March 5, 2010


Renee Jenkins
Chief of Docketing
The Public Utilities Commission of Ohio 180 East Broad Street Columbus, Ohio 43266-0573

## Re: In the Matter of the Application of Aqua Ohio, Inc. For Authority to Increase its Rates and Charges in its Masury Division PUCO Case No. 09-0560-WW-AIR

Dear Ms. Jenkins:
Please find enclosed Attachments 1 and 2 to the testimony of Pauline M. Ahern submitted on behalf of Aqua Ohio, Inc. These Attachments were referenced in Aqua Ohio's Objections to the Public Utilities Commission of Ohio Staff Report of Investigations in the Aqua Ohio, Inc. Masury Division Rate Case filed on February 22, 2010. For ease of reference, please supplement Aqua Ohio's Objections with these Attachments. My apologies for the inconvenience and any confusion this may have caused.


MSY/cls
cc: All Parties
ND: 4811-8063-0533, v. 1

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accurate and complete reproduction of a case file
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\begin{tabular}{|c|c|c|c|c|c|c|}
\hline \multirow[t]{3}{*}{Line No.} & \multicolumn{6}{|l|}{\begin{tabular}{l}
Aqua Ohio, Inc. - Masury Division \\
Derivation of Investment Risk Adjustment Based upon \\
bbolson Associates' Size Premia for the Decile Portiolios of the NYSE/AMEXINASDAQ
\end{tabular}} \\
\hline & & Market Cep & alization (1) & Applica
\(\qquad\) of the NYSE/AMEXI NASDAQ (2) & \begin{tabular}{l}
\[
\underline{\mathbf{3}}
\] \\
Applicable Size Premium (3)
\end{tabular} & \begin{tabular}{l}
4 \\
Spread from Applicabte Size Premium for (4)
\end{tabular} \\
\hline & & \multicolumn{2}{|l|}{( millions) (times larger)} & & & \\
\hline \multirow[t]{2}{*}{1.} & \multicolumn{6}{|l|}{Aqua Onio, Inc. - Masury Division} \\
\hline & a. Based Upon PUCO Staff Water Utilty Group & \$ 89.960 & & 10 & 6.28\% & \\
\hline \multirow[t]{12}{*}{2.} & PUCO Stafl Water Utitily Group & \$ 1,735.421 & \(19.3 \times\) & 5-6 & 1.71\% & 4.57\% \\
\hline & & (A) & (B) & (C) & (D) & (E) \\
\hline & & Decils &  & \[
\frac{\begin{array}{c}
\text { Largest Company } \\
\text { in Desile }
\end{array}}{\text { (millions) }}
\] & \[
\frac{\text { Midpoint }}{\text { (millions) }}
\] & Size Premium (Retumin Excess of CAPM) (2) \\
\hline & & \(1 \cdot\) Largest & \[
\begin{array}{r}
\mathbf{1 4 , 6 9 2 . 0 1 6} \\
5,975.836
\end{array}
\] & \[
\begin{array}{r}
329,725.255 \\
14,691.668
\end{array}
\] & \[
\begin{array}{r}
\$ 172,208.636 \\
10,333.75
\end{array}
\] & \[
\begin{aligned}
& -0.37 \% \\
& 0.74 \%
\end{aligned}
\] \\
\hline & & 3 & 3,428.570 & 5,936.147 & 4,682.36 & 0.85\% \\
\hline & & 5 & 2,386.985 & 3,414.634 & 2,900.81 & 1.15\% \\
\hline & & 5 & 1,602.429 & 2,384.026 & 1,993.23 & 1.69\% \\
\hline & & 6 & 1,063.333 & 1,600.169 & 1,331.75 & 1.73\% \\
\hline & & 8 & 685.129 & \(\begin{array}{r}1.063 .308 \\ 684 \\ \hline\end{array}\) & 874.22 & 1.73\% \\
\hline & & 8
9 & 432.175
214.194 & 684.790
431.256 & 5588.48
322.73 & 2.49\% \\
\hline & & 10-Smallest & 1.007 & 214.111 & 107.56 & 6.28\% \\
\hline & & \multicolumn{5}{|l|}{Source: 2010 Ibbotson Risk Premia Over Time Reporl - Estimates for 1926-2009} \\
\hline
\end{tabular}
Notes: (1) From page 2


Notes: (1) Codumn \(3 /\) Column 1.
(2) Foromn Schectule D-1.4, Page 7 of the Staff Reporf.
(2) Cold 1 .
(3) Column 4 / Column 2.
(4) Column \(5^{*}\) Column 3 .
(3) The markel-tobook ratio of Aqua Otio. Inc. Ls assumed to be equal to the everage merket-to-book ratio of the PuCO Staff Water Utility Group.

\(174.0 \%\) ).
Note
2008 Anrual Forms 10K
Quarterly Forms 10Q-2nd quarter 2009.
yatwo.finance.com
Quarterty Forms 100
yation.firancee.com

Aqua Ohio, Inc. - Masury Divisian

\section*{Indicated Common Equity Cost Rate Through Use} of the Capital Asset Pricing Model
\begin{tabular}{ccc}
1 & \(\underline{2}\) & \(\underline{3}\) \\
& Company-Specific & CAPM Result \\
Value Line & Risk Premium & Including \\
Adjusted & Based on Market & Risk-Free \\
Beta & Premium of \(7.72 \%\) & (1)
\end{tabular} \begin{tabular}{cc} 
Rate of \(4.85 \%\) & \((2)\) \\
&
\end{tabular}

\section*{PUCO Staff Water Utllity Group}
\begin{tabular}{lllll} 
Traditional Capital Asset Priaing Model (3) & 0.7333 & \(5.66 \%\) & 10.51 & \(\%\) \\
Empirical Capital Asset Pricing Model (4) & 0.7333 & \(6.18 \%\) & 11.03 & \(\%\)
\end{tabular}

\section*{Average}
\(10.77 \%\)

See page 2 for notes.

\title{
Aqua Ohio Inc. - Masury Division
}

Development of the Market-Required Rate of Retum on Common Equity Using the Capital Asset Pricing Model for
PUCO Staff Water Utility Group
Adiusted to Reflect a Forecasted Risk-Free Rate and Market Return

\section*{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_ine average forecasted annual dividend yield.

The 3-5 year average tofal market appreciation of \(55 \%\) produces a four-year average annual return of \(11.58 \%\left(\left(1.55^{025}\right)-1\right)\). 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 tolal 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 Securlites 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:
\begin{tabular}{lc} 
& \begin{tabular}{c} 
30-Year \\
First Quarter 2010
\end{tabular} \\
\cline { 2 - 2 } Second Quarter 2010 & 4.50 \\
Third Quarter 2010 & 4.60 \\
Fourth Quarter 2010 & 4.80 \\
First Quarter 2011 & 4.90 \\
Second Quarter 2011 & 5.10 \\
Average & \(\underline{5.20}\) \\
& \(\underline{4.85 \%}\)
\end{tabular}
(3) The traditional Capltal Asset Pricing Model (CAPM) is applled using the following formula:
\(R_{S}=R_{F}+\beta\left(R_{M}-R_{F}\right)\)
Where \(\mathbf{R}_{\mathrm{S}}=\) Return rate of common stock
\(R_{F}=\) Risk Free Rate
\(\beta=\) 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:
\(R_{S}=R_{F}+.25\left(R_{M}-R_{F}\right)+.75 \beta\left(R_{M}-R_{F}\right)\)
Where \(R_{s}=\) Return rate of common stock
\(R_{F}=\) Risk-Free Rate
\(\beta=\) Value Line Adjusted Beta
\(\mathrm{R}_{\mathrm{M}}=\) Return on the market as a whole
Source of information: Value Line Summary \& Index
Blue Chip Financial Forecasts, January 1, 2010
2010 libbotson - Risk Premia Quer Time Report-Estimates for 1926-2009, Morningstar, Inc., 2010.

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions \({ }^{1}\)
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multirow[b]{3}{*}{Interest Rates} & \multicolumn{8}{|l|}{} & \multicolumn{6}{|l|}{Consensus Forecasts-Quarterly Avg.} \\
\hline & \multicolumn{4}{|l|}{} & \multicolumn{4}{|l|}{---Average For Month--- Latest \(Q^{*}\)} & 1Q & 20 & 3Q & 40 & 1Q & 2Q \\
\hline & Dec. 25 & Dec. 18 & Dec. 11 & Dec. 4 & Nov. & Oct. & Sep. & 402009 & 2010 & 2010 & 2010 & 2010 & 2011 & 2011 \\
\hline Federal Funds Rate & 0.12 & 0.12 & 0.12 & 0.12 & 0.12 & 0.12 & 0.15 & 0.12 & 0.2 & 8.2 & 0.4 & 0.8 & 1.3 & 1.6 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline Treasury bill, 1 yr. & 0.38 & 0.37 & 0.32 & 0.29 & 0.31 & 0.37 & 0.40 & 0.34 & 0.4 & 0.6 & 1.8 & 1.4 & 1.8 & 2.1 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline & & & & Histor & & & & & & nsensu & Fore & casts- & Uarter & \\
\hline & 12 & 2Q & 3Q & 4Q & 10 & 2Q & 3Q & 4Q* & 10 & 2 Q & 3Q & 4Q & 1Q & 2Q \\
\hline Key Assumptions & \(\underline{2008}\) & 2008 & 2008 & 2008 & \(\underline{2009}\) & \(\underline{2009}\) & 2009 & 2009 & 2010 & 2010 & 2010 & 2010 & 2011 & 2011 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline 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 \\
\hline
\end{tabular}

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 (sarr). 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 fournal. 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' Major Currency Index is from FRSR H. 10 and G.5. Historical data for Real GDP and GDP Chained Prise Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPl) history is from the Department of Labor's Bureau of Labor Statistics (BLS). 'Interest rate data for 402009 based on historical daza through the week ended December \(25^{\text {sh }}\). Data for 422009 Major Currency Index also is based on data through sveek ended December \(2 s^{\text {th }}\). Figures for 402009 Real GDP, GDP Chained Price Index and Comsumer Price Index are consensus forecasts based on a special question asked of the paneliats this month (see page 14)
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