BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application for increase in water and wastewater rates in Alachua, Brevard, Highlands, Lake, Lee, Marion, Orange, Palm Beach, Pasco, Polk, Putnam, Seminole, Sumter, Volusia and Washington Counties by Aqua Utilities Florida,

Docket No: 060368-EI
Filed: August 7, 2007

ORIGINAL

TESTIMONY AND SCHEDULES

OF

JAMES A. ROTHSCHILD

On Behalf of the Citizens of the State of Florida

Respectfully submitted,

Charles J. Beck
Interim Public Counsel

Office of Public Counsel
c/o The Florida Legislature
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Attorney for the Citizens
of the State of Florida

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I. STATEMENT OF QUALIFICATIONS OF JAMES A. ROTHSCHILD

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive, Wilton, Connecticut 06897.

Q. WHAT IS YOUR OCCUPATION?

A. I am a financial consultant specializing in utility regulation. I have experience in the regulation of electric, gas, telephone, water and sewer, and gas utilities throughout the United States.

Q. PLEASE SUMMARIZE YOUR UTILITY REGULATORY EXPERIENCE.

A. I am the founder of Rothschild Financial Consulting and have been a consultant since 1972. From 1979 through January 1985, I was President of Georgetown Consulting Group, Inc. From 1976 to 1979, I was the President of J. Rothschild Associates. Both of these firms specialized in utility regulation. From 1972 through 1976, Touche Ross & Co., a major international accounting firm, employed me as a management consultant. Touche Ross & Co. later merged to form Deloitte Touche. Much of my consulting at Touche Ross was

in the area of utility regulation. While associated with the above firms, I have worked for various state utility commissions, attorneys general, utility customers and public advocates on regulatory matters relating to regulatory and financial issues. These have included rate of return, financial issues, and accounting issues. (See Appendix A.)

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I received an MBA in Banking and Finance from Case Western University (1971) and a BS in Chemical Engineering from the University of Pittsburgh (1967).

II. SUMMARY OF CONCLUSIONS

Q WHAT OVERALL COST OF CAPITAL DO YOU RECOMMEND?

A. I recommend an overall cost of capital 7.56% based on a cost of equity (COE) for Aqua Utilities Florida (AUF) of 9.50% and a capital structure with 45.54% common equity, 0.00% preferred stock, 48.57% long-term debt and 5.89% short-term debt.

Q. WHAT METHODS DID YOU USE TO DETERMINE AUF'S COST OF EQUITY?

A. I obtained this cost of equity by applying the DCF and CAPM methods to a group consisting of the four water companies covered by Value Line.

Q. WHAT CAPITAL STRUCTURE DO YOU RECOMMEND FOR AUF?

A. As explained later in this testimony, my capital structure recommendation is based on Aqua America, Inc.'s actual capital structure, as of December 31, 2006. This capital structure contains 45.54% common equity before adjusting for Florida's regulatory basis capital structure. See Office of Public Counsel witness Kim Dismukes' testimony for the regulatory basis capital structure as used to calculate the revenue requirement.

Q. WHAT COST OF EQUITY IS INDICATED FOR THE VALUE LINE WATER COMPANES?

A. As explained later in this testimony and shown on Schedule JAR 2, Page 1, the DCF method applied to the Value Line water companies shows a cost of equity of between

9.32% and 9.44%. The CAPM method applied to the same companies is indicating a cost of equity of 9.16%. Based on these two results, the cost of equity to the Value Line water companies is 9.30%.

Q. ARE THERE ANY SPEICAL CIRCUMSTANCES THAT YOU HAD TO TAKE INTO ACCOUNT AS YOU CALCULATED THE COST OF EQUITY FOR AUF?

A. Yes. Generally, as the stock price of a company increases over its book value the cost of equity falls below its return on book equity – the higher the stock price the greater this discrepancy. When the stock price is higher than the book value, this indicates a market to book ratio above one. However, when a company has a need to issue new stock while the market to book ratio is over one this offers an additional growth opportunity. This growth is over and above the growth a company can achieve through reinvesting the cash flow generated by the business. For a regulated utility, the issuance of stock above book value is particularly beneficial to investors because it increases its book value. The higher the book value, the higher earnings per share will tend to be. The market prices of the water companies are over twice book values for all of the four water companies covered by Value Line. Combining that with the fact that the water companies are expected to raise new common stock to pay for large infrastructure upgrades means that this external financing may result in an unusually high source of growth. In fact, this source is so high that water companies currently find themselves in the rare situation where the DCF indicated cost of equity is higher than the current expected return on book equity for two of the four water companies covered by Value Line.

Q. WHAT COST OF EQUITY DO YOU RECOMMEND FOR AUF?

A. Based on my recommended capital structure containing 45.54% common equity, the cost of equity to AUF is 9.50%. An adjustment for financial risk of 0.20% because the actual capital structure of Aqua America contains less common equity than the average of the four water companies covered by Value Line.

III. CAPITAL STRUCTURE

Q. WHAT CAPITAL STRUCTURE HAVE YOU RECOMMENDED IN THIS CASE?

A. I recommend that the cost of capital for Aqua Utilities Florida be based upon the actual fully arms-length capital structure seleted by management, i.e. the actual consolidated capital structure of Aqua America, Inc. This capital structure contains 45.54% common equity, 0.00% preferred stock, 48.57% long-term debt and 5.89% short-term debt. See Schedule JAR 8, page 2. This actual Aqua America, Inc capital structure should be adjusted to reflect the Florida regulatory basis capital structure (See OPC witness Kim Dismukes' testimony). This is based on a financial basis capital structure consisting of 43.67% common equity, 0.00% preferred equity, and 46.57% long-term debt and 5.69% short-term debt as shown on Schedule JAR 1, Page 2. I arrived at this recommended capital structure based on the actual capital structure being used by Aqua America Inc. on a consolidated basis as of December 31, 2006, in consideration of the following observations:

a) *Value Line Average Capital Structure.* The average financial basis capital structure for Aqua America, Inc. as reported by Value Line is almost identical to that reported in its annual report as of 12/31/06. Value Line report 45.30% common equity, 0.00% preferred equity, and 47.2% long –term debt and 7.50% short-term debt[1].

b) *Forecasted Aqua America capital structure.* Value Line forecasts the percentage common equity in the capital structure of Aqua America to basically stay the same. It forecasts a slight decrease in

[1] See Schedule JAR 8, Page 1.

the common equity ratio in 2007 and 2008, followed by a similarly slight increase essentially back to today's level by 2010-2012.

c) *Test year Capital Structure.* The capital structure of AUF as of 12/31/2006 is basically identical to the 2007 test year capital structure.

The percentage of common equity in the capital structure of Aqua America Inc. consolidated is within a reasonable range of its historic ratios.

Q. HOW SHOULD THE COMMISSION DETERMINE THE CAPITAL STRUCTURE TO USE IN THE DETERMINATION OF THE OVERALL COST OF CAPITAL APPLICABLE TO THE REGULATED WATER OPERATIONS OF AUF?

A. Ideally the Commission should use the capital structure that will balance safety and economy. However, how to determine the capital structure that will produce the lowest overall cost of capital is controversial. Therefore, commissions frequently look to actual capital structures as an indicator of what capital structures will produce the lowest overall cost of capital. Utility rate regulation is a substitute for competition. Competition puts continual pressure on companies to provide services desired by its customers at the lowest price. To provide services at the lowest price, competitive companies

have to minimize all costs, including the cost of capital. The cost of capital can be highly influenced by the capital structure a company uses.

It cannot be stressed strongly enough that the reported capital structure of wholly owned subsidiaries such as AUF does not provide insight into what capital structure management believes will produce the lowest overall cost of capital. Subsidiary capital structures can, and often do contain equity that was actually raised by its parent in the form of debt and not equity. Holding companies with regulated subsidiaries have a special incentive to put extra equity on the books of such regulated subsidiaries when the only point to such excess equity is to rationalize a higher than appropriate revenue requirement.

Please note that Standard & Poors is specifically aware of the weakest link in the chain of problems associated with a high reported common equity ratio reported on the books of regulated subsidiaries when such extra equity disappears at the consolidated level:

> Utilities are often owned by companies that own other, riskier businesses or that are saddled with an additional layer of debt at the parent level. Corporate rating criteria would rarely view the default risk of an unregulated subsidiary as being substantially different from the credit quality of the consolidated economic entity (which would fully take into account parent-company obligations). Regulated subsidiaries can be treated as exceptions to this

rule – if the specific regulators involved are expected to create barriers that insulate a subsidiary from its parent[2].

Myron J. Gordon, famous as the first person to use the DCF model in utility rate proceedings, said the following regarding capital structure in his direct testimony in an American Telephone and Telegraph case:

> For a regulated company increasing the debt ratio is a heads-you-win-tails-I-lose proposition. The consumers enjoy the benefits in reduced revenue requirements of a high debt ratio, while the management and stock-holders suffer the increased risk. The consequence is that the management of a regulated company will want the lowest possible debt ratio that it can persuade the regulatory commission to accept, **and a commission that simply accepts the debt ratio advocated by a utility subject to its regulation is derelict in its responsibilities to consumers**[3].

IV. COST OF DEBT

Q. WHAT IS YOUR RECOMMENDED COST OF DEBT?

A. I have adopted the 6.00% cost of long-term debt computed by the Company. The 5.50% cost of short-term debt is the current cost AA commercial as reported by the Federal Reserve plus 28 basis points to account for Aqua America, Inc's AA- bond rating.

[2] Corporate Rating Criteria obtained from the Standard & Poors.
[3] *Re American Telephone and Telegraph Company. CC Docket* No. 79-63, 1980

V. DISCOUNTED CASH FLOW METHOD

Q. WHAT IS THE DISCOUNTED CASH FLOW (DCF) METHOD?

A. The DCF method is a mathematical formula that is used to value a stock and to calculate the cost of equity. It recognizes that investors who buy a stock expect to receive cash dividends and/or capital gains in the future, considering the time value of money.

Q. WHAT IS THE TIME VALUE OF MONEY?

A. The time value of money is just another way of saying that money can earn interest. The concept recognizes that because money can earn interest, a dollar received today is worth more than a dollar received tomorrow, a dollar received tomorrow is worth more than a dollar next year, and so on. For example, if an investor puts $100 in a bank account that offers a 3% annual compounded interest rate, the investor will have $103 a year later and $106.09 in two years. If the only investment opportunity is to put money in this bank offering a 3% interest rate then that $103 next year is worth $100 today.

If a company offers an investor $100 in ten years or $80 today, the DCF method helps answer the question of which amount the investor should take. If the only investment opportunity for the investor is to put the money in a bank earning 3% interest, it is known that $100 in ten years is equivalent to $74.40 today ($100/(1.03)^10). The DCF method guides the investor to the correct answer, which is to take the $80 because it is higher than the $74.40.

In the above example the discounted cash flow (DCF) method discount rate was 3%.

Q. IS THE DISCOUNT RATE HIGHER WHEN AN INVESTOR VALUES A STOCK THAN WHEN INVESTING IN AN FDIC INSURED BANK ACCOUNT?

A. Yes. The FDIC insured bank account is virtually certain to pay the interest and not default on the investor's deposit. On the other hand investing in stocks involves risk because the quality of management, competitive surprises or overall economic conditions all impact a company's ability to generate cash flow in the future.

Q. WHAT IS THE RELATIONSHIP BETWEEN THE DISCOUNT RATE AND THE COST OF EQUITY?

A. The discount rate investors use when calculating the value of a stock is equal to the cost of equity.

Q. HOW ARE INVESTORS PAID THE COST OF EQUITY?

A. In addition to receiving dividends the investor has the option to sell the stock. The profit investors receive from selling stock is generally referred to as capital gains.

Q. WHAT ARE CAPITAL GAINS?

A. A capital gain, or loss, is the difference between what an investor pays for a stock and the final selling price. For example, if an investor pays $20 for a stock this year and sells it for $21 in three years' time, the capital gain is equal to $21 - $20 or $1.

Q. IS IT ACCEPTABLE TO ARRIVE AT A COST OF EQUITY FROM THE DCF MODEL THAT COULD CAUSE THE STOCK PRICE OF A COMPANY TO CHANGE?

A. Yes. This principle is a key point of the City of Cleveland vs. Hope Natural Gas U.S. Supreme Court decision. In this landmark case, the U.S Supreme Court said:

> The fixing of prices, like other applications of the police power, may reduce the value of property which is being regulated. But the fact that the value is reduced does not mean that the regulation is invalid. It does, however, indicate that "fair value" is the end product of the process of rate-making not the starting point.... The heart of the matter is upon "fair value" when the value of the going enterprise depends on earnings under whatever rates may be anticipated.

Q. WHAT IS THE PRINCIPLE BEHIND THE DCF METHOD?

A. An investor parts with his or her money to receive dividends and then sells the stock to someone else. The price the new owner is willing to pay for the stock is related to the future flow of dividends and future selling price he or she expects to receive. The value of a company is recognized to be the discounted value of all future dividends continuing until the stock is sold, plus the value of the stock sale proceeds when it is eventually sold.

For example, if the cost of equity is 9% and the dividend is $1 per share then that one-dollar dividend paid out next year is worth $1/(1+.09) or $0.92 today. This means that the $0.92 of the current stock price is accounted for by the dividend expected to be paid one year from today. In addition to receiving a dividend for next year an investor might also expect a dividend in the second year of owning the investment. If that dividend were also $1 then in terms of today's value of that dividend in the second year, that $1 is now worth $1/ (1.09) ^2 = $0.84. If by the third year it's expected the dividend

will jump to $1.50, then the contribution to today's stock price from this $1.50 is $1.50(1.09)^3 = $1.16. This analysis continues year by year for as many years as the investor expects to own the stock. This relationship can be generalized by the following mathematical equation:

The current stock price P is equal to: D1/(1+k) + D2/(1+k)^2 + D3/(1+k)^3 +.... (Dn + Pn) X (1+k)^n.

P = Current stock price
D1 = Dividend paid out in the first year
D2 = Dividend paid out in the second year
D3 = Dividend paid out in the third year
Dn = Dividend paid out in the nth year
k = the opportunity cost of capital or the required return.
Pn = the sale price of the stock

This complex version of the DCF equation can be used to solve for the cost of equity by estimating the dividend each year and what price the stock will be sold for and then having the computation solve for the cost of equity, k.

Q. DOES THE POTENTIAL FOR A CHANGE IN THE FUTURE EXPECTED RETURN ON BOOK EQUITY MAKE THE DCF MODEL CIRCULAR?

A. No. It is not circular because the DCF computations are all taken from a point in time before investor expectations change. Such an approach is therefore no more circular than a ship captain who, by looking at his compass, determines that his ship is sailing 10 degrees too far South, so he turns the ship to have the very same compass turn back to the true course.

Q. IS IT ALWAYS NECESSARY TO USE THIS COMPLEX FORM OF THE DCF METHOD?

A. No. If the best estimate for future growth in earnings, book value, dividends and stock price is the same estimate, then and only then does the complex formula become mathematically identical to the answer obtained by the following equation:

$k = D/P + g.$

Q. WHAT IS THE SIMPLIFIED VERSION OF THE DCF METHOD?

A. In the simplified version the cost of equity k is equal to the dividend yield plus growth.

$k = D/P + g$

k = Cost of equity
D/P = Dividend Yield (D = dividend and P = stock price)
g = Growth in earnings, dividends, book value and stock price expected by investors.

In the mathematical duration of this simplified DCF model growth, g = Future Expected Return on Book Equity (ROE) X Retention Rate + SV. SV is the growth caused by the sale of new common stock at a price different from book value.

The retention rate is the percentage of earnings not paid out as a dividend.

If a stock price is $20 per share and the investor receives a $1 dividend per year the dividend yield is 5% ($1/$20).

$k = 5\% + g$

If there was no growth then we could say that k = 5%.

$k = 5\% + 0\%$

When a company generates earnings it chooses how much to pay out to stockholders and how much to re-invest in the company. In the above example the retention rate is zero and 100% of the earnings are paid out as a dividend.

Companies usually do not pay 100% of earnings as a dividend. The percentage of earnings not paid out as a dividend benefits investors because this portion is re-invested in the company. Whatever percentage of earnings that are re-invested in the company is called the retention rate. For example, if half the earnings are re-invested the retention rate is 50%. The retained earnings are re-invested in the company because management presumably believes there are good investments they can make with that money. The investors' expectation of the returns on this re-invested money is the Return on Book Equity (ROE), not the cost of equity r.

As stated earlier, growth is equal to ROE X Retention Rate. For example if investors expect an ROE of 8% and a 50% retention rate the growth is equal to 4% (50% X 8%).

Q. IS IT ALWAYS APPROPRIATE TO USE THE SIMPLIFIED VERSION OF THE DCF METHOD?

A. No. In order to use the simplified version, our best estimate must be that the following factors will grow at the same rate:

a) Earnings

b) Book Value

c) Dividends

d) Stock Price

If these are all expected to grow at the same rate, then growth (g) will be equal to ROE X retention rate.

Q. CAN YOU PROVIDE AN EXAMPLE WHERE IT IS NOT APPROPRIATE TO USE THE SIMPLIFIED VERSION OF THE DCF METHOD?

A. Yes. If our best estimate is that earnings per share and stock price will grow at 6% per year while dividends per share will grow at 3% per year and book value per share will grow at 4% per year then the simplified version of the DCF method should not be used.

In the table below the dividend yield decreases from 5.30% in 2007 to 4.73% in 2011. In this case it is not proper to use either the 5.30% or the 4.73% in the simplified formula. Taking an average over any given time period is also improper because the dividend yield keeps decreasing in the future.

In Table 1 below, return on book equity increases from 10.19% in 2007 to 11.00% by 2011. It is unrealistic to expect any company, let alone a regulated public utility, to have a return on book equity that increases indefinitely.

TABLE 1

DIFFERENT GROWTH RATES	**Value**	**Growth**
Earnings Per Share	$ 1.00	6%
Dividends Per Share	$ 0.60	3%
Book Value Per Share	$ 10.00	4%
Stock Price	$ 11.00	6%

Growth at 6% per share	**2007**	**2008**	**2009**	**2010**	**2011**
Earnings Per Share	$ 1.06	$ 1.12	$ 1.19	$ 1.26	$ 1.34
Dividends Per Share	$ 0.62	$ 0.64	$ 0.66	$ 0.68	$ 0.70
Book Value Per Share	$ 10.40	$ 10.82	$ 11.25	$ 11.70	$ 12.17
Stock Price	$ 11.66	$ 12.36	$ 13.10	$ 13.89	$ 14.72
Dividend Yield	**5.30%**	**5.15%**	**5.00%**	**4.86%**	**4.73%**
Market to Book Ratio	1.12	1.14	1.16	1.19	1.21
Return on Book Equity	**10.19%**	**10.39%**	**10.59%**	**10.79%**	**11.00%**
P/E Ratio	11.00	11.00	11.00	11.00	11.00

Q. PLEASE PROVIDE AN EXAMPLE OF A CONDITION WHERE IT IS APPROPRIATE TO USE THE SIMPLIFIED VERSION OF THE DCF METHOD.

A. In the table 2 below, the growth rate is equal to 4% for earnings per share, book value per share, stock price and dividend per share. The 4% is calculated by multiplying ROE X Retention Rate. The starting point of the table shows earnings per share at $1, book value per share is $10, stock price is $11 and dividends per share is $0.60. The retention rate r is equal to 40%. It was calculated by taking $1 (earnings per share) minus $0.60 (dividends per share) and then dividing by $1 earnings per share. The ROE is equal to 10%, $1 (earnings per share) divided by $10 (book value per share). So, ROE X Retention Rate is equal to 4% (40% retention rate X 10% ROE).

The table below shows that if earnings per share, book value per share, stock price and dividends per share all grow at 4% then book value per share grown at 4% is equal to earnings per share minus dividends per share plus the last year's book value for every year.

Table 2

Growth at ROE X Retention Rate	**Value**	**Growth**				
Earnings Per Share	$ 1.00	4%				
Book Value Per Share	$ 10.00	4%				
Stock Price	$ 11.00	4%				
Dividends Per Share	$ 0.60	4%				
Growth at 6% per share	**2007**	**2008**	**2009**	**2010**	**2011**	
Earnings Per Share	$ 1.04	$ 1.08	$ 1.12	$ 1.17	$ 1.22	
Book Value Per Share	**$ 10.40**	**$ 10.82**	**$ 11.25**	**$ 11.70**	**$ 12.17**	
Stock Price	$ 11.44	$ 11.90	$ 12.37	$ 12.87	$ 13.38	
Dividends Per Share	$ 0.62	$ 0.65	$ 0.67	$ 0.70	$ 0.73	
Dividend Yield	5.45%	5.45%	5.45%	5.45%	5.45%	
Market to Book Ratio	1.10	1.10	1.10	1.10	1.10	
Return on Book Equity	10.00%	10.00%	10.00%	10.00%	10.00%	
P/E Ratio	11.00	11.00	11.00	11.00	11.00	
Book Value Per Share Calculated	**$ 10.40**	**$ 10.82**	**$ 11.25**	**$ 11.70**	**$ 12.17**	
Growth Rate						

All of the components must grow at a rate equal to ROE X Retention Rate. If any of these components grow at a different rates, or anything other than ROE X Retention Rate, then problems such as permanently increasing or decreasing dividend yield can occur, creating problems that ensure an inaccurate answer from the DCF model.

Q. IS IT ALWAYS NECESSARY TO REJECT THE CONSTANT GROWTH FORM OF THE DCF METHOD FOR A COMPANY WITH ANY FORECASTED NON-CONSTANT GROWTH FACTORS?

A. No. It can be possible to still arrive at a reasonable estimate for the cost of equity using the constant growth form of the DCF model so long as the inputs are treated in a manner consistent with constant growth. For example, if the dividend rate used to compute the dividend yield is used to determine the retention rate, then the computation is the same as if dividends were to grow at the same rate as earnings, dividends and book value.

Q. IS THE APPROACH YOU HAVE DESCRIBED TO MAKE THE INPUTS INTO THE CONSTANT GROWTH DCF AN ABSOLUTELY PERFECT SOLUTION?

A. No. However, it is the most accurate way to fit a non-constant growth situation into a constant growth DCF formula. It is considerably more accurate than haphazard approaches such as adding a five-year earnings per share growth rate to the current dividend yield. Being true to the mathematical demands of the constant growth DCF model is an essential step to using it properly and therefore maximizing its accuracy.

Note the self-correcting nature of the approach to the constant growth DCF that I have described:

A) Suppose a company is expected to grow dividends less rapidly than earnings simply because management plans to invest a larger portion of earnings in the future. This change would lower the expected dividend yield and raise future growth. The least accurate way to handle this situation would be to use the higher expected growth without making a corresponding reduction to the dividend yield. The approach I have used does not make that mistake, while a simplistic approach of merely adding a five-year earnings per share growth rate to an historical dividend yield does make that mistake.

B) Suppose a company is expected to undergo a temporary rapid increase because the base period has a lower than sustainable earned return on book equity, by equating the retention rate based not only on the actual dividend but on the earnings rate that would have existed if the future expected earned return on equity had been earned, the higher and more sustainable growth rate is computed. However, unsustainable transitional growth derived from a time when return on equity is changing substantially, i.e. earnings on book is non-constant. The approach I have used does not make that mistake, while a

simplistic approach of merely adding a five-year earnings per share growth rate to an historical dividend yield does make that mistake.

Q. DOES THE CONSTANT FORM OF THE DCF MODEL ASSUME THAT THE STOCK PRICE WILL BE EQUAL TO BOOK VALUE?

A. No. Stock price and book value are modeled to grow at the same rate. If book value and stock price grow at the same rate, the market-to-book ratio must be expected in the DCF model to remain constant rather than gravitate to some higher or lower value in the future.

Q. IS THE ACCURACY OF THE ANSWER OBTAINED FROM THE DCF MODEL INFLUENCED BY THE MARKET TO BOOK RATIO PREVAILING AT THE TIME OF THE ANALYSIS?

A. No. The accuracy of the DCF result is driven by the accuracy of future cash flow estimates. There is no reason to believe the accuracy of a future cash flow projection is inherently more or less difficult to make for a company with a market-to-book ratio of 0.80,1.0 or 2.0.

Q. IF THE COST OF EQUITY COMPUTED BY THE DCF MODEL IS DIFFERENT THAN THE RETURN ON EQUITY USED TO COMPUTE GROWTH, DOES THIS CAUSE ANY PROBLEMS?

A. No. The cost of equity is the return investors expect to receive on their investment at market price, while the return on equity used to compute growth is equal to the return

investors expect a company will be able to earn on its book value at the time the DCF computation was being made. Since market-to-book ratios are rarely exactly equal to 1.0, the return on market price expected by investors is rarely equal to the return on equity investors expect will be achieved on book value.

Q. COULD A COMMISSION'S COST OF EQUITY DECISION CHANGE INVESTOR'S EXPECTATION FOR THE FUTURE RETURN ON BOOK VALUE?

A. Yes. However, it is highly unlikely that any one commission decision could have a material impact on the future expected return on equity for a comparative group of utility companies. Nevertheless, if a commission's decision were to change investors' expectation of future return on book equity, it could cause numerous inputs in the DCF model to change. The stock price would change in response to a higher or lower dividend rate and an increased or decreased expected growth could cause investors to change their future expected return on book equity.

Q. EXPLAIN HOW YOU IMPLEMENTED THE DCF MODEL?

A. I applied the formula $k = D/P + g$ to the four water companies covered by Value Line.

I used the DCF method to calculate the cost of equity for each of the four water companies individually in two different scenarios. The first scenario involved considering Value Line's published historic and future expected return on book equity. The second scenario also involved considering the Value Line numbers but adjusting their future expected return on book equity to account for inconsistencies in their

forecasts of various factors, including earnings per share and dividend per share among others. (See Schedule JAR 2, page 3)

Running two different scenarios of the four water companies produces eight different DCF calculations. (See Schedule JAR 2 page 2). The highest two and the lowest two DCF results were eliminated to get an average result for the five remaining DCF calculations of 9.44% for the year ending 7/1/07 and 9.32% for the market price as of 7/1/07. (See Schedule JAR 2, page 2).

Q: WHY DID YOU CALCULATE A DCF RESULT FOR EACH COMPANY AND RUN TWO DIFFERENT SCENARIOS?

A. Between October 2006 and the June 2007 edition of Value Line the growth from external financing for the four water companies went up from 2.0% to 3.5%, an unprecedented increase over such a short time. The water industry is forecasted by Reuters to spend about $1 trillion over the next 20 years[4] but this is not out of line with historical capital expenditures as a percentage of revenues. Therefore this unprecedented increase in growth from external financing is most certainly a short-term growth component that investors do not believe will be maintained. Eliminating the two highest and the two lowest DCF results excludes the outliers and is therefore a better representation of what investors expect.

[4] Reuters. Water Utilities: Overview, July 6, 2007

Q. HOW DID YOU CALCULATE THE DIVIDEND YIELD, D/P.

A. I obtained the most recent quarterly dividend for each of the four water companies covered by Value Line. For each company I estimated their annual dividend payments by multiplying the most recent quarterly dividend by 4.

From Yahoo Finance I obtained the monthly closing prices for all four water companies. For every company, I divided the annual dividend payments by their closing stock price for the year ending 7/1/07 to get the dividend yield per company. The dividend yields for the four water companies varied between 1.75% and 2.48%. (See Schedule JAR 3, page 1)

For all four companies I also calculated the average dividend yield for the year by dividing the same dividend payment by the average of the high and low monthly closing stock prices of the past 12 months to get dividend yields ranging from 1.82% to 3.09%. (See Schedule JAR 3, page 1)

Q. HOW DID YOU CALCULATE THE GROWTH (g) PORTION OF YOUR DCF ANALYSIS?

A. For each company I solved for growth by solving for Future Expected Return on Book Equity multiplied by Retention Rate. I then added an allowance for growth caused by the sale of new common stock above book value.

Q. HOW DID YOU ESTIMATE THE FUTURE RETURN ON BOOK EQUITY EXPECTED BY INVESTORS?

A. I estimated the future expected return on book equity by reviewing the return on book equity published by Value Line, and considering that forecast in the context of historic actual returns on equity.

Q. HOW DID YOU DETERMINE THE RETENTION RATE?

A. I calculated the dividend yield on book by multiplying the dividend yield on market price by the market to book ratio. I multiplied this dividend yield on book number by the future expected return on book equity to get the retention rate. (See Schedule JAR 4, pages 1-8.)

Q. HOW DID YOU DETERMINE THE SALE OF NEW COMMON STOCK?

A. I used the most current issue of Value Line to obtain the amount of stock outstanding in 2007 and the number of shares forecasted to be outstanding in 2010-2012. I calculated the compound annual growth rate between 2007 and the 2010-2012 time frame for all the water companies covered by Value Line. (See Schedule JAR 5.)

Q. PLEASE SUMMARIZE YOUR DCF RESULTS?

A. The results of my DCF analysis can be seen on Schedule JAR 2, page 2. Since Value Line's October publication the expected growth from external financing nearly doubled. The overall capital expenditures are not expected to increase above historical levels and

1 therefore I ran two sensitivity analyses to eliminate outliers that may be effected by short-
2 term growth in external financing.
3 My comparative group includes three of the four water companies covered by
4 Value Line and four different DCF results. (See Schedule JAR 2, page 2).
5 The average dividend yield on these three companies is 2.32% to 2.24%. The
6 growth rates of my comparative group of three water companies vary between 6.31% and
7 7.63%. To account for dividend growth for next year, 0.07% to 0.12% is added. The DCF
8 method is indicating a cost of equity of between 9.32% and 9.44%.
9
10

VI. CAPTAL ASSET PRICING MODEL

Q. WHAT IS THE CAPITAL ASSET PRICING MODEL (CAPM)?

A. The capital asset pricing model is a method for calculating the cost of equity for a stock by adding a risk premium to a risk free rate. The risk premium appropriate for a group of companies is proportional to the "beta" of that group.

$COE = Rf + B \times (Rm - Rf)$

COE = Cost of equity

Rf = Risk free rate

B = Beta

Rm = The expected return on the market

Q. WHAT IS A RISK FREE RATE?

A. The risk free rate is theoretically a rate that investors receive for investing in a security that has no chance of unexpected price fluctuations. Short-term U.S. government treasury bills are often used to estimate this risk free rate because their default risk is close to zero and because the time to maturity is so short that unexpected price fluctuations from changes in the interest rates are minimal.

Q. CAN THE RATE OF A LONGER TERM BOND YIELD LIKE A 20-YEAR TREASURY BILL, ALSO BE USED AS A RISK FREE RATE?

A. While a longer-term Treasury bond could be used in a risk premium analysis, a 20-year Treasury bond is not truly risk free because it is subject to interest rate risk. For example, an investor buys a 20-year U.S. Treasury bond that is yielding 5% and then interest rates rise to 6% the price of a 20-year Treasury bond will decrease, substantially. Therefore, if a 20-year Treasury bond is used in a CAPM analysis, it should be used in a way that recognizes the non-risk-free nature of this 20-year U.S. Treasury bond.

Q. WHAT IS A RISK PREMIUM?

A. The risk premium is the return that investors demand to take on additional risk. The risk premium can be the difference between any financial instrument in different risk categories such as the difference between U.S. Treasury bonds, corporate bonds, preferred stock or common stock.

Q. WHY DO INVESTORS DEMAND A RISK PREMIUM TO INVEST IN STOCKS?

A. Investors prefer avoiding uncertainty. They will seek investments with uncertainty if an opportunity is perceived to receive adequate compensation for taking on the additional risk.

Q. FOR WHAT TYPE OF RISK DO INVESTORS DEMAND COMPENSATION?

A. The only type of risk that investors demand compensation for is the risk that cannot be eliminated through diversification. Investors buy stocks as part of a diversified portfolio. The portfolio effect causes the diversifiable risks of each company to cancel out – unexpected problems are offset by unexpected success. After all of the

diversifiable risks of all the companies in an investor's portfolio cancel out, then only non-diversifiable risk remains. Even a well diversified portfolio can be harmed by a worldwide recession or a sudden shortage of oil.

Q. WHAT IS BETA?

A. Beta is a measurement of the correlation between a given stock and the market as a whole. A portfolio made up of companies with a beta that averages 1.0 tends to have price swings that match the market in magnitude. A portfolio with an average beta of 1.5 tends to move 1.5% for every 1% the market moves. A portfolio with average beta of 0.8 tends to move 0.8% for every 1% the market moves.

Q. DO ALL COMPANIES REQUIRE THE SAME RISK PREMIUM?

A. No. There are companies that are more sensitive than others to non-diversifiable risks such as changes in the economy. A portfolio more heavily weighted with companies that are especially impacted by the market will generally require a higher risk premium than a low risk portfolio. For example, a portfolio heavily weighted with stocks that sell luxury items may be harmed dramatically if disposable income goes down because such products are the first to go in hard times. Conversely, a portfolio heavily investing in companies that make a staple products like utilities, corn flakes or soap is likely to be less susceptible to changes in the economy, have more stable stock prices and therefore require a lower risk premium.

Q. HOW DID YOU APPLY THE CAPM?

A. I compared the actual compounded annual returns earned by each of 10 groups of companies from 1926-2006 with an average beta of each group. In this way, I effectively examined the returns on ten different portfolios, each with a different average beta. The graph shows that on average from 1926-2006, companies with a beta of 1.0 earned a compounded annual return of 10.40% for its equity investors. The average beta for water companies covered by Value Line is 0.88, indicating that the non-diversifiable risk for water companies is 88% of the average risk. The graph shows that the earned return to stockholders who invested in a portfolio with a beta of 0.88 earned a compounded annual return of 9.6% from 1926-2006.

The 10.40% compounded annual average historical actual return earned by companies with a beta of 1.0 and a 9.6% historical actual return earned by companies with 0.88 occurred over a time when the compound annual rate of inflation averaged 3.0%. However, the current inflation expectation demanded by investors is 2.57%, or 0.43% lower than the inflation rate embedded in the historical actual return numbers. Therefore, to make the historical returns consistent with investors' current inflation expectations, the 9.6% should be reduced by 0.43%. This 9.6% return adjusted for the current inflation expectation results in a 9.16% CAPM indicated cost of equity for water companies with a beta of 0.88.

Q. ARE COMPOUNDED ANNUAL RETURNS THE SAME AS THE GEOMETRIC MEAN?

A. Yes

Q. IS THE COMPOUND ANNUAL AVERAGE RETURN, OR GEOMETIC MEAN, A BETTER MEASURE OF ACTUAL HISTORICAL RETURNS AND WHAT INVESTORS EXPECT TO EARN IN THE FUTURE THAN THE ARITHMETIC MEAN?

A. Yes.

Page 24 of Stocks for the Long Run, Third Edition contains the following:

> Investors can be expected to realize geometric returns only over long periods of time. The average geometric return is always less than the average arithmetic return except when all yearly returns are exactly equal. The difference is related to the volatility of yearly returns.
>
> A simple example demonstrates the difference. If a portfolio falls by 50 percent in the first year and then doubles (up 100 percent) in the second year, "buy and hold" investors are back to where they started, with a total return of zero. The compound or geometric return rG, defined earlier as (1-.5)(1+1)-1, accurately indicates the zero total return of this investment over two years.
>
> The average annual arithmetic return rA is +25percent =(-50 percent + 100 percent)/2. Over 2 years, this average return can be turned into a compound or total return only by successfully "timing" the market, specifically increasing the funds invested in the second year and hoping for a recovery in stock prices. Had the market dropped again in the second year, the strategy would have been unsuccessful and would have resulted in lower total returns than achieved by the buy-and-hold investor.

Q. WHAT GROUP OF COMPANIES DID YOU USE IN YOUR CAPM ANALYSIS?

A. I relied on the Ibbotson Associates data from their 2007 Yearbook that includes 3,905 companies.

Q. HOW DID YOU DIVIDE THESE COMPANIES INTO TEN PORTFOLIOS?

A. The only data available in the Ibbotson Associates report with the companies it covers divided into separate portfolios are these ten groups that were divided by size. Since these ten groups all had significantly different betas and because the actual historical earned returns for these groups was also quantified, it was possible to use these groups to show how beta related to the actual earned return earned by each of these groups. It was acceptable to use the portfolios consisting of different size companies in this analysis because:

1) By CAPM theory, size is a diversifiable risk and therefore does not impact the cost of equity.

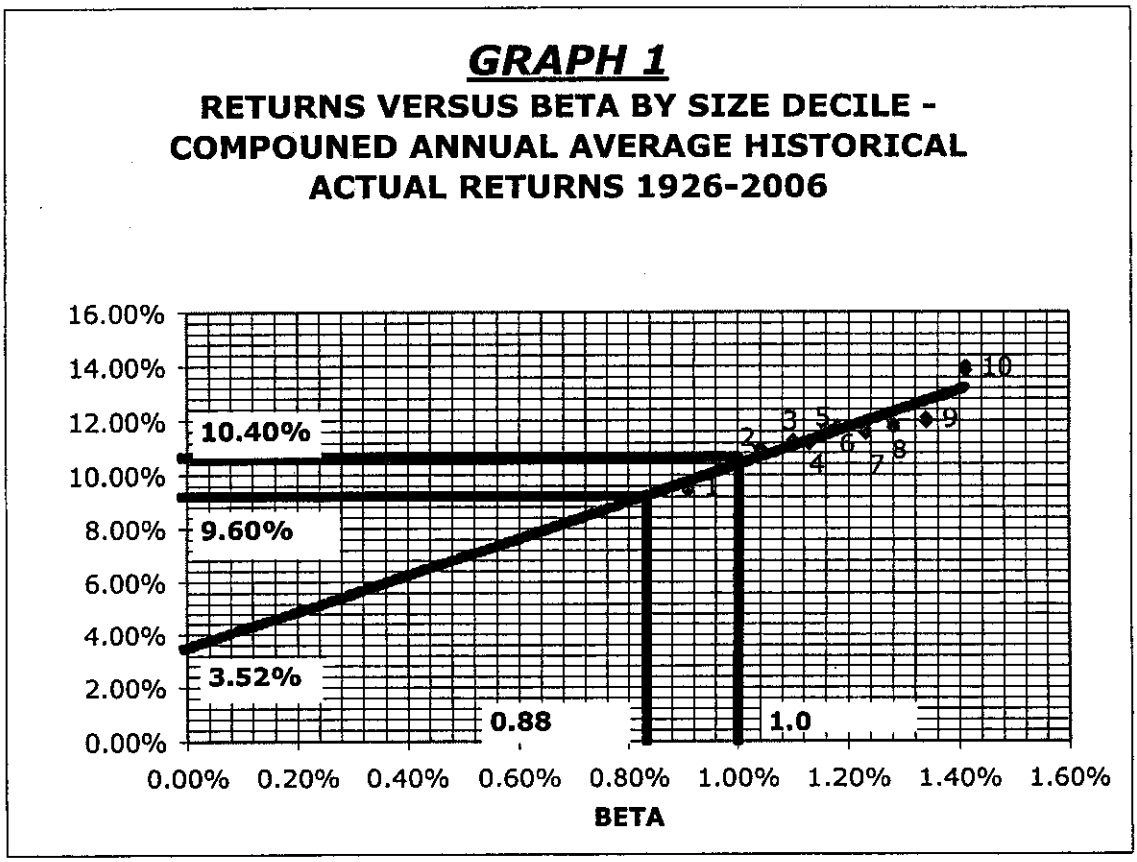
2) The results themselves confirm that size does not matter because the least-squares trend line projects to a credible risk-free rate. If size, in addition to beta, did actually influence the cost of equity, then the projection of the data would be significantly different than the cost rate expected for a zero risk security (i.e., a security with a beta of zero.)

Q. WHAT DID YOU USE FOR A RISK FREE RATE?

A. The most accurate risk free rate to use with this analysis is the one that is defined by the data itself. That way, the true historical actual relationship between beta and the cost of equity is maintained.

Q. WHAT IS THE RELATIOSHIP BETWEEN THE COMPOUNDED ANNUAL EARNED RETURN AND BETA FOR THE GROUP OF COMPANIES YOU SELECTED?

A. The data points in the graph below are numbered from highest to lowest beta, with number 1 being the group with the lowest beta and number 10 being the group with the highest beta. A least squared line was used to fit a line to the data points and the derived equation was used to calculate the returns for a given beta. Historically a company with a beta of 1 has earned a return of about 10.40%. A company with a beta equal to of 0.88, the average beta of the four water companies covered by Value Line, has earned approximately 9.6%.



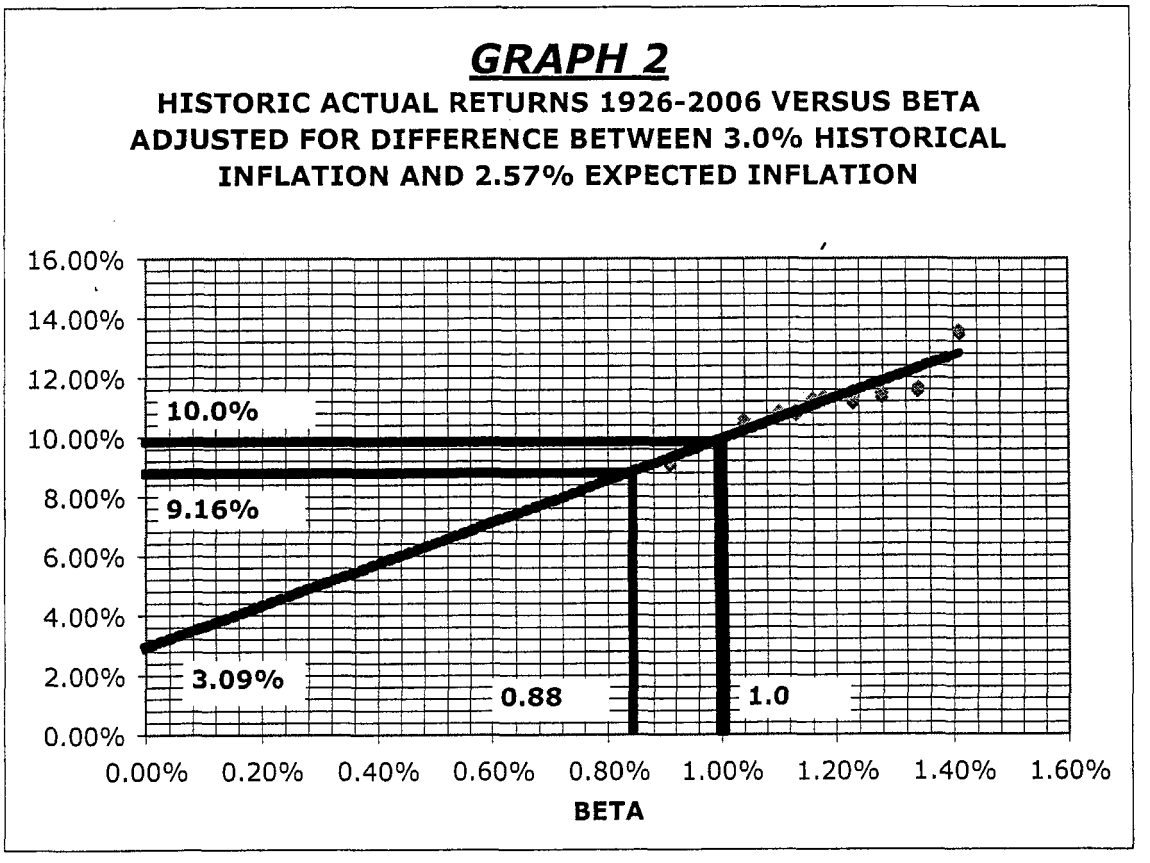
Q. DOES THE ABOVE GRAPH OF THE RELATIONSHIP BETWEEN BETA AND RETURNS HELP CONFIRM THE CAPM THEORY?

A. Yes. The compound annual return actually achieved by investors in U.S. Treasury bills from 1926-2006 is only 0.18% higher than the result my CAPM analysis predicts. This small difference is an excellent confirmation of the integrity of the CAPM theory. The reason the risk free rate is slightly lower in my CAPM analysis is that Treasury Bills, although very close to risk free, do have a small risk associated with interest rate movement. Even short-term Treasury Bills have some, albeit very modest, risk of interest rate fluctuations and exchange rate risk for foreign investors who invest in U.S. treasuries.

Q. DO THESE HISTORICAL ACTUAL RETURNS FROM 1926-2006 AUTOMATICALLY EQUATE TO THE COST OF EQUITY?

A. No. The cost of equity at any given risk level is directly influenced by investors' expectations of future inflation rates, while the historical data is a product of the inflation rates that existed in the past. The compounded annual rate of inflation between 1926 and 2006, the time period from which that data used to construct this graph was complied, inflation averaged 3.0%. Currently, however, the bond market shows that investors' inflation expectation is 2.57%. Since the returns demanded by investors include an allowance for inflation, it is appropriate to update the historical actual returns to be consistent with what investors currently demand for inflation. Since inflation expectation is 0.43% lower than it was from 1926-2006, the cost of equity is appropriately estimated

to be 0.43% lower at all risk levels than it was on average from 1926 to 2006. The current cost of equity for the water group with a beta of 0.88 is 9.16%.



Q. HOW DID YOU CALCULATE WHAT THE MARKET EXPECTS INFLATION TO BE AS OF DECEMBER 1, 2006?

A. I took the difference between 30-year US treasury bonds and the long-term inflation indexed treasury bonds. The yield on the 30-year US treasury bonds is 5.11%[5] and the yield on the inflation-indexed bonds is 2.54%[6]. Since the market is willing to accept a 2.54% yield instead of a 5.11% yield in return for protection against inflation, the market expects inflation to be 2.57% (5.11% - 2.54%).

[5] Wall Street Journal, 7/2/07
[6] Wall Street Journal, 7/2/07

Q. DOES THEORY AND EMPIRICAL DATA SUPPORT YOUR FINDINGS?

A. Yes. The term Security Market Line (SML) is given to the expected return-beta relationship. In the financial textbook *Investments* (McGraw-Hill/Irwin 2005), by Bodie, Kane and Marcus it states on page 290 that "...'fairly priced' assets plot exactly on the SML..."[7] and, "...all securities must lie on the SML in market equilibrium" thus the theory that predicts that linear relationships was confirmed with the actual return data from 1926-2006.

The CAPM theory says the relationship between the cost of capital and beta is linear. If the historical actual earned return data I used is consistent with what investors' expected and if the CAPM theory is correct, it is possible to estimate the risk-free rate that existed on average over the 1926-2006 period by making a linear projection of the historical stock returns. As shown on my graph #1, a linear projection of the stock based empirical data results in a predictable risk-free rate of 3.52%. This is very close to the actual 3.7% compounded annual return of U.S. Treasury Bills.

Q. IS THE 30-DAY U.S. TREASURY BILL YIELD A GOOD ESTIMATE OF THE RISK FREE RATE?

A. On average for the long-term, it is. However spot distortions are common and can be substantial. Currently the approximately 5% yield on the 30-day U.S. Treasury bill is artificially high because the U.S. Federal Reserve (FED) is working on fighting inflation.

[7] Investments,

In 2002 and 2003 the FED set short-term interest rates artificially low at 1.7% because it was attempting to stimulate the economy.

Q. HOW DOES YOUR CAPM RESULT COMPARE TO THE RESULTS STATED IN IBBOTSON ASSOCIATES?

A. On page 176 of "Stocks, Bonds, Bills and Inflation" Ibbotson Associates 2007 yearbook the authors conclude:

> The supply side model estimates that stocks will continue to provide significant returns over the long run, averaging around 9.76% per year, assuming historical inflation rates. The equity risk premium, based on the supply side earnings model, is calculated to be 4.33% on a geometric basis and 6.35% on an arithmetic basis.

In the above statement, the 9.76% return expected by Ibbotson Associates is based on a stock of average risk. Based on historical inflation rates the expected return I calculate for a company of average risk is a higher 10.0%. Considering that inflation expectations are lower than the historical average and the water group has a lower risk than the company of average risk, my finding of a 9.16% CAPM cost of equity is conservatively high.

Q. IS THERE ANOTHER IMPORTANT VERIFICATION OF THE CAPM CONCLUSION YOU HAVE RECOMMENDED?

A. Yes. Page 12 of Stocks for the Long Run by Wharton Professor, Jeremy Siegel, concludes that "... the real after-inflation, compound annual rate of return on stocks...real return on stocks... averaged 6.9 percent per year since 1926." The book also points out that this real after-inflation return on stocks has been "...extraordinarily

stable..., averaging 6.6 percent from 1871 through 1925..." and the book mentions that the return since World War II was 7.1 percent. Recognizing that the return data prior to 1926 contains many fewer companies and is in a much less mature economy than the data since 1925, I will concentrate on the inflation premium data after 1925 and will therefore conclude that the equity premium in excess of inflation for the average common stock in the U.S. is 7.0% . Adding the current inflation expectation derived from the bond market of 2.57% results in a cost of equity estimate of 9.57% for a company of average risk. This result is virtually identical to the 9.76% estimate made by Ibbotson Associates, further confirming that my 10.0% CAPM estimate based on the results for the average stock is conservatively high.

Q. ARE YOU AWARE THAT OPC WITNESS DISMUKES IS RECOMMENDING A PENALTY TO ALLOWED ROE BECAUSE OF VARIOUS CUSTOMER SERVICE ISSUES?

A. Yes.

Q. DO YOU HAVE ANY OPINION AS TO THE VALIDITY OF THE CUSTOMER SERVICE ISSUES RAISED BY MS. DISMUKES?

A. No. I was not asked to review that issue.

Q. DOES THE RECOMMENDATION TO ALLOW AN ROE THAT IS LOWER THAN YOUR MEASURED COST OF EQUITY VIOLATE BASIC REGULATORY PRINCIPLES?

A. Not at all. I have already mentioned that one of the primary purposes of regulation is to act as a surrogate for the competitive influences that would otherwise establish market prices. In a competitive market, a poorly run or poorly managed company often fails to earn the measured return expectations of investors. In fact, the competitive market can be far harsher, with many poorly run companies losing money or even going bankrupt. If the Commission indeed concludes that a regulated utility is poorly run, a penalty to the allowed return is consistent both with market forces and with sound regulatory philosophy.

Q. IS THERE FLORIDA PRECENDENT FOR MAKING SUCH AN ADJUSTMENT?

A. Yes, I am aware of Florida precedent on this, but I have not researched these cases for purposes of my testimony. Ms. Dismukes cites a number of Florida cases that are precedent on this issue.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

APPENDIX A TESTIFYING EXPERIENCE OF JAMES A. ROTHSCHILD

THROUGH July 31, 2007

ALABAMA

Continental Telephone of the South; Docket No. 17968, Rate of Return, January, 1981

ARIZONA

Southwest Gas Corporation; Rate of Return, Docket No. U-1551-92-253, March, 1993
Sun City West Utilities; Accounting, January, 1985

CONNECTICUT

Aquarion Water Company, Docket No. 04-02-14, Rate of Return, June 2004
Connecticut American Water Company; Docket No. 800614, Rate of Return, September, 1980
Connecticut American Water Company, Docket No. 95-12-15, Rate of Return, February, 1996
Connecticut Light & Power Company; Docket No. 85-10-22, Accounting and Rate of Return, February, 1986
Connecticut Light & Power Company; Docket No. 88-04-28, Gas Divestiture, August, 1988
Connecticut Light & Power Company, Docket No. 97-05-12, Rate of Return, September, 1997
Connecticut Light & Power Company, Docket No. 98-01-02, Rate of Return, July, 1998
Connecticut Light & Power Company, Docket No. 99-02-05, Rate of Return, April, 1999
Connecticut Light & Power Company, Docket No. 99-03-36, Rate of Return, July, 1999
Connecticut Light & Power Company, Docket No. 98-10-08 RE 4, Financial Issues, September 2000
Connecticut Light & Power Company, Docket No. 00-05-01, Financial Issues, September, 2000
Connecticut Light & Power Company, Docket No. 01-07-02, Capital Structure, August, 2001
Connecticut Light & Power Company, Docket No. 03-07-02 , Rate of Return, October, 2003
Connecticut Natural Gas; Docket No. 780812, Accounting and Rate of Return, March, 1979
Connecticut Natural Gas; Docket No. 830101, Rate of Return, March, 1983
Connecticut Natural Gas; Docket No. 87-01-03, Rate of Return, March, 1987
Connecticut Natural Gas, Docket No. 95-02-07, Rate of Return, June, 1995
Connecticut Natural Gas, Docket No. 99-09-03, Rate of Return, January, 2000
Southern Connecticut Gas, Docket No. 97-12-21, Rate of Return, May, 1998
Southern Connecticut Gas, Docket No. 99-04-18, Rate of Return, September, 1999
United Illuminating Company; Docket No. 89-08-11:ES:BBM, Financial Integrity and Financial Projections, November, 1989.
United Illuminating Company; Docket No. 99-02-04, Rate of Return, April, 1999
United Illuminating Company, Docket No. 99-03-35, Rate of Return, July, 1999
United Illuminating Company, Docket No. 01-10-10-DPUC, Rate of Return, March 2002

DELAWARE

Artesian Water Company, Inc.; Rate of Return, December, 1986
Artesian Water Company, Inc.; Docket No. 87-3, Rate of Return, August, 1987
Diamond State Telephone Company; Docket No. 82-32, Rate of Return, November, 1982
Diamond State Telephone Company; Docket No. 83-12, Rate of Return, October, 1983
Wilmington Suburban Water Company; Rate of Return Report, September, 1986
Wilmington Suburban Water Company; Docket No. 86-25, Rate of Return, February, 1987

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

Koch Gateway Pipeline Company, Docket No. RP97-373-000 Cost of Capital, December, 1997
Maine Yankee Atomic Power Company, Docket No. EL93-22-000, Cost of Capital, July, 1993
New England Power Company; CWIP, February, 1984. Rate of return.

New England Power Company; Docket No.ER88-630-000 & Docket No. ER88-631-000, Rate of Return, April, 1989
New England Power Company; Docket Nos. ER89-582-000 and ER89-596-000, Rate of Return, January, 1990
New England Power Company: Docket Nos. ER91-565-000, ER91-566-000 , FASB 106, March, 1992. Rate of Return.
Philadelphia Electric Company - Conowingo; Docket No. EL-80-557/588, July, 1983. Rate of Return.
Ocean State Power Company, Ocean States II Power Company, Docket No. ER94-998-000 and ER94-999-000, Rate of Return, July, 1994.
Ocean State Power Company, Ocean States II Power Company, Docket No ER 95-533-001 and Docket No. ER-530-001, Rate of Return, June, 1995 and again in October, 1995.
Ocean State Power Company, Ocean State II Power Company, Docket No. ER96-1211-000 and ER96-1212-000, Rate of Return, March, 1996.
Southern Natural Gas, Docket No. RP93-15-000. Rate of Return, August, 1993, and revised testimony December, 1994.
Transco, Docket No. RP95-197-000, Phase I, August, 1995. Rate of Return.

Transco, Docket Nos. RP-97-71-000 and RP97-312-000, June, 1997, Rate of Return.

FLORIDA

Alltel of Florida; Docket No. 850064-TL, Accounting, September, 1985
Florida Power & Light Company; Docket No. 810002-EU, Rate of Return, July, 1981
Florida Power & Light Company; Docket No. 82007-EU, Rate of Return, June, 1982
Florida Power & Light Company; Docket No. 830465-EI, Rate of Return and CWIP, March, 1984
Florida Power & Light Company, Docket No. , Rate of Return, March 2002
Florida Power Corporation; Docket No. 830470-EI, Rate Phase-In, June, 1984
Florida Power Corp.; Rate of Return, August, 1986

Northern Illinois Gas Company; Financial Affidavit, February, 1987.
Northern Illinois Gas Company; Docket No. 87-0032, Cost of Capital and Accounting Issues, June, 1987.
Peoples Gas Light and Coke Company; Docket No. 90-0007, Accounting Issues, May, 1990.

KENTUCKY

Kentucky- American Water Company, Case No. 97-034, Rate of Return, June, 1997.
Kentucky Power Company; Case No. 8429, Rate of Return, April, 1982.
Kentucky Power Company; Case No. 8734, Rate of Return and CWIP, June, 1983.
Kentucky Power Company; Case No. 9061, Rate of Return and Rate Base Issues, September, 1984.
West Kentucky Gas Company, Case No. 8227, Rate of Return, August, 1981.

MAINE

Bangor Hydro-Electric Company; Docket No. 81-136, Rate of Return, January, 1982.
Bangor Hydro-Electric Company; Docket No. 93-62, Rate of Return, August, 1993
Maine Public Service Company; Docket No. 90-281, Accounting and Rate of Return, April, 1991.

MARYLAND

C & P Telephone Company; Case No. 7591, Fair Value, December, 1981

MASSACHUSETTS

Boston Edison Company; Docket No. DPU 906, Rate of Return, December, 1981
Fitchburg Gas & Electric; Accounting and Finance, October, 1984
Southbridge Water Company; M.D.P.U., Rate of Return, September, 1982

MINNESOTA

Minnesota Power & Light Company; Docket No. EO15/GR-80-76, Rate of Return, July, 1980

NEW JERSEY

Atlantic City Sewage; Docket No. 774-315, Rate of Return, May, 1977
Atlantic City Electric Company, Docket Nos. EO97070455 and EO97070456, Cost of Capital, Capital Cost Allocation, and Securitization, December, 1997.
Atlantic City Electric Company, Docket Nos. ER 8809 1053 and ER 8809 1054, Rate of Return, April, 1990
Atlantic City Electric Company, Securitization, 2002
Atlantic City Electric Company, BPU Docket No. ER03020121, Securitization, August, 2003

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Artesian Water Company, Inc.; Rate of Return, December, 1986
Artesian Water Company, Inc.; Docket No. 87-3, Rate of Return, August, 1987
Diamond State Telephone Company; Docket No. 82-32, Rate of Return, November, 1982
Diamond State Telephone Company; Docket No. 83-12, Rate of Return, October, 1983
Wilmington Suburban Water Company; Rate of Return Report, September, 1986
Wilmington Suburban Water Company; Docket No. 86-25, Rate of Return, February, 1987

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

Koch Gateway Pipeline Company, Docket No. RP97-373-000 Cost of Capital, December, 1997
Maine Yankee Atomic Power Company, Docket No. EL93-22-000, Cost of Capital, July, 1993
New England Power Company; CWIP, February, 1984. Rate of return.

New England Power Company; Docket No.ER88-630-000 & Docket No. ER88-631-000, Rate of Return, April, 1989
New England Power Company; Docket Nos. ER89-582-000 and ER89-596-000, Rate of Return, January, 1990
New England Power Company: Docket Nos. ER91-565-000, ER91-566-000 , FASB 106, March, 1992. Rate of Return.
Philadelphia Electric Company - Conowingo; Docket No. EL-80-557/588, July, 1983. Rate of Return.
Ocean State Power Company, Ocean States II Power Company, Docket No. ER94-998-000 and ER94-999-000, Rate of Return, July, 1994.
Ocean State Power Company, Ocean States II Power Company, Docket No ER 95-533-001 and Docket No. ER-530-001, Rate of Return, June, 1995 and again in October, 1995.
Ocean State Power Company, Ocean State II Power Company, Docket No. ER96-1211-000 and ER96-1212-000, Rate of Return, March, 1996.
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Transco, Docket No. RP95-197-000, Phase I, August, 1995. Rate of Return.

Transco, Docket Nos. RP-97-71-000 and RP97-312-000, June, 1997, Rate of Return.

FLORIDA

Alltel of Florida; Docket No. 850064-TL, Accounting, September, 1985
Florida Power & Light Company; Docket No. 810002-EU, Rate of Return, July, 1981
Florida Power & Light Company; Docket No. 82007-EU, Rate of Return, June, 1982
Florida Power & Light Company; Docket No. 830465-EI, Rate of Return and CWIP, March, 1984
Florida Power & Light Company, Docket No. , Rate of Return, March 2002
Florida Power Corporation; Docket No. 830470-EI, Rate Phase-In, June, 1984
Florida Power Corp.; Rate of Return, August, 1986

Florida Power Corp.; Docket No. 870220-EI, Rate of Return, October, 1987
Florida Power Corp; Docket No. 000824-EI, Rate of Return, January, 2002
GTE Florida, Inc.; Docket No. 890216-TL, Rate of Return, July, 1989
Gulf Power Company; Docket No. 810136-EU, Rate of Return, October, 1981
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Southern Bell Telephone Company; Docket No. 880069-TL, Rate of Return, January, 1992
Southern Bell Telephone Company, Docket No. 920260-TL, Rate of Return, November, 1992
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Southern States Utilities, Docket No. 950495-WS, Rate of Return, April, 1996
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Tampa Electric Company; Docket No. 830012-EU, Rate of Return, June, 1983
United Telephone of Florida; Docket No. 891239-TL, Rate of Return, November, 1989
United Telephone of Florida; Docket No. 891239-TL, Rate of Return, August, 1990
Water and Sewer Utilities, Docket No 880006-WS, Rate of Return, February, 1988.

GEORGIA

Georgia Power Company; Docket No. 3397-U, Accounting, July, 1983
BellSouth; Docket No. 14361-U, Rate of Return Rebuttal Testimony, October 2004.

ILLINOIS

Ameritech Illinois, Rate of Return and Capital Structure, Docket 96-0178, January and July, 1997.
Central Illinois Public Service Company; ICC Docket No. 86-0256, Financial and Rate of Return, October, 1986.
Central Telephone Company of Illinois, ICC Docket No. 93-0252, Rate of Return, October, 1993.
Commonwealth Edison Company; Docket No. 85CH10970, Financial Testimony, May, 1986.
Commonwealth Edison Company; Docket No. 86-0249, Financial Testimony, October, 1986.
Commonwealth Edison Company; ICC Docket No. 87-0057, Rate of Return and Income Taxes, April 3, 1987.
Commonwealth Edison Company; ICC Docket No. 87-0043, Financial Testimony, April 27, 1987.
Commonwealth Edison Company; ICC Docket Nos. 87-0169, 87-0427,88-0189,880219,88-0253 on Remand, Financial Planning Testimony, August, 1990.
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Overall Cost of Capital

Recommended Capital Structure	Ratios		Cost Rate		Weighted Cost Rate [F]
Long-Term Debt	**48.57%**	[A]	**6.00%**	[B]	2.91%
Short-Term Debt	**5.89%**	[A]	**5.50%**	[C]	0.32%
Common Equity	**45.54%**	[A]	9.50%	[D]	4.33%
	100.0%				7.56%

Source:

[A] Schedule JAR 8, page 2
[B] Interim Rate Schedules, G-6, page 167
[C] Federal Reserve Release. Posted August 1, 2007. AA no financial rate of 5.22%
Because Aqua America Inc.'s bond rating is AA- increased by 28 basis points to be conservative
[D] Schedule JAR 2. Page 1

Aqua Water Florida
COST OF EQUITY SUMMARY

	Average for Year ending 7/1/07		As of 7/1/2007	
SIMPLIFIED, OR CONSTANT GROWTH DCF (D/P +g) RESUL				
Based upon Water Companies Covered by Value Line	9.44%	[A]	9.32%	[A]
Risk Premiuim				
Capital Asset Pricing Model			9.16%	[B]

			Midpoint	
Recommended Equity Cost Rate	9.16%	9.44%	9.30%	
Adjustment for Capital Structure -- 45.53% common equity			0.20%	[C]
Recommended cost of equity			9.50%	

Source:

[A] Schedule JAR 2. Page 2
[B] Schedule JAR 6, Page 1

DCF Cost of Equity Summary of Indicated Results

Based on Value Line's forecasted Future Expected Return on Book Equity	BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
American States Water	12.33%	11.61%
Aqua America	9.55%	9.55%
California Water Service Group	9.37%	9.33%
South West Water Co.	9.45%	9.00%
Base on Return on Book Equity Derived from Value Line's Forecasted Book Value, EPS, and Stock Price		
American States Water	11.66%	10.94%
Aqua America	9.37%	9.38%
California Water Service Group	8.51%	8.46%
South West Water Co.	7.43%	6.98%
Overall Average	**9.71%**	**9.41%**
Average Excluding Two Highest and Two Lowest	**9.44%**	**9.32%**

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Aqua Water Florida DCF Cost of Equity Summary
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Value Line Forecasted Return on Book Equity
Derived from Value Line's Forecasts for Earnings and Book Value

American States Water

	2007	2008	2009	2010	2011	2012
EPS	1.55	1.65	1.78	1.92	2.05	2.18
DPS	0.94	0.97	1.00	1.03	1.06	1.09
Retained EPS	0.61	0.68	0.78	0.89	0.99	1.09
Common Stock Oustanding	18.00	19.00	20.00	21.00	22.00	23.00
Growth per share from new stock		0.99	0.94	0.88	0.83	0.79
Book Value	17.8	19.40	21.02	22.69	24.41	26.19
Return on Book Equity	**8.71%**	**8.50%**	**8.48%**	**8.45%**	**8.40%**	**8.34%**
Stock Price Forecast	36.7	38.15	39.60	41.05	42.50	43.95
Market to Book Ratio	2.06	1.97	1.88	1.81	1.74	1.68

Aqua America

	2007	2008	2009	2010	2011	2012
EPS	0.8	0.9	0.95	1.00	1.05	1.10
DPS	0.48	0.55	0.60	0.65	0.7	0.75
Retained EPS	0.32	0.35	0.35	0.35	0.35	0.35
Common Stock Oustanding	134.00	136.00	137.33	138.67	140.00	141.33
Growth per share from new stock		0.24	0.15	0.15	0.15	0.14
Book Value	7.15	7.71	8.21	8.71	9.21	9.71
Return on Book Equity	**11.19%**	**11.68%**	**11.57%**	**11.48%**	**11.40%**	**11.33%**
Stock Price Forecast	23.37	23.65	23.94	24.22	24.50	24.78
Market to Book Ratio	3.27	3.07	2.91	2.78	2.66	2.55

California Water

	2007	2008	2009	2010	2011	2012
EPS	1.6	1.75	1.88	2.02	2.15	2.28
DPS	1.16	1.17	1.18	1.19	1.2	1.21
Retained EPS	0.44	0.58	0.70	0.83	0.95	1.07
Common Stock Oustanding	21.00	21.50	22.00	22.50	23.00	23.50
Growth per share from new stock		0.50	0.50	0.48	0.47	0.46
Book Value	19.05	19.99	21.07	22.26	23.55	24.96
Return on Book Equity	**8.40%**	**8.75%**	**8.94%**	**9.06%**	**9.13%**	**9.15%**
Stock Price Forecast	40.72	41.79	42.86	43.93	45.00	46.07
Market to Book Ratio	2.14	2.09	2.03	1.97	1.91	1.85

Southwest Water

	2007	2008	2009	2010	2011	2012
EPS	0.45	0.5	0.57	0.63	0.7	0.77
DPS	0.24	0.26	0.29	0.31	0.34	0.37
Retained EPS	0.21	0.24	0.28	0.32	0.36	0.40
Common Stock Oustanding	25.00	26.00	27.33	28.67	30.00	31.33
Growth per share from new stock		0.26	0.27	0.20	0.13	0.06
Book Value	7.6	8.81	10.38	12.00	13.65	15.34
Return on Book Equity	**5.92%**	**5.68%**	**5.46%**	**5.28%**	**5.13%**	**5.00%**
Stock Price Forecast	14.24	14.43	14.62	14.81	15.00	15.19
Market to Book Ratio	1.87	1.64	1.41	1.23	1.10	0.99

COMPARATIVE COMPANIES
SELECTED FINANCIAL DATA

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	VL Issue	[1] Book Per Sh. Dec. 04 [A]	[2] Book Per Sh. Dec. 05 [A]	[3] Book Per Sh. Dec. 06 [A]	[4] Book Per Sh. Dec. 07 VL Est. [A]	[5] Market Price At 07/01/07 [B]	[6] Market Price High for Year [B]	[7] Market Price Low for Year [B]	[8] Market to Book At 07/01/07 [C]	[9] Market to Book Avg. for Year [C]	[10] Div. Rate [A]	[11] Dividend Yield At 7/1/2007 [D]	[12] Dividend Yield Avg. for Year [D]
Water Companies Covered By Value Line													
American States Water Co	9	**$15.01**	**$15.72**	**$16.64**	**$17.80**	**$35.57**	**$42.31**	**$33.57**	2.00	2.20	**$0.94**	2.64%	2.48%
Aqua America Inc	9	**$5.89**	**$6.30**	**$6.96**	**$7.15**	**$22.49**	**$24.94**	**$21.13**	3.15	3.27	**$0.46**	2.05%	2.00%
California Water Service Gp	9	**$15.66**	**$15.79**	**$18.31**	**$19.05**	**$37.49**	**$44.58**	**$33.75**	1.97	2.10	**$1.16**	3.09%	2.96%
Southwest Water Co	9	**$6.17**	**$6.49**	**$6.98**	**$7.60**	**$12.77**	**$15.25**	**$11.24**	1.68	1.82	**$0.23**	1.82%	1.75%
AVERAGE		$10.68	$11.08	$12.22	$12.90	$27.08	$31.77	$24.92	2.20	2.35	$0.70	2.40%	2.30%
MEDIAN									1.98	2.15		2.34%	2.24%

Sources:
[A] Most current Value Line at time of prep. of schedule. Most current quarterly dividend rate X 4
[B] Yahoo Finance -- Historical Prices, 7/2/07
[C] Market price divided by book value
[D] Dividend rate divided by market price

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COMPARATIVE COMPANIES
EARNINGS PER SHARE AND RETURN ON EQUITY

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	[1] EPS 2005	[2] EPS 2006	[3] EPS 2007 VL. Est.	[4] Return on Eq. 2006	[5] Return on Eq. 2007	[6] Value Line Future Exp. Return on Eq.	[7] Return on Equity 2005
	[A]	[A]	[A]	[B]		[A]	
Water Companies Covered By Value Line							
American States Water Co	**$1.32**	**$1.33**	**$1.55**	8.22%	9.00%	**9.00%**	8.59%
Aqua America Inc	**$0.71**	**$0.70**	**$0.80**	10.56%	11.34%	**11.50%**	11.65%
California Water Service Gp	**$1.47**	**$1.34**	**$1.60**	7.86%	8.57%	**10.00%**	9.35%
Southwest Water Co	**$0.34**	**$0.40**	**$0.45**	5.94%	6.17%	**7.00%**	5.37%
	$0.96	$0.94	$1.10	8.14%	8.77%	9.38%	8.74%
				8.04%	8.78%	9.50%	8.97%

0.00%

Source:

[A] Most current Value Line at time of prep. of schedule.
[B] Earnings Per Share divided by average book value. Book value shown on Schedule JAR 3, Page 1

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RETURN ON EQUITY IMPLIED IN **JAR Schedule 3, Page 3**
YAHOO FINANCE COVERING BROKER'S GROWTH RATES

		Dec. 07 Y/E Book [3] [A]	Earnings 2007 [A]	Dividends [A]	Analyst 5 Year Growth Rate 10/ [B]	Y/E Book in 2011 at Zack's Growth [C]	Y/E Book in 2012 at Zack's Growth [C]	Earnings 2012 at Zack's Growth [C]	Return on Equity to achieve Analysts' Growth [C]	VALUE LINE BETA [A]
Water Companies Covered By Value Line										
American States Water Co	AWR	$17.80	$1.55	$0.94	**5.00%**	$20.56	$21.34	$1.98	9.44%	**0.80**
Aqua America Inc	WTR	$7.15	$0.80	$0.46	**9.60%**	$8.87	$9.41	$1.27	13.84%	**0.90**
California Water Service Gp	CWT	$19.05	$1.60	$1.16	**8.20%**	$21.20	$21.85	$2.37	11.02%	**0.90**
Southwest Water Co	SWWC	$7.60	$0.45	$0.23	**10.00%**	$8.71	$9.06	$0.72	8.15%	**0.90**
		$12.90	$1.10	$0.70	8.20%	$14.84	$15.42	$1.59	10.62%	0.88
					8.90%				10.23%	0.90

[A] Must Current Value Line
[B] Zacks.com
[C] Projected return on equity is obtained by escalating both dividends and earnings per share by the stated growth rate, and adding earnings and subtracting dividends in each year to determine the book value.

Docket No. 060368-WS
James A. Rothschild
Schedule JAR-3
Comparative Companies Selected Financial Data
Page 3 of 3

American States Water Co
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based Value Line Forecasted Return on Book Equity

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	2.48%	2.64%
2 Retention Ratio:			
a) Market-to-book	[B]	2.20	2.00
b) Div. Yld on Book	[C]	5.46%	5.28%
c) Return on Equity	[A]	9.00%	9.00%
d) Retention Rate	[D]	39.35%	41.32%
3 Reinvestment Growth	[E]	3.54%	3.72%
4 New Financing Growth	[F]	6.19%	5.14%
5 Total Estimate of Investor Anticipated Growth	[G]	9.73%	8.86%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.12%	0.12%
7 Indicated Cost of Equity	**[I]**	12.33%	11.61%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
[A]	Value Line Expectation	9.00%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	8.34%	Schedule JAR 2, Page 3
	Return on Equity to Achieve Zacks' Growth	9.44%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	9.00%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	8.22%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	8.59%	JAR Schedule 3, Page 2

[B] Schedule JAR 3, Page 1
[C] Line 1 x Line 2a
[D] 1- Line 2b/Line 2c
[E] Line 2c x Line 2d
[F] S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)

[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 5.14% [J]

[G] Line 3 + Line 4
[H] Line 1 x one-half of line 5
[I] Line 1 + Line 5 + Line 6
[J] Schedule JAR 5

Aqua America Inc

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based on Value Line Forecasted Return on Book Equity

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	2.00%	2.05%
2 Retention Ratio:			
a) Market-to-book	[B]	3.27	3.15
b) Div. Yld on Book	[C]	6.52%	6.43%
c) Return on Equity	[A]	11.50%	11.50%
d) Retention Rate	[D]	43.30%	44.06%
3 Reinvestment Growth	[E]	4.98%	5.07%
4 New Financing Growth	[F]	2.49%	2.36%
5 Total Estimate of Investor Anticipated Growth	[G]	7.47%	7.43%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.07%	0.08%
7 Indicated Cost of Equity	*[I]*	9.55%	9.55%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
[A]	Value Line Expectation	11.50%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	11.33%	ALR SCHEDULE 2, Page 4
	Return on Equity to Achieve Zacks' Growth	13.84%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	11.34%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	10.56%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	11.65%	JAR Schedule 3, Page 2

[B] Schedule JAR 3, Page 1
[C] Line 1 x Line 2a
[D] 1- Line 2b/Line 2c
[E] Line 2c x Line 2d
[F] S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)

[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 1.10% [J]

[G] Line 3 + Line 4
[H] Line 1 x one-half of line 5
[I] Line 1 + Line 5 + Line 6
[J] Schedule JAR 5

Schedule JAR 4, page 3

California Water Service Gp
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based on Value Line Forecasted Return on Book Equity

			BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1	Dividend Yield On Market Price	[B]	2.96%	3.09%
2	Retention Ratio:			
	a) Market-to-book	[B]	2.10	1.97
	b) Div. Yld on Book	[C]	6.21%	6.09%
	c) Return on Equity	[A]	10.00%	10.00%
	d) Retention Rate	[D]	37.90%	39.11%
3	*Reinvestment Growth*	[E]	3.79%	3.91%
4	New Financing Growth	[F]	2.52%	2.23%
5	Total Estimate of Investor Anticipated Growth	[G]	6.31%	6.14%
6	Increment to Dividend Yield for Growth to Next Year	[H]	0.09%	0.09%
7	**Indicated Cost of Equity**	[I]	9.37%	9.33%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
[A]	Value Line Expectation	10.00%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	9.15%	ALR SCHEDULE 2, Page 4
	Return on Equity to Achieve Zacks' Growth	11.02%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	8.57%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	7.86%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	9.35%	JAR Schedule 3, Page 2
[B]	Schedule JAR 3, Page 1		
[C]	Line 1 x Line 2a		
[D]	1- Line 2b/Line 2c		
[E]	Line 2c x Line 2d		
[F]	S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)		
	[M/B X (Ext. Fin Rate+1)/(M/B + Ext. Fin. Rate-1)	Ext. Fin. rate used =	2.30% [J]
[G]	Line 3 + Line 4		
[H]	Line 1 x one-half of line 5		
[I]	Line 1 + Line 5 + Line 6		
[J]	Schedule JAR 5		

Southwest Water Co

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based on Value Line Forecasted Return on Book Equity

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	1.75%	1.82%
2 Retention Ratio:			
a) Market-to-book	[B]	1.82	1.68
b) Div. Yld on Book	[C]	3.18%	3.05%
c) Return on Equity	[A]	7.00%	7.00%
d) Retention Rate	[D]	54.54%	56.39%
3 Reinvestment Growth	[E]	3.82%	3.95%
4 New Financing Growth	[F]	3.81%	3.17%
5 Total Estimate of Investor Anticipated Growth	[G]	7.63%	7.12%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.07%	0.06%
7 Indicated Cost of Equity	**[I]**	9.45%	9.00%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
[A]	Value Line Expectation	7.00%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	5.00%	Schedule JAR 2. Page 3
	Return on Equity to Achieve Zacks' Growth	8.15%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	6.17%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	5.94%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	5.37%	JAR Schedule 3, Page 2

[B] Schedule JAR 3, Page 1
[C] Line 1 x Line 2a
[D] 1- Line 2b/Line 2c
[E] Line 2c x Line 2d
[F] S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)

[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 4.66% [J]

[G] Line 3 + Line 4
[H] Line 1 x one-half of line 5
[I] Line 1 + Line 5 + Line 6
[J] Schedule JAR 5

American States Water Co
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based on Return on Equity Derived From Value Line's Forecasts for Earnings and Book Value

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	2.48%	2.64%
2 Retention Ratio:			
a) Market-to-book	[B]	2.20	2.00
b) Div. Yld on Book	[C]	5.46%	5.28%
c) Return on Equity	[A]	8.34%	8.34%
d) Retention Rate	[D]	34.53%	36.66%
3 Reinvestment Growth	[E]	2.88%	3.06%
4 New Financing Growth	[F]	6.19%	5.14%
5 Total Estimate of Investor Anticipated Growth	[G]	9.07%	8.19%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.11%	0.11%
7 Indicated Cost of Equity	**[I]**	11.66%	10.94%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
[A]	Value Line Expectation	9.00%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	8.34%	ALR SCHEDULE 2, Page 4
	Return on Equity to Achieve Zacks' Growth	9.44%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	9.00%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	8.22%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	8.59%	JAR Schedule 3, Page 2
[B]	Schedule JAR 3, Page 1		
[C]	Line 1 x Line 2a		
[D]	1- Line 2b/Line 2c		
[E]	Line 2c x Line 2d		
[F]	S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)		
	[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1)	Ext. Fin. rate used =	5.14% [J]
[G]	Line 3 + Line 4		
[H]	Line 1 x one-half of line 5		
[I]	Line 1 + Line 5 + Line 6		
[J]	Schedule JAR 5		

Aqua America Inc
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based on Return on Equity Derived From Value Line's Forecasts for Earnings and Book Value

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	2.00%	2.05%
2 Retention Ratio:			
a) Market-to-book	[B]	3.27	3.15
b) Div. Yld on Book	[C]	6.52%	6.43%
c) Return on Equity	[A]	11.33%	11.33%
d) Retention Rate	[D]	42.45%	43.22%
3 Reinvestment Growth	[E]	4.81%	4.90%
4 New Financing Growth	[F]	2.49%	2.36%
5 Total Estimate of Investor Anticipated Growth	[G]	7.30%	7.26%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.07%	0.07%
7 Indicated Cost of Equity	[I]	9.37%	9.38%

Some of the Considerations for determining Future Expected Return on Equity:

			Median	Source:
[A]	Value Line Expectation		11.50%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts		11.33%	ALR SCHEDULE 2, Page 4
	Return on Equity to Achieve Zacks' Growth		13.84%	JAR Schedule 3, Page 3
	Earned Return on Equity in	2007	11.34%	JAR Schedule 3, Page 2
	Earned Return on Equity in	2006	10.56%	JAR Schedule 3, Page 2
	Earned Return on Equity in	2005	11.65%	JAR Schedule 3, Page 2

[B] Schedule JAR 3, Page 1
[C] Line 1 x Line 2a
[D] 1- Line 2b/Line 2c
[E] Line 2c x Line 2d
[F] S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)

[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used ▪ 1.10% [J]

[G] Line 3 + Line 4
[H] Line 1 x one-half of line 5
[I] Line 1 + Line 5 + Line 6
[J] Schedule JAR 5

California Water Service Gp
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Based on Return on Equity Derived From Value Line's Forecasts for Earnings and Book Value

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	2.96%	3.09%
2 Retention Ratio:			
a) *Market-to-book*	[B]	2.10	1.97
b) Div. Yld on Book	[C]	6.21%	6.09%
c) Return on Equity	[A]	9.15%	9.15%
d) Retention Rate	[D]	32.13%	33.45%
3 Reinvestment Growth	[E]	2.94%	3.06%
4 New Financing Growth	[F]	2.52%	2.23%
5 Total Estimate of Investor Anticipated Growth	[G]	5.46%	5.29%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.08%	0.08%
7 Indicated Cost of Equity	**[I]**	8.51%	8.46%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
		Median	
[A]	Value Line Expectation	10.00%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	9.15%	ALR SCHEDULE 2, Page 4
	Return on Equity to Achieve Zacks' Growth	11.02%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	8.57%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	7.86%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	9.35%	JAR Schedule 3, Page 2

[B] *Schedule JAR 3, Page 1*
[C] Line 1 x Line 2a
[D] 1- Line 2b/Line 2c
[E] Line 2c x Line 2d
[F] S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)

[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 2.30% [J]

[G] Line 3 + Line 4
[H] Line 1 x one-half of line 5
[I] Line 1 + Line 5 + Line 6
[J] Schedule JAR 5

Southwest Water Co
DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY
Based on Return on Equity Derived From Value Line's Forecasts for Earnings and Book Value

		BASED ON AVERAGE MARKET PRICE FOR Year Ending 7/1/07	BASED UPON MARKET PRICE AS OF 7/1/2007
1 Dividend Yield On Market Price	[B]	1.75%	1.82%
2 Retention Ratio:			
a) Market-to-book	[B]	1.82	1.68
b) Div. Yld on Book	[C]	3.18%	3.05%
c) Return on Equity	[A]	5.00%	5.00%
d) Retention Rate	[D]	36.35%	38.95%
3 Reinvestment Growth	[E]	1.82%	1.95%
4 New Financing Growth	[F]	3.81%	3.17%
5 Total Estimate of Investor Anticipated Growth	[G]	5.63%	5.12%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.05%	0.05%
7 Indicated Cost of Equity	**[I]**	7.43%	6.98%

Some of the Considerations for determining Future Expected Return on Equity:

			Source:
		Median	
[A]	Value Line Expectation	7.00%	JAR Schedule 3, Page 2
	Derived Return on book equity from Value Line forecasts	5.00%	ALR SCHEDULE 2, Page 4
	Return on Equity to Achieve Zacks' Growth	8.15%	JAR Schedule 3, Page 3
	Earned Return on Equity in 2007	6.17%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2006	5.94%	JAR Schedule 3, Page 2
	Earned Return on Equity in 2005	5.37%	JAR Schedule 3, Page 2

[B] Schedule JAR 3, Page 1
[C] Line 1 x Line 2a
[D] 1- Line 2b/Line 2c
[E] Line 2c x Line 2d
[F] S X V (Line 2a - 1) ex fin rate used (ALR schedule 5)

[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 4.66% [J]

[G] Line 3 + Line 4
[H] Line 1 x one-half of line 5
[I] Line 1 + Line 5 + Line 6
[J] Schedule JAR 5

Schedule JAR 5

EXTERNAL FINANCING RATE
(Millions of Shares)

	Common Stock Outstanding 2007	2010-12	Compound Annual
All Water Companies Covered By Value Line			
American States Water Co	18.00	22.00	5.14%
Aqua America Inc	134.00	140.00	1.10%
California Water Service Gp	21.00	23.00	2.30%
Southwest Water Co	25.00	30.00	4.66%
		Average	3.30%
		Median	3.48%
		Round to	**3.50%**

Source: Most current Value Line at time of prep. of schedule.

Docket No. 060368-WS
James A. Rothschild
Schedule JAR-5
External Financing Rate
Page 1 of 1

CAPITAL ASSET PRICING MODEL
BASED ON HISTORICAL ACTUAL COMPOUND ANNUAL RETURNS

1	Historical Actual Return - beta = 1	10.4% [A]	
2	Historical Actual Return - beta = 0.88	9.6% [B]	
3	Interest Rate on 30-Year Treasury Bonds	5.11% [C]	
4	Interest Rate on Long-Term Inflation Indexed Treasury Bonds	2.54% [D]	
5	Current Market Inflation Expectation	2.57%	Line 1 minus Line 2
6	Historical Actual Inflation	3.00%	
7	Difference From Historical Actual Inflation	0.43%	
8	Adjusted Returns For Current Market Inflation Expectation Beta = 1	9.97%	

CAPITAL ASSET PRICING MODEL

7	Indicated Cost of Equity for Portfolio of Companies with a beta of 0.83	9.16%	

[B] ALR Schedule 6, Page 2
[C] Wall Street Journal, 7/2/07
[D] Wall Street Journal, 7/2/07

Schedule JAR 6, Page 2

CAPITAL ASSET PRICING MODEL
HISTORIC ACTUAL COMPOUND RETURNS
and HISTORIC ACTUAL COMPOUND ANNUAL RETURNS ADJUSTED FOR
DIFFERENCE BETWEEN CURRENT AND HISTORICAL ACTUAL INFLATION RATE

	Portfolio by Size Decile	1	2	3	4	5	6	7	8	9	10
[A]	Beta	0.91%	1.04%	1.10%	1.13%	1.16%	1.18%	1.23%	1.28%	1.34%	1.41%
[B]	Historic Actual Compounded Annual Return	9.60%	11.00%	11.30%	11.30%	11.70%	11.80%	11.70%	11.90%	12.10%	14.00%
[C]	Reduced Compounded Annual Returns	9.17%	10.57%	10.87%	10.87%	11.27%	11.37%	11.27%	11.47%	11.67%	13.57%

[D] **Least Squared Line Derived from compouned annual returns returns per decile**

Beta	Slope	Y-Intercept	Return
0.88	6.89	3.52	**9.6%**

See graph on ALR Schedule 6, Page 3

Least Squared Line

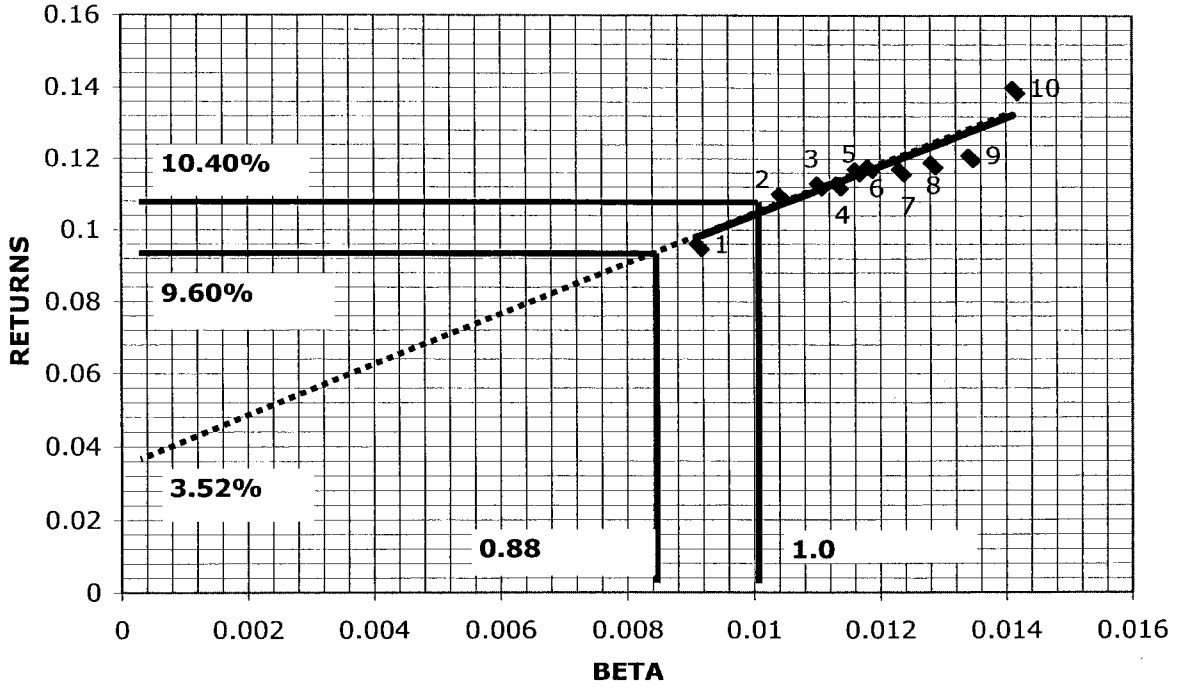
	Beta	Slope	Y-Intercept	Return
[E]	0.88	6.89	3.09	**9.15%**

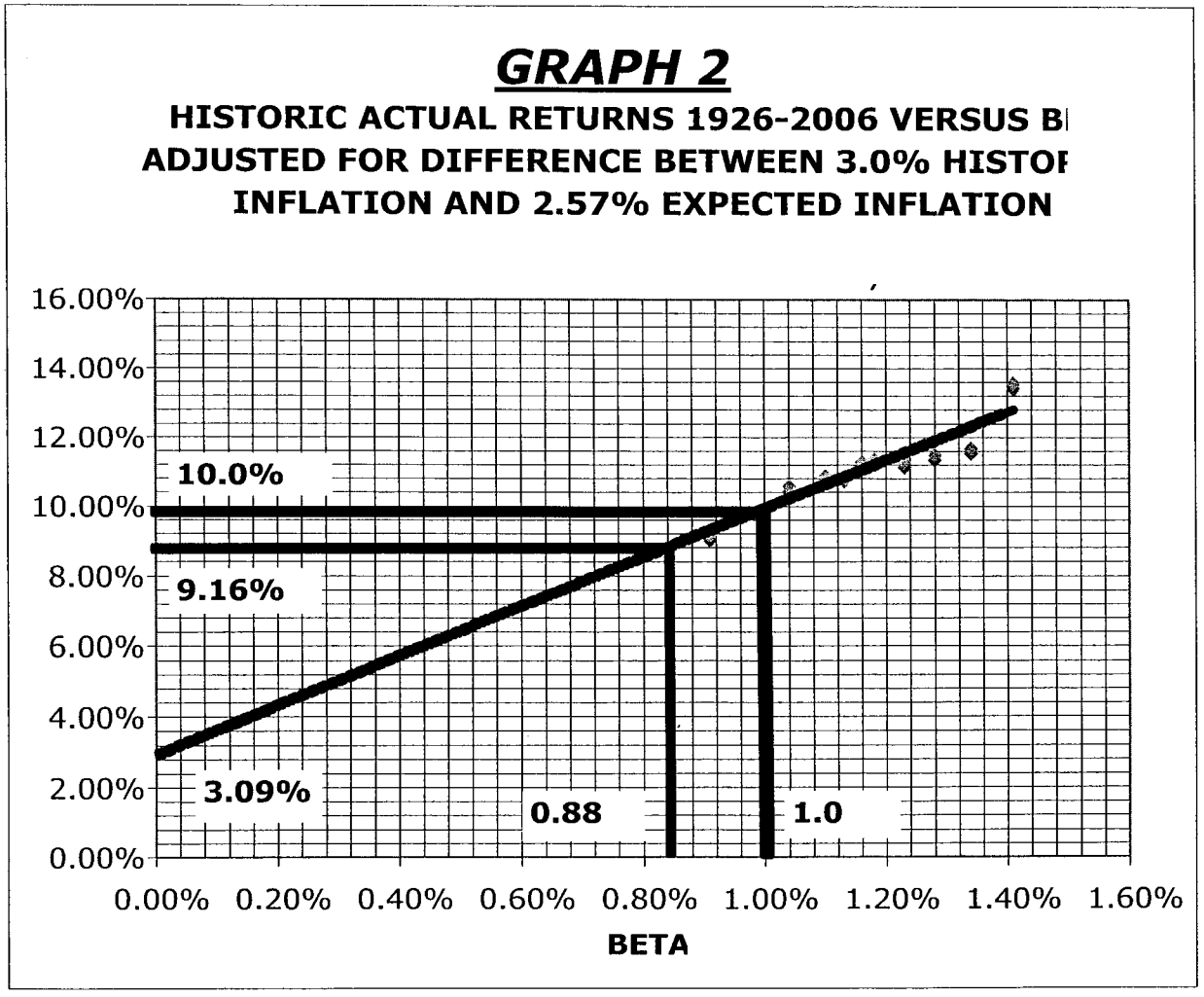
See graph on ALR Schedule 6, Page 4

[A] Ibbotson Associates 2007 Yearbook, page 142
[B] Ibbotson Associates 2007 Yearbook, page 130
[C] by 0.43%actual difference between 3.00% historical and 2.57%
current expected long-term inflation rate.
[D] y = 6.89 * X + 3.52 (R=.86) Derived from compouned annual returns returns per decile
www.shodor.org/unchem/math/lls/leastsq.html
[E] y = 6.89* X + 3.09 (R=.86) Adjusted to account for current inflation rate expected by the market
www.shodor.org/unchem/math/lls/leastsq.html

GRAPH 1

RETURNS VERSUS BETA BY SIZE DECILE - COMPOUNED ANNUAL AVERAGE HISTORICAL ACTUAL RETURNS 1926-2006




GRAPH 2
HISTORIC ACTUAL RETURNS 1926-2006 VERSUS B
ADJUSTED FOR DIFFERENCE BETWEEN 3.0% HISTOI
INFLATION AND 2.57% EXPECTED INFLATION
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
10.0%
9.16%
3.09%
0.88
1.0
0.00% 0.20% 0.40% 0.60% 0.80% 1.00% 1.20% 1.40% 1.60%
BETA

Schedule JAR 7, Page 1

Value of $100 invested at end of 1928

Years	Public Utility Stock Returns	A Rates Public Utility Bonds	Public Utility Stock Returns	A Rates Public Utility Bonds
			100.00	100
1928	0.5431	0.0372	154.31	103.72
1929	0.1376	0.0163	175.54	105.41
1930	-0.2149	0.082	137.82	114.05
1931	-0.3193	-0.0608	93.81	107.12
1932	-0.0724	0.0685	87.02	114.46
1933	-0.217	-0.0686	68.14	106.61
1934	-0.1743	0.3264	56.26	141.40
1935	0.6914	0.176	95.16	166.29
1936	0.2357	0.1079	117.59	184.23
1937	-0.3337	0.0272	78.35	189.24
1938	0.102	0.0884	86.34	205.97
1939	0.1538	0.0851	99.62	223.50
1940	-0.1643	0.0949	83.25	244.71
1941	-0.305	0.0428	57.86	255.18
1942	0.1079	0.0314	64.10	263.20
1943	0.475	0.0405	94.55	273.86
1944	0.1879	0.0303	112.32	282.15
1945	0.5665	0.0683	175.95	301.42
1946	-0.013	0.0267	173.66	309.47
1947	0.1236	-0.0213	195.13	302.88
1948	0.0451	0.0225	203.93	309.70
1949	0.3074	0.0892	266.61	337.32
1950	0.0152	0.0107	270.67	340.93
1951	0.2075	-0.0468	326.83	324.97
1952	0.1947	0.0442	390.46	339.34
1953	0.0918	0.0107	426.31	342.97
1954	0.2269	0.0745	523.04	368.52
1955	0.1357	-0.01	594.01	364.83
1956	0.0416	-0.0714	618.73	338.79
1957	0.0541	0.0054	652.20	340.61
1958	0.3827	0.0123	901.80	344.80
1959	0.0958	-0.012	988.19	340.67
1960	0.168	0.0791	1,154.20	367.61
1961	0.3646	0.0502	1,575.03	386.07
1962	-0.0519	0.0852	1,493.28	418.96
1963	0.1261	0.0294	1,681.58	431.28
1964	0.1685	0.0409	1,964.93	448.92
1965	0.0489	-0.0044	2,061.02	446.94
1966	-0.0504	-0.0602	1,957.14	420.04
1967	-0.0216	-0.0592	1,914.87	395.17
1968	0.1419	0.0286	2,186.59	406.47
1969	-0.1769	-0.096	1,799.78	367.45
1970	0.1494	0.0952	2,068.67	402.43
1971	0.005	0.151	2,079.01	463.20
1972	0.1464	0.1103	2,383.38	514.29
1973	-0.2106	0.0156	1,881.44	522.31
1974	-0.2135	-0.0683	1,479.75	486.64
1975	0.4364	0.0872	2,125.51	529.07
1976	0.3245	0.2475	2,815.24	660.02
1977	0.1076	0.0683	3,118.16	705.10
1978	-0.0174	-0.0026	3,063.91	703.27
1979	0.1221	-0.0655	3,438.01	657.20
1980	0.1275	-0.0702	3,876.36	611.07
1981	0.1464	0.0416	4,443.86	636.49
1982	0.2292	0.3708	5,462.39	872.50
1983	0.2372	0.1406	6,758.06	995.17
1984	0.2219	0.1783	8,257.68	1,172.61
1985	0.3232	0.3143	10,926.56	1,541.16
1986	0.3575	0.2835	14,832.81	1,978.08
1987	-0.0544	-0.0435	14,025.90	1,892.03
1988	0.1849	0.1643	16,619.29	2,202.89
1989	0.4351	0.1692	23,850.35	2,575.62
1990	0.0069	0.0738	24,014.91	2,765.70
1991	0.0931	0.1715	26,250.70	3,240.02
1992	0.1183	0.1355	29,356.16	3,679.04
1993	0.1661	0.1429	34,232.22	4,204.77
1994	-0.0825	0.0065	31,408.06	4,232.10
1995	0.3772	0.2164	43,255.18	5,147.93
1996	0.055	0.0279	45,634.21	5,291.56
1997	0.1959	0.1238	54,573.96	5,946.65
1998	0.1896	0.1074	64,921.18	6,585.32
1999	-0.0998	-0.0921	58,442.04	5,978.82
2000	0.5475	0.1101	90,439.06	6,637.08
2001	-0.2877	0.078	64,419.75	7,154.78
2002	-0.2934	0.2461	45,518.99	8,915.57
2003	0.2509	0.1529	56,939.71	10,278.76
2004	0.2763	0.0782	72,672.15	11,082.56
2005	0.2151	0.0732	88,303.93	11,893.80

Source: S&P Public Utility Index. Valley Water System's Company witness Harold Walker, DOCKET NO. 06-10-07

ALR SCHEDULE 7, Page 2

		Public Utility Stock Returns	A Rates Public Utility Bonds	Risk Premium
	Compound Annual Return, or Geometric Average	9.21%	6.40%	2.81%
[A]	Respective Public Utility Bond Yields	6.6%		
[B]	Estimated Risk Premium	2.8%		
[C]	Market Value Risk Premium Indicated Cost Rate	9.4%		

[A] Schedule PMA-10, page 8 of 9 of Ms. Ahern's direct testimony
[B] Difference of Public Utility Stock Returns and A Rated Public Utility Bonds
[A] Difference of Respective Public Utility Bond Yields and Estimated Risk Premium

Actual Capital Structure
Of The Four Water Companies Covered by Value Line

	% Common Equity w/out Short Term Debt				VL Est.	($000,000s)	Quantity						Percentage			
	2003	2004	2005	2006	2007	Total Debt	LT Debt	ST Debt	Pfd Stock	Equity	Total Capital	LT Debt	ST Debt	Pfd Stock	Equity Ratio With ST Debt
American States Water Co	48.0%	52.3%	49.5%	51.4%	50.5%	$ 300.4	$ 267.8	$ 32.6	$ -	$ 273.2	$ 573.6	46.7%	5.7%	0.0%	47.6%
Aqua America Inc	48.6%	50.0%	48.0%	49.2%	49.0%	$ 1,102.1	$ 951.7	$ 150.4	$ -	$ 914.4	$ 2,016.5	47.2%	7.5%	0.0%	45.3%
California Water Service Gp	49.1%	50.8%	51.1%	56.2%	55.0%	$ 293.6	$ 291.8	$ 1.8	$ 3.5	$ 360.9	$ 658.0	44.3%	0.3%	0.5%	54.8%
Southwest Water Co	51.6%	52.0%	55.1%	56.4%	56.0%	$ 130.0	$ 128.6	$ 1.4	$ 0.5	$ 164.3	$ 294.7	43.6%	0.5%	0.2%	55.7%
Average	49.4%	51.3%	51.0%	53.3%	52.6%	$ 1,826	$ 1,640	$ 186	$ 4	$ 1,713	$ 3,543	45.47%	3.47%	0.17%	50.89%
											Median	45.52%	3.08%	0.08%	51.24%

Source: Most current Value Line at time of prep.

Schedule JAR 8, page 1

Aqua America, Inc. and Subsidiaries Consolidated Capital Structure
In thousands of dollars

	2006	Ratios
Long-Term Debt	$982,815	48.57%
Short-Term Debt*	$119,150	5.89%
Total common stockholders' equity	$921,630	45.54%
Total Capitalization	$2,023,595	

Source: Aqua America Inc. Annual Report, Filed 2/28/2007, page 24
*Loans payable