

FILE

- ☐ Management Policies,
Practices and Organization
- ☐ Operating Income
- ☐ Rate Base
- ☐ Allocations
- ☒ Rate of Return
- ☐ Rates and Tariffs
- ☐ Other

AQUA OHIO, INC.

MASURY DIVISION

CASE NO. 09-560-WW-AIR

DIRECT TESTIMONY OF

PAULINE M. AHERN, CRRA

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BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

Case No. 09-560-WW-AIR

TESTIMONY OF

PAULINE M. AHERN, CRRA

ON BEHALF OF
AQUA OHIO, INC.

1 I. INTRODUCTION

2 1. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

3 A. My name is Pauline M. Ahern and I am a Principal of AUS Consultants. My
4 business address is 155 Gaither Drive, Suite A, Mt. Laurel, New Jersey 08054.

5 2. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND
6 PROFESSIONAL EXPERIENCE.

7 A. I am a graduate of Clark University, Worcester, MA, where I received a
8 Bachelor of Arts degree with honors in Economics in 1973. In 1991, I received a
9 Master of Business Administration with high honors in corporate finance from Rutgers
10 University.

11 In June 1988, I joined AUS Consultants as a Financial Analyst and am now a
12 Principal. I am responsible for the preparation of all fair rate of return and capital
13 structure exhibits for AUS Consultants. I have offered expert testimony on behalf of
14 investor-owned utilities before twenty-five state regulatory commissions. The details
15 of these appearances, as well as details of my educational background, are shown in
16 Appendix A supplementing this testimony.

1 I am also the Publisher of AUS Utility Reports (formerly C.A. Turner),
2 responsible for the production, publication, distribution and marketing of these
3 reports. AUS Utility Reports provides financial data and related ratios covering more
4 than 100 public utility companies on a monthly, quarterly, and annual basis.
5 Coverage includes electric, combination gas and electric, gas distribution, gas
6 transmission, telephone, water and international utilities.

7 I also calculate and maintain the A.G.A. Index under contract with the
8 American Gas Association (A.G.A.), which serves as the benchmark against which
9 the performance of the American Gas Index Fund (AGIF) is measured on a monthly
10 basis. The A.G.A. Index is a market capitalization weighted index of the common
11 stocks of the publicly traded corporate members of the A.G.A.

12 I have co-authored a working paper with Frank J. Hanley, a Principal and
13 Director of AUS Consultants and Richard A. Michelfelder, Ph.D., a professor of
14 Finance at The School of Business, Rutgers University, entitled "New Approach to
15 Estimating the Cost of Common Equity Capital for Public Utilities", which was
16 presented at the Advanced Workshop in Regulation and Competition at the 28th
17 Annual Eastern Conference of the Center for Research in Regulated Industries
18 (CRRI) Rutgers University on May 14, 2009. I have also co-authored a second article
19 with Frank J. Hanley entitled "Comparable Earnings: New Life for an Old Precept"
20 which was published in the American Gas Association's Financial Quarterly Review,
21 Summer 1994. I also assisted in the preparation of an article authored by Frank J.
22 Hanley and A. Gerald Harris entitled "Does Diversification Increase the Cost of Equity
23 Capital?" published in the July 15, 1991 issue of Public Utilities Fortnightly.

1 I am a member of the Society of Utility and Regulatory Financial Analysts
2 (formerly the National Society of Rate of Return Analysts) serving as President for
3 2008-2010 and 2006-2008 and Secretary/Treasurer for 2004-2006. In 1992, I was
4 awarded the professional designation "Certified Rate of Return Analyst" ("CRRA") by
5 the National Society of Rate of Return Analysts. This designation is based upon
6 education, experience and the successful completion of a comprehensive written
7 examination.

8 I am an associate member of the National Association of Water Companies,
9 serving on its Finance/Accounting/Taxation Committee, a member of the Energy
10 Association of Pennsylvania, formerly the Pennsylvania Gas Association, and a
11 member of the American Finance and Financial Management Associations.

12 **3. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

13 A. The purpose of my Supplemental Testimony is to provide support for Aqua
14 Ohio, Inc. – Masury Division's ("Aqua Ohio – Masury") objections to the Rate of
15 Return section of the Public Utilities Commission of Ohio ("PUCO or the
16 Commission") Staff Report.

17 **4. HAVE YOU PREPARED AN EXHIBIT WHICH SUPPORTS YOUR**
18 **TESTIMONY?**

19 A. Yes, I have. Attached to this testimony is Exhibit No. 1 which consists of two
20 schedules.

II. SUMMARY

5. PLEASE SUMMARIZE AQUA OHIO – MASURY’S OBJECTIONS TO THE RATE OF RETURN SECTION OF THE PUCO STAFF REPORT.

A. Aqua Ohio – Masury objects to the Rate of Return section of the PUCO Staff Report for the following reasons: 1) the comparable group of water companies selected by Staff for its cost of common equity analysis has significantly less business risk than Aqua Ohio – Masury due to its larger size based upon estimated market capitalization; 2) Staff’s application of the Capital Asset Pricing Model (CAPM) is flawed in five respects; and, 3) Staff incorrectly relied exclusively upon a non-constant growth version of the Discounted Cash Flow (DCF) model while incorrectly relying upon an historical Gross National Product (“GNP”) growth rate. Each of these reasons will be discussed in detail below.

III. PUCO STAFF WATER UTILITY GROUP

6. PLEASE DISCUSS THE RISKINESS OF THE PUCO STAFF WATER UTILITY GROUP RELATIVE TO THAT OF AQUA OHIO – MASURY.

A. Staff selected publicly traded water companies listed as “Water Utilities” with Yahoo Stock Screener with capitalization above \$500 million and included in the “Water Utility” group in the Value Line Investment Survey Standard Edition. Thus, Staff’s group is significantly less business risky than Aqua Ohio - Masury, which at December 30, 2008 had total capitalization of \$102.485 million as shown on Schedule D-1 of the Staff Report. Because Staff’s recommended common equity cost rate is based upon the market data of a group of companies which is less business risky based upon size than Aqua Ohio - Masury, Staff’s recommended

common equity cost rate understates the true common equity cost rate to Aqua Ohio - Masury. As shown on page 2 of Schedule PMA-1, Aqua Ohio - Masury's smaller size, i.e., total permanent capital of \$102.485 million at June 30, 2009, relative to average total permanent capital of \$4,188.741 million at June 30, 2009 for the Staff's water utility group, indicates greater relative business risk because all else equal, size has a bearing on risk.

7. PLEASE EXPLAIN WHY SIZE HAS A BEARING ON BUSINESS RISK.

A. In general, all else equal, smaller companies are simply less able to cope with significant events which affect sales, revenues and earnings. For example, the loss of revenues from a few larger customers would have a greater affect on a small company than on a much larger company with a larger customer base. In addition, the effect of extreme weather conditions, i.e., prolonged droughts or extremely wet weather, will have a greater effect upon a small operating water utility than upon the much larger, more geographically diverse holding companies.

Further evidence of the risk effects of size, include the fact that investors demand greater returns to compensate them for a lack of marketability and liquidity for the securities of smaller firms. Because Aqua Ohio - Masury is the regulated utility to whose rate base the Commission's ultimately allowed overall cost of capital and fair rate of return will be applied, the relevant risk reflected in the cost of capital must be that of Aqua Ohio - Masury, including the impact of its small size on common equity cost rate. Aqua Ohio - Masury is smaller than the average company in the PUCO Staff water utility group based upon the results of my study of the market capitalization of the PUCO Staff water utility group relative to the estimated market

capitalization of Aqua Ohio – Masury as shown on page 2 of Schedule PMA-1 and in

Table 1 below:

Table 1

	June 30, 2009 Permanent Total <u>Capital (1)</u> (\$ millions)	Times Greater Than <u>The Company</u>	Market <u>Capitalization (1)</u> (\$ millions)	Times Greater Than <u>The Company</u>
PUCO Staff Water Utility Group	\$4,188.741	40.2x	\$1,735.421	19.3x
Aqua Ohio - Masury	102.485		89.960 (2)	

(1) From Schedule PMA-1, page 2.

(2) Based upon the average market-to-book ratio of PUCO Staff water utility Group.

Because Aqua Ohio - Masury's common stock is not publicly traded, I have assumed that if it were, its common shares would be selling at the same market-to-book ratio as the average market-to-book ratio for the PUCO Staff water utility group, or 174.0% based upon Staff's average daily closing stock price from December 1, 2008 through November 30, 2009. Hence, Aqua Ohio - Masury's market capitalization is estimated at \$89.960 million based upon the average market-to-book ratio of Staff's four water companies. In contrast, the market capitalization of the average Staff water company was \$1,735.421, or 19.3 times larger than Aqua Ohio - Masury's estimated market capitalization. It is conventional wisdom, supported by actual returns over time, that smaller companies tend to be more risky causing investors to expect greater returns as compensation for that risk.

1 8. DOES THE FINANCIAL LITERATURE AFFIRM A RELATIONSHIP
2 BETWEEN SIZE AND COMMON EQUITY COST RATE?

3 A. Yes. Brigham¹ states:

4 A number of researchers have observed that portfolios of small-firms
5 have earned consistently higher average returns than those of large-firms
6 stocks; this is called "small-firm effect." On the surface, it would seem to be
7 advantageous to the small firms to provide average returns in a stock market
8 that are higher than those of larger firms. In reality, it is bad news for the
9 small firm; what *the small-firm effect means is that the capital market*
10 *demand higher returns on stocks of small firms than on otherwise similar*
11 *stocks of the large firms.* (italics added)
12

13 9. IS THERE A WAY TO QUANTIFY THE REQUIRED BUSINESS RISK
14 ADJUSTMENT DUE TO AQUA OHIO - MASURY'S SMALL SIZE RELATIVE
15 TO THE PUCO STAFF WATER UTILITY GROUP?

16 A. Yes. As stated previously, Staff's recommended common equity cost rate is
17 based upon the market data of a group of companies which is less business risky
18 based upon size than Aqua Ohio – Masury. Therefore, it is necessary to upwardly
19 adjust Staff's recommended common equity cost rate range of 8.73% - 9.74% based
20 upon the market data of Staff's water utility group. Based upon Aqua Ohio - Masury's
21 small relative size, an adjustment of 4.57% (457 basis points) is indicated based
22 upon data from 2010 Ibbotson® Risk Premia Over Time Report – Estimates for 1926-
23 2009. This determination is based upon the size premia for decile portfolios of New
24 York Stock Exchange (NYSE), American Stock Exchange (AMEX) and NASDAQ
25 listed companies for the 1926-2009 period. The average size premium for the deciles
26 between which the PUCO Staff water utility group falls, i.e., the 5th and 6th deciles,

¹ Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989) 623.

1 has been compared to the average size premium for the 10th decile in which Aqua
2 Ohio - Masury would fall if its stock were traded and sold at the average market/book
3 ratio of 174.0% experienced by Staff's water utility group based upon Staff's average
4 closing market price. As shown on page 1 of Schedule 1, the size premium spread
5 between Aqua Ohio - Masury and the Staff's four water utilities is 4.57%.

6 Although, a business risk adjustment of 4.57% is indicated based upon the
7 market capitalization of PUCO Staff's four water utilities, a conservatively reasonable
8 business risk adjustment of 0.30% (30 basis points) should be made to reflect the
9 business risk differential between Aqua Ohio - Masury and the comparable group,
10 based upon Aqua Ohio - Masury's increased business risk due to its small size,
11 relative to that of Staff's water utility Group. Therefore, while Staff's recommended
12 common equity cost rate understates Aqua Ohio - Masury's true common equity cost
13 rate by at least 0.30%, in actuality it is understated by 4.57%. Adding this
14 conservative 30 basis point adjustment to the Staff's recommended common equity
15 cost rate range yields a common equity cost rate range of 9.03% - 10.04% using 30
16 basis points, which more appropriately reflects Aqua Ohio - Masury's greater relative
17 business risk, but still understates Aqua Ohio - Masury's true common equity cost
18 rate for reasons discussed below.

19 **V. CAPITAL ASSET PRICING MODEL**

20 **10. PLEASE DISCUSS PUCO STAFF'S CAPM ANALYSIS.**

21 A. Staff's application of the CAPM is flawed in five respects: 1) Staff utilized an
22 historical yield on U.S. Treasury bonds as the risk-free rate instead of the more
23 appropriate forecasted rate; 2) Staff inappropriately averaged the historical yield on

1 10-year U.S. Treasury bonds with the historical yield on 30-year U.S. Treasury bonds;
2 3) Staff incorrectly calculated the market equity risk premium using the total return on
3 long-term U.S. Treasury bonds and not the income return; 4) Staff incorrectly utilized
4 only the historical market equity risk premium without also evaluating a prospective
5 market equity risk premium; and 5) Staff did not include an empirical CAPM analysis
6 to reflect the fact that the empirical Security Market Line ("SML") described by the
7 CAPM is not as steeply sloped as the predicted SML.

8 **11. PLEASE DISCUSS PUCO STAFF'S DERIVATION OF THE RISK-FREE**
9 **RATE.**

10 A. In deriving the risk-free rate to be used in Staff's CAPM analysis, Staff
11 incorrectly relied upon an historical yield on U.S. Treasury bonds and not the more
12 appropriate forecasted yield. This is incorrect. Both the cost of common equity and
13 ratemaking are expectational, i.e., forward looking. Therefore, the best estimate of
14 the risk-free rate is one that best reflects expected interest rate levels over the near-
15 term future, i.e., the period of time when rates set in this proceeding would be in
16 effect. In other words, it is more appropriate to utilize the prospective yield on long-
17 term U.S. Treasury bonds.

18 In addition, Staff incorrectly averaged the historical yield on 10-year U.S.
19 Treasury bonds with the historical yield on 30-year U.S. Treasury bonds.

20 **12. WHY IS THE PROSPECTIVE YIELD ON LONG-TERM U.S. TREASURY**
21 **BONDS APPROPRIATE FOR USE AS THE RISK-FREE RATE?**

22 A. The yield on long-term T-Bonds is almost risk-free and its term is consistent
23 with the long-term cost of capital to public utilities measured by the yields on A-rated

1 public utility bonds. Hence, it is consistent with the long-term investment horizon
2 inherent in utilities' common stocks, as well as the long-term investment horizon
3 presumed in the standard DCF model employed in regulatory ratemaking. Morin²
4 discusses several reasons why the yield on long-term T-bonds is appropriate as the
5 risk-free rate:

- 6 • Common stock is a long-term investment with dividend cash flows to
7 investors lasting indefinitely. Hence, the yield on very long-term
8 government bonds, such as, the yield on 30-year Treasury bonds, is the
9 best measure of the risk-free rate for use in the CAPM.
- 10 • The expected common stock return is based on long-term cash flows,
11 regardless of an individual's holding time period.
- 12 • Stability and consistency, i.e., the yields on long-term Treasury bonds
13 match more closely with expected common stock returns.
- 14 • Shorter-term rates are volatile, fluctuating widely, and subject to more
15 random disturbances than are long-term rates, resulting in volatile and
16 unreliable common equity return estimates.

17
18 In addition, as noted in the Ibbotson SBBI - 2009 Valuation Yearbook – Market
19 Results for Stocks, Bonds, Bills and Inflation – 2006-2008, ("Ibbotson SBBI")³:

20 Although the equity risk premia of several horizons are
21 available, the long-horizon equity risk premium is preferable for use
22 in most business-valuation settings, even if an investor has a
23 shorter time horizon. Companies are entities that generally have
24 no defined life span; when determining a company's value, it is
25 important to use a long-term discount rate because the life of the
26 company is assumed to be infinite. For this reason, it is
27 appropriate in most cases to use the long-horizon equity risk
28 premium for business valuation.

² Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006) 151.

³ Ibbotson SBBI – 2009 Valuation Yearbook – Market Results for Stocks, Bonds, Bills and Inflation – 1926 – 2008 (Morningstar, Inc., 2009) 58

1 13. WHY IS IT INCORRECT TO CALCULATE THE MARKET EQUITY RISK
2 PREMIUM USING THE TOTAL RETURN ON LONG-TERM U.S. TREASURY
3 BONDS?

4 A. The total return on long-term U.S. Treasury bonds does not represent the
5 riskless portion of the return. As summarized on page 58 of the Ibbotson SBBI:

6 "Another point to keep in mind when calculating the equity risk premium is
7 that the income return on the appropriate-horizon Treasury security, rather
8 than the total return, is used in the calculation. The total return is
9 comprised of three return components: the income return, the capital
10 appreciation return, and the reinvestment return. The income return is
11 defined as the portion of the total return that results from a periodic cash
12 flow or, in this case, the bond coupon payment. The capital appreciation
13 return results from the price change of a bond over a specific period.
14 Bond prices generally change in reaction to unexpected fluctuations in
15 yields. Reinvestment return is the return on a given month's investment
16 income when reinvested into the same asset class in the subsequent
17 months of the year. The income return is thus used in the estimation of
18 the equity risk premium because it represents the truly riskless portion of
19 the return.² (footnote omitted)

20
21 * * * *

22
23 Anticipated changes in yields are assessed by the market and figured into
24 the price of a bond. Future changes in yields that are not anticipated will
25 cause the price of the bond to adjust accordingly. Price changes in bonds
26 due to unanticipated changes in yields introduce price risk into the total
27 return. Therefore, the total return on the bond series does not represent
28 the riskless rate of return. The income return better represents the
29 unbiased estimate of the purely riskless rate of return, since an investor
30 can hold a bond to maturity and be entitled to the income return with no
31 capital loss."

32
33 Hence, it is appropriate to use the income return and not the total return on
34 long-term U.S. government bonds when calculating a market equity risk premium.

1 14. WHY IS IT INCORRECT TO CALCULATE THE MARKET EQUITY RISK
2 PREMIUM RELYING EXCLUSIVELY UPON AN HISTORICAL MARKET
3 EQUITY RISK PREMIUM?

4 A. As stated previously, both the cost of capital and ratemaking are prospective in
5 nature. While the arithmetic mean historical market equity risk premium can provide
6 insight into investors' expectations of stock market returns because the arithmetic
7 mean of historical returns and premiums provides investors with the valuable insight
8 needed to estimate future risk, it is also appropriate to use an estimate of the
9 forecasted or projected stock market return and forecasted yield on 30-year U.S.
10 Treasury securities. One indication of the forecasted stock market return can be
11 derived using Value Line Investment Survey's ("Value Line") 3-5 median total market
12 price appreciation projections and dividend yield projections as summarized in note 1
13 on page 2 of Schedule PMA-2. As detailed in note 1 on page 2 of Schedule PMA-2,
14 based upon Value Line, a forecasted total market return of 13.68% was expected at
15 year-end December 2009 which coincides with the ending period for Staff's average
16 closing market prices in its DCF analysis. Subtracting the consensus forecasted yield
17 on 30-year U.S. Treasury securities of 4.85% derived from the January 1, 2010 Blue
18 Chip Financial Forecasts, results in an 8.83% projected market equity risk premium,
19 which when averaged with the arithmetic historical market equity risk premium
20 derived utilizing the correct income return on long-term U.S. Treasury securities,
21 yields a market equity risk premium of 7.72% as also developed in note 1 on page 2
22 of Schedule PMA-2.

1 15. WHY SHOULD STAFF HAVE INCLUDED AN EMPIRICAL CAPM IN ITS
2 ANALYSIS?

3 A. Numerous tests of the CAPM have measured the extent to which security
4 returns and betas are related as predicted by the CAPM and have confirmed its
5 validity. However, Morin observes that while the results of these tests support the
6 notion that beta is related to security returns, it has been determined that the
7 empirical Security Market Line ("SML") described by the CAPM formula is not as
8 steeply sloped as the predicted SML. Morin⁴ states:

9 "With few exceptions, the empirical studies agree that ... low-beta
10 securities earn returns somewhat higher than the CAPM would predict,
11 and high-beta securities earn less than predicted.
12

13 * * *

14
15 Therefore, the empirical evidence suggests that the expected return on a
16 security is related to its risk by the following approximation:
17

18
$$K = R_F + x \beta(R_M - R_F) + (1-x) \beta(R_M - R_F)$$

19

20 where x is a fraction to be determined empirically. The value of x that
21 best explains the observed relationship $\text{Return} = 0.0829 + 0.0520 \beta$ is
22 between 0.25 and 0.30. If $x = 0.25$, the equation becomes:
23

24
$$K = R_F + 0.25(R_M - R_F) + 0.75 \beta(R_M - R_F)^5$$

25

26 In view of theory and practical research, both the traditional CAPM and the
27 empirical CAPM should be applied in a capital asset pricing model analysis with the
28 results then being averaged.

⁴ Morin 175.

⁵ Morin 190.

16. WHAT WOULD STAFF'S CAPM RESULTS WHEN THESE FIVE FLAWS ARE CORRECTED?

A. Page 1 of Schedule PMA-1 summarizes a corrected CAPM and ECAPM analysis based upon the PUCO Staff water utility group. Using the correctly calculated historical market equity risk premium averaged with a projected market equity risk premium of 7.72% as discussed previously, a forecasted risk-free rate of 4.85%, Staff's average beta of 0.7333% as well as including an ECAPM analysis results in an average corrected CAPM of 10.77% as summarized on page 1 of Schedule PMA-2.

However, this CAPM result also reflects the riskiness of the larger more geographically diverse water utility group and not the greater relative riskiness experienced by Aqua Ohio - Masury due to its small size. As discussed above, a conservative adjustment of 0.30% must be added to the corrected CAPM result of 10.77% for Staff's water utility Group resulting a risk-adjusted corrected CAPM result of 11.07%.

VI. DISCOUNTED CASH FLOW MODEL

17. PLEASE DISCUSS PUCO STAFF'S DCF ANALYSIS?

A. Staff's application of the DCF is flawed in two respects: 1) Staff exclusively relied upon a non-constant growth version of the DCF, implicitly rejecting the constant growth version of the DCF, i.e., the standard regulatory form; and, 2) Staff incorrectly relied upon a long-term historical growth rate in GNP.

1 18. WHY IS IT INAPPROPRIATE TO RELY UPON A NON-CONSTANT
2 GROWTH VERSION OF THE DCF?

3 A. Notwithstanding the fact that Staff derived constant growth DCF results of
4 10.78%, Staff relied exclusively upon the results of its non-constant growth DCF
5 analysis in deriving its recommended range of common equity cost rate for Aqua Ohio
6 – Masury. In my opinion, it is inappropriate to rely upon the results of a non-constant
7 growth DCF analysis for regulatory purposes. Rather, it is more appropriate to utilize
8 the single-stage, constant growth version of the DCF for regulated public utilities. In
9 my experience as a rate of return witness, it is the most widely utilized version of the
10 DCF used in public utility rate regulation. In my opinion, it is widely utilized because
11 utilities are generally in the mature stage of their lifecycles and not transitioning from
12 one growth stage to another. This is especially true for water and wastewater utilities.

13 All companies, including utilities, go through typical life cycles in their
14 development, initially progressing through a growth stage, moving onto a transition
15 stage and finally assuming a steady-state or constant growth state. However, the U.S.
16 public utility industry is a long-standing industry in the U.S., dating back to
17 approximately 1882⁶. The standards of rate of return regulation of public utilities date
18 back to the previously discussed principles of fair rate of return established in the
19 Hope⁷ and Bluefield⁸ decisions of 1944 and 1923, respectively. Hence, the public
20 utility industry in the U.S. is a stable and mature industry characterized by the steady-
21 state or constant-growth stage of a multi-stage DCF model. The economics of the

⁶ Bonbright, Daniels and Kamerschen 334.

⁷ Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944).

⁸ Bluefield Water Works Improvement Co. v. Public Serv. Comm'n 262 U.S. 679 (1923).

1 utility industry reflect the features of this relative stability and demand maturity. As
2 regulated businesses, their returns on capital investment, i.e., rate base, are set
3 through a ratemaking process and not determined in the competitive markets. This
4 characteristic, taken together with the longevity of the public utility industry, all
5 contribute to the stability and maturity of the industry, including the water utility
6 industry.

7 Since there is no basis for applying multi-stage growth versions of the DCF
8 model to determine the common equity cost rates of mature public utility companies,
9 the constant growth model is most appropriate.

10 **19. WHY IS IT INAPPROPRIATE TO RELY UPON THE LONG-TERM**
11 **HISTORICAL GROWTH IN GNP?**

12 A. It is inappropriate because, as discussed previously, both the cost of capital
13 and ratemaking are prospective in nature. Moreover, projected growth rates in GDP
14 ("Gross Domestic Product") are available at no cost from sources such as the Energy
15 Information Administration ("EIA") and the Social Security Administration ("SSA").
16 Both the EIA and SSA project GDP well into the future – EIA through 2035 and the
17 SSA through 2085. Although the average projected growth in GNP for the years
18 2010 – 2035 from EIA is 4.66% and for the years 2010 – 2085 from SSA is 4.74%,
19 which average 4.74%, in contrast to Staff's higher GNP growth rate of 6.70%, they
20 are conceptually correct, as ratemaking and the cost of capital are both prospective.

21 **20. DO YOU HAVE ANY ADDITIONAL COMMENTS UPON STAFF'S DCF**
22 **ANALYSIS?**

23 A. Yes. As with the CAPM results discussed previously, Staff's DCF results, both

1 the constant growth and the non-constant growth, reflect the riskiness of the larger,
2 more geographically diverse Staff water utility Group and not the greater relative
3 riskiness experienced by Aqua Ohio - Masury due to its small size. Adding the
4 previously discussed conservative size adjustment of 0.30% to the DCF results of
5 Staff's water utility Group results in a non-constant risk-adjusted DCF result of
6 10.73% ($10.73\% = 10.43\% + 0.30\%$). Adding this size adjustment range to Staff's
7 average constant growth DCF results of 10.78% results in a risk-adjusted range of
8 constant growth DCF results of 11.08% ($11.08\% = 10.78\% + 0.30\%$).

9 Based upon Staff's corrected and risk-adjusted analysis, the corrected CAPM
10 result is 11.07% and non-constant DCF result is 10.73%. Staff's corrected and risk-
11 adjusted analysis thus yields a common equity cost rate of 10.90% ($10.90\% =$
12 $(11.07\% + 10.73\%) / 2$). Using Staff's 100 basis point range of uncertainty, the
13 corrected and risk-adjusted cost of common equity ranges from 10.40% - 11.30%.
14 Using Staff's adjustment factor for issuance and other costs of 1.00985, as shown on
15 Schedule D-1.1 of the Staff report, results in a range of common equity cost rates of
16 10.50% to 11.41% ($10.50\% = 10.40\% * 1.00985$ and $11.41\% = 11.30\% * 1.00985$).
17 Using Staff's corrected and risk-adjusted CAPM results of 11.07%, Staff's risk-
18 adjusted constant-growth DCF result of 11.08%, and Staff's 100 basis point range of
19 uncertainty results in a corrected and risk-adjusted cost of common equity range of
20 10.58% - 11.58%. Making Staff's allowance for issuance and other costs of .00985,
21 as shown on Schedule D-1.1 of the Staff report, results in a common equity cost rate
22 of 10.68% ($10.68\% = 10.58\% * 1.00985$ and $11.69\% (11.58\% * 1.00985)$).

1 **21. DOES THAT CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?**

2 A. Yes, at this time though I reserve the right to update my testimony later in the
3 proceedings.

APPENDIX A

PROFESSIONAL QUALIFICATIONS

OF

**PAULINE M. AHERN, CRRA
PRINCIPAL**

AUS CONSULTANTS

**PROFESSIONAL QUALIFICATIONS
OF
PAULINE M. AHERN, CRRA
PRINCIPAL
AUS CONSULTANTS**

PROFESSIONAL EXPERIENCE

1994-Present

In 1996, I became a Principal of AUS Consultants, continuing to offer testimony as an expert witness on the subjects of fair rate of return and cost of capital before state public utility commissions. I provide assistance and support to clients throughout the entire ratemaking litigation process. In addition, I supervise the financial analyst and administrative staff in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. The team also assists in the preparation of interrogatory responses, as well as rebuttal exhibits.

As the Publisher of AUS Utility Reports (formerly C. A. Turner Utility Reports), I am responsible for the production, publishing, and distribution of the reports. AUS Utility Reports provides financial data and related ratios for about 125 public utilities, i.e., electric, combination gas and electric, natural gas distribution, natural gas transmission, telephone, and water utilities, on a monthly, quarterly and annual basis. Among the subscribers of AUS Utility Reports are utilities, many state regulatory commissions, federal agencies, individuals, brokerage firms, attorneys, as well as public and academic libraries. The publication has continuously provided financial statistics on the utility industry since 1930.

As the Publisher of AUS Utility Reports, I also supervise the production, publishing, and distribution of the AGA Rate Service publications under license from the American Gas Association. I am also responsible for maintaining and calculating the performance of the AGA Index, a market capitalization weighted index of the common stocks of the approximately 70 corporate members of the AGA.

As an Assistant Vice President from 1994 - 1996, I prepared fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. These supporting exhibits include the determination of an appropriate ratemaking capital structure and the development of embedded cost rates of senior capital. The exhibits also support the determination of a recommended return on common equity through the use of various market models, such as, but not limited to, Discounted Cash Flow analysis, Capital Asset Pricing Model and Risk Premium Methodology, as well as an assessment of the risk characteristics of the client utility. I also assisted in the preparation of responses to any interrogatories received regarding such testimonies filed on behalf of client utilities. Following the filing of fair rate of return testimonies, I assisted in the evaluation of opposition testimony in order to prepare interrogatory questions, areas of cross-examination, and rebuttal testimony. I also evaluated and assisted in the preparation of briefs and exceptions following the hearing process. I have submitted testimony before state public utility commissions regarding appropriate capital structure ratios and fixed capital cost rates.

1990-1994

As a Senior Financial Analyst, I supervised two analysts in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. The team also assisted in the preparation of interrogatory responses.

I evaluated the final orders and decisions of various commissions to determine whether further actions are warranted and to gain insight which may assist in the preparation of future rate of return studies.

I assisted in the preparation of an article authored by Frank J. Hanley and A. Gerald Harris entitled "Does Diversification Increase the Cost of Equity Capital?" published in the July 15, 1991 issue of Public Utilities Fortnightly.

I co-authored an article with Frank J. Hanley entitled "Comparable Earnings: New Life for an Old Precept" which was published in the American Gas Association's Financial Quarterly Review, Summer 1994.

I was awarded the professional designation "Certified Rate of Return Analyst" (CRRRA) by the National Society of Rate of Return Analysts (now the Society of Utility and Regulatory Financial Analysts (SURFA)). This designation is based upon education, experience and the successful completion of a comprehensive examination.

As Administrator of Financial Analysis for AUS Utility Reports, which reports financial data for over 200 utility companies and has approximately 1,000 subscribers, I oversee the preparation of this monthly publication, as well as the annual publication, Financial Statistics - Public Utilities.

1988-1990

As a Financial Analyst, I assisted in the preparation of fair rate of return studies including capital structure determination, development of senior capital cost rates, as well as the determination of an appropriate rate of return on equity. I also assisted in the preparation of interrogatory responses, interrogatory questions of the opposition, areas of cross-examination and rebuttal testimony. I also assisted in the preparation of the annual publication C. A. Turner Utility Reports - Financial Statistics - Public Utilities.

1973-1975

As a research assistant in the Research Department of the Regional Economics Division of the Federal Reserve Bank of Boston, I was involved in the development and maintenance of econometric models to simulate regional economic conditions in New England in order to study the effects of, among other things, the energy crisis of the early 1970's and property tax revaluations on the economy of New England. I was also involved in the statistical analysis and preparation of articles for the New England Economic Review. Also, I acted as assistant editor for New England Business Indicators.

1972

As a research assistant in the Office of the Assistant Secretary for International Affairs, U.S. Treasury Department, Washington, D.C., I developed and maintained econometric models which simulated the economy of the United States in order to study the results of various alternate foreign trade policies so that national trade policy could be formulated and recommended.

Clients Served

I have offered expert testimony before the following commissions:

Arkansas
California
Connecticut
Delaware
Florida
Hawaii
Idaho
Illinois
Indiana
Iowa
Kentucky
Louisiana
Maine

Maryland
Michigan
Missouri
Nevada
New Jersey
New York
North Carolina
Ohio
Pennsylvania
South Carolina
Virginia
Washington

I have sponsored testimony on the rate of return and capital structure effects of merger and acquisition issues for:

California-American Water Company

New Jersey-American Water Company

I have sponsored testimony on fair rate of return and related issues for:

Alpena Power Company
Applied Wastewater Management, Inc.
Aqua Illinois, Inc.
Aqua New Jersey, Inc.
Aqua Virginia, Inc.
Artesian Water Company
The Atlantic City Sewerage Company
Audubon Water Company
The Borough of Hanover, PA
Carolina Pines Utilities, Inc.
Carolina Water Service, Inc. of NC
Carolina Water Service, Inc. of SC
The Columbia Water Company
Consumers Illinois Water Company
Consumers Maine Water Company
Consumers New Jersey Water Company
City of DuBois, Pennsylvania
Elizabethtown Water Company
Emporium Water Company
GTE Hawaiian Telephone Inc.
Greenridge Utilities, Inc.
Illinois American Water Company
Iowa American Water Company
Land'Or Utility Company
Long Neck Water Company
Louisiana Water Service, Inc.
Massanutton Public Service Company
Middlesex Water Company
Missouri-American Water Company
Mt. Holly Water Company
Nero Utility Services, Inc.
New Jersey-American Water Company
The Newtown Artesian Water Company
NRG Energy Center Pittsburgh LLC
NRG Energy Center Harrisburg LLC
Ohio-American Water Company
Penn Estates Utilities
Pinelands Water Company
Pinelands Waste Water Company
Pittsburgh Thermal
San Jose Water Company

Southland Utilities, Inc.
Spring Creek Utilities, Inc.
Sussex Shores Water Company
Tega Cay Water Service, Inc.
Total Environmental Services, Inc. –
Treasure Lake Water & Sewer Divisions
Thames Water Americas
Tidewater Utilities, Inc.
Transylvania Utilities, Inc.
Trigen – Philadelphia Energy Corporation
Twin Lakes Utilities, Inc.
United Utility Companies
United Water Arkansas, Inc.
United Water Arlington Hills Sewerage, Inc.
United Water Connecticut, Inc.
United Water Delaware, Inc.
United Water Idaho, Inc.
United Water Indiana, Inc.
United Water New Jersey, Inc.
United Water New Rochelle, Inc.
United Water New York, Inc.
United Water Owego / Nichols, Inc.
United Water Pennsylvania, Inc.
United Water South County, Inc.
United Water Toms River, Inc.
United Water Virginia, Inc.
United Water West Lafayette, Inc.
United Water West Milford, Inc.
Utilities, Inc.
Utilities Inc. of Central Nevada
Utilities, Inc. of Florida
Utilities, Inc. of Louisiana
Utilities, Inc. of Nevada
Utilities, Inc. of Pennsylvania
Utilities, Inc. - Westgate
Utilities Services of South Carolina
Utility Center, Inc.
Valley Energy, Inc.
Water Services Corp. of Kentucky
Wellsboro Electric Company
Western Utilities, Inc.

I have sponsored testimony on capital structure and senior capital cost rates for the following clients:

Alpena Power Company
Arkansas-Western Gas Company
Associated Natural Gas Company

PG Energy Inc.
United Water Delaware, Inc.
Washington Natural Gas Company

I have assisted in the preparation of rate of return studies on behalf of the following clients:

Algonquin Gas Transmission Company
 Anadarko Petroleum Corporation
 Arkansas-Louisiana Gas Company
 Arkansas Western Gas Company
 Artesian Water Company
 Associated Natural Gas Company
 Atlantic City Electric Company
 Bridgeport-Hydraulic Company
 Cambridge Electric Light Company
 Carolina Power & Light Company
 Citizens Gas and Coke Utility
 City of Vernon, CA
 Columbia Gas/Gulf Transmission Cos.
 Commonwealth Electric Company
 Commonwealth Telephone Company
 Conestoga Telephone & Telegraph Co.
 Connecticut Natural Gas Corporation
 Consolidated Gas Transmission Company
 Consumers Power Company
 CWS Systems, Inc.
 Delmarva Power & Light Company
 East Honolulu Community Services, Inc.
 Equitable Gas Company
 Equitrans, Inc.
 Florida Power & Light Company
 Gary Hobart Water Company
 Gasco, Inc.
 GTE Arkansas, Inc.
 GTE California, Inc.
 GTE Florida, Inc.
 GTE Hawaiian Telephone
 GTE North, Inc.
 GTE Northwest, Inc.
 GTE Southwest, Inc.
 Great Lakes Gas Transmission L.P.
 Hawaiian Electric Company
 Hawaiian Electric Light Company
 IES Utilities Inc.
 Illinois Power Company
 Interstate Power Company
 Interstate Power & Light Co.
 Iowa Electric Light and Power Company
 Iowa Southern Utilities Company
 Kentucky-West Virginia Gas Company
 Lockhart Power Company
 Middlesex Water Company
 Milwaukee Metropolitan Sewer District
 Mountaineer Gas Company

National Fuel Gas Distribution Corp.
 National Fuel Gas Supply Corp.
 Newco Waste Systems of NJ, Inc.
 New Jersey Natural Gas Company
 New Jersey-American Water Company
 New York-American Water Company
 North Carolina Natural Gas Corp.
 Northumbrian Water Company
 Ohio-American Water Company
 Oklahoma Natural Gas Company
 Orange and Rockland Utilities
 Paiute Pipeline Company
 PECO Energy Company
 Penn Estates Utilities, Inc.
 Penn-York Energy Corporation
 Pennsylvania-American Water Co.
 PG Energy Inc.
 Philadelphia Electric Company
 Providence Gas Company
 South Carolina Pipeline Company
 Southwest Gas Corporation
 Stamford Water Company
 Tesoro Alaska Petroleum Company
 Tesoro Refining & Marketing Co.
 United Telephone of New Jersey
 United Utility Companies
 United Water Arkansas, Inc.
 United Water Delaware, Inc.
 United Water Idaho, Inc.
 United Water Indiana, Inc.
 United Water New Jersey, Inc.
 United Water New York, Inc.
 United Water Pennsylvania, Inc.
 United Water Virginia, Inc.
 United Water West Lafayette, Inc.
 Utilities, Inc. of Pennsylvania
 Utilities, Inc. - Westgate
 Vista-United Telecommunications Corp.
 Washington Gas Light Company
 Washington Natural Gas Company
 Washington Water Power Corporation
 Waste Management of New Jersey –
 Transfer Station A
 Wellsboro Electric Company
 Western Reserve Telephone Company
 Western Utilities, Inc.
 Wisconsin Power and Light Company

EDUCATION:

1973 – Clark University – B.A. – Honors in Economics (Concentration: Econometrics and Regional/International Economics)
 1991 – Rutgers University – M.B.A. – High Honors (Concentration: Corporate Finance)

PROFESSIONAL AFFILIATIONS:

American Finance Association
Financial Management Association
Society of Utility and Regulatory Financial Analysts
President – 2006-2008 and 2008-2010
Secretary/Treasurer – 2004-2006
Energy Association of Pennsylvania
National Association of Water Companies – Member of the Finance Committee

SPEAKING ENGAGEMENTS:

"New Approach to Estimating the Cost of Common Equity Capital for Public Utilities" (co-presenter with Richard A. Michelfelder, Ph.D. - Advanced Workshop in Regulation and Competition, 28th Annual Eastern Conference of the Center for Research in Regulated Industries (CRR) at Rutgers University, May 14, 2009.

Moderator: Society of Utility and Regulatory Financial Analysis: 41st Financial Forum – "Estimating the Cost of Capital in Today's Economic and Capital Market Environment" April 16-17, 2009, Washington, DC

AWWA Pre-Conference Workshop – Water Utility Ratemaking – March 25, 2008, Atlantic City, NJ
Topic: "Water Utility Financing: Where Does All That Cash Come From?"

PAPERS:

"New Approach to Estimating the Cost of Common Equity Capital for Public Utilities", co-authored with Frank J. Hanley and Richard A. Michelfelder, forthcoming.

"Comparable Earnings: New Life for an Old Precept" co-authored with Frank J. Hanley, Financial Quarterly Review, (American Gas Association), Summer 1994.

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

EXHIBIT NO. 1

TO DIRECT TESTIMONY
OF
PAULINE M. AHER, CRRA

ON BEHALF OF AQUA OHIO, INC. – MASURY DIVISION

Aqua Ohio, Inc. - Masury Division
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.	1	2	3	4
	Market Capitalization (1) (millions)	Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	Applicable Size Premium (3)	Spread from Applicable Size Premium for (4)
1. Aqua Ohio, Inc. - Masury Division				
a. Based Upon PUCO Staff Water Utility Group	\$ 89,980	10	6.28%	
2. PUCO Staff Water Utility Group	\$ 1,735,421	10.3 x	5 - 6	4.57%

(A)	(B)	(C)	(D)	(E)
Decile	Smallest Company in Decile (millions)	Largest Company in Decile (millions)	Midpoint (millions)	Size Premium (Return in Excess of CAPM) (2)
1 - Largest	\$ 14,892,016	\$ 329,725,255	\$ 172,208,636	-0.37%
2	5,975,836	14,691,668	10,333,75	0.74%
3	3,428,570	5,936,147	4,682,36	0.86%
4	2,398,985	3,414,634	2,900,81	1.15%
5	1,602,429	2,384,026	1,993,23	1.69%
6	1,063,333	1,600,169	1,331,75	1.73%
7	685,129	1,063,308	874,22	1.73%
8	432,175	684,790	558,48	2.49%
9	214,194	431,256	322,73	2.85%
10 - Smallest	1,007	214,111	107,56	6.28%

Source: 2010 Ibbotson Risk Premia Over Time Report - Estimates for 1926-2009

Notes:

- (1) From page 2.
- (2) Gleaned from Column (D) on the bottom of this page. The appropriate decile (Column (A)) corresponds to the market capitalization of the PUCO Staff Water Utility Group, which is found in Column 1.
- (3) Corresponding risk premium to the decile is provided on Column (E) on the bottom of this page.
- (4) Line No. 1a Column 3 - Line No. 2 Column 3. For example, the 4.57% in Column 4, Line No. 2 is derived as follows 4.57% = 6.28% - 1.71%.

Aqua Ohio, Inc. - Mesury Division
Market Capitalization of Aqua Ohio, Inc. and
PUCO Staff Water Utility Group

1	2	3	4	5	6	7
Company	Exchange	Total Permanent Capital June 30, 2009 (millions)	Common Stock Shares Outstanding at Fiscal Year Ending 2008 (millions)	Book Value per Share at Fiscal Year Ending 2008 (1)	Total Common Equity at Fiscal Year Ending 2008 (millions)	Average Daily Closing Stock (2)
Aqua Ohio, Inc. - Mesury Division		\$ 102,485 (5)	NA	NA	\$ 51,701 (5)	NA
Based Upon PUCO Staff Water Utility Group						
PUCO Staff Water Utility Group						
American Water Works Company, Inc.	NYSE	\$ 12,968,949	169,967	\$ 25,643	\$ 4,102,001	\$ 19,3960
American States Water Company	NYSE	660,689	17,301	17,947	310,503	34,0183
California Water Service Group	NYSE	791,820	20,723	19,445	402,949	38,8338
Aqua America, Inc.	NASDAQ	2,333,126	136,053	7,780	1,058,446	17,9758
Average		\$ 4,188,741	83,611	\$ 17,704	\$ 1,468,475	27,5560
					174.0 % (6)	\$ 89,960 (7)
						\$ 1,735,421

NA = Not Available

- Notes:
- (1) Column 3 / Column 1.
 - (2) From Schedule D-1.4, Page 7 of the Staff Report.
 - (3) Column 4 / Column 2.
 - (4) Column 5 * Column 3.
 - (5) From Schedule D-1 of the Staff Report.
 - (6) The market-to-book ratio of Aqua Ohio, Inc. is assumed to be equal to the average market-to-book ratio of the PUCO Staff Water Utility Group.
 - (7) Aqua Ohio, Inc.'s common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio of the PUCO Staff Water Utility Group, 174.0%, and Aqua Ohio, Inc.'s market capitalization would therefore have been \$89,960 million. (\$89,960 = \$51,701 * 174.0%).

Source of Information: 2008 Annual Forms 10K
Quarterly Forms 10Q - 2nd quarter 2009.
yahoo.finance.com

Aqua Ohio, Inc. - Masury Division
Indicated Common Equity Cost Rate Through Use
of the Capital Asset Pricing Model

	<u>1</u>	<u>2</u>	<u>3</u>
	Value Line Adjusted Beta	Company-Specific Risk Premium Based on Market Premium of 7.72% (1)	CAPM Result Including Risk-Free Rate of 4.85% (2)
<u>PUCO Staff Water Utility Group</u>			
Traditional Capital Asset Pricing Model (3)	0.7333	5.66 %	10.51 %
Empirical Capital Asset Pricing Model (4)	0.7333	6.18 %	11.03 %
Average			<u>10.77 %</u>

See page 2 for notes.

Aqua Ohio, Inc. – Masury Division
Development of the Market-Required Rate of Return on Common Equity Using
the Capital Asset Pricing Model for
PUCO Staff Water Utility Group
Adjusted to Reflect a Forecasted Risk-Free Rate and Market Return

Notes:

- (1) The equity risk premium is based on the Value Line forecasted equity risk premium and the Ibbotson historical equity risk premium. In the Value Line forecasted equity risk premium was calculated using the three previous month-end (October 2009 – December 2009), as well as a then recently available (December 25, 2009), Value Line Summary & Index. A forecasted 3-5 year total annual market return of 13.68% can be derived by averaging the 3-month and spot forecasted total 3-5 year total appreciation, converting it into an annual market appreciation and adding the Value Line average forecasted annual dividend yield.

The 3-5 year average total market appreciation of 55% produces a four-year average annual return of 11.58% $((1.55^{0.25}) - 1)$. When the average annual forecasted dividend yield of 2.10% is added, a total average market return of 13.68% $(2.10\% + 11.58\%)$ is derived. The 3-month and spot forecasted total market return of 13.68% minus the forecasted risk-free rate of 4.85% (developed in Note 2) is 8.83% $(13.68\% - 4.85\%)$.

The Morningstar, Inc. (Ibbotson Associates) calculated market premium of 6.60% for the period 1926-2008 results from a total market return of 11.80% less the average income return on long-term U.S. Government Securities of 5.20% $(11.80\% - 5.20\% = 6.60\%)$.

This is then averaged with the 8.83% Value Line market premium resulting in a 7.72% market premium. The 7.72% market premium is then multiplied by the PUCO Staff average water utility beta on of page 1.

- (2) The average forecast based upon six quarterly estimates of 30-year Treasury Note yields per the consensus of nearly 50 economists reported in the Blue Chip Financial Forecasts dated January 1, 2010 (see page 3). The estimates are detailed below:

	<u>30-Year Treasury Note Yield</u>
First Quarter 2010	4.50
Second Quarter 2010	4.60
Third Quarter 2010	4.80
Fourth Quarter 2010	4.90
First Quarter 2011	5.10
Second Quarter 2011	5.20
Average	<u>4.85%</u>

- (3) The traditional Capital Asset Pricing Model (CAPM) is applied using the following formula:

$$R_S = R_F + \beta (R_M - R_F)$$

Where R_S = Return rate of common stock

R_F = Risk Free Rate

β = Value Line Adjusted Beta

R_M = Return on the market as a whole

- (4) From Schedule D-1.3, page 8 of the Staff Report.

- (5) The empirical CAPM is applied using the following formula:

$$R_S = R_F + .25 (R_M - R_F) + .75 \beta (R_M - R_F)$$

Where R_S = Return rate of common stock

R_F = Risk-Free Rate

β = Value Line Adjusted Beta

R_M = Return on the market as a whole

Source of information: Value Line Summary & Index

Blue Chip Financial Forecasts, January 1, 2010

2010 Ibbotson – Risk Premia Over Time Report – Estimates for 1926-2009, Morningstar, Inc., 2010.

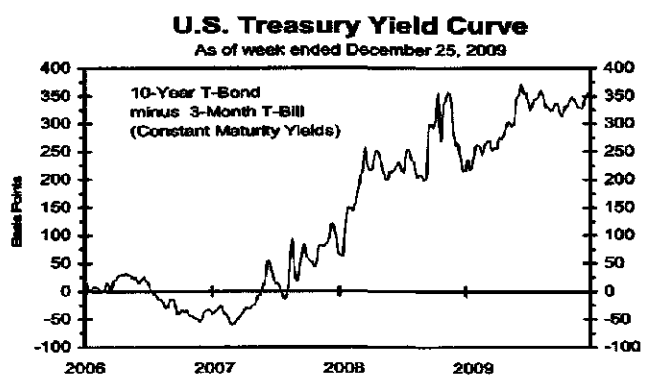
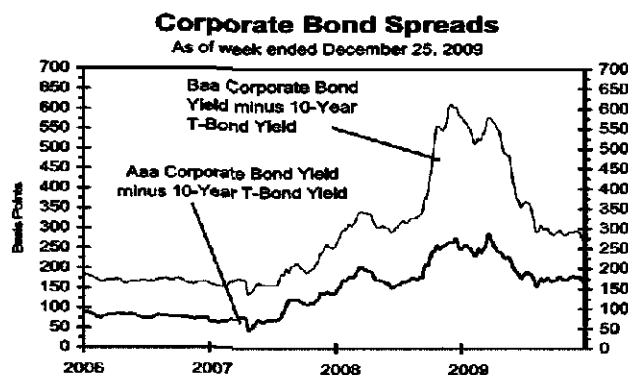
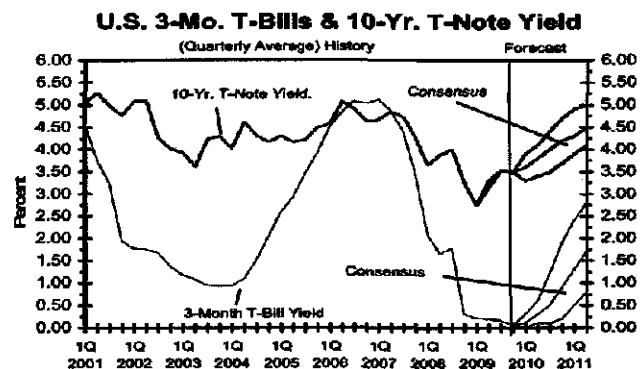
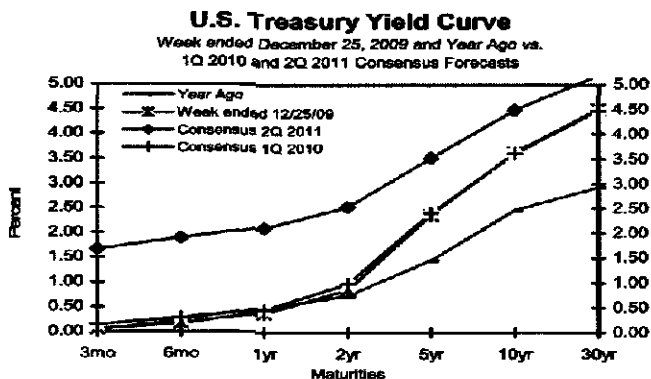
2 ■ BLUE CHIP FINANCIAL FORECASTS ■ JANUARY 1, 2010

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹

Interest Rates	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week End				Average For Month				Latest Q*	1Q 2010	2Q 2010	3Q 2010	4Q 2010	1Q 2011	2Q 2011
	Dec.25	Dec.18	Dec.11	Dec.4	Nov.	Oct.	Sep.	4Q 2009							
Federal Funds Rate	0.12	0.12	0.12	0.12	0.12	0.12	0.15	0.12	0.2	0.2	0.4	0.8	1.3	1.6	
Prime Rate	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.2	3.3	3.5	3.9	4.3	4.7	
LIBOR, 3-mo.	0.25	0.25	0.26	0.26	0.27	0.28	0.30	0.27	0.4	0.5	0.7	1.1	1.5	1.9	
Commercial Paper, 1-mo.	0.12	0.13	0.14	0.13	0.13	0.12	0.14	0.13	0.2	0.3	0.6	1.0	1.5	1.8	
Treasury bill, 3-mo.	0.06	0.04	0.03	0.06	0.05	0.07	0.12	0.06	0.1	0.3	0.5	0.9	1.3	1.7	
Treasury bill, 6-mo.	0.17	0.16	0.15	0.16	0.15	0.16	0.21	0.16	0.3	0.4	0.7	1.1	1.6	1.9	
Treasury bill, 1 yr.	0.38	0.37	0.32	0.29	0.31	0.37	0.40	0.34	0.4	0.6	1.0	1.4	1.8	2.1	
Treasury note, 2 yr.	0.86	0.84	0.78	0.73	0.80	0.95	0.96	0.85	1.0	1.2	1.5	1.9	2.3	2.5	
Treasury note, 5 yr.	2.37	2.31	2.18	2.10	2.23	2.33	2.37	2.27	2.4	2.6	2.9	3.1	3.4	3.5	
Treasury note, 10 yr.	3.63	3.56	3.47	3.34	3.40	3.39	3.40	3.43	3.6	3.8	4.0	4.2	4.3	4.5	
Treasury note, 30 yr.	4.51	4.48	4.44	4.29	4.31	4.19	4.19	4.31	4.5	4.6	4.8	4.9	5.1	5.2	
Corporate Aaa bond	5.25	5.26	5.25	5.11	5.19	5.15	5.13	5.19	5.3	5.4	5.5	5.7	5.8	5.9	
Corporate Baa bond	6.33	6.33	6.37	6.29	6.32	6.29	6.31	6.31	6.5	6.6	6.7	6.8	6.9	7.0	
State & Local bonds	4.17	4.18	4.19	4.24	4.37	4.20	4.24	4.26	4.5	4.6	4.7	4.8	4.9	5.1	
Home mortgage rate	4.98	4.94	4.81	4.71	4.88	4.95	5.06	4.90	5.1	5.3	5.5	5.7	5.8	6.0	

Key Assumptions	History								Consensus Forecasts-Quarterly					
	1Q 2008	2Q 2008	3Q 2008	4Q 2008	1Q 2009	2Q 2009	3Q 2009	4Q* 2009	1Q 2010	2Q 2010	3Q 2010	4Q 2010	1Q 2011	2Q 2011
	2008	2008	2008	2008	2009	2009	2009	2009	2010	2010	2010	2010	2011	2011
Major Currency Index	72.0	70.9	73.5	81.3	82.7	79.4	75.4	73.4	74.1	73.9	74.1	74.3	74.9	75.1
Real GDP	-0.7	1.5	-2.7	-5.4	-6.4	-0.7	2.2	3.5	2.9	2.9	3.0	3.0	3.0	3.0
GDP Price Index	1.9	1.8	4.0	0.1	1.9	0.0	0.4	1.5	1.5	1.4	1.5	1.6	1.8	1.8
Consumer Price Index	4.5	4.5	6.2	-8.3	-2.4	1.3	3.6	2.9	1.8	1.6	2.0	1.9	2.0	2.1

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Interest rate definitions are the same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the Fed's Major Currency Index is from FRSR H.10 and G.5. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). ¹Interest rate data for 4Q 2009 based on historical data through the week ended December 25*. Data for 4Q 2009 Major Currency Index also is based on data through week ended December 25*. Figures for 4Q 2009 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panelists this month (see page 14)



BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

EXHIBIT NO. 2

OF

PAULINE M. AHERN, CRRA
PRINCIPAL
AUS CONSULTANTS

ON BEHALF OF

AQUA OHIO, INC. - MASURY DIVISION

CONCERNING

RATE OF RETURN

FEBRUARY 2010

RATE OF RETURN

Cost of Common Equity (S.R. at 10-12)

Aqua Ohio - Masury has several objections to the Staff's Rate of Return section.

First, Staff selected publicly traded water companies listed as "Water Utilities" with Yahoo Stock Screener with capitalization above \$500 million and included in the "Water Utility" group in the Value Line Investment Survey Standard Edition. Thus, Staff's group is significantly less business risky than Aqua Ohio - Masury, which at December 30, 2008 had total capitalization of \$102.485 million as shown on Schedule D-1 of the Staff Report. Because Staff's recommended common equity cost rate is based upon the market data of a group of companies which is less business risky based upon size than Aqua Ohio - Masury, Staff's recommended common equity cost rate understates the true common equity cost rate to Aqua Ohio - Masury. An indication of the extent to which Staff's recommended common equity cost rate understates the true common equity cost rate is provided in Attachment 1.

Based upon Aqua Ohio - Masury's small relative size, an adjustment of 4.57% (457 basis points) is indicated based upon data from 2010 Ibbotson® Risk Premia Over Time Report – Estimates for 1926-2009. The determinations are based upon the size premia for decile portfolios of New York Stock Exchange (NYSE), American Stock Exchange (AMEX) and NASDAQ listed companies for the 1926-2009 period. A conservative adjustment of approximately 30% (30 basis points) should be made to reflect the business risk differential between

Aqua Ohio - Masury and the comparable group, based upon Aqua Ohio - Masury's increased business risk due to its small size, relative to that of Staff's Water Utility Group. Therefore, while Staff's recommended common equity cost rate understates Aqua Ohio - Masury's true common equity cost rate by at least 0.30%, in actuality it is understated by 4.57%. Adding this conservative 30 basis point adjustment to the Staff's recommended common equity cost rate range yields a common equity cost rate range of 9.03% - 10.04% using 30 basis points, which more appropriately reflects Aqua Ohio - Masury's greater relative business risk, but still understates Aqua Ohio - Masury's true common equity cost rate for reasons discussed below.

Capital Asset Pricing Model (CAPM)

Aqua Ohio - Masury also objects to Staff's application of the CAPM because it is flawed in five respects: 1) Staff utilized an historical yield on U.S. Treasury bonds as the risk-free rate instead of the more appropriate forecasted yield; 2) Staff inappropriately averaged the historical yield on 10-year U.S. Treasury bonds with the historical yield on 30-year U.S. Treasury bonds; 3) Staff incorrectly calculated the market equity risk premium using the total return on long-term U.S. Treasury bonds and not the income return; 4) Staff incorrectly utilized only the historical market equity risk premium without also evaluating a prospective market equity risk premium; and 5) Staff did not include an empirical CAPM analysis to reflect the fact that the empirical Security Market Line ("SML") described by the CAPM is not as steeply sloped as the predicted SML.

Attachment 2 provides a CAPM analysis which corrects for these flaws resulting in a corrected CAPM cost rate of 10.77%. However, this CAPM result also reflects the riskiness of the larger more geographically diverse water utility group and not the greater relative riskiness experienced by Aqua Ohio - Masury due to its small size. As discussed above, a conservative adjustment of 0.30% must be added to the corrected CAPM result of 10.77% for Staff's Water Utility Group resulting a risk-adjusted corrected CAPM result of 11.07%.

Discounted Cash Flow (DCF) Model

Aqua Ohio - Masury also objects to Staff's DCF analysis that is also flawed, specifically in the following respects: 1) Staff's exclusive reliance upon a non-constant growth version of the DCF, implicitly rejecting the constant growth version of the DCF, i.e., the standard regulatory form; and, 2) Staff's use of a long-term historical growth rate in Gross National Product ("GNP").

1) Staff relied exclusively upon a non-constant growth version of the DCF, although constant DCF results, which average 10.78%, are shown on Schedules D-1.5 through D-1.8 of the Staff Report. Absent evidence to the contrary and consistent with the Efficient Market Hypothesis ("EMH") which states that all information available to investors is evaluated by investors in making their investment decisions, it is reasonable and more probable that investors would utilize the constant growth version of the DCF as it is more widely used in regulatory ratemaking than is the non-constant version used by Staff. In addition, Staff provided no theoretical or empirical support for the use of a non-constant growth DCF for water utilities. Staff provided no evidence which

supports the assumption implicit in this version of the model, that growth in EPS, DPS or stock price will approach that of the economy as a whole at any given future point in time. In fact, Staff was silent relative to its constant Growth DCF analyses.

2) Staff utilized an historical long-term growth rate in GNP as the growth rate in the third stage of the model, from year 25 through year 400. However, ratemaking as well as the cost of capital is prospective. Therefore, to properly apply the non-constant growth version of the DCF, a prospective growth rate is required. Assuming for the sake of argument and because Staff utilized growth in GNP for the final stage of the non-constant, the prospective growth in GDP ("Gross Domestic Product") (growth in GNP is no longer available) should have been utilized. Averaging the growth of 4.66% in GDP forecasted by the Energy Information Administration ("EIA") for the years 2010 - 2035 (the last year for which EIA forecasts GDP) with the growth in GDP forecasted by the Social Security Administration ("SSA") for the years 2010 - 2085 in the amount of 4.81% from each of their 2009 annual reports, results in a forecasted growth in GDP of 4.74%. This contrasts with the 6.70% historical GNP growth rate utilized by Staff. Although Staff's GNP growth rate is higher than the current average forecasts of GDP, once again the forecasts are conceptually correct, as rate making and the cost of capital are prospective.

As with the CAPM results discussed above, Aqua Ohio - Masury objects because these results reflect the riskiness of the larger, more geographically diverse Water Utility Group and not the greater relative riskiness experienced by

Aqua Ohio - Masury due to its small size. A conservative size adjustment of 0.30% should have been added to the DCF results of Staff's Water Utility Group. This results in a non-constant risk-adjusted DCF result of 10.73% ($10.73\% = 10.43\% + 0.30\%$). Adding this size adjustment range to Staff's average constant growth DCF results of 10.78% results in a risk-adjusted range of constant growth DCF results of 11.08% ($11.08\% = 10.78\% + 0.30\%$).

Based upon Staff's corrected and risk-adjusted analysis, the corrected CAPM result is 11.07% and non-constant DCF result is 10.73%. Staff's corrected and risk-adjusted analysis thus yields a common equity cost rate of 10.90% ($10.90\% = (11.07\% + 10.73\%) / 2$). Using a 100 basis point range of uncertainty as Staff has done in its report, the corrected and risk-adjusted cost of common equity ranges from 10.40% - 11.30%. Making Staff's allowance for issuance and other costs, as shown on Schedule D-1.1 of the Staff report, using Staff's adjustment factor of 1.00985 results in a range of common equity cost rates of 10.50% to 11.41% ($10.50\% = 10.40\% * 1.00985$ and $11.41\% = 11.30\% * 1.00985$).

Using Staff's corrected and risk-adjusted CAPM results of 11.07%, Staff's risk-adjusted constant-growth DCF result of 11.08%, and Staff's 100 basis point range of uncertainty results in a corrected and risk-adjusted cost of common equity range of 10.58% - 11.58%. Making Staff's allowance for issuance and other costs, as shown on Schedule D-1.1 of the Staff report, using Staff's adjustment factor of 1.00985 results in a common equity cost rate of 10.68% ($10.68\% = 10.58\% * 1.00985$ and $11.69\% (11.58\% * 1.00985)$).

For all the reasons given above, Aqua Ohio - Masury objects to the understatement of Staff's rate of return conclusions.

Aqua Ohio, Inc. - Masury Division
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.	1	2	3	4
	Market Capitalization (1) (millions)	Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	Applicable Size Premium (3)	Spread from Applicable Size Premium for (4)
1. Aqua Ohio, Inc. - Masury Division				
a. Based Upon PUCO Staff Water Utility Group	\$ 89,960	10	6.28%	
2. PUCO Staff Water Utility Group	\$ 1,735,421	19.3 x	5 - 6	1.71%
				4.57%

(A)	(B)	(C)	(D)	(E)
Decile	Smallest Company in Decile (millions)	Largest Company in Decile (millions)	Midpoint (millions)	Size Premium (Return in Excess of CAPM) (2)
1 - Largest	\$ 14,892,018	\$ 329,725,255	\$ 172,208,636	-0.37%
2	5,975,836	14,691,668	10,333,75	0.74%
3	3,428,570	5,936,147	4,682,36	0.85%
4	2,388,985	3,414,634	2,900,81	1.15%
5	1,602,429	2,384,026	1,993,23	1.69%
6	1,063,333	1,600,169	1,331,75	1.73%
7	685,129	1,063,308	874,22	1.73%
8	432,175	684,790	558,48	2.49%
9	214,194	431,256	322,73	2.85%
10 - Smallest	1,007	214,111	107,56	6.28%

Source: 2010 Ibbotson Risk Premia Over Time Report - Estimates for 1926-2009

Notes:

- (1) From page 2.
- (2) Gleaned from Column (D) on the bottom of this page. The appropriate decile (Column (A)) corresponds to the market capitalization of the PUCO Staff Water Utility Group, which is found in Column 1.
- (3) Corresponding risk premium to the decile is provided on Column (E) on the bottom of this page.
- (4) Line No. 1a Column 3 - Line No. 2 Column 3. For example, the 4.57% in Column 4, Line No. 2 is derived as follows 4.57% = 6.28% - 1.71%.

Aqua Ohio, Inc. - Masury Division
Market Capitalization of Aqua Ohio, Inc. and
PUCO Staff Water Utility Group

	1	2	3	4	5	6	7
Company	Exchange	Total Permanent Capital June 30, 2009 (millions)	Common Stock Shares Outstanding at Fiscal Year Ending 2008 (millions)	Book Value per Share at Fiscal Year Ending 2008 (1)	Total Common Equity at Fiscal Year Ending 2008 (millions)	Average Daily Closing Stock (2)	Market Capitalization (4) (millions)
Aqua Ohio, Inc. - Masury Division		\$ 102,485 (5)	NA	NA	\$ 51,701 (5)	NA	
Based Upon PUCO Staff Water Utility Group						174.0 % (6)	\$ 89,980 (7)
PUCO Staff Water Utility Group							
American Water Works Company, Inc.	NYSE	\$ 12,968,949	159,967	\$ 25,643	\$ 4,102,001	\$ 19,3860	3,102,720
American States Water Company	NYSE	860,969	17,301	17,947	310,503	34,0163	588,551
California Water Service Group	NYSE	791,820	20,723	19,445	402,949	38,8338	804,753
Aqua America, Inc.	NASDAQ	2,333,126	136,053	7,780	1,058,446	17,9758	2,445,652
Average		\$ 4,198,741	83,511	\$ 17,704	\$ 1,488,475	27,5590	\$ 1,735,421

NA = Not Available

- Notes: (1) Column 3 / Column 1.
(2) From Schedule D-1.4, Page 7 of the Staff Report.
(3) Column 4 / Column 2.
(4) Column 5 * Column 3.
(5) From Schedule D-1 of the Staff Report.
(6) The market-to-book ratio of Aqua Ohio, Inc. is assumed to be equal to the average market-to-book ratio of the PUCO Staff Water Utility Group.
(7) Aqua Ohio, Inc.'s common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio of the PUCO Staff Water Utility Group. 174.0%, and Aqua Ohio, Inc.'s market capitalization would therefore have been \$89,980 million. (\$89,980 = \$51,701 * 174.0%)

Source of Information: 2008 Annual Forms 10K
Quarterly Forms 10Q - 2nd quarter 2009.
yahoo.finance.com

Aqua Ohio, Inc. - Masury Division
Indicated Common Equity Cost Rate Through Use
of the Capital Asset Pricing Model

	<u>1</u>	<u>2</u>	<u>3</u>
	Value Line Adjusted Beta	Company-Specific Risk Premium Based on Market Premium of 7.72% (1)	CAPM Result Including Risk-Free Rate of 4.85% (2)
<u>PUCO Staff Water Utility Group</u>			
Traditional Capital Asset Pricing Model (3)	0.7333	5.66 %	10.51 %
Empirical Capital Asset Pricing Model (4)	0.7333	6.18 %	11.03 %
Average			<u>10.77 %</u>

See page 2 for notes.

Aqua Ohio, Inc. – Masury Division
Development of the Market-Required Rate of Return on Common Equity Using
the Capital Asset Pricing Model for
PUCO Staff Water Utility Group
Adjusted to Reflect a Forecasted Risk-Free Rate and Market Return

Notes:

- (1) The equity risk premium is based on the Value Line forecasted equity risk premium and the Ibbotson historical equity risk premium. In the Value Line forecasted equity risk premium was calculated using the three previous month-end (October 2009 – December 2009), as well as a then recently available (December 25, 2009), Value Line Summary & Index. A forecasted 3-5 year total annual market return of 13.68% can be derived by averaging the 3-month and spot forecasted total 3-5 year total appreciation, converting it into an annual market appreciation and adding the Value Line average forecasted annual dividend yield.

The 3-5 year average total market appreciation of 55% produces a four-year average annual return of 11.58% $((1.55^{0.25}) - 1)$. When the average annual forecasted dividend yield of 2.10% is added, a total average market return of 13.68% $(2.10\% + 11.58\%)$ is derived. The 3-month and spot forecasted total market return of 13.68% minus the forecasted risk-free rate of 4.85% (developed in Note 2) is 8.83% $(13.68\% - 4.85\%)$.

The Morningstar, Inc. (Ibbotson Associates) calculated market premium of 6.60% for the period 1926-2008 results from a total market return of 11.80% less the average income return on long-term U.S. Government Securities of 5.20% $(11.80\% - 5.20\% = 6.60\%)$.

This is then averaged with the 8.83% Value Line market premium resulting in a 7.72% market premium. The 7.72% market premium is then multiplied by the PUCO Staff average water utility beta on of page 1.

- (2) The average forecast based upon six quarterly estimates of 30-year Treasury Note yields per the consensus of nearly 50 economists reported in the Blue Chip Financial Forecasts dated January 1, 2010 (see page 3). The estimates are detailed below:

	<u>30-Year Treasury Note Yield</u>
First Quarter 2010	4.50
Second Quarter 2010	4.60
Third Quarter 2010	4.80
Fourth Quarter 2010	4.90
First Quarter 2011	5.10
Second Quarter 2011	<u>5.20</u>
Average	<u>4.85%</u>

- (3) The traditional Capital Asset Pricing Model (CAPM) is applied using the following formula:

$$R_S = R_F + \beta (R_M - R_F)$$

Where R_S = Return rate of common stock

R_F = Risk Free Rate

β = Value Line Adjusted Beta

R_M = Return on the market as a whole

- (4) From Schedule D-1.3, page 8 of the Staff Report.

- (5) The empirical CAPM is applied using the following formula:

$$R_S = R_F + .25 (R_M - R_F) + .75 \beta (R_M - R_F)$$

Where R_S = Return rate of common stock

R_F = Risk-Free Rate

β = Value Line Adjusted Beta

R_M = Return on the market as a whole

Source of Information: Value Line Summary & Index

Blue Chip Financial Forecasts, January 1, 2010

2010 Ibbotson – Risk Premium Over Time Report – Estimates for 1926-2009, Morningstar, Inc., 2010.

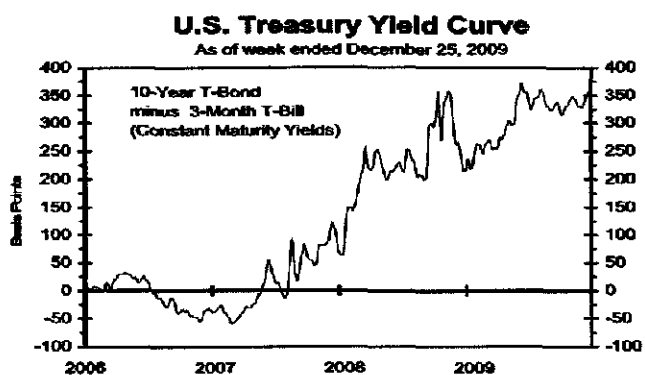
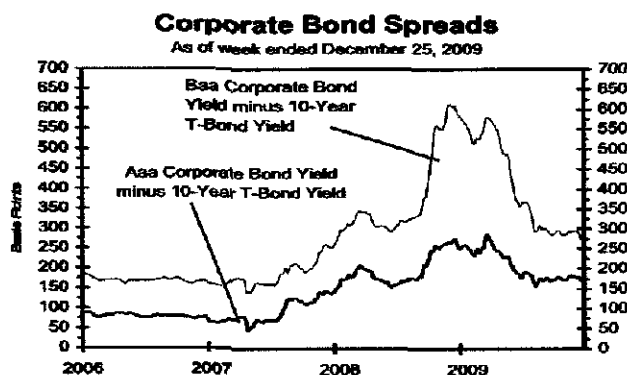
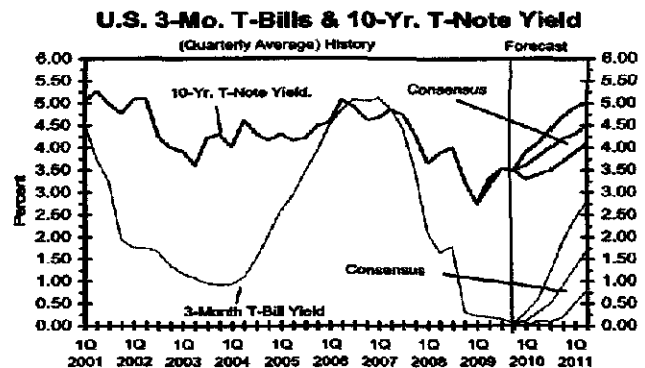
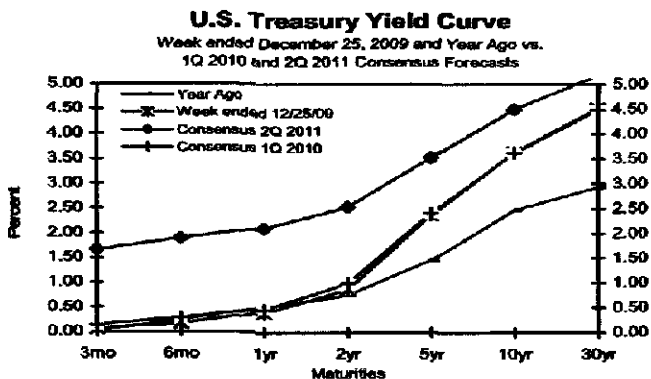
2 ■ BLUE CHIP FINANCIAL FORECASTS ■ JANUARY 1, 2010

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹

Interest Rates	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week End				Average For Month				Latest Q*	1Q 2010	2Q 2010	3Q 2010	4Q 2010	1Q 2011	2Q 2011
	Dec. 25	Dec. 18	Dec. 11	Dec. 4	Nov.	Oct.	Sep.	4Q 2009							
Federal Funds Rate	0.12	0.12	0.12	0.12	0.12	0.12	0.15	0.12	0.2	0.2	0.4	0.8	1.3	1.6	
Prime Rate	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.2	3.3	3.5	3.9	4.3	4.7	
LIBOR, 3-mo.	0.25	0.25	0.26	0.26	0.27	0.28	0.30	0.27	0.4	0.5	0.7	1.1	1.5	1.9	
Commercial Paper, 1-mo.	0.12	0.13	0.14	0.13	0.13	0.12	0.14	0.13	0.2	0.3	0.6	1.0	1.5	1.8	
Treasury bill, 3-mo.	0.06	0.04	0.03	0.06	0.05	0.07	0.12	0.06	0.1	0.3	0.5	0.9	1.3	1.7	
Treasury bill, 6-mo.	0.17	0.16	0.15	0.16	0.15	0.16	0.21	0.16	0.3	0.4	0.7	1.1	1.6	1.9	
Treasury bill, 1 yr.	0.38	0.37	0.32	0.29	0.31	0.37	0.40	0.34	0.4	0.6	1.0	1.4	1.8	2.1	
Treasury note, 2 yr.	0.86	0.84	0.78	0.73	0.80	0.95	0.96	0.85	1.0	1.2	1.5	1.9	2.3	2.5	
Treasury note, 5 yr.	2.37	2.31	2.18	2.10	2.23	2.33	2.37	2.27	2.4	2.6	2.9	3.1	3.4	3.5	
Treasury note, 10 yr.	3.63	3.56	3.47	3.34	3.40	3.39	3.40	3.43	3.6	3.8	4.0	4.2	4.3	4.5	
Treasury note, 30 yr.	4.51	4.48	4.44	4.29	4.31	4.19	4.19	4.31	4.5	4.6	4.8	4.9	5.1	5.2	
Corporate Aaa bond	5.25	5.26	5.25	5.11	5.19	5.15	5.13	5.19	5.3	5.4	5.5	5.7	5.8	5.9	
Corporate Baa bond	6.33	6.33	6.37	6.29	6.32	6.29	6.31	6.31	6.5	6.6	6.7	6.8	6.9	7.0	
State & Local bonds	4.17	4.18	4.19	4.24	4.37	4.20	4.24	4.26	4.5	4.6	4.7	4.8	4.9	5.1	
Home mortgage rate	4.98	4.94	4.81	4.71	4.88	4.95	5.06	4.90	5.1	5.3	5.5	5.7	5.8	6.0	

Key Assumptions	History								Consensus Forecasts-Quarterly							
	1Q				2Q				3Q	4Q*	1Q 2010	2Q 2010	3Q 2010	4Q 2010	1Q 2011	2Q 2011
	2008	2008	2008	2008	2009	2009	2009	2009								
Major Currency Index	72.0	70.9	73.5	81.3	82.7	79.4	75.4	73.4	74.1	73.9	74.1	74.3	74.9	75.1		
Real GDP	-0.7	1.5	-2.7	-5.4	-6.4	-0.7	2.2	3.5	2.9	2.9	3.0	3.0	3.0	3.0		
GDP Price Index	1.9	1.8	4.0	0.1	1.9	0.0	0.4	1.5	1.5	1.4	1.5	1.6	1.8	1.8		
Consumer Price Index	4.5	4.5	6.2	-8.3	-2.4	1.3	3.6	2.9	1.8	1.6	2.0	1.9	2.0	2.1		

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Interest rate definitions are the same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the Fed's Major Currency Index is from FRSR H.10 and G.5. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). ¹Interest rate data for 4Q 2009 based on historical data through the week ended December 25th. ²Data for 4Q 2009 Major Currency Index also is based on data through week ended December 25th. Figures for 4Q 2009 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panelists this month (see page 14)



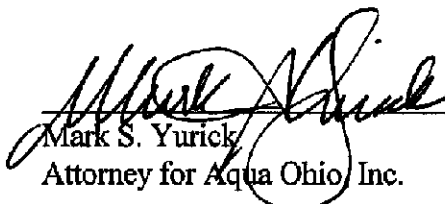
CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing *Direct Testimony of Pauline M. Ahern, CRRA* has been served upon the following persons, via regular U.S. mail, postage prepaid, this 22nd day of February, 2010.

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