.11%		6.16%	6.42%	6.59%
June	8.25%	4.79%	5.11%		6.16%	6.40%	6.61%
July	8.25%	4.98%	5.09%		6.13%	6.37%	6.61%
Aug	8.25%	4.98%	4.88%		5.97%	6.20%	6.43%
Sept	8.25%	4.82%	4.72%		5.81%	6.00%	6.26%
Oct	8.25%	4.89%	4.73%		5.80%	5.98%	6.24%
Nov	8.25%	4.95%	4.80%		5.61%	5.80%	6.04%
Dec	8.25%	4.85%	4.56%		5.62%	5.81%	6.05%
2007							
Jan	8.25%	4.96%	4.76%		5.78%	5.98%	6.16%
Feb	8.25%	5.02%	4.72%		5.73%	5.90%	6.10%
Mar	8.25%	4.97%	4.56%		5.68%	5.85%	6.10%
Apr	8.25%	4.88%	4.69%		5.83%	5.97%	6.24%
May	8.25%	4.77%	4.75%		5.98%	5.99%	6.23%
June	8.25%	4.63%	5.10%		6.18%	6.30%	6.54%
July	8.25%	4.84%	5.00%		6.11%	6.25%	6.49%
Aug	8.25%	4.34%	4.67%		6.11%	6.24%	6.51%
Sept	7.75%	4.01%	4.52%		6.10%	6.18%	6.45%
Oct	7.50%	3.97%	4.53%		6.04%	6.11%	6.36%
Nov	7.50%	3.49%	4.15%		5.87%	5.97%	6.27%
Dec	7.25%	3.08%	4.10%		6.03%	6.16%	6.51%
2008							
Jan	6.00%	2.86%	3.74%		5.87%	6.02%	6.35%
Feb	6.00%	2.21%	3.74%		6.04%	6.21%	6.60%
Mar	5.25%	1.38%	3.51%		5.99%	6.21%	6.68%
Apr	5.00%	1.32%	3.68%		5.99%	6.29%	6.82%
May	5.00%	1.71%	3.88%		6.07%	6.27%	6.79%
June	5.00%	1.90%	4.10%		6.19%	6.38%	6.93%
July	5.00%	1.72%	4.01%		6.13%	6.40%	6.97%
Aug	5.00%	1.79%	3.69%		6.09%	6.37%	6.98%
Sept	5.00%	1.46%	3.69%		6.13%	6.49%	7.15%
Oct	4.00%	0.84%	3.81%		6.95%	7.56%	8.58%
Nov	4.00%	0.30%	3.53%		6.83%	7.60%	8.98%
Dec	3.25%	0.04%	2.42%		6.93%	6.54%	8.13%
2009							
Jan	3.25%	0.12%	2.52%		6.01%	6.39%	7.90%
Feb	3.25%	0.31%	2.87%		6.11%	6.30%	7.74%
Mar	3.25%	0.25%	2.82%		6.14%	6.42%	8.00%
Apr	3.25%	0.17%	2.93%		6.20%	6.48%	8.03%
May	3.25%	0.15%	3.29%		6.23%	6.49%	7.76%
June	3.25%	0.17%	3.72%		6.13%	6.20%	7.30%
July	3.25%	0.19%	3.56%		5.63%	5.97%	6.87%
Aug	3.25%	0.18%	3.59%		5.33%	5.71%	6.36%
Sept	3.25%	0.13%	3.40%		5.15%	5.53%	6.12%
Oct	3.25%	0.08%	3.39%		5.23%	5.55%	6.14%
Nov	3.25%	0.05%	3.40%		5.33%	5.64%	6.18%
Dec	3.25%	0.07%	3.59%		5.52%	5.79%	6.26%
2010							
Jan	3.25%	0.08%	3.73%		5.56%	5.77%	6.16%
Feb	3.25%	0.10%	3.69%		5.69%	5.87%	6.25%
Mar	3.25%	0.15%	3.73%		5.64%	5.84%	6.22%
Apr	3.25%	0.15%	3.85%		5.82%	5.81%	6.19%
May	3.25%	0.16%	3.42%		5.29%	5.50%	5.97%
June	3.25%	0.12%	3.20%		5.22%	5.46%	6.18%
July	3.25%	0.18%	3.01%		4.99%	5.26%	5.98%
Aug	3.25%	0.15%	2.70%		4.75%	5.01%	5.55%
Sept	3.25%	0.15%	2.65%		4.74%	5.01%	5.53%
Oct	3.25%	0.13%	2.54%		4.89%	5.10%	5.62%
Nov	3.25%	0.13%	2.76%		5.12%	5.37%	5.85%
Dec	3.25%	0.15%	3.29%		5.32%	5.56%	6.04%
2011							
Jan	3.25%	0.15%	3.39%		5.29%	5.57%	6.06%
Feb	3.25%	0.14%	3.58%		5.42%	5.68%	6.10%
Mar	3.25%	0.11%	3.41%		5.33%	5.56%	5.97%
Apr	3.25%	0.06%	3.46%		5.32%	5.55%	5.98%
May	3.25%	0.04%	3.17%		5.08%	5.32%	5.74%
June	3.25%	0.04%	3.00%		5.04%	5.26%	5.67%
July	3.25%	0.03%	3.00%		5.05%	5.27%	5.70%
Aug	3.25%	0.05%	2.30%		4.44%	4.69%	5.22%
Sept	3.25%	0.02%	1.98%		4.24%	4.48%	5.11%
Oct	3.25%	0.02%	2.15%		4.21%	4.52%	5.24%
Nov	3.25%	0.01%	2.01%		3.92%	4.25%	4.93%
Dec	3.25%	0.01%	1.98%		4.00%	4.33%	5.07%

[1] Note: Moody's has not published Aaa utility bond yields since 2001.

Sources: Council of Economic Advisors, Economic Indicators; Moody's Bond Record; Federal Reserve Bulletin; various issues.

STOCK PRICE INDICATORS

	S&P Composite [1]	NASDAQ Composite [1]	DJIA	S&P D/P	S&P E/P
1975 - 1982 Cycle					
1975			802.49	4.31%	9.15%
1976			974.92	3.77%	8.90%
1977			894.63	4.62%	10.79%
1978			820.23	5.28%	12.03%
1979			844.40	5.47%	13.46%
1980			891.41	5.26%	12.66%
1981			932.92	5.20%	11.96%
1982			884.36	5.81%	11.60%
1983 - 1991 Cycle					
1983			1,190.34	4.40%	8.03%
1984			1,178.48	4.64%	10.02%
1985			1,328.23	4.25%	8.12%
1986			1,792.76	3.49%	6.09%
1987			2,275.99	3.08%	5.48%
1988	[1]	[1]	2,060.82	3.64%	8.01%
1989	322.84		2,508.91	3.45%	7.41%
1990	334.59		2,678.94	3.61%	6.47%
1991	376.18	491.69	2,929.33	3.24%	4.79%
1992 - 2001 Cycle					
1992	415.74	\$599.26	3,284.29	2.99%	4.22%
1993	451.21	715.16	3,522.06	2.78%	4.46%
1994	460.42	751.65	3,793.77	2.82%	5.83%
1995	541.72	925.19	4,493.76	2.56%	6.09%
1996	670.50	1,164.96	5,742.89	2.19%	5.24%
1997	873.43	1,469.49	7,441.15	1.77%	4.57%
1998	1,085.50	1,794.91	8,625.52	1.49%	3.46%
1999	1,327.33	2,728.15	10,464.88	1.25%	3.17%
2000	1,427.22	2,783.67	10,734.90	1.15%	3.63%
2001	1,194.18	2,035.00	10,189.13	1.32%	2.95%
2002 - 2009 Cycle					
2002	993.94	1,539.73	9,226.43	1.61%	2.92%
2003	965.23	1,647.17	8,993.59	1.77%	3.84%
2004	1,130.65	1,986.53	10,317.39	1.72%	4.89%
2005	1,207.23	2,099.32	10,547.67	1.83%	5.36%
2006	1,310.46	2,263.41	11,408.67	1.87%	5.78%
2007	1,477.19	2,578.47	13,169.98	1.86%	5.29%
2008	1,220.04	2,161.65	11,252.62	2.37%	3.54%
2009	948.05	1,845.38	8,876.15	2.40%	1.86%
Current Cycle					
2010	1,139.97	2,349.89	10,662.80	1.98%	6.04%

[1] Note: this source did not publish the S&P Composite prior to 1988 and the NASDAQ Composite prior to 1991.

Source: Council of Economic Advisors, Economic Indicators, various issues.

STOCK PRICE INDICATORS

	S&P Composite	NASDAQ Composite	DJIA	S&P D/P	S&P E/P
2004					
1st Qtr.	1,133.29	2,041.95	10,488.43	1.64%	4.62%
2nd Qtr.	1,122.87	1,984.13	10,289.04	1.71%	4.92%
3rd Qtr.	1,104.15	1,872.90	10,129.85	1.79%	5.18%
4th Qtr.	1,162.07	2,050.22	10,362.25	1.75%	4.83%
2005					
1st Qtr.	1,191.98	2,056.01	10,648.48	1.77%	5.11%
2nd Qtr.	1,181.65	2,012.24	10,382.35	1.85%	5.32%
3rd Qtr.	1,225.91	2,144.61	10,532.24	1.83%	5.42%
4th Qtr.	1,262.07	2,246.09	10,827.79	1.86%	5.60%
2006					
1st Qtr.	1,283.04	2,287.97	10,996.04	1.85%	5.61%
2nd Qtr.	1,281.77	2,240.46	11,188.84	1.90%	5.86%
3rd Qtr.	1,288.40	2,141.97	11,274.49	1.91%	5.88%
4th Qtr.	1,389.48	2,390.26	12,175.30	1.81%	5.75%
2007					
1st Qtr.	1,425.30	2,444.85	12,470.97	1.84%	5.85%
2nd Qtr.	1,496.43	2,552.37	13,214.26	1.82%	5.65%
3rd Qtr.	1,490.81	2,609.68	13,488.43	1.86%	5.15%
4th Qtr.	1,494.09	2,701.59	13,502.95	1.91%	4.51%
2008					
1st Qtr.	1,350.19	2,332.91	12,383.86	2.11%	4.55%
2nd Qtr.	1,371.65	2,426.26	12,508.59	2.10%	4.05%
3rd Qtr.	1,251.94	2,290.87	11,322.40	2.29%	3.94%
4th Qtr.	909.80	1,599.64	8,795.61	2.98%	1.65%
2009					
1st Qtr.	809.31	1,485.14	7,774.06	3.00%	0.86%
2nd Qtr.	892.23	1,731.41	8,327.83	2.45%	0.82%
3rd Qtr.	996.68	1,985.25	9,229.93	2.16%	1.19%
4th Qtr.	1,088.70	2,162.33	10,172.78	1.99%	4.57%
2010					
1st Qtr.	1,121.60	2,274.88	10,454.42	1.94%	5.21%
2nd Qtr.	1,135.25	2,343.40	10,570.54	1.97%	6.51%
3rd Qtr.	1,096.39	2,237.97	1,096.39	2.09%	6.30%
4th Qtr.	1,204.00	2,534.62	11,236.02	1.95%	6.15%
2011					
1st Qtr.	1,302.74	2,741.01	12,024.62	1.85%	6.13%
2nd Qtr.	1,319.04	2,766.64	12,370.73	1.97%	6.35%
3rd Qtr.	1,237.12	2,613.11	11,671.47	2.15%	

Source: Council of Economic Advisors, Economic Indicators, various issues.

**NEW JERSEY AMERICAN WATER CO.
CAPITAL STRUCTURE RATIOS
2006 - 2011**

Year	Common Equity	Preferred Stock	Long Term Debt	Short Term Debt
2006	\$776,809,657 48.1% 51.5%	\$1,086,000 0.1% 0.1%	\$730,016,674 45.2% 48.4%	\$105,804,623 6.6%
2007	\$801,827,870 47.4% 49.2%	\$969,000 0.1% 0.1%	\$826,078,044 48.9% 50.7%	\$61,876,098 3.7%
2008	\$911,071,474 50.0% 52.5%	\$850,000 0.0% 0.0%	\$822,959,684 45.1% 47.4%	\$88,258,984 4.8%
2009	\$930,760,375 49.6% 49.6%	\$852,000 0.0% 0.0%	\$944,794,652 50.4% 50.4%	\$0 0.0%
2010	\$962,319,137 50.2% 50.2%	\$735,000 0.0% 0.0%	\$953,564,591 49.8% 49.8%	\$0 0.0%
August 31, 2011	\$1,016,938,888 51.7% 51.7%	\$735,000 0.0% 0.0%	\$950,324,694 48.3% 48.3%	\$0 0.0%

Source: Response to RCR-ROR-3.

**AMERICAN WATER WORKS
CAPITAL STRUCTURE RATIOS
2006 - 2011
(\$000)**

Year	Common Equity	Preferred Stock	Long Term Debt	Short Term Debt
2006	\$3,817,397	\$1,779,043	\$3,383,787	\$719,745
	39.4%	18.3%	34.9%	7.4%
	42.5%	19.8%	37.7%	8.0%
2007	\$4,542,046	\$28,864	\$4,771,292	\$220,514
	47.5%	0.3%	49.9%	2.3%
	48.6%	0.3%	51.1%	2.4%
2008	\$4,102,001	\$28,707	\$4,799,885	\$479,010
	43.6%	0.3%	51.0%	5.1%
	45.9%	0.3%	53.7%	5.4%
2009	\$4,000,859	\$28,503	\$5,342,248	\$119,497
	42.2%	0.3%	56.3%	1.3%
	42.7%	0.3%	57.0%	1.3%
2010	\$4,127,725	\$27,818	\$5,455,031	\$229,699
	41.9%	0.3%	55.4%	2.3%
	42.9%	0.3%	56.8%	2.4%
August, 2011	\$4,262,632	\$27,740	\$5,369,558	\$425,767
	42.3%	0.3%	53.2%	4.2%
	44.1%	0.3%	55.6%	4.4%

Source: Response to RCR-ROR-3.

**PROXY UTILITIES
COMMON EQUITY RATIOS**

Company	2006	2007	2008	2009	2010
Value Line Water Group					
American States Water Co.	50%	50%	54%	54%	51%
American Water Works				43%	42%
Aqua America, Inc.	38%	43%	44%	43%	42%
Artesian Resources	38%	48%	45%	46%	41%
California Water Service Group	55%	57%	55%	52%	46%
Connecticut Water Service, Inc.	54%	50%	53%	54%	45%
Middlesex Water	49%	48%	50%	44%	52%
SJW Corporation	56%	52%	52%	50%	46%
York Water Company	51%	48%	45%	53%	52%
Average	49%	50%	50%	49%	46%

Source: AUS Utility Reports, various issues

**PROXY UTILITIES
DIVIDEND YIELD**

Company	Quarterly DPS	DPS	October - December, 2011			Yield
			High	Low	Average	
Value Line Water Group						
American States Water Co.	\$0.280	\$1.12	\$36.27	\$32.30	\$34.29	3.3%
American Water Works	\$0.230	\$0.92	\$32.78	\$28.34	\$30.56	3.0%
Aqua America, Inc.	\$0.165	\$0.66	\$22.52	\$20.16	\$21.34	3.1%
Artesian Resources Corp.	\$0.193	\$0.77	\$18.94	\$16.90	\$17.92	4.3%
California Water Service Group	\$0.154	\$0.62	\$19.20	\$16.81	\$18.01	3.4%
Connecticut Water Service, Inc.	\$0.238	\$0.95	\$29.10	\$24.76	\$26.93	3.5%
Middlesex Water	\$0.185	\$0.74	\$19.44	\$16.51	\$17.98	4.1%
SJW Corporation	\$0.173	\$0.69	\$25.32	\$20.87	\$23.10	3.0%
York Water Company	\$0.134	\$0.54	\$18.00	\$15.86	\$16.93	3.2%
Average						3.4%

Source: Yahoo! Finance.

**PROXY UTILITIES
RETENTION GROWTH RATES**

Company	2006	2007	2008	2009	2010	Average	2011	2012	'14-'16	Average
Value Line Water Group										
American States Water Co.	2.7%	3.9%	3.1%	3.2%	5.8%	3.7%	5.0%	5.5%	6.0%	5.5%
American Water Works			3.0%	1.8%	2.8%	2.5%	3.5%	4.0%	4.5%	4.0%
Aqua America, Inc.	3.7%	3.2%	2.8%	2.7%	3.7%	3.2%	5.0%	4.5%	5.5%	5.0%
Artesian Resources Corp.	3.8%	2.1%	1.4%	2.1%	2.0%	2.3%				
California Water Service Group	1.0%	1.8%	3.8%	3.8%	3.0%	2.7%	4.5%	5.0%	5.5%	5.0%
Connecticut Water Service, Inc.	0.0%	1.6%	1.9%	2.3%	1.6%	1.5%				
Middlesex Water	1.3%	1.8%	2.0%	0.1%	2.1%	1.5%	2.0%	2.0%	3.5%	2.5%
SJW Corporation	5.2%	3.5%	3.3%	1.2%	1.2%	2.9%	2.0%	2.5%	3.0%	2.5%
York Water Company	2.2%	1.7%	1.4%	1.9%	2.7%	2.0%				
Average						2.5%				4.1%

Source: Value Line Investment Survey.

**PROXY UTILITIES
PER SHARE GROWTH RATES**

Company	5-Year Historic Growth Rates				Est'd '08-'10 to '14-'16 Growth Rates			
	EPS	DPS	BVPS	Average	EPS	DPS	BVPS	Average
Value Line Water Group								
American States Water Co.	11.5%	2.5%	5.0%	6.3%	5.5%	4.0%	2.0%	3.8%
American Water Works					9.5%	8.0%	0.0%	5.8%
Aqua America, Inc.	4.5%	8.0%	7.0%	6.5%	10.5%	5.5%	6.0%	7.3%
Artesian Resources Corp.	5.5%	5.5%	5.5%	5.5%				
California Water Service Group	6.5%	1.0%	5.5%	4.3%	6.0%	3.0%	3.0%	4.0%
Connecticut Water Service, Inc.	1.5%	1.5%	3.0%	2.0%				
Middlesex Water	4.5%	1.5%	5.5%	3.8%	6.0%	2.0%	2.0%	3.3%
SJW Corporation	-1.5%	5.5%	6.5%	3.5%	7.5%	3.5%	2.5%	4.5%
York Water Company	5.0%	5.0%	8.5%	6.2%				
Average				4.8%	4.8%			

Source: Value Line Investment Survey.

**STANDARD & POOR'S 500 COMPOSITE
20-YEAR U.S. TREASURY BOND YIELDS
RISK PREMIUMS**

Year	EPS	BVPS	ROE	20-Year T. Bond	Risk Premium
1977		\$79.07			
1978	\$12.33	\$85.35	15.00%	7.90%	7.10%
1979	\$14.86	\$94.27	16.55%	8.86%	7.69%
1980	\$14.82	\$102.48	15.06%	9.97%	5.09%
1981	\$15.36	\$109.43	14.50%	11.55%	2.95%
1982	\$12.64	\$112.46	11.39%	13.50%	-2.11%
1983	\$14.03	\$116.93	12.23%	10.38%	1.85%
1984	\$16.64	\$122.47	13.90%	11.74%	2.16%
1985	\$14.61	\$125.20	11.80%	11.25%	0.55%
1986	\$14.48	\$126.82	11.49%	8.98%	2.51%
1987	\$17.50	\$134.04	13.42%	7.92%	5.50%
1988	\$23.75	\$141.32	17.25%	8.97%	8.28%
1989	\$22.87	\$147.26	15.85%	8.81%	7.04%
1990	\$21.73	\$153.01	14.47%	8.19%	6.28%
1991	\$16.29	\$158.85	10.45%	8.22%	2.23%
1992	\$18.86	\$149.74	12.22%	7.26%	4.96%
1993	\$21.89	\$180.88	13.24%	7.17%	6.07%
1994	\$30.60	\$193.06	16.37%	6.59%	9.78%
1995	\$33.96	\$215.51	16.62%	7.60%	9.02%
1996	\$38.73	\$237.08	17.11%	6.18%	10.93%
1997	\$39.72	\$249.52	16.33%	6.64%	9.69%
1998	\$37.71	\$266.40	14.62%	5.83%	8.79%
1999	\$48.17	\$290.68	17.29%	5.57%	11.72%
2000	\$50.00	\$325.80	16.22%	6.50%	9.72%
2001	\$24.70	\$338.37	7.44%	5.53%	1.91%
2002	\$27.59	\$321.72	8.36%	5.59%	2.77%
2003	\$48.73	\$367.17	14.15%	4.80%	9.35%
2004	\$58.55	\$414.75	14.98%	5.02%	9.96%
2005	\$69.93	\$453.06	16.12%	4.69%	11.43%
2006	\$81.51	\$504.39	17.03%	4.68%	12.35%
2007	\$66.17	\$529.59	12.80%	4.86%	7.94%
2008	\$14.88	\$451.37	3.03%	4.45%	-1.42%
2009	\$50.97	\$513.58	10.56%	3.47%	7.09%
2010	\$77.35	\$579.14	14.16%	4.25%	9.91%
Average			13.78%	7.36%	6.34%

Sources: Standard & Poor's Analysts' Handbook and Morningstar 2011 Yearbook.

**PROXY UTILITIES
CAPM COST RATES**

Company	Risk-Free Rate	Beta	Risk Premium	CAPM Rates
Value Line Water Group				
American States Water Co.	2.75%	0.75	5.58%	6.9%
American Water Works	2.75%	0.65	5.58%	6.4%
Aqua America, Inc.	2.75%	0.65	5.58%	6.4%
Artesian Resources Corp.	2.75%	0.60	5.58%	6.1%
California Water Service Group	2.75%	0.70	5.58%	6.7%
Connecticut Water Service, Inc.	2.75%	0.80	5.58%	7.2%
Middlesex Water	2.75%	0.75	5.58%	6.9%
SJW Corporation	2.75%	0.90	5.58%	7.8%
York Water Company	2.75%	0.70	5.58%	6.7%
Mean				6.8%
Median				6.7%

Sources: Value Line Investment Survey, Standard & Poor's Analysts' Handbook, Morningstar 2009 Yearbook and Federal Reserve Statistical Release H15.

Yields on 2-Year U.S. Treasury Bonds:

Oct., 2011	2.87%
Nov, 2011	2.72%
Dec., 2011	2.67%
Average	2.75%

**PROXY UTILITIES
RATES OF RETURN ON AVERAGE COMMON EQUITY**

Company	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	1992-2001	2002-2010	2011	2012	2014-2016	
Value Line Water Group																									
American States Water Co.	14.0%	11.7%	9.5%	10.0%	10.0%	9.4%	9.5%	10.2%	9.6%	10.5%	9.6%	5.6%	8.0%	10.4%	8.2%	9.3%	8.3%	8.6%	7.5%	10.4%	8.4%	10.5%	10.0%	12.0%	
American Water Works	10.9%	11.3%	10.8%	11.3%	10.4%	10.5%	10.7%	9.5%	9.5%	9.7%									9.6%			7.5%	8.0%	9.0%	
Aqua America, Inc.	11.0%	11.4%	11.2%	12.0%	11.8%	12.5%	14.2%	13.8%	13.0%	14.0%	13.9%	12.3%	11.4%	11.5%	11.0%	10.0%	9.8%	9.8%	11.0%	12.5%	11.2%	11.5%	11.5%	12.5%	
Artesian Resources Corp.						9.8%	9.7%	8.1%	9.4%	9.6%	9.6%	7.4%	7.6%	8.9%	10.2%	8.5%	7.2%	7.9%	8.5%		8.4%				
California Water Service Group	10.4%	12.6%	10.6%	10.0%	12.6%	14.5%	11.0%	11.4%	10.3%	7.5%	9.6%	8.7%	9.8%	9.3%	7.6%	4.9%	5.2%	12.3%	9.2%	11.1%	8.5%	10.0%	10.5%	11.0%	
Connecticut Water Service, Inc.	12.1%	12.5%	12.6%	12.7%	12.4%	12.3%	12.2%	12.4%	11.8%	13.3%	11.6%	11.2%	11.4%	12.0%	7.5%	8.9%	5.2%	13.9%	8.1%	12.4%	10.0%	10.0%	10.5%	11.0%	
Middlesex Water	11.7%	12.6%	12.1%	12.0%	10.3%	11.2%	10.7%	10.2%	6.5%	9.0%	9.8%	8.2%	8.3%	8.4%	8.6%	8.8%	9.4%	7.2%	8.5%	10.6%	8.6%	8.5%	8.5%	10.5%	
SJW Corporation	11.8%	11.8%	9.6%	10.8%	16.2%	12.0%	11.6%	11.1%	9.6%	9.5%	9.4%	9.8%	11.3%	11.5%	18.2%	8.3%	10.8%	9.1%	7.4%	11.4%	10.6%	7.5%	7.5%	8.0%	
York Water Company	11.9%	12.6%	11.7%	10.7%	11.1%	10.9%	10.3%	11.9%	11.5%	11.5%	16.7%	11.7%	12.2%	11.8%	10.5%	9.7%	9.1%	9.8%	10.1%	11.3%	11.3%	11.3%	11.3%	11.3%	
Mean	11.7%	12.1%	11.0%	11.2%	11.9%	11.7%	11.1%	11.0%	10.0%	10.5%	11.3%	9.4%	10.0%	10.5%	10.2%	8.6%	8.1%	9.6%	8.9%	11.4%	9.6%	9.3%	9.3%	10.5%	
Median	11.8%	12.2%	11.0%	11.1%	11.5%	11.6%	10.7%	10.3%	9.6%	9.7%	9.7%	9.3%	10.6%	11.0%	9.4%	8.9%	8.7%	9.5%	8.5%	10.9%	9.5%	9.3%	9.3%	10.8%	

Source: Calculations made from data contained in Value Line Investment Survey.

**PROXY UTILITIES
MARKET TO BOOK RATIOS**

Company	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	1992-2001	2002-2010	
Value Line Water Group																						
American States Water Co.	142%	156%	124%	120%	134%	137%	148%	177%	166%	182%	176%	176%	181%	230%	205%	209%	181%	171%	184%	149%	190%	
American Water Works	129%	140%	132%	142%	156%	178%	199%	172%	143%	248%								89%	116%	164%	283%	
Aqua America, Inc.	140%	158%	151%	124%	189%	237%	313%	287%	302%	365%	304%	280%	307%	436%	332%	259%	261%	204%	254%	227%	173%	
Artesian Resources Corp.							156%	168%	148%	183%	159%	207%	198%	215%	198%	150%	136%	142%	151%		176%	
California Water Service Group	147%	172%	157%	140%	160%	191%	207%	202%	186%	201%	199%	189%	218%	264%	223%	219%	211%	179%	175%	176%	209%	
Connecticut Water Service, Inc.	162%	180%	154%	149%	156%	168%	193%	218%	226%	304%	275%	266%	233%	216%	211%	199%	178%	180%	192%	191%	217%	
Middlesex Water	111%	184%	169%	150%	150%	164%	176%	218%	222%	248%	225%	265%	214%	214%	178%	184%	140%	161%	161%	179%	194%	
SJW Corporation	113%	124%	117%	106%	113%	133%	137%	193%	195%	162%	155%	193%	175%	240%	307%	236%	180%	168%	179%	139%	204%	
York Water Company	169%	174%	87%	197%	195%	226%	198%	174%	154%	284%	277%	335%	275%	367%	309%	266%	188%	211%	226%	186%	273%	
Mean	139%	161%	136%	141%	157%	179%	192%	201%	194%	242%	221%	239%	225%	273%	245%	215%	184%	167%	182%	176%	219%	
Median	141%	165%	142%	141%	156%	173%	193%	193%	186%	248%	212%	236%	216%	235%	217%	214%	181%	171%	179%	174%	207%	

Source: Calculations made from data contained in Value Line Investment Survey.

**STANDARD & POOR'S 500 COMPOSITE
RETURNS AND MARKET-TO-BOOK RATIOS
1992 - 2010**

Year	Return On Average Equity	Market-To- Book Ratio
1992	12.2%	271%
1993	13.2%	272%
1994	16.4%	246%
1995	16.6%	264%
1996	17.1%	299%
1997	16.3%	354%
1998	14.6%	421%
1999	17.3%	481%
2000	16.2%	453%
2001	7.5%	353%
2002	8.4%	296%
2003	14.2%	278%
2004	15.0%	291%
2005	16.1%	278%
2006	17.0%	277%
2007	12.8%	284%
2008	3.3%	224%
2009	10.6%	187%
2010	14.2%	208%
Averages:		
1992-2001	14.7%	341%
2002-2010	12.4%	258%

Source: Standard & Poor's Analyst's Handbook, 2011 edition.

RISK INDICATORS

Group	Value Line Safety	Value Line Beta	Value Line Financial	S & P Stock Rank
S&P's Composite	2.6	1.05	B++	B+
Value Line Water Group	2.6	0.72	B+	A-

Sources: Value Line Investment Survey, Standard & Poor's Stock Guide.

Definitions:

Safety rankings are in a range of 1 to 5, with 1 representing the highest safety or lowest risk.

Beta reflects the variability of a particular stock, relative to the market as a whole. A stock with a beta of 1.0 moves in concert with the market, a stock with a beta below 1.0 is less variable than the market, and a stock with a beta above 1.0 is more variable than the market.

Financial strengths range from C to A++, with the latter representing the highest level.

Common stock rankings range from D to A+, with the latter representing the highest level.

RISK INDICATORS

Company	Value Line Safety	Value Line Beta	Value Line Financial Strength	S & P Stock Rank
Value Line Water Group				
American States Water Co.	3	0.75	B++	3.33
American Water Works	3	0.65	B	NR
Aqua America, Inc.	3	0.65	B+	4.00
Artesian Resouces Corp.	2	0.60	B+	3.67
California Water Service Group	3	0.70	B+	3.67
Connecticut Water Service, Inc.	2	0.80	B+	3.33
Middlesex Water	2	0.75	B+	3.67
SJW Corporation	3	0.90	B+	3.67
York Water Company	2	0.70	B++	4.00
Average	2.6	0.72	B+	3.67

Sources: Standard & Poor's Stock Guide and Value Line Investment Survey.

**NEW JERSEY AMERICAN WATER CO.
RATING AGENCY RATIOS**

Item	Percent	Cost Rate	Weighted Cost	Pre-Tax Cost
Long-Term Debt	47.97%	5.75%	2.76%	2.76%
Preferred Stock	0.03%	4.74%	0.00%	0.00%
Common Equity	<u>52.00%</u>	9.75%	<u>5.07%</u>	<u>8.45%</u> (1)
Total Capital	100.00%		7.83%	11.21%

(1) Post-tax weighted cost divided by .60 (composite tax factor)

Pre-tax coverage = $11.21\% / 2.76\% = 4.06 X$

Standard & Poor's Utility Benchmark Ratios:

	<u>A</u>	<u>BBB</u>
Pre-tax coverage (X) Business Position:		
3	2.8x - 3.4x	1.8x - 2.8x
Total Debt to Total Capital (%) Business Position		
3	50% - 55%	55% - 65%

Note: Standard & Poor's no longer employs the pre-tax coverage ratios as one of its qualitative ratings criteria. The above-cited S&P benchmark ratios reflect the 1999 criteria reported by S&P.

**ANNUAL RISK PREMIUMS IN MR. MOUL'S
RISK PREMIUM ANALYSIS**

Year	S&P Utility Index	Public Utility Bonds	Differential	Averages By Decade
1928	57.47%	3.08%	54.39%	
1929	11.02%	2.34%	8.68%	
1930	-21.96%	4.74%	-26.70%	
1931	-35.90%	-11.11%	-24.79%	
1932	-0.54%	7.25%	-7.79%	
1933	-21.87%	-3.82%	-18.05%	
1934	-20.41%	22.61%	-43.02%	
1935	76.63%	16.03%	60.60%	
1936	20.69%	8.30%	12.39%	
1937	-37.04%	-4.05%	-32.99%	
1938	22.45%	8.11%	14.34%	
1939	11.26%	6.76%	4.50%	-6.15%
1940	-17.15%	4.45%	-21.60%	
1941	-31.57%	2.15%	-33.72%	
1942	15.39%	3.81%	11.58%	
1943	46.07%	7.04%	39.03%	
1944	18.03%	3.29%	14.74%	
1945	53.33%	5.92%	47.41%	
1946	1.26%	2.98%	-1.72%	
1947	-13.16%	-2.19%	-10.97%	
1948	4.01%	2.65%	1.36%	
1949	31.39%	7.16%	24.23%	7.03%
1950	3.25%	2.01%	1.24%	
1951	18.63%	-2.77%	21.40%	
1952	19.25%	2.99%	16.26%	
1953	7.85%	2.08%	5.77%	
1954	24.72%	7.57%	17.15%	
1955	11.26%	0.12%	11.14%	
1956	5.06%	-6.25%	11.31%	
1957	6.36%	3.58%	2.78%	
1958	40.70%	0.18%	40.52%	
1959	7.49%	-2.29%	9.78%	13.74%
1960	20.26%	9.01%	11.25%	
1961	29.33%	4.65%	24.68%	
1962	-2.44%	6.55%	-8.99%	
1963	12.36%	3.44%	8.92%	
1964	15.91%	4.94%	10.97%	
1965	4.67%	0.50%	4.17%	
1966	-4.48%	-3.45%	-1.03%	
1967	-0.63%	-3.63%	3.00%	
1968	10.32%	1.87%	8.45%	
1969	-15.42%	-6.66%	-8.76%	5.27%

Source: Data contained in Testimony of Paul R. Moul Schedule 18.

**ANNUAL RISK PREMIUMS IN MR. MOUL'S
RISK PREMIUM ANALYSIS**

Year	S&P Utility Index	Public Utility Bonds	Differential	Averages By Decade
1970	16.56%	15.90%	0.66%	
1971	2.41%	11.59%	-9.18%	
1972	8.15%	7.19%	0.96%	
1973	-18.07%	2.42%	-20.49%	
1974	-21.55%	-5.28%	-16.27%	
1975	44.49%	15.50%	28.99%	
1976	31.81%	19.04%	12.77%	
1977	8.64%	5.22%	3.42%	
1978	-3.71%	-0.98%	-2.73%	
1979	13.58%	-2.75%	16.33%	1.45%
1980	15.08%	-0.23%	15.31%	
1981	11.74%	4.27%	7.47%	
1982	26.52%	33.52%	-7.00%	
1983	20.01%	10.33%	9.68%	
1984	26.04%	14.82%	11.22%	
1985	33.05%	26.48%	6.57%	
1986	28.53%	18.16%	10.37%	
1987	-2.92%	3.02%	-5.94%	
1988	18.27%	10.19%	8.08%	
1989	47.80%	15.61%	32.19%	8.80%
1990	-2.57%	8.13%	-10.70%	
1991	14.61%	19.25%	-4.64%	
1992	8.10%	8.65%	-0.55%	
1993	14.41%	10.59%	3.82%	
1994	-7.94%	-4.72%	-3.22%	
1995	42.15%	22.81%	19.34%	
1996	3.14%	3.04%	0.10%	
1997	24.69%	11.39%	13.30%	
1998	14.82%	9.44%	5.38%	
1999	-8.85%	-1.69%	-7.16%	1.57%
2000	59.70%	9.45%	50.25%	
2001	-30.41%	5.85%	-36.26%	
2002	-30.04%	1.63%	-31.67%	
2003	26.11%	10.01%	16.10%	
2004	24.22%	6.03%	18.19%	
2005	16.79%	3.02%	13.77%	
2006	20.95%	3.94%	17.01%	
2007	19.39%	5.20%	14.19%	7.70%

Source: Data contained in Testimony of Paul R. Moul Schedule 18.

McKinsey on Finance

Number 35,
Spring 2010

Perspectives on
Corporate Finance
and Strategy

10 The case for

Thinking longer
from doing a
quick A/B test
to get it right

14

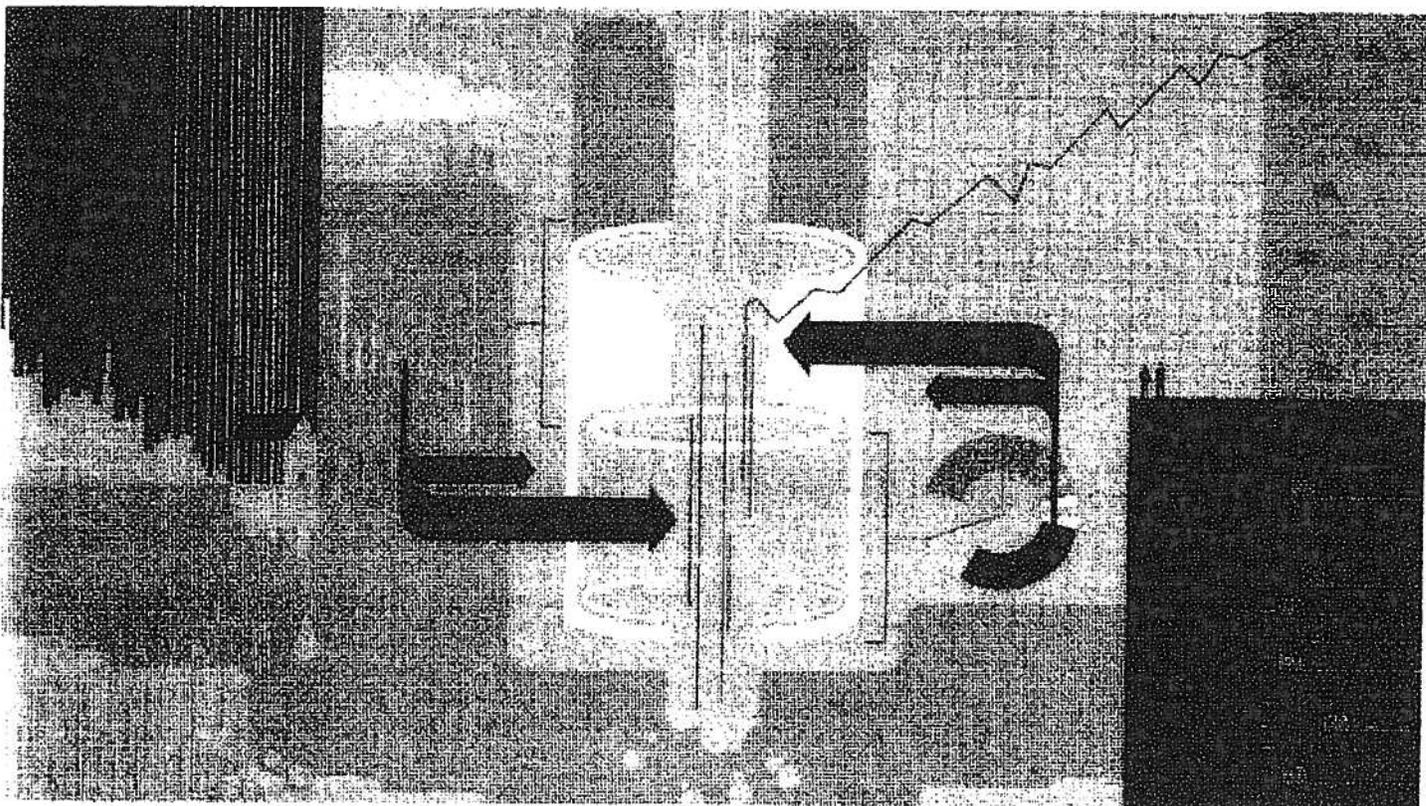
Equity analysts:
Still too bullish

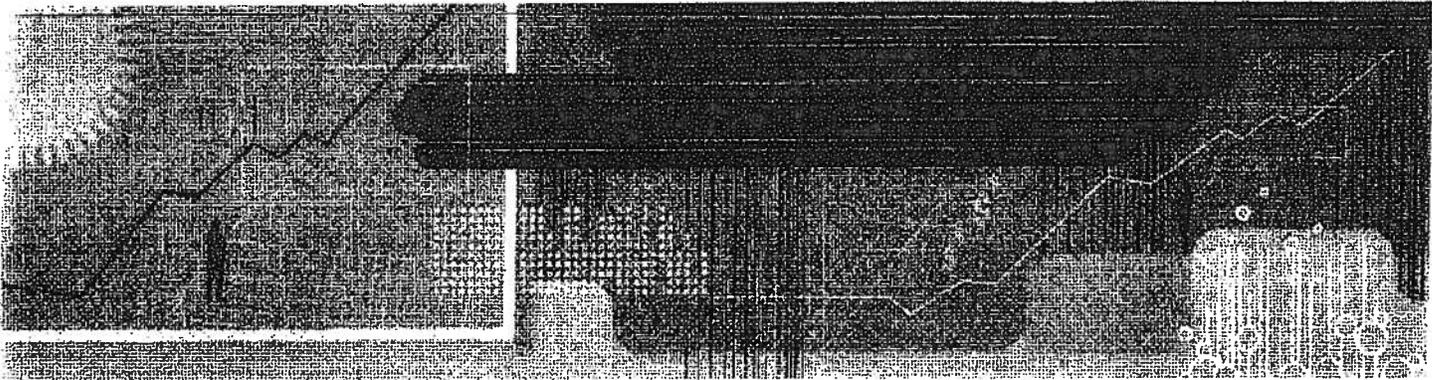
Board direction and
executive A
small, high-impact
change

26

A better way to
measure corporate

A new look at carbon
offsets





Equity analysts: Still too bullish

After almost a decade of stricter regulation, analysts' earnings forecasts continue to be excessively optimistic.

**Marc H. Goedhart,
Rishi Raj, and
Abhishek Saxena**

No executive would dispute that analysts' forecasts serve as an important benchmark of the current and future health of companies. To better understand their accuracy, we undertook research nearly a decade ago that produced sobering results. Analysts, we found, were typically overoptimistic, slow to revise their forecasts to reflect new economic conditions, and prone to making increasingly inaccurate forecasts when economic growth declined.¹

Alas, a recently completed update of our work only reinforces this view—despite a series of rules and regulations, dating to the last decade, that were intended to improve the quality of the

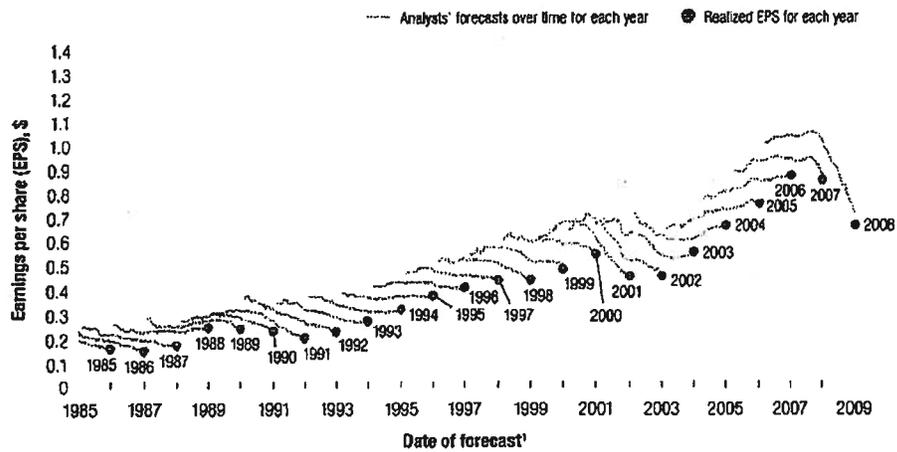
analysts' long-term earnings forecasts, restore investor confidence in them, and prevent conflicts of interest.² For executives, many of whom go to great lengths to satisfy Wall Street's expectations in their financial reporting and long-term strategic moves, this is a cautionary tale worth remembering.

Exceptions to the long pattern of excessively optimistic forecasts are rare, as a progression of consensus earnings estimates for the S&P 500 shows (Exhibit 1). Only in years such as 2003 to 2006, when strong economic growth generated actual earnings that caught up with earlier predictions, do forecasts actually hit the mark.

Exhibit 1
Off the mark

With few exceptions, aggregate earnings forecasts exceed realized earnings per share.

S&P 500 companies



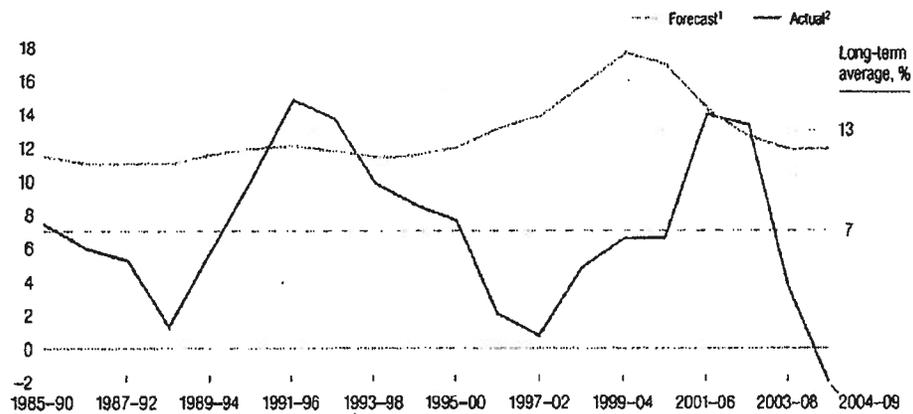
¹ Monthly forecasts.

Source: Thomson Reuters I/B/E/S Global Aggregates; McKinsey analysis

Exhibit 2
Overoptimistic

Actual growth surpassed forecasts only twice in 25 years—both times during the recovery following a recession.

Earnings growth for S&P 500 companies, 5-year rolling average, %



¹ Analysts' 5-year forecasts for long-term consensus earnings-per-share (EPS) growth rate. Our conclusions are same for growth based on year-over-year earnings estimates for 3 years.

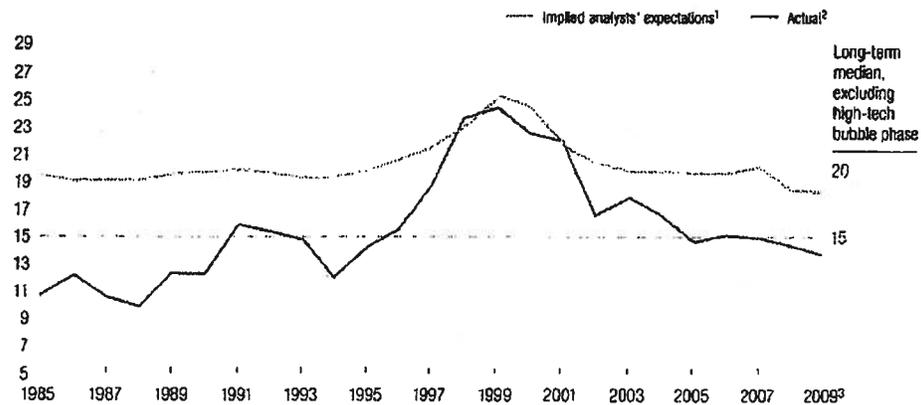
² Actual compound annual growth rate (CAGR) of EPS; 2009 data are not yet available, figures represent consensus estimate as of Nov-2009.

Source: Thomson Reuters I/B/E/S Global Aggregates; McKinsey analysis

Exhibit 3
Less giddy

Capital market expectations
are more reasonable.

Actual P/E ratio vs P/E ratio implied by
analysts' forecasts, S&P 500 composite index



¹P/E ratio based on 1-year-forward earnings-per-share (EPS) estimate and estimated value of S&P 500. Estimated value assumes: for first 5 years, EPS growth rate matches analysts' estimates then drops smoothly over next 10 years to long-term continuing-value growth rate; continuing value based on growth rate of 6%; return on equity is 13.5% (long-term historical median for S&P 500), and cost of equity is 9.5% in all periods.

²Observed P/E ratio based on S&P 500 value and 1-year-forward EPS estimate.

³Based on data as of Nov 2009.

Source: Thomson Reuters I/B/E/S Global Aggregates; McKinsey analysis

This pattern confirms our earlier findings that analysts typically lag behind events in revising their forecasts to reflect new economic conditions. When economic growth accelerates, the size of the forecast error declines; when economic growth slows, it increases.³ So as economic growth cycles up and down, the actual earnings S&P 500 companies report occasionally coincide with the analysts' forecasts, as they did, for example, in 1988, from 1994 to 1997, and from 2003 to 2006.

Moreover, analysts have been persistently overoptimistic for the past 25 years, with estimates ranging from 10 to 12 percent a year,⁴ compared with actual earnings growth of 6 percent.⁵

Over this time frame, actual earnings growth surpassed forecasts in only two instances, both during the earnings recovery following a recession (Exhibit 2). On average, analysts' forecasts have been almost 100 percent too high.⁶

Capital markets, on the other hand, are notably less giddy in their predictions. Except during the market bubble of 1999–2001, actual price-to-earnings ratios have been 25 percent lower than implied P/E ratios based on analyst forecasts (Exhibit 3). What's more, an actual forward P/E ratio⁷ of the S&P 500 as of November 11, 2009—14—is consistent with long-term earnings growth of 5 percent.⁸ This assessment is more

Equity analysts: Still too bullish

reasonable, considering that long-term earnings growth for the market as a whole is unlikely to differ significantly from growth in GDP,⁹ as prior McKinsey research has shown.¹⁰ Executives, as the evidence indicates, ought to base their strategic decisions on what they see happening in their industries rather than respond to the pressures of forecasts, since even the market doesn't expect them to do so. o

¹ Marc B. Goedhart, Brendan Russell, and Zane D. Williams, "Prophets and profits," *mckinseyquarterly.com*, October 2001.

² US Securities and Exchange Commission (SEC) Regulation Fair Disclosure (FD), passed in 2000, prohibits the selective disclosure of material information to some people but not others. The Sarbanes-Oxley Act of 2002 includes provisions specifically intended to help restore investor confidence in the reporting of securities' analysts, including a code of conduct for them and a requirement to disclose knowable conflicts of interest. The Global Settlement of 2003 between regulators and ten of the largest US investment firms aimed to prevent conflicts of interest between their analyst and investment businesses.

³ The correlation between the absolute size of the error in forecast earnings growth (S&P 500) and GDP growth is -0.55.

⁴ Our analysis of the distribution of five-year earnings growth (as of March 2005) suggests that analysts forecast growth of more than 10 percent for 70 percent of S&P 500 companies.

⁵ Except 1998-2001, when the growth outlook became excessively optimistic.

⁶ We also analyzed trends for three-year earnings-growth estimates based on year-on-year earnings estimates provided by the analysts, where the sample size of analysts' coverage is bigger. Our conclusions on the trend and the gap vis-à-vis actual earnings growth does not change.

⁷ Market-weighted and forward-looking earnings-per-share (EPS) estimate for 2010.

⁸ Assuming a return on equity (ROE) of 13.5 percent (the long-term historical average) and a cost of equity of 9.5 percent—the long-term real cost of equity (7 percent) and inflation (2.5 percent).

⁹ Real GDP has averaged 3 to 4 percent over past seven or eight decades, which would indeed be consistent with nominal growth of 5 to 7 percent given current inflation of 2 to 3 percent.

¹⁰ Timothy Koller and Zane D. Williams, "What happened to the bull market?" *mckinseyquarterly.com*, November 2001.