Investors consider both historical and projected data in the context of the expected growth rate for a firm. An investor can compute historical growth rates using compound growth rates or growth rate trend lines. Otherwise, an investor can rely upon published growth rates as provided in widely-circulated, influential publications. However, a traditional constant growth DCF analysis that is limited to such inputs suffers from the assumption of no change in the price-earnings multiple, i.e., that the value of a firm's equity will grow at the same rate as earnings. Some of the factors which actually contribute to investors' expectations of earnings growth and which should be considered in assessing those expectations, are: (i) the earnings rate on existing equity, (ii) the portion of earnings not paid out in dividends, (iii) sales of additional common equity, (iv) reacquisition of common stock previously issued, (v) changes in financial leverage, (vi) acquisitions of new business opportunities, (vii) profitable liquidation of assets, and (viii) repositioning of existing assets. The realities of the equity market regarding total return expectations, however, also reflect factors other than these inputs. Therefore, the DCF model contains overly restrictive limitations when the growth component is stated in terms of earnings per share (the basis for the capital gains yield) or dividends per share (the basis for the infinite dividend discount model). In these situations, there is inadequate recognition of the capital gains yields arising from stock price growth which could exceed earnings or dividends growth.

To assess the growth component of the DCF, analysts' projections of future growth influence investor expectations as explained above. One influential publication is The Value Line Investment Survey which contains estimated future projections of growth. The Value Line Investment Survey provides growth estimates which are stated within a common economic environment for the purpose of measuring relative growth potential. The basis for these projections is the Value Line 3 to 5 year hypothetical economy. The Value Line hypothetical economic environment is represented by components and subcomponents of

the National Income Accounts which reflect in the aggregate assumptions concerning the unemployment rate, manpower productivity, price inflation, corporate income tax rate, high-grade corporate bond interest rates, and Fed policies. Individual estimates begin with the correlation of sales, earnings and dividends of a company to appropriate components or subcomponents of the future National Income Accounts. These calculations provide a consistent basis for the published forecasts. Value Line's evaluation of a specific company's future prospects are considered in the context of specific operating characteristics that influence the published projections. Of particular importance for regulated firms, Value Line considers the regulatory quality, rates of return recently authorized, the historic ability of the firm to actually experience the authorized rates of return, the firm's budgeted capital spending, the firm's financing forecast, and the dividend payout ratio. The wide circulation of this source and frequent reference to Value Line in financial circles indicate that this publication has an influence on investor judgment with regard to expectations for the future.

There are other sources of earnings growth forecasts. One of these sources is the Institutional Brokers Estimate System ("IBES"). The IBES service provides data on consensus earnings per share forecasts and five-year earnings growth rate estimates. The publisher of IBES has been purchased by Thomson/First Call. The IBES forecasts have been integrated into the First Call consensus growth forecasts. The earnings estimates are obtained from financial analysts at brokerage research departments and from institutions whose securities analysts are projecting earnings for companies in the First Call universe of companies. Other services that tabulate earnings forecasts and publish them are Zacks Investment Research. As with the IBES/First Call forecasts, Zacks provide consensus forecasts collected from analysts for most publically traded companies.

In each of these publications, forecasts of earnings per share for the current and subsequent year receive prominent coverage. That is to say, IBES/First Call, Zacks, and

Value Line show estimates of current-year earnings and projections for the next year. While the DCF model typically focuses upon long-run estimates of growth, stock prices are clearly influenced by current and near-term earnings prospects. Therefore, the near-term earnings per share growth rates should also be factored into a growth rate determination.

Although forecasts of future performance are investor influencing[3], equity investors may also rely upon the observations of past performance. Investors' expectations of future growth rates may be determined, in part, by an analysis of historical growth rates. It is apparent that any serious investor would advise himself/herself of historical performance prior to taking an investment position in a firm. Earnings per share and dividends per share represent the principal financial variables which influence investor growth expectations.

Other financial variables are sometimes considered in rate case proceedings. For example, a company's internal growth rate, derived from the return rate on book common equity and the related retention ratio, is sometimes considered. This growth rate measure is represented by the Value Line forecast "*BxR*" shown on Schedule 9. Internal growth rates are often used as a proxy for book value growth. Unfortunately, this measure of growth is often not reflective of investor-expected growth. This is especially important when there is an indication of a prospective change in dividend payout ratio, earned return on book common equity, change in market-to-book ratios or other fundamental changes in the character of the business. Nevertheless, I have also shown the historical and projected growth rates in book value per share and internal growth rates.

Leverage Adjustment

As noted previously, the divergence of stock prices from book values creates a conflict within the DCF model when the results of a market-derived cost of equity are applied

[3]As shown in a National Bureau of Economic Research monograph by John G. Cragg and Burton G. Malkiel, Expectations and the Structure of Share Prices, University of Chicago Press 1982.

to the common equity account measured at book value in the ratesetting context. This is the situation today where the market price of stock exceeds its book value for most companies. This divergence of price and book value also creates a financial risk difference, whereby the capitalization of a utility measured at its market value contains relatively less debt and more equity than the capitalization measured at its book value. It is a well-accepted fact of financial theory that a relatively higher proportion of equity in the capitalization has less financial risk than another capital structure more heavily weighted with debt. This is the situation for the Water Group where the market value of its capitalization contains more equity than is shown by the book capitalization. The following comparison demonstrates this situation where the market capitalization is developed by taking the "Fair Value of Financial Instruments" (Disclosures about Fair Value of Financial Instruments -- Statement of Financial Accounting Standards ("FAS") No. 107) as shown in the annual report for these companies and the market value of the common equity using the price of stock. The comparison of capital structure ratios is:

	Capitalization at Market Value (Fair Value)	Capitalization at Book Value (Carrying Amounts)
Water Group		
Long-term Debt	38.06%	50.94%
Preferred Stock	0.15%	0.19%
Common Equity	61.78%	48.87%
Total	100.00%	100.00%

With regard to the capital structure ratios represented by the carrying amounts shown above, there are some variances from the ratios shown on Schedule 3. Variances arise from the use of balance sheet values in computing the capital structure ratios shown on Schedule 3 and the use of the Carrying Amounts of the Financial Instruments according to FAS 107 (the Carrying Amounts were used in the table shown above to be comparable to the Fair Value amounts used in the comparison calculations).

With the capital ratios calculated above, is necessary to first calculate the cost of equity for a firm without any leverage. The cost of equity for an unleveraged firm using the capital structure ratios calculated with market values is:

$$ku = ke - (((ku - i)\ 1\text{-}t)\ D / E) - (ku - d)\ P / E$$

$$8.43\% = 9.70\% - (((8.43\% - 5.28\%).65)38.06\%/61.78\%) - (8.43\% - 6.04\%)\ 0.15\%/61.78\%$$

where *ku* = cost of equity for an all-equity firm, *ke* = market determined cost equity, *i* = cost of debt[4], *d* = dividend rate on preferred stock[5], *D* = debt ratio, *P* = preferred stock ratio, and *E* = common equity ratio. The formula shown above indicates that the cost of equity for a firm with 100% equity is 8.43% using the market value of the Water Group's capitalization. Having determined that the cost of equity is 8.43% for a firm with 100% equity, the rate of return on common equity associated with the book value capital structure is:

$$ke = ku + (((ku - i)\ 1\text{-}t)\ D / E) + (ku - d)\ P / E$$

$$10.58\% = 8.43\% + (((8.43\% - 5.28\%)\ .65)\ 50.94\%/48.87\%) + (8.43\% - 6.04\%)0.19\%/48.87\%$$

---

[4] The cost of debt is the six-month average yield on Moody's A rated public utility bonds.

[5] The cost of preferred is the six-month average yield on Moody's "a" rated preferred stock.

APPENDIX F TO DIRECT TESTIMONY OF PAUL R. MOUL

INTEREST RATES

Interest rates can be viewed in their traditional nominal terms (i.e., the stated rate of interest) and in real terms (i.e., the stated rate of interest less the expected rate of inflation). Absent consideration of inflation, the real rate of interest is determined generally by supply factors which are influenced by investors willingness to forego current consumption (i.e., to save) and demand factors that are influenced by the opportunities to derive income from productive investments. Added to the real rate of interest is compensation required by investors for the inflationary impact of the declining purchasing power of their income received in the future. While interest rates are clearly influenced by the changing annual rate of inflation, it is important to note that the expected rate of inflation that is reflected in current interest rates may be quite different from the prevailing rate of inflation.

Rates of interest also vary by the type of interest bearing instrument. Investors require compensation for the risk associated with the term of the investment and the risk of default. The risk associated with the term of the investment is usually shown by the yield curve, i.e., the difference in rates across maturities. The typical structure is represented by a positive yield curve, which provides progressively higher interest rates as the maturities are lengthened. Flat (i.e., relatively level rates across maturities) or inverted (i.e., higher short-term rates than long-term rates) yield curves occur less frequently.

The risk of default is typically associated with the creditworthiness of the borrower. Differences in interest rates can be traced to the credit quality ratings assigned by the bond rating agencies, such as Moody's Investors Service, Inc. and Standard & Poor's Corporation. Obligations of the United States Treasury are usually considered to be free of default risk, and hence reflect only the real rate of interest, compensation for expected inflation, and maturity risk. The Treasury has been issuing inflation-indexed notes, which

automatically provide compensation to investors for future inflation, thereby providing a lower current yield on these issues.

Interest Rate Environment

Federal Reserve Board ("Fed") policy actions, which impact directly short-term interest rates also substantially, affect investor sentiment in long-term fixed-income securities markets. In this regard, the Fed has often pursued policies designed to build investor confidence in the fixed-income securities market. Formative Fed policy has had a long history, as exemplified by the historic 1951 Treasury-Federal Reserve Accord, and more recently, deregulation within the financial system, which increased the level and volatility of interest rates. The Fed has indicated that it will follow a monetary policy designed to promote noninflationary economic growth.

As background to the recent levels of interest rates, history shows that the Open Market Committee of the Federal Reserve board ("FOMC") began a series of moves toward lower short-term interest rates in mid-1990 -- at the outset of the previous recession. Monetary policy was influenced at that time by (i) steps taken to reduce the federal budget deficit, (ii) slowing economic growth, (iii) rising unemployment, and (iv) measures intended to avoid a credit crunch. Thereafter, the Federal government initiated several bold proposals to deal with future borrowings by the Treasury. With lower expected federal budget deficits and reduced Treasury borrowings, together with limitations on the supply of new 30-year Treasury bonds, long-term interest rates declined to a twenty-year low, reaching a trough of 5.78% in October 1993.

On February 4, 1994, the FOMC began a series of increases in the Fed Funds rate (i.e., the interest rate on excess overnight bank reserves). The initial increase represented the first rise in short-term interest rates in five years. The series of seven increases doubled the Fed Funds rate to 6%. The increases in short-term interest rates also caused long-term

rates to move up, continuing a trend, which began in the fourth quarter of 1993. The cyclical peak in long-term interest rates was reached on November 7 and 14, 1994 when 30-year Treasury bonds attained an 8.16% yield. Thereafter, long-term Treasury bond yields generally declined.

Beginning in mid-February 1996, long-term interest rates moved upward from their previous lows. After initially reaching a level of 6.75% on March 15, 1996, long-term interest rates continued to climb and reached a peak of 7.19% on July 5 and 8, 1996. For the period leading up to the 1996 Presidential election, long-term Treasury bonds generally traded within this range. After the election, interest rates moderated, returning to a level somewhat below the previous trading range. Thereafter, in December 1996, interest rates returned to a range of 6.5% to 7.0%, which existed for much of 1996.

On March 25, 1997, the FOMC decided to tighten monetary conditions through a one-quarter percentage point increase in the Fed Funds rate. This tightening increased the Fed Funds rate to 5.5%. In making this move, the FOMC stated that it was concerned by persistent strength of demand in the economy, which it feared would increase the risk of inflationary imbalances that could eventually interfere with the long economic expansion.

In the fourth quarter of 1997, the yields on Treasury bonds began to decline rapidly in response to an increase in demand for Treasury securities caused by a flight to safety triggered by the currency and stock market crisis in Asia. Liquidity provided by the Treasury market makes these bonds an attractive investment in times of crisis. This is because Treasury securities encompass a very large market, which provides ease of trading, and carry a premium for safety. During the fourth quarter of 1997, Treasury bond yields pierced the psychologically important 6% level for the first time since 1993.

Through the first half of 1998, the yields on long-term Treasury bonds fluctuated within a range of about 5.6% to 6.1% reflecting their attractiveness and safety. In the third

quarter of 1998, there was further deterioration of investor confidence in global financial markets. This loss of confidence followed the moratorium (i.e., default) by Russia on its sovereign debt and fears associated with problems in Latin America. While not significant to the global economy in the aggregate, the August 17 default by Russia had a significant negative impact on investor confidence, following earlier discontent surrounding the crisis in Asia. These events subsequently led to a general pull back of risk-taking as displayed by banks growing reluctance to lend, worries of an expanding credit crunch, lower stock prices, and higher yields on bonds of riskier companies. These events contributed to the failure of the hedge fund, Long-Term Capital Management.

In response to these events, the FOMC cut the Fed Funds rate just prior to the mid-term Congressional elections. The FOMC's action was based upon concerns over how increasing weakness in foreign economies would affect the U.S. economy. As recently as July 1998, the FOMC had been more concerned about fighting inflation than the state of the economy. The initial rate cut was the first of three reductions by the FOMC. Thereafter, the yield on long-term Treasury bonds reached a 30-year low of 4.70% on October 5, 1998. Long-term Treasury yields below 5% had not been seen since 1967. Unlike the first rate cut that was widely anticipated, the second rate reduction by the FOMC was a surprise to the markets. A third reduction in short-term interest rates occurred in November 1998 when the FOMC reduced the Fed Funds rate to 4.75%.

All of these events prompted an increase in the prices for Treasury bonds, which lead to the low yields described above. Another factor that contributed to the decline in yields on long-term Treasury bonds was a reduction in the supply of new Treasury issues coming to market due to the Federal budget surplus -- the first in nearly 30 years. The dollar amount of Treasury bonds being issued declined by 30% in two years thus resulting in

higher prices and lower yields. In addition, rumors of some struggling hedge funds unwinding their positions further added to the gains in Treasury bond prices.

The financial crisis that spread from Asia to Russia and to Latin America pushed nervous investors from stocks into Treasury bonds, thus increasing demand for bonds, just when supply was shrinking. There was also a move from corporate bonds to Treasury bonds to take advantage of appreciation in the Treasury market. This resulted in a certain amount of exuberance for Treasury bond investments that formerly was reserved for the stock market. Moreover, yields in the fourth quarter of 1998 became extremely volatile as shown by Treasury yields that fell from 5.10% on September 29 to 4.70% on October 5, and thereafter returned to 5.10% on October 13. A decline and rebound of 40 basis points in Treasury yields in a two-week time frame is remarkable.

Beginning in mid-1999, the FOMC raised interest rates on six occasions reversing its actions in the fall of 1998. On June 30, 1999, August 24, 1999, November 16, 1999, February 2, 2000, March 21, 2000, and May 16, 2000, the FOMC raised the Fed Funds rate to 6.50%. This brought the Fed Funds rate to its highest level since 1991, and was 175 basis points higher than the level that occurred at the height of the Asian currency and stock market crisis. At the time, these actions were taken in response to more normally functioning financial markets, tight labor markets, and a reversal of the monetary ease that was required earlier in response to the global financial market turmoil.

As the year 2000 drew to a close, economic activity slowed and consumer confidence began to weaken. In two steps at the beginning and at the end of January 2001, the FOMC reduced the Fed Funds rate by one percentage point. These actions brought the Fed Funds rate to 5.50%. The FOMC described its actions as "a rapid and forceful response of monetary policy" to eroding consumer and business confidence exemplified by weaker retail sales and business spending on capital equipment and cut backs in

manufacturing production. Subsequently, on March 20, 2001, April 18, 2001, May 15, 2001, June 27, 2001, and August 21, 2001, the FOMC lowered the Fed Funds in steps consisting of three 50 basis points decrements followed by two 25 basis points decrements. These actions took the Fed Funds rate to 3.50%. The FOMC observed on August 21, 2001:

> Household demand has been sustained, but business profits and capital spending continue to weaken and growth abroad is slowing, weighing on the U.S. economy. The associated easing of pressures on labor and product markets is expected to keep inflation contained.
>
> Although long-term prospects for productivity growth and the economy remain favorable, the Committee continues to believe that against the background of its long-run goals of price stability and sustainable economic growth and of the information currently available, the risks are weighted mainly toward conditions that may generate economic weakness in the foreseeable future.

After the terrorist attack on September 11, 2001, the FOMC made two additional 50 basis points reductions in the Fed Funds rate. The first reduction occurred on September 17, 2001 and followed the four-day closure of the financial markets following the terrorist attacks. The second reduction occurred at the October 2 meeting of the FOMC where it observed:

> The terrorist attacks have significantly heightened uncertainty in an economy that was already weak. Business and household spending as a consequence are being further damped. Nonetheless, the long-term prospects for productivity growth and the economy remain favorable and should become evident once the unusual forces restraining demand abate.

Afterward, the FOMC reduced the Fed Funds rate by 50 basis points on November 6, 2001 and by 25 basis points on December 11, 2001. In total, short-term interest rates were reduced by the FOMC eleven (11) times during the year 2001. These actions cut the Fed Funds rate by 4.75% and resulted in 1.75% for the Fed Funds rate.

In an attempt to deal with weakening fundamentals in the economy recovering from the recession that began in March 2001, the FOMC provided a psychologically important one-half percentage point reduction in the federal funds rate. The rate cut was twice as large as the market expected, and brought the fed funds rate to 1.25% on November 6, 2002. The FOMC stated that:

> The Committee continues to believe that an accommodative stance of monetary policy, coupled with still-robust underlying growth in productivity, is providing important ongoing support to economic activity. However, incoming economic data have tended to confirm that greater uncertainty, in part attributable to heightened geopolitical risks, is currently inhibiting spending, production, and employment. Inflation and inflation expectations remain well contained.
>
> In these circumstances, the Committee believes that today's additional monetary easing should prove helpful as the economy works its way through this current soft spot. With this action, the Committee believes that, against the background of its long-run goals of price stability and sustainable economic growth and of the information currently available, the risks are balanced with respect to the prospects for both goals in the foreseeable future.

As 2003 unfolded, there was a continuing expectation of lower yields on Treasury securities. In fact, the yield on ten-year Treasury notes reached a 45-year low near the end of the second quarter of 2003. For long-term Treasury bonds, those yields culminated with a 4.24% yield on June 13, 2003. Soon thereafter, the FOMC reduced the Fed Funds rate by 25 basis points on June 25, 2003. In announcing its action, the FOMC stated:

> The Committee continues to believe that an accommodative stance of monetary policy, coupled with still robust underlying growth in productivity, is providing important ongoing support to economic activity. Recent signs point to a firming in spending, markedly improved financial conditions, and labor and product markets that are stabilizing. The economy, nonetheless, has yet to exhibit sustainable growth. With inflationary expectations subdued, the Committee judged that a slightly more

> expansive monetary policy would add further support for an economy which it expects to improve over time.

Thereafter, intermediate and long-term Treasury yields moved marketedly higher. Higher yields on long-term Treasury bonds, which exceeded 5.00% can be traced to: (i) the market's disappointment that the Fed Funds rate was not reduced below 1.00%, (ii) an indication that the Fed will not use unconventional methods for implementing monetary policy, (iii) growing confidence in a strengthening economy, and (iv) concerns regarding the Federal budget deficit. All these factors significantly changed the sentiment in the bond market.

For the remainder of 2003, the FOMC continued with its balanced monetary policy, thereby retaining the 1% Fed Funds rate. However, in 2004, the FOMC initiated a policy of moving toward a more neutral Fed Funds rate (i.e., removing the bias of abnormal low rates). On June 30, 2004, August 10, 2004, September 21, 2004, November 10, 2004, December 14, 2004, February 2, 2005, March 22, 2005, May 3, 2005, June 30, 2005, August 9, 2005, September 20, 2005, November 1, 2005, December 13, 2005, January 31, 2006, March 28, 2006, May 10, 2006, and June 29, 2006, the FOMC increased the Fed Funds rate in seventeen 25 basis point increments. These policy actions are widely interpreted as part of the process of moving toward a more neutral range for the Fed Funds rate.

Just after the FOMC meeting on August 7, 2007, where the FOMC decided to retain a 5.25% Fed Funds rate, turmoil in the credit markets prompted central banks throughout the world to inject over $325 billion of reserves into the banking system over a three-day period in reaction to a credit crunch. Problems had been developing earlier in 2007, beginning in the market for asset-backed securities linked to subprime mortgages. Valuation uncertainties for these securities caused liquidity concerns for hedge funds,

investment banks, and financial institutions. The market for commercial paper, the most liquid part of the credit markets for non-Treasury securities, was also affected. In response to the market turmoil, the FOMC issued the following statement, the first of its type since after the September 11, 2001 terrorists' attack.

> The Federal Reserve is providing liquidity to facilitate the orderly functioning of financial markets.
>
> The Federal Reserve will provide reserves as necessary through open market operations to promote trading in the federal funds market at rates close to the Federal Open Market Committee's target rate of 5-1/4 percent. In current circumstances, depository institutions may experience unusual funding needs because of dislocations in money and credit markets. As always, the discount window is available as a source of funding.

Then, one week after its initial announcement, the FOMC made a surprise reduction of 50 basis points in the discount rate to narrow the spread between this rate and the target Fed Funds rate. At the same time, the FOMC made the following statement:

> Financial market conditions have deteriorated, and tighter credit conditions and increased uncertainty have the potential to restrain economic growth going forward. In these circumstances, although recent data suggest that the economy has continued to expand at a moderate pace, the Federal Open Market Committee judges that the downside risks to growth have increased appreciably. The Committee is monitoring the situation and is prepared to act as needed to mitigate the adverse effects on the economy arising from the disruptions in financial markets.

Thereafter, at its regularly scheduled meeting on September 18, 2007, the FOMC reduced the target Fed Funds rate to 4.75% and the discount rate was reduced to 5.25% in an effort to forestall the adverse effects of the financial market turmoil on the economy generally. Further reductions of 25 basis points occurred at the next two FOMC meetings on October 31, 2007 and on December 11, 2007. The December 11, 2007 FOMC statement indicated that:

> Incoming information suggests that economic growth is slowing, reflecting the intensification of the housing correction and some softening in business and consumer spending. Moreover, strains in financial markets have increased in recent weeks. Today's action, combined with the policy actions taken earlier, should help promote moderate growth over time.
>
> Readings on core inflation have improved modestly this year, but elevated energy and commodity prices, among other factors, may put upward pressure on inflation. In this context, the Committee judges that some inflation risks remain, and it will continue to monitor inflation developments carefully.
>
> Recent developments, including the deterioration in financial market conditions, have increased the uncertainty surrounding the outlook for economic growth and inflation. The Committee will continue to assess the effects of financial and other developments on economic prospects and will act as needed to foster price stability and sustainable economic growth.

With these actions, the Fed Funds rate and the discount rate closed the calendar year 2007 at 4.25% and 4.75%, respectively.

During 2008, many critical events occurred that influenced the capital markets, and hence interest rates. They include: (i) the collapse of The Bear Stearns Company and its acquisition by JPMorgan Chase & Co. with the aid of the Federal Reserve Bank of New York announced on March 16, 2008; (ii) the failure of IndyMac on July 11, 2008, which was at the time the third-largest banking failure in U.S. history, after a "run on the bank" by depositors; (iii) the placement of the government-sponsored enterprises ("GSE") Federal National Mortgage Association (Fannie Mae) and Freddie Mac into conservatorship on September 7, 2008 by the Federal Housing Finance Agency; (iv) the largest bankruptcy filing in history by Lehman Brothers Holding, Inc. on September 15, 2008; (v) the acquisition of the banking operations of Washington Mutual, then the largest U.S. savings bank, by JPMorgan Chase on September 24, 2008, (Washington Mutual's holding company

subsequently filed for bankruptcy protection); (vi) the rescue of Merrill Lynch & Co., Inc. by Bank of America on September 15, 2008, with assistance of the Federal government; (vii) the effective nationalization on September 23, 2008, of American International Group, then the world's largest insurance company, through the acquisition of 79.9% of its equity by the U.S. Treasury and (viii) other significant events affecting financial markets globally. The FOMC acted decisively in response to the events described above. Acting prior to its first regularly scheduled meeting in 2008, on January 22, 2008, the FOMC reduced the fed funds target by 75 basis points to 3.50% and the discount rate was reduced by a corresponding amount to 4.00%. Actions by the FOMC between meetings are unusual occurrences in recent years, thereby signifying the urgency that the FOMC saw in taking immediate action on monetary policy in response to the financial crisis. Then on January 30, 2008, the fed funds target rate and discount rate were further reduced by 50 basis points, bringing those rates to 3.00% and 3.50%, respectively. Credit market turmoil continued, and after the collapse of The Bear Stearn Companies noted above, the FOMC stated:

> The Federal Reserve on Sunday announced two initiatives designed to bolster market liquidity and promote orderly market functioning. Liquid, well-functioning markets are essential for the promotion of economic growth.
>
> First, the Federal Reserve Board voted unanimously to authorize the Federal Reserve Bank of New York to create a lending facility to improve the ability of primary dealers to provide financing to participants in securitization markets. This facility will be available for business on Monday, March 17. It will be in place for at least six months and may be extended as conditions warrant. Credit extended to primary dealers under this facility may be collateralized by a broad range of investment-grade debt securities. The interest rate charged on such credit will be the same as the primary credit rate, or discount rate, at the Federal Reserve Bank of New York.
>
> Second, the Federal Reserve Board unanimously approved a request by the Federal Reserve Bank of New York to decrease the primary credit rate from 3-1/2 percent

> to 3-1/4 percent, effective immediately. This step lowers the spread of the primary credit rate over the Federal Open Market Committee's target federal funds rate to 1/4 percentage point. The Board also approved an increase in the maximum maturity of primary credit loans to 90 days from 30 days.
>
> The Board also approved the financing arrangement announced by JPMorgan Chase & Co. and The Bear Stearns Companies Inc.

Then on March 18, 2008, the FOMC reduced the fed funds rate to 2.25% and the discount rate to 2.50%. Afterward on April 30, 2008, the FOMC further reduces the fed funds rate to 2.00% and the discount rate to 2.25%. At subsequent meetings the FOMC held the fed funds rate steady. Then on October 8, 2008, the FOMC took another unusual unscheduled action by reducing the Fed Funds rate to 1.50% and the discount rate to 1.75%. Then, on October 29, the FOMC lowered the Fed Funds rate to 1.00% and the discount rate to 1.25%. As 2008 ended, the FOMC lowered the Fed Funds rate to a target range of 0.00% to 0.25%, its lowest rate ever. As a further response to the financial crisis, Congress passed and the President signed on October 3, 2008, the Emergency Economic Stabilization Act of 2008, which, among other provisions, provides the mechanism to deploy up to $700 billion through the Troubled Asset Relief Program ("TARP") to address urgent needs created by the credit crisis the country has experienced. Then, the Federal Reserve Board instituted its Commercial Paper Funding Facility ("CPFF"), which was authorized on October 7, 2008, and it participated in coordinated efforts by major central banks to support financial stability and to maintain flows of credit in the banking system. These programs included a $75 billion Term Auction Facility ("TAF"), a future TAF auction totaling $150 billion, and an increase to $620 billion of swap authorizations with central banks in Canada, England, Japan, Denmark, the European Union, Norway, Australia, Sweden, and Switzerland. Further, on February 17, 2009, the President signed the American Recovery and

Reinvestment Act that committed $789 billion by the Federal government in an effort to create jobs, jumpstart growth and to transform the economy in reaction to the recession that began in December 2007.

The FOMC maintained its target range of 0.00% to 0.25% throughout the remainder of 2009 and 2010. At its August 9, 2011 meeting, the FOMC stated:

> Information received since the Federal Open Market Committee met in June indicates that economic growth so far this year has been considerably slower than the Committee had expected. Indicators suggest a deterioration in overall labor market conditions in recent months, and the unemployment rate has moved up. Household spending has flattened out, investment in nonresidential structures is still weak, and the housing sector remains depressed. However, business investment in equipment and software continues to expand. Temporary factors, including the damping effect of higher food and energy prices on consumer purchasing power and spending as well as supply chain disruptions associated with the tragic events in Japan, appear to account for only some of the recent weakness in economic activity. Inflation picked up earlier in the year, mainly reflecting higher prices for some commodities and imported goods, as well as the supply chain disruptions. More recently, inflation has moderated as prices of energy and some commodities have declined from their earlier peaks. Longer-term inflation expectations have remained stable.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee now expects a somewhat slower pace of recovery over coming quarters than it did at the time of the previous meeting and anticipates that the unemployment rate will decline only gradually toward levels that the Committee judges to be consistent with its dual mandate. Moreover, downside risks to the economic outlook have increased. The Committee also anticipates that inflation will settle, over coming quarters, at levels at or below those consistent with the Committee's dual mandate as the effects of past energy and other commodity price increases dissipate further. However, the Committee will continue to pay close attention to the evolution of inflation and inflation expectations.

APPENDIX F TO DIRECT TESTIMONY OF PAUL R. MOUL

Public Utility Bond Yields

The Risk Premium analysis of the cost of equity is represented by the combination of a firm's borrowing rate for long-term debt capital plus a premium that is required to reflect the additional risk associated with the equity of a firm as explained in Appendix H. Due to the senior nature of the long-term debt of a firm, its cost is lower than the cost of equity due to the prior claim, which lenders have on the earnings, and assets of a corporation.

As a generalization, all interest rates track to varying degrees of the benchmark yields established by the market for Treasury securities. Public utility bond yields usually reflect the underlying Treasury yield associated with a given maturity plus a spread to reflect the specific credit quality of the issuing public utility. Market sentiment can also have an influence on the spreads as described below. The spread in the yields on public utility bonds and Treasury bonds varies with market conditions, as does the relative level of interest rates at varying maturities shown by the yield curve.

Pages 1 and 2 of Schedule 10 provide the recent history of long-term public utility bond yields for the rating categories of Aa, A and Baa (no yields are shown for Aaa rated public utility bonds because this index has been discontinued). The top four rating categories of Aaa, Aa, A, and Baa are known as "investment grades" and are generally regarded as eligible for bank investments under commercial banking regulations. These investment grades are distinguished from "junk" bonds, which have ratings of Ba and below.

A relatively long history of the spread between the yields on long-term A-rated public utility bonds and 20-year Treasury bonds is shown on page 3 of Schedule 10. There, it is shown that those spreads were about one percent during the years 1994 through 1997. With the aversion to risk and flight to quality described earlier, a significant widening of the spread in the yields between corporate (e.g., public utility) and Treasury bonds developed in 1998, after an initial widening of the spread that began in the fourth quarter of 1997. The

significant widening of spreads in 1998 was unexpected by some technically savvy investors, as shown by the debacle at the Long-Term Capital Management hedge fund. When Russia defaulted its debt on August 17, some investors had to cover short positions when Treasury prices spiked upward. Short covering by investors that guessed wrong on the relationship between corporate and Treasury bonds also contributed to the run-up in Treasury bond prices by increasing the demand for them. This helped to contribute to a widening of the spreads between corporate and Treasury bonds.

As shown on page 3 of Schedule 10, the spread in yields between A-rated public utility bonds and 20-year Treasury bonds was about one percentage point prior to 1998, 1.32% in 1998, 1.42% in 1999, 2.01% in 2000, 2.13% in 2001, 1.94% in 2002, 1.62% in 2003, 1.12% in 2004, 1.01% in 2005, 1.08% in 2006, 1.16% in 2007, 2.17% in 2008, 1.93% in 2009, and 1.43% in 2010. As shown by the monthly data presented on pages 4 and 5 of Schedule 10, the interest rate spread between the yields on 20-year Treasury bonds and A-rated public utility bonds was 1.38 percentage points for the twelve-months ended August 2011. For the six- and three-month periods ending August 2011, the yield spread was 1.33% and 1.37%, respectively.

Beginning in August 2007, spreads widened significantly with the development of the credit crisis. As the credit crisis developed, there was a flight to quality, thereby increasing demand and reducing the yields on Treasury obligations. While this situation is most pronounced at the shortest end of the yield curve (i.e., obligations with the shortest duration), all Treasury yields display relatively low yields by reference to other credit obligations. By the end of 2009, the spread in yields on A-rated public utility bonds and 20-year Treasury bonds declined significantly from the peak of the credit crisis.

Risk-Free Rate of Return in the CAPM

Regarding the risk-free rate of return (see Appendix H), pages 2 and 3 of Schedule 12

provides the yields on the broad spectrum of Treasury Notes and Bonds. Some practitioners of the CAPM would advocate the use of short-term treasury yields (and some would argue for the yields on 91-day Treasury Bills). Other advocates of the CAPM would advocate the use of longer-term treasury yields as the best measure of a risk-free rate of return. As Ibbotson has indicated:

> The Cost of Capital in a Regulatory Environment. When discounting cash flows projected over a long period, it is necessary to discount them by a long-term cost of capital. Additionally, regulatory processes for setting rates often specify or suggest that the desired rate of return for a regulated firm is that which would allow the firm to attract and retain debt and equity capital over the long term. Thus, the long-term cost of capital is typically the appropriate cost of capital to use in regulated ratesetting. (Stocks, Bonds, Bills and Inflation - 1992 Yearbook, pages 118-119)

As indicated above, long-term Treasury bond yields represent the correct measure of the risk-free rate of return in the traditional CAPM. Very short term yields on Treasury bills should be avoided for several reasons. First, rates should be set on the basis of financial conditions that will exist during the effective period of the proposed rates. Second, 91-day Treasury bill yields are more volatile than longer-term yields and are greatly influenced by FOMC monetary policy, political, and economic situations. Moreover, Treasury bill yields have been shown to be empirically inadequate for the CAPM. Some advocates of the theory would argue that the risk-free rate of return in the CAPM should be derived from quality long-term corporate bonds. To take a balanced approach to the risk-free rate of return, the yield on long-term Treasury bonds has been used for this purpose.

APPENDIX G TO DIRECT TESTIMONY OF PAUL R. MOUL

RISK PREMIUM ANALYSIS

The cost of equity requires recognition of the risk premium required by common equities over long-term corporate bond yields. In the case of senior capital, a company contracts for the use of long-term debt capital at a stated coupon rate for a specific period of time and in the case of preferred stock capital at a stated dividend rate, usually with provision for redemption through sinking fund requirements. In the case of senior capital, the cost rate is known with a high degree of certainty because the payment for use of this capital is a contractual obligation, and the future schedule of payments is known. In essence, the investor-expected cost of senior capital is equal to the realized return over the entire term of the issue, absent default.

The cost of equity, on the other hand, is not fixed, but rather varies with investor perception of the risk associated with the common stock. Because no precise measurement exists as to the cost of equity, informed judgment must be exercised through a study of various market factors, which motivate investors to purchase common stock. In the case of common equity, the realized return rate may vary significantly from the expected cost rate due to the uncertainty associated with earnings on common equity. This uncertainty highlights the added risk of a common equity investment.

As one would expect from traditional risk and return relationships, the cost of equity is affected by expected interest rates. As noted in Appendix F, yields on long-term corporate bonds traditionally consist of a real rate of return without regard to inflation, an increment to reflect investor perception of expected future inflation, the investment horizon shown by the term of the issue until maturity, and the credit risk associated with each rating category.

The Risk Premium approach recognizes the required compensation for the more risky common equity over the less risky secured debt position of a lender. The cost of equity stated in terms of the familiar risk premium approach is:

$$k=i+RP$$

where, the cost of equity *("k")* is equal to the interest rate on long-term corporate debt *("i")*, plus an equity risk premium *("RP")* which represents the additional compensation for the riskier common equity.

Equity Risk Premium

The equity risk premium is determined as the difference in the rate of return on debt capital and the rate of return on common equity. Because the common equity holder has only a residual claim on earnings and assets, there is no assurance that achieved returns on common equities will equal expected returns. This is quite different from returns on bonds, where the investor realizes the expected return during the entire holding period, absent default. It is for this reason that common equities are always more risky than senior debt securities. There are investment strategies available to bond portfolio managers that immunize bond returns against fluctuations in interest rates because bonds are redeemed through sinking funds or at maturity, whereas no such redemption is mandated for public utility common equities.

It is well recognized that the expected return on more risky investments will exceed the required yield on less risky investments. Neither the possibility of default on a bond nor the maturity risk detracts from the risk analysis, because the common equity risk rate differential (i.e., the investor-required risk premium) is always greater than the return components on a bond. It should also be noted that the investment horizon is typically long-run for both corporate debt and equity, and that the risk of default (i.e., corporate bankruptcy) is a concern to both debt and equity investors. Thus, the required yield on a

bond provides a benchmark or starting point with which to track and measure the cost rate of common equity capital. There is no need to segment the bond yield according to its components, because it is the total return demanded by investors that is important for determining the risk rate differential for common equity. This is because the complete bond yield provides the basis to determine the differential, and as such, consistency requires that the computed differential must be applied to the complete bond yield when applying the risk premium approach. To apply the risk rate differential to a partial bond yield would result in a misspecification of the cost of equity because the computed differential was initially determined by reference to the entire bond return.

The risk rate differential between the cost of equity and the yield on long-term corporate bonds can be determined by reference to a comparison of holding period returns (here defined as one year) computed over long time spans. This analysis assumes that over long periods of time investors' expectations are on average consistent with rates of return actually achieved. Accordingly, historical holding period returns must not be analyzed over an unduly short period because near-term realized results may not have fulfilled investors' expectations. Moreover, specific past period results may not be representative of investment fundamentals expected for the future. This is especially apparent when the holding period returns include negative returns, which are not representative of either investor requirements of the past or investor expectations for the future. The short-run phenomenon of unexpected returns (either positive or negative) demonstrates that an unduly short historical period would not adequately support a risk premium analysis. It is important to distinguish between investors' motivation to invest, which encompass positive return expectations, and the knowledge that losses can occur. No rational investor would forego payment for the use of capital, or expect loss of principal, as a basis for investing. Investors will hold cash rather than invest with the expectation of a loss.

Within these constraints, page 1 of Schedule 11 provides the historical holding period returns for the S&P Public Utility Index which has been independently computed and the historical holding period returns for the S&P Composite Index which have been reported in Stocks, Bonds, Bills and Inflation published by Ibbotson & Associates. The tabulation begins with 1928 because January 1928 is the earliest monthly dividend yield for the S&P Public Utility Index. I have considered all reliable data for this study to avoid the introduction of a particular bias to the results. The measurement of the common equity return rate differential is based upon actual capital market performance using realized results. As a consequence, the underlying data for this risk premium approach can be analyzed with a high degree of precision. Informed professional judgment is required only to interpret the results of this study, but not to quantify the component variables.

The risk rate differentials for all equities, as measured by the S&P Composite, are established by reference to long-term corporate bonds. For public utilities, the risk rate differentials are computed with the S&P Public Utilities as compared with public utility bonds.

The measurement procedure used to identify the risk rate differentials consisted of arithmetic means, geometric means, and medians for each series. Measures of the central tendency of the results from the historical periods provide the best indication of representative rates of return. In regulated ratesetting, the correct measure of the equity risk premium is the arithmetic mean because a utility must expect to earn its cost of capital in each year in order to provide investors with their long-term expectations. In other contexts, such as pension determinations, compound rates of return, as shown by the geometric means, may be appropriate. The median returns are also appropriate in ratesetting because they are a measure of the central tendency of a single period rate of return. Median values have also been considered in this analysis because they provide a

return, which divides the entire series of annual returns in half, and are representative of a return that symbolizes, in a meaningful way, the central tendency of all annual returns contained within the analysis period. Medians are regularly included in many investor-influencing publications.

As previously noted, the arithmetic mean provides the appropriate point estimate of the risk premium. As further explained in Appendix H, the long-term cost of capital in rate cases requires the use of arithmetic means. To supplement my analysis, I have also used the rates of return taken from the geometric mean and median for each series to provide the bounds of the range to measure the risk rate differentials. While the use of the geometric mean would be inappropriate for CAPM purposes due to the specification of that model, it can provide a limit of the bounds for the Risk Premium approach that does not contain the single-period limitation. This further analysis shows that when selecting the midpoint from a range established with the geometric means and medians, the arithmetic mean is indeed a reasonable measure for the long-term cost of capital. For the years 1928 through 2007, the risk premiums for each class of equity are:

	S&P Composite	S&P Public Utilities
Arithmetic Mean	5.82%	5.52%
Geometric Mean	4.23%	3.47%
Median	9.27%	7.50%
Midpoint of Range	6.75%	5.49%
Average	6.29%	5.51%

The empirical evidence suggests that the common equity risk premium is higher for the S&P Composite Index compared to the S&P Public Utilities.

If, however, specific historical periods were also analyzed in order to match more closely historical fundamentals with current expectations, the results provided on page 2 of Schedule 11 should also be considered. One of these sub-periods included the 56-year period, 1952-2007. These years follow the historic 1951 Treasury-Federal Reserve Accord, which affected monetary policy and the market for government securities.

A further investigation was undertaken to determine whether realignment has taken place subsequent to the historic 1973 Arab Oil embargo and during the deregulation of the financial markets. In each case, the public utility risk premiums were computed by using the arithmetic mean, and the geometric means and medians to establish the range shown by those values. The time periods covering the more recent periods 1974 through 2007 and 1979 through 2007 contain events subsequent to the initial oil shock and the advent of monetarism as Fed policy, respectively. For the 56-year, 34-year and 29-year periods, the public utility risk premiums were 6.58%, 6.08%, and 6.37% respectively, as shown by the average of the specific point-estimates and the midpoint of the ranges provided on page 2 of Schedule 11.

APPENDIX H TO DIRECT TESTIMONY OF PAUL R. MOUL

CAPITAL ASSET PRICING MODEL

Modern portfolio theory provides a theoretical explanation of expected returns on portfolios of securities. The Capital Asset Pricing Model ("CAPM") attempts to describe the way prices of individual securities are determined in efficient markets where information is freely available and is reflected instantaneously in security prices. The CAPM states that the expected rate of return on a security is determined by a risk-free rate of return plus a risk premium, which is proportional to the non-diversifiable (or systematic) risk of a security.

The CAPM theory has several unique assumptions that are not common to most other methods used to measure the cost of equity. As with other market-based approaches, the CAPM is an expectational concept. There has been significant academic research conducted that found that the empirical market line, based upon historical data, has a less steep slope and higher intercept than the theoretical market line of the CAPM. For equities with a beta less than 1.0, such as utility common stocks, the CAPM theoretical market line will underestimate the realistic expectation of investors in comparison with the empirical market line, which shows that the CAPM may potentially misspecify investors' required return.

The CAPM considers changing market fundamentals in a portfolio context. The balance of the investment risk, or that characterized as unsystematic, must be diversified. Some argue that diversifiable (unsystematic) risk is unimportant to investors. But this contention is not completely justified because the business and financial risk of an individual company, including regulatory risk, are widely discussed within the investment community and therefore influence investors in regulated firms. In addition, I note that the CAPM assumes that through portfolio diversification, investors will minimize the effect of the unsystematic (diversifiable) component of investment risk. Because it is not known whether

the average investor holds a well-diversified portfolio, the CAPM must also be used with other models of the cost of equity.

To apply the traditional CAPM theory, three inputs are required: the beta coefficient *("β")*, a risk-free rate of return *("Rf")*, and a market premium *("Rm - Rf")*. The cost of equity stated in terms of the CAPM is:

$$k = Rf + \beta\,(Rm - Rf)$$

As previously indicated, it is important to recognize that the academic research has shown that the security market line was flatter than that predicted by the CAPM theory and it had a higher intercept than the risk-free rate. These tests indicated that for portfolios with betas less than 1.0, the traditional CAPM would understate the return for such stocks. Likewise, for portfolios with betas above 1.0, these companies had lower returns than indicated by the traditional CAPM theory. Once again, CAPM assumes that through portfolio diversification investors will minimize the effect of the unsystematic (diversifiable) component of investment risk. Therefore, the CAPM must also be used with other models of the cost of equity, especially when it is not known whether the average public utility investor holds a well-diversified portfolio.

Beta

The beta coefficient is a statistical measure, which attempts to identify the non-diversifiable (systematic) risk of an individual security and measures the sensitivity of rates of return on a particular security with general market movements. Under the CAPM theory, a security that has a beta of 1.0 should theoretically provide a rate of return equal to the return rate provided by the market. When employing stock price changes in the derivation of beta, a stock with a beta of 1.0 should exhibit a movement in price, which would track the movements in the overall market prices of stocks. Hence, if a particular investment has a beta of 1.0, a one percent increase in the return on the market will result, on average, in a

one percent increase in the return on the particular investment. An investment, which has a beta less than 1.0, is considered to be less risky than the market.

The beta coefficient *("β")*, the one input in the CAPM application, which specifically applies to an individual firm, is derived from a statistical application, which regresses the returns on an individual security (dependent variable) with the returns on the market as a whole (independent variable). The beta coefficients for utility companies typically describe a small proportion of the total investment risk because the coefficients of determination (R^2) are low.

Page 1 of Schedule 12 provides the betas published by Value Line. By way of explanation, the Value Line beta coefficient is derived from a "straight regression" based upon the percentage change in the weekly price of common stock and the percentage change weekly of the New York Stock Exchange Composite average using a five-year period. The raw historical beta is adjusted by Value Line for the measurement effect resulting in overestimates in high beta stocks and underestimates in low beta stocks. Value Line then rounds its betas to the nearest .05 increment. Value Line does not consider dividends in the computation of its betas.

Market Premium

The final element necessary to apply the CAPM is the market premium. The market premium by definition is the rate of return on the total market less the risk-free rate of return *("Rm - Rf")*. In this regard, the market premium in the CAPM has been calculated from the total return on the market of equities using forecast and historical data. The future market return is established with forecasts by Value Line using estimated dividend yields and capital appreciation potential.

With regard to the forecast data, I have relied upon the Value Line forecasts of capital appreciation and the dividend yield on the 1,700 stocks in the Value Line Survey.

APPENDIX H TO DIRECT TESTIMONY OF PAUL R. MOUL

According to the September 9, 2011 edition of The Value Line Investment Survey Summary and Index, (see page 5 of Schedule 12) the total return on the universe of Value Line equities is:

	Dividend Yield		Median Appreciation Potential		Median Total Return
As of September 9, 2011	2.3%	+	15.83% [1]	=	18.13%

The tabulation shown above provides the dividend yield and capital gains yield of the companies followed by Value Line. Another measure of the total market return is provided by the DCF return on the S&P 500 Composite index. That return is shown below.

DCF Result for the S&P 500 Composite

D/P		1+.5g		+	g	=	k
2.13%	(	1.0538	)	+	10.75%	=	12.99%

where:	Price (P)	at	31-Aug-2011	=	1218.89
	Dividend (D)	for	2nd Qtr. '11	=	6.49
	Dividend (D)		annualized	=	25.96
	Growth (g)		First Call EpS	=	10.75%

Using these indicators, the total market return is 15.56% (18.13% + 12.99% = 31.12% ÷ 2) using both the Value Line and S&P derived returns. With the 15.56% forecast market return and the 4.00% risk-free rate of return, an 11.56% (15.56% - 4.00%) market premium would be indicated using forecast market data.

I have also provided market premiums that have been widely circulated among the investment and academic community, which today is published by Morningstar, Inc. These data are contained in the 2011 Ibbotson® Stocks, Bonds, Bills and Inflation ("SBBI") Classic Yearbook. From the data provided on page 6 of Schedule 12, I calculate a market premium

[1] The estimated median appreciation potential is forecast to be 80% for 3 to 5 years hence. The annual capital gains yield at the midpoint of the forecast period is 15.83% (i.e., $1.80^{.25}$ - 1).

using the historical common stock arithmetic mean returns of 11.9% less government bond arithmetic mean returns of 5.9%. For the period 1926-2010, the market premium was 6.0% (11.9% - 5.9%). I should note that the arithmetic mean must be used in the CAPM because it is a single period model. It is further confirmed by Ibbotson who has indicated:

> *Arithmetic Versus Geometric Differences*
> For use as the expected equity risk premium in the CAPM, the *arithmetic* or *simple difference* of the *arithmetic* means of stock market returns and riskless rates is the relevant number. This is because the CAPM is an additive model where the cost of capital is the sum of its parts. Therefore, the CAPM expected equity risk premium must be derived by arithmetic, *not geometric*, subtraction.
>
> *Arithmetic Versus Geometric Means*
> The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which, when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values. This makes the arithmetic mean return appropriate for computing the cost of capital. The discount rate that equates expected (mean) future values with the present value of an investment is that investment's cost of capital. The logic of using the discount rate as the cost of capital is reinforced by noting that investors will discount their (mean) ending wealth values from an investment back to the present using the arithmetic mean, for the reason given above. They will therefore require such an expected (mean) return prospectively (that is, in the present looking toward the future) to commit their capital to the investment. (Stocks, Bonds, Bills and Inflation - 1996 Yearbook, pages 153-154)

Also shown on page 6 of Schedule 12 is the long-horizon expected market premiums of 6.7% also published in the SBBI Classic Yearbook. An average of the historical and expected SBBI market premium is 6.35% (6.0% + 6.7% = 12.7% ÷ 2).

For the CAPM, a market premium of 8.96% (6.35% + 11.56% = 17.91% ÷ 2) would be reasonable which is the average of the 6.35% SBBI data and the 11.56% Value Line and S&P 500 data.

APPENDIX I TO DIRECT TESTIMONY OF PAUL R. MOUL

COMPARABLE EARNINGS APPROACH

Value Line's analysis of the companies that it follows includes a wide range of financial and market variables, including nine items that provide ratings for each company. From these nine items, one category has been removed dealing with industry performance because, under approach employed, the particular business type is not significant. In addition, two categories have been ignored that deal with estimates of current earnings and dividends because they are not useful for comparative purposes. The remaining six categories provide relevant measures to establish comparability. The definitions for each of the six criteria (from the Value Line Investment Survey - Subscriber Guide) follow:

Timeliness Rank

> The rank for a stock's probable relative market performance in the year ahead. Stocks ranked 1 (Highest) or 2 (Above Average) are likely to outpace the year-ahead market. Those ranked 4 (Below Average) or 5 (Lowest) are not expected to outperform most stocks over the next 12 months. Stocks ranked 3 (Average) will probably advance or decline with the market in the year ahead. Investors should try to limit purchases to stocks ranked 1 (Highest) or 2 (Above Average) for Timeliness.

Safety Rank

> A measure of potential risk associated with individual common stocks rather than large diversified portfolios (for which Beta is good risk measure). Safety is based on the stability of price, which includes sensitivity to the market (see Beta) as well as the stock's inherent volatility, adjusted for trend and other factors including company size, the penetration of its markets, product market volatility, the degree of financial leverage, the earnings quality, and the overall condition of the balance sheet. Safety Ranks range from 1 (Highest) to 5 (Lowest). Conservative investors should try to limit purchases to equities ranked 1 (Highest) or 2 (Above Average) for Safety.

Financial Strength

The financial strength of each of the more than 1,600 companies in the VS II data base is rated relative to all the others. The ratings range from A++ to C in nine steps. (For screening purposes, think of an A rating as "greater than" a B). Companies that have the best relative financial strength are given an A++ rating, indicating ability to weather hard times better than the vast majority of other companies. Those who don't quite merit the top rating are given an A+ grade, and so on. A rating as low as C++ is considered satisfactory. A rating of C+ is well below average, and C is reserved for companies with very serious financial problems. The ratings are based upon a computer analysis of a number of key variables that determine (a) financial leverage, (b) business risk, and (c) company size, plus the judgment of Value Line's analysts and senior editors regarding factors that cannot be quantified across-the-board for companies. The primary variables that are indexed and studied include equity coverage of debt, equity coverage of intangibles, "quick ratio", accounting methods, variability of return, fixed charge coverage, stock price stability, and company size.

Price Stability Index

An index based upon a ranking of the weekly percent changes in the price of the stock over the last five years. The lower the standard deviation of the changes, the more stable the stock. Stocks ranking in the top 5% (lowest standard deviations) carry a Price Stability Index of 100; the next 5%, 95; and so on down to 5. One standard deviation is the range around the average weekly percent change in the price that encompasses about two thirds of all the weekly percent change figures over the last five years. When the range is wide, the standard deviation is high and the stock's Price Stability Index is low.

Beta

A measure of the sensitivity of the stock's price to overall fluctuations in the New York Stock Exchange Composite Average. A Beta of 1.50 indicates that a stock tends to rise (or fall) 50% more than the New York Stock Exchange Composite Average. Use Beta to measure the stock market risk inherent in any diversified portfolio of, say, 15 or more companies. Otherwise, use the Safety Rank, which measures total risk inherent in an equity, including

that portion attributable to market fluctuations. Beta is derived from a least squares regression analysis between weekly percent changes in the price of a stock and weekly percent changes in the NYSE Average over a period of five years. In the case of shorter price histories, a smaller time period is used, but two years is the minimum. The Betas are periodically adjusted for their long-term tendency to regress toward 1.00.

Technical Rank

A prediction of relative price movement, primarily over the next three to six months. It is a function of price action relative to all stocks followed by Value Line. Stocks ranked 1 (Highest) or 2 (Above Average) are likely to outpace the market. Those ranked 4 (Below Average) or 5 (Lowest) are not expected to outperform most stocks over the next six months. Stocks ranked 3 (Average) will probably advance or decline with the market. Investors should use the Technical and Timeliness Ranks as complements to one another.

AP EXHIBIT 4-A

AQUA PENNSYLVANIA, INC.

Docket No. R-2011-2267958

EXHIBIT TO ACCOMPANY

THE DIRECT TESTIMONY OF
PAUL R. MOUL
WITH REGARD TO
COST OF CAPITAL

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

November 18, 2011

AP Exhibit 4-A

Aqua Pennsylvania, Inc.
Index of Schedules

Aqua Pennsylvania, Inc.
Summary Cost of Capital
Estimated at June 30, 2012

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	47.02%	5.41%	2.54%
Common Equity	52.98%	11.75%	6.23%
Total	100.00%		8.77%

Indicated levels of fixed charge coverage assuming that the Company could actually achieve its overall cost of capital:

Pre-tax coverage of interest expense based upon a 41.4935% composite federal and state income tax rate (13.19% ÷ 2.54%)	5.19 x
Post-tax coverage of interest expense (8.77% ÷ 2.54%)	3.45 x

Aqua Pennsylvania, Inc.
Capitalization and Financial Statistics
2006-2010, Inclusive

	2010	2009	2008	2007	2006	
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	$ 1,619.2	$ 1,495.6	$ 1,318.1	$ 1,270.4	$ 1,183.2	
Short-Term Debt	$ 63.3	$ 15.0	$ 60.7	$ 19.0	$ 13.0	
Total Capital	$ 1,682.5	$ 1,510.6	$ 1,378.9	$ 1,289.3	$ 1,196.2	
Capital Structure Ratios						
Based on Permanent Capital:						Average
Long-Term Debt	49.1%	51.8%	51.6%	52.1%	50.0%	50.9%
Common Equity [1]	50.9%	48.2%	48.4%	47.9%	50.0%	49.1%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Based on Total Capital:						
Total Debt incl. Short Term	51.0%	52.3%	53.8%	52.8%	50.5%	52.1%
Common Equity [1]	49.0%	47.7%	46.2%	47.2%	49.5%	47.9%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return on Book Common Equity [1]	11.8%	11.8%	12.6%	11.7%	11.1%	11.8%
Operating Ratio [2]	49.0%	50.2%	49.3%	51.9%	53.0%	50.7%
Coverage incl. AFUDC [3]						
Pre-tax: All Interest Charges	4.19 x	4.03 x	4.20 x	4.09 x	3.99 x	4.10 x
Post-tax: All Interest Charges	2.92 x	2.83 x	2.93 x	2.88 x	2.79 x	2.87 x
Coverage excl. AFUDC [3]						
Pre-tax: All Interest Charges	4.11 x	3.99 x	4.14 x	4.05 x	3.94 x	4.05 x
Post-tax: All Interest Charges	2.84 x	2.79 x	2.88 x	2.83 x	2.75 x	2.82 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	3.8%	54.6%	2.8%	2.2%	2.5%	13.2%
Effective Income Tax Rate	39.9%	39.6%	39.6%	39.4%	40.0%	39.7%
Internal Cash Generation/Construction [4]	69.0%	78.8%	65.5%	71.6%	67.9%	70.6%
Gross Cash Flow/ Avg. Total Debt [5]	24.5%	21.6%	22.0%	21.3%	21.2%	22.1%
Gross Cash Flow Interest Coverage [6]	5.15 x	4.69 x	4.75 x	4.51 x	4.41 x	4.70 x
Common Dividend Coverage [7]	4.76 x	14.68 x	3.34 x	3.49 x	6.91 x	6.64 x

See Page 2 for Notes.

Aqua Pennsylvania, Inc.
Capitalization and Financial Statistics
2006-2010, Inclusive

Notes:

(1) Excluding Accumulated Other Comprehensive Income ("OCI") from the equity account..

(2) Total operating expenses, maintenance, depreciation and taxes other than income as a percentage of operating revenues.

(3) Coverage calculations represent the number of times available earnings, both including and excluding AFUDC (allowance for funds used during construction) as reported in its entirety, cover fixed charges.

(4) Internal cash generation/gross construction is the percentage of gross construction expenditures provided by internally-generated funds from operations after payment of all cash dividends divided by gross construction expenditures.

(5) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less AFUDC) as a percentage of average total debt.

(6) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) plus interest charges, divided by interest charges.

(7) Common dividend coverage is the relationship of internally generated funds from operations after payment of preferred stock dividends to common dividends paid.

Source of Information: Certified Annual Reports by PricewaterhouseCoopers LLP

Water Group
Capitalization and Financial Statistics [1]
2006-2010, Inclusive

	2010	2009	2008	2007	2006	Average
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	$ 1,720.0	$ 1,645.5	$ 1,542.2	$ 1,561.0	$ 1,470.2	
Short-Term Debt	$ 53.5	$ 31.2	$ 84.2	$ 37.5	$ 100.2	
Total Capital	$ 1,773.5	$ 1,676.7	$ 1,626.4	$ 1,598.5	$ 1,570.4	
Market-Based Financial Ratios						
Earnings/Price Ratio	20 x	22 x	22 x	27 x	26 x	23 x
Market/Book Ratio	175.9%	171.3%	175.3%	237.9%	259.2%	203.9%
Dividend Yield	3.5%	3.7%	3.4%	2.7%	2.7%	3.2%
Dividend Payout Ratio	67.2%	75.3%	73.6%	71.9%	71.6%	71.9%
Capital Structure Ratios						
Based on Permanent Capital:						
Long-Term Debt	51.0%	50.8%	50.1%	49.6%	49.8%	50.3%
Preferred Stock	0.2%	0.2%	0.2%	0.3%	0.3%	0.2%
Common Equity [2]	48.9%	49.0%	49.7%	50.1%	50.0%	49.5%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Based on Total Capital:						
Total Debt incl. Short Term	53.5%	53.4%	53.2%	50.8%	51.4%	52.5%
Preferred Stock	0.1%	0.2%	0.2%	0.3%	0.3%	0.2%
Common Equity [2]	46.3%	46.5%	46.6%	48.9%	48.3%	47.3%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return on Book Common Equity [2]	8.9%	8.6%	8.9%	9.0%	10.3%	9.1%
Operating Ratio [3]	71.4%	73.1%	72.4%	72.3%	74.0%	72.6%
Coverage incl. AFUDC [4]						
Pre-tax: All Interest Charges	3.39 x	3.28 x	3.31 x	3.41 x	3.46 x	3.37 x
Post-tax: All Interest Charges	2.46 x	2.45 x	2.46 x	2.50 x	2.58 x	2.49 x
Overall Coverage: All Int. & Pfd. Div.	2.45 x	2.43 x	2.44 x	2.49 x	2.57 x	2.48 x
Coverage excl. AFUDC [4]						
Pre-tax: All Interest Charges	3.34 x	3.22 x	3.23 x	3.35 x	3.39 x	3.31 x
Post-tax: All Interest Charges	2.42 x	2.38 x	2.38 x	2.45 x	2.51 x	2.43 x
Overall Coverage: All Int. & Pfd. Div.	2.41 x	2.37 x	2.36 x	2.43 x	2.49 x	2.41 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	3.2%	4.2%	5.5%	3.6%	5.2%	4.3%
Effective Income Tax Rate	38.9%	37.3%	37.0%	37.8%	33.6%	36.9%
Internal Cash Generation/Construction [5]	67.6%	65.7%	50.1%	50.0%	49.6%	56.6%
Gross Cash Flow/ Avg. Total Debt [6]	18.6%	17.6%	18.3%	16.3%	18.7%	17.9%
Gross Cash Flow Interest Coverage [7]	4.36 x	4.17 x	4.02 x	3.68 x	3.83 x	4.01 x
Common Dividend Coverage [8]	3.74 x	3.50 x	3.96 x	2.80 x	3.35 x	3.47 x

See Page 2 for Notes.

Water Group
Capitalization and Financial Statistics
2006-2010, Inclusive

Notes:

(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group.
(2) Excluding Accumulated Other Comprehensive Income ("OCI") from the equity account.
(3) Total operating expenses, maintenance, depreciation and taxes other than income taxes as a percent of operating revenues.
(4) Coverage calculations represent the number of times available earnings, both including and excluding AFUDC (allowance for funds used during construction) as reported in its entirety, cover fixed charges.
(5) Internal cash generation/gross construction is the percentage of gross construction expenditures provided by internally-generated funds from operations after payment of all cash dividends divided by gross construction expenditures.
(6) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) plus interest charges, divided by interest charges.
(7) Gross Cash Flow plus interest charges divided by interest charges.
(8) Common dividend coverage is the relationship of internally-generated funds from operations after payment of preferred stock dividends to common dividends paid.

Basis of Selection:
The Water Group companies have the following common characteristics: (i) they are listed in the "Water Utility Industry" section (basic and expanded editions) of The Value Line Investment Survey, (ii) their stock is publicly traded, and (iii) they are not currently the target of a publicly-announced merger or acquisition.

Ticker	Company	Corporate Credit Ratings Moody's	Corporate Credit Ratings S&P	Stock Traded	S&P Stock Ranking	Value Line Beta
AWR	American States Water	A2	A+	NYSE	B+	0.75
AWK	American Water Works Co.	Baa2	BBB+	NYSE	NR	0.65
WTR	Aqua America, Inc.	-	A+	NYSE	A	0.65
ARTNA	Artesian Resources Corp.	-	-	NASDAQ	NR	0.60
CWT	California Water Serv. Grp.	A2	A+	NYSE	A-	0.70
CTWS	Connecticut Water Services	-	A	NASDAQ	A-	0.80
MSEX	Middlesex Water Company	-	A-	NASDAQ	A-	0.75
SJW	SJW Corporation	-	A	AMER	A-	0.90
YORW	York Water Company	-	A-	NASDAQ	A	0.70
	Average	A3	A		A-	0.72

Note: Ratings are those of utility subsidiaries

Source of Information: Utility COMPUSTAT
Moody's Investors Service
Standard & Poor's Corporation
S&P Stock Guide

Standard & Poor's Public Utilities
Capitalization and Financial Statistics [1]
2006-2010, Inclusive

	2010	2009	2008	2007	2006	
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	$ 17,554.1	$ 16,665.3	$ 15,615.3	$ 14,318.9	$ 14,401.2	
Short-Term Debt	$ 400.7	$ 392.2	$ 808.7	$ 575.9	$ 477.7	
Total Capital	$ 17,954.8	$ 17,057.5	$ 16,424.0	$ 14,894.8	$ 14,878.9	
Market-Based Financial Ratios						Average
Price-Earnings Multiple	15 x	14 x	14 x	16 x	16 x	15 x
Market/Book Ratio	141.1%	135.5%	177.7%	219.3%	206.7%	176.1%
Dividend Yield	4.7%	5.2%	4.3%	3.4%	3.7%	4.3%
Dividend Payout Ratio	72.6%	72.8%	63.0%	55.9%	62.5%	65.4%
Capital Structure Ratios						
Based on Permanent Captial:						
Long-Term Debt	52.3%	53.1%	54.0%	52.7%	53.7%	53.2%
Preferred Stock	1.3%	1.4%	1.7%	1.7%	1.7%	1.6%
Common Equity [2]	46.4%	45.5%	44.4%	45.6%	44.6%	45.3%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Based on Total Capital:						
Total Debt incl. Short Term	53.8%	54.7%	57.1%	55.3%	55.8%	55.3%
Preferred Stock	1.2%	1.4%	1.5%	1.6%	1.7%	1.5%
Common Equity [2]	45.0%	43.9%	41.4%	43.1%	42.5%	43.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rate of Return on Book Common Equity [2]	10.7%	10.1%	12.1%	12.8%	11.9%	11.5%
Operating Ratio [3]	82.3%	83.7%	84.8%	84.8%	85.1%	84.1%
Coverage incl. AFUDC [4]						
Pre-tax: All Interest Charges	3.13 x	3.58 x	3.22 x	3.52 x	3.15 x	3.32 x
Post-tax: All Interest Charges	2.40 x	2.67 x	2.45 x	2.68 x	2.47 x	2.53 x
Overall Coverage: All Int. & Pfd. Div.	2.39 x	2.60 x	2.41 x	2.64 x	2.43 x	2.49 x
Coverage excl. AFUDC [4]						
Pre-tax: All Interest Charges	3.04 x	3.48 x	3.11 x	3.44 x	3.10 x	3.23 x
Post-tax: All Interest Charges	2.31 x	2.58 x	2.34 x	2.60 x	2.42 x	2.45 x
Overall Coverage: All Int. & Pfd. Div.	2.30 x	2.50 x	2.30 x	2.56 x	2.38 x	2.41 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	6.6%	7.8%	7.7%	5.1%	3.5%	6.1%
Effective Income Tax Rate	34.5%	31.9%	32.6%	34.2%	32.8%	33.2%
Internal Cash Generation/Construction [5]	109.3%	100.0%	80.6%	88.4%	90.0%	93.7%
Gross Cash Flow/ Avg. Total Debt [6]	24.6%	25.8%	22.4%	22.3%	20.4%	23.1%
Gross Cash Flow Interest Coverage [7]	5.26 x	5.44 x	4.77 x	4.55 x	4.17 x	4.84 x
Common Dividend Coverage [8]	4.97 x	4.68 x	4.79 x	4.63 x	4.16 x	4.65 x

See Page 2 for Notes.

Standard & Poor's Public Utilities
Capitalization and Financial Statistics
2006-2010, Inclusive

Notes:

(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group.
(2) Excluding Accumulated Other Comprehensive Income ("OCI") from the equity account
(3) Total operating expenses, maintenance, depreciation and taxes other than income taxes as a percent of operating revenues.
(4) Coverage calculations represent the number of times available earnings, both including and excluding AFUDC (allowance for funds used during construction) as reported in its entirety, cover fixed charges.
(5) Internal cash generation/gross construction is the percentage of gross construction expenditures provided by internally-generated funds from operations after payment of all cash dividends divided by gross construction expenditures.
(6) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) as a percentage of average total debt.
(7) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) plus interest charges, divided by interest charges.
(8) Common dividend coverage is the relationship of internally-generated funds from operations after payment of preferred stock dividends to common dividends paid.

Source of Information: Annual Reports to Shareholders
Utility COMPUSTAT

Standard & Poor's Public Utilities
Company Identities

	Ticker	Credit Rating (1) Moody's	Credit Rating (1) S&P	Common Stock Traded	S&P Stock Ranking	Value Line Beta
Ameren Corporation	AEE	Baa2	BBB-	NYSE	B	0.80
American Electric Power	AEP	Baa2	BBB	NYSE	B	0.70
CMS Energy	CMS	Baa2	BBB-	NYSE	B	0.75
CenterPoint Energy	CNP	Baa2	BBB	NYSE	B	0.80
Consolidated Edison	ED	A3	A-	NYSE	B+	0.65
Constellation Energy Group	CEG	Baa2	BBB+	NYSE	B	0.80
DTE Energy Co.	DTE	Baa1	BBB+	NYSE	B+	0.75
Dominion Resources	D	A3	A-	NYSE	A-	0.70
Duke Energy	DUK	A3	A-	NYSE	B	0.65
Edison Int'l	EIX	A3	BBB+	NYSE	B	0.80
Entergy Corp.	ETR	Baa2	BBB	NYSE	A	0.70
EQT Corp.	EQT	Baa1	BBB	NYSE	B+	1.15
Exelon Corp.	EXC	A3	BBB	NYSE	B+	0.85
FirstEnergy Corp.	FE	Baa2	BBB-	NYSE	A-	0.80
Integrys Energy Group	TEG	A2	A-	NYSE	B	0.90
NextEra Energy Inc.	NEE	A2	A-	NYSE	A	0.75
NICOR Inc.	GAS	A2	AA	NYSE	B+	0.75
NiSource Inc.	NI	Baa2	BBB-	NYSE	B	0.85
Northeast Utilities	NU	Baa1	BBB	NYSE	B	0.70
NRG Energy Inc.	NRG	Ba3	BB-	NYSE	NR	1.15
ONEOK, Inc.	OKE	Baa2	BBB	NYSE	A-	0.95
PEPCO Holdings, Inc.	POM	Baa2	BBB+	NYSE	B	0.80
PG&E Corp.	PCG	A3	BBB+	NYSE	B	0.55
PPL Corp.	PPL	Baa2	BBB	NYSE	A-	0.65
Pinnacle West Capital	PNW	Baa2	BBB-	NYSE	B	0.70
Progress Energy, Inc.	PGN	A3	BBB+	NYSE	B	0.60
Public Serv. Enterprise Inc.	PEG	Baa1	BBB	NYSE	B+	0.80
SCANA Corp.	SCG	Baa1	BBB+	NYSE	B+	0.70
Sempra Energy	SRE	A2	A	NYSE	A-	0.80
Southern Co.	SO	A3	A	NYSE	A-	0.55
TECO Energy	TE	Baa1	BBB	NYSE	B	0.85
Wisconsin Energy Corp.	WEC	A2	A-	NYSE	A	0.60
Xcel Energy Inc	XEL	A3	A-	NYSE	B	0.65
Average for S&P Utilities		Baa1	BBB+		B+	0.76

Note: (1) Ratings are those of utility subsidiaries

Source of Information:
Moody's Investors Service
Standard & Poor's Corporation
Standard & Poor's Stock Guide
Value Line Investment Survey for Windows

Aqua Pennsylvania, Inc.
Capitalization and Related Capital Structure Ratios
Actual at June 30, 2011 and Estimated at June 30, 2012

	Actual at June 30, 2011			Estimated at June 30, 2012		
	Amount Outstanding ($000)	Ratios Excl. S-T Debt	Ratios Incl. S-T Debt	Amount Outstanding ($000)	Ratios Excl. S-T Debt	Ratios Incl. S-T Debt
Long-Term Debt[1]	$ 790,807	48.53%	45.80%	$ 873,933 [2]	47.02%	46.27%
Common Equity						
Common stock	120			120		
Capital in excess of par value	272,812			345,015 [3]		
Retained earnings	565,635			639,635 [4]		
Total Common Equity	838,567	51.47%	48.57%	984,770	52.98%	52.14%
Total Permanent Capital	1,629,374	100.00%	94.37%	1,858,703	100.00%	98.41%
Revolving Credit Facility	97,143		5.63%	30,000 [5]		1.59%
Total Capital Employed	$ 1,726,517		100.00%	$ 1,888,703		100.00%

Notes: [1] Includes current portion of long-term debt.

[2] Reflects the issuance and retirement of long-term debt as follows:

Series	
Redemptions & maturities	$ (24,147)
Pennvest payments	(5,888)
Pennvest loans	17,444
Amortization of Loss	25
Change in Restricted Cash	95,691
Total	$ 83,125

[3] Reflects common equity infusion of $72.203 million from Parent Company .

[4] Projection of retained earnings consisting of $98 million of net income less $24 million of dividend

[5] Projection of short-term debt.

Source of Information: Company provided data

Aqua Pennsylvania, Inc.
Calculation of the Embedded Cost of Long-Term Debt
Actual at June 30, 2011

Series	Principal Amount Outstanding	Percent to Total	Effective Cost Rate [1]	Weighted Cost Rate
First Mortgage Bonds	$ 5,000,000	0.63%	10.01%	0.06%
First Mortgage Bonds	5,000,000	0.63%	10.07%	0.06%
First Mortgage Bonds-Roaring Creek	3,600,000	0.46%	9.74%	0.04%
First Mortgage Bonds	5,000,000	0.63%	9.22%	0.06%
First Mortgage Bonds	4,400,000	0.56%	9.22%	0.05%
First Mortgage Bonds	12,000,000	1.52%	9.36%	0.14%
First Mortgage Bonds-Susquehana	1,500,000	0.19%	8.58%	0.02%
First Mortgage Bonds-Shenango	3,500,000	0.44%	8.49%	0.04%
First Mortgage Bonds	15,000,000	1.90%	7.81%	0.15%
First Mortgage Bonds-Shenango	4,000,000	0.51%	8.28%	0.04%
First Mortgage Bonds	12,000,000	1.52%	6.99%	0.11%
First Mortgage Bonds	15,000,000	1.90%	6.25%	0.12%
First Mortgage Bonds	25,000,000	3.16%	6.02%	0.19%
First Mortgage Bonds	20,000,000	2.53%	5.19%	0.13%
First Mortgage Bonds	7,000,000	0.89%	5.27%	0.05%
First Mortgage Bonds	15,000,000	1.90%	5.84%	0.11%
First Mortgage Bonds	5,000,000	0.63%	5.84%	0.04%
First Mortgage Bonds	15,000,000	1.90%	6.13%	0.12%
First Mortgage Bonds	5,000,000	0.63%	6.13%	0.04%
First Mortgage Bonds	3,000,000	0.38%	6.05%	0.02%
Tax Exempt (FGIC)	14,000,000	1.77%	5.57%	0.10%
Tax Exempt (AMBAC)	30,000,000	3.79%	5.56%	0.21%
Tax Exempt (AMBAC)	25,000,000	3.16%	5.40%	0.17%
Tax Exempt (FGIC)	25,000,000	3.16%	5.75%	0.18%
Tax Exempt (FGIC)	21,770,000	2.75%	5.09%	0.14%
Tax Exempt (FGIC)	24,165,000	3.05%	5.09%	0.16%
Tax Exempt (FGIC)	25,375,000	3.21%	5.10%	0.16%
Tax Exempt (FGIC)	24,675,000	3.12%	5.07%	0.16%
Tax Exempt (FGIC)	23,915,000	3.02%	4.86%	0.15%
Tax Exempt (FGIC)	23,915,000	3.02%	4.86%	0.15%
Tax Exempt (No Ins. - S&P)	24,830,000	3.14%	5.34%	0.17%
Tax Exempt	24,830,000	3.14%	5.33%	0.17%
Tax Exempt	9,000,000	1.14%	8.92%	0.06%
Tax Exempt	13,000,000	1.64%	7.09%	0.12%
Tax Exempt	58,000,000	7.33%	5.37%	0.39%
Tax Exempt	31,167,281 [2]	3.94%	5.06%	0.20%
Tax Exempt	6,277,075 [3]	0.79%	5.03%	0.04%
Tax Exempt	8,143,064 [3]	1.03%	5.25%	0.05%
Tax Exempt	6,059,227 [3]	0.77%	5.34%	0.04%
Tax Exempt	4,714,240 [3]	0.60%	4.83%	0.03%
Tax Exempt	25,521,325 [3]	3.23%	4.89%	0.16%
UTMA Note	493,518	0.06%	9.00%	0.01%
Unsecured Note	10,000,000	1.26%	5.98%	0.08%
Unsecured Note	10,000,000	1.26%	5.98%	0.08%
Unsecured Note	10,000,000	1.26%	5.97%	0.08%
Unsecured Note	10,000,000	1.26%	5.97%	0.08%
Unsecured Note	4,584,000	0.58%	5.80%	0.03%
Unsecured Note	4,489,000	0.57%	5.80%	0.03%
Unsecured Note	5,466,000	0.69%	5.67%	0.04%
Unsecured Note	4,301,152 [4]	0.55%	5.67%	0.03%
Unsecured Note	2,132,160	0.27%	6.51%	0.02%
Unsecured Note	40,000,000	5.06%	5.72%	0.29%
Pennvest loans:				
Shenango	34,337	0.00%	1.00%	0.00%
Western	142,318	0.02%	1.02%	0.00%
Ferndale Booster	255,268	0.03%	1.38%	0.00%
Bristol	3,108,008	0.39%	3.60%	0.01%
Susquehanna	95,760	0.01%	3.68%	0.00%
Glenside Tank	222,028	0.03%	4.10%	0.00%
Fernhill Tank	403,920	0.05%	4.10%	0.00%
Susquehanna	247,765	0.03%	3.66%	0.00%
Pickering Dam	455,152	0.06%	4.09%	0.00%
North Wayne # 2	665,425	0.09%	4.11%	0.00%
Shenango	766,548	0.10%	3.07%	0.00%
North Wayne # 1	796,322	0.10%	3.66%	0.00%
Ingrams Mill	6,250,489	0.79%	3.53%	0.03%
Tank Paintings	1,378,426	0.17%	3.86%	0.01%
Tinicum Booter	257,378	0.03%	3.50%	0.00%
Whitehaven	76,435	0.01%	1.01%	0.00%
Well #20	474,055	0.06%	3.38%	0.00%
NUI	3,703,887	0.47%	2.78%	0.01%
Fawn Lake	1,524,590	0.19%	1.44%	0.00%
Ralpho Tank	479,663	0.06%	1.04%	0.00%
Meyers Tract	957,011	0.12%	3.49%	0.00%
Neshmainy	4,501,018	0.57%	3.53%	0.02%
Crum Water Treatment	6,348,983	0.80%	3.52%	0.03%
Canan	1,234,130	0.16%	2.84%	0.00%
Wapwallopen	229,751	0.03%	1.44%	0.00%
Tafton Water System	430,979	0.05%	1.04%	0.00%
NE PA Mains	1,674,383	0.21%	1.42%	0.00%
Coal Twsp Tank	724,618	0.09%	1.42%	0.00%
Shickshinny	243,996	0.03%	1.44%	0.00%
White Rock Acres	515,640	0.07%	2.84%	0.00%
Wilbar	1,644,534	0.21%	1.44%	0.00%
Moscow	841,882	0.11%	2.00%	0.00%
Paupac	1,964,229	0.25%	2.64%	0.01%
Midway Manor	2,153,729	0.27%	1.45%	0.00%
NE Mains 2005	950,767	0.12%	1.33%	0.00%
Pickering West	1,770,142	0.22%	2.82%	0.01%
Eagle Rock/Oneida	1,197,464	0.15%	1.34%	0.00%
Sharon New Castle	331,025	0.04%	1.31%	0.00%
Roaring Creek Main Repl	854,437	0.08%	1.30%	0.00%
Mountain Home	1,655,182	0.21%	1.33%	0.00%
NE Mains 2007	438,753	0.06%	1.32%	0.00%
Crum Filtration	1,196,563	0.15%	2.34%	0.00%
Brush Valley Wells	925,127	0.12%	1.31%	0.00%
Forest Park	1,012,548	0.13%	1.34%	0.00%
Emlenton	2,612,457	0.33%	1.06%	0.00%
Country Club Gardens	93,585	0.01%	2.66%	0.00%
Hawley	396,898	0.05%	1.02%	0.00%
Hawley	166,558	0.02%	1.39%	0.00%
Honesdale	1,182,925	0.15%	1.02%	0.00%
Total Long -Term Debt	791,317,230	100.00%		5.55%
Unamortized Call Premium	(509,749)			
Long Term- Debt	$ 790,807,481			
Annualized Cost	$ 43,926,019			
Amortization of Loss on Reacquired Debt	24,935			
Total Cost	$ 43,950,954			5.56%

Notes:
[1] As calculated on page 2 of this schedule.
[2] Less: funds (held by trustee) restricted for construction activity of $37.241 million.
[3] Less: funds (held by trustee) restricted for construction activity of $96.950 million.
[4] Less: wastewater debt of $1.100 million.

Source of Information: Company provided data

Aqua Pennsylvania, Inc.
Calculation of the Effective Cost of Long-Term Debt by Series
Actual at June 30, 2011

Series	Date of Issue	Date of Maturity	Coupon Rate	Principal Amount Issued	Discount and Expense	Net Proceeds	Net Proceeds Ratio	Effective Cost Rate [1]
First Mortgage Bonds	06/01/88	06/01/13	9.93%	$ 5,000,000	$ 38,741	$4,961,259	99.23%	10.01%
First Mortgage Bonds	06/01/88	06/01/18	9.97%	5,000,000	46,489	4,953,511	99.07%	10.07%
First Mortgage Bonds-Roaring Creek	12/15/89	12/15/19	9.53%	4,000,000	79,762	3,920,238	98.01%	9.74%
First Mortgage Bonds	11/01/91	09/15/11	9.17%	5,000,000	21,663	4,978,337	99.57%	9.22%
First Mortgage Bonds	11/01/91	09/15/21	9.17%	8,000,000	44,192	7,955,808	99.45%	9.22%
First Mortgage Bonds	11/01/91	09/15/26	9.29%	12,000,000	90,983	11,909,017	99.24%	9.36%
First Mortgage Bonds-Susquehana	11/01/92	11/01/22	8.26%	1,500,000	47,970	1,452,030	96.80%	8.56%
First Mortgage Bonds-Shenango	11/01/92	11/01/22	8.32%	3,500,000	63,691	3,436,309	98.18%	8.49%
First Mortgage Bonds	05/19/95	05/15/25	7.72%	15,000,000	160,429	14,839,571	98.93%	7.81%
First Mortgage Bonds-Shenango	11/01/95	11/01/25	8.14%	4,000,000	62,676	3,937,324	98.43%	8.28%
First Mortgage Bonds	12/15/95	12/15/15	6.89%	12,000,000	128,343	11,871,657	98.93%	6.99%
First Mortgage Bonds	10/25/01	11/01/11	6.21%	15,000,000	49,350	14,950,650	99.67%	6.25%
First Mortgage Bonds	06/28/02	07/01/12	5.93%	25,000,000	167,492	24,832,508	99.33%	6.02%
First Mortgage Bonds	05/10/04	05/15/15	5.08%	20,000,000	180,101	19,819,899	99.10%	5.19%
First Mortgage Bonds	05/10/04	05/10/17	5.17%	7,000,000	63,035	6,936,965	99.10%	5.27%
First Mortgage Bonds	05/10/04	05/15/19	5.751%	15,000,000	135,076	14,864,924	99.10%	5.84%
First Mortgage Bonds	05/10/04	05/15/19	5.751%	5,000,000	45,025	4,954,975	99.10%	5.84%
First Mortgage Bonds	05/10/04	05/10/27	6.06%	15,000,000	135,076	14,864,924	99.10%	6.13%
First Mortgage Bonds	05/10/04	05/15/27	6.06%	5,000,000	45,025	4,954,975	99.10%	6.13%
First Mortgage Bonds	05/10/04	05/15/28	5.98%	3,000,000	27,015	2,972,985	99.10%	6.05%
Tax Exempt (FGIC)	11/30/04	10/01/39	5.05%	14,000,000	1,120,090	12,879,910	92.00%	5.57%
Tax Exempt (AMBAC)	11/01/01	10/01/31	5.35%	30,000,000	930,951	29,069,049	96.90%	5.56%
Tax Exempt (AMBAC)	06/28/02	09/01/32	5.15%	25,000,000	945,608	24,054,392	96.22%	5.40%
Tax Exempt (FGIC)	06/01/02	09/01/32	5.55%	25,000,000	711,122	24,288,878	97.16%	5.75%
Tax Exempt (FGIC)	05/19/05	11/01/38	5.00%	21,770,000	302,837	21,467,163	98.61%	5.09%
Tax Exempt (FGIC)	05/19/05	11/01/38	5.00%	24,165,000	355,968	23,809,032	98.53%	5.09%
Tax Exempt (FGIC)	05/19/05	11/01/38	5.00%	25,375,000	394,346	24,980,654	98.45%	5.10%
Tax Exempt (FGIC)	12/28/05	02/01/35	5.00%	24,675,000	258,804	24,416,196	98.95%	5.07%
Tax Exempt (FGIC)	01/16/07	02/01/40	5.00%	23,915,000	(436,311)	24,351,311	101.82%	4.89%
Tax Exempt (FGIC)	01/16/07	02/01/41	5.00%	23,915,000	(436,311)	24,351,311	101.82%	4.89%
Tax Exempt (No Ins. - S&P)	12/20/07	07/01/42	5.25%	24,830,000	334,241	24,495,759	98.65%	5.34%
Tax Exempt	12/20/07	07/01/43	5.25%	24,830,000	333,880	24,496,120	98.66%	5.33%
Tax Exempt	12/18/08	10/01/17	6.25%	9,000,000	393,428	8,606,572	95.63%	6.92%
Tax Exempt	12/18/08	10/01/18	6.75%	13,000,000	309,196	12,690,804	97.62%	7.09%
Tax Exempt	07/16/09	10/01/39	5.00%	58,000,000	3,206,179	54,793,821	94.47%	5.37%
Tax Exempt	11/17/09	11/15/40	5.00%	62,165,000	601,078	61,563,922	99.03%	5.06%
Tax Exempt	11/17/09	11/15/40	4.75%	12,520,000	541,477	11,978,523	95.68%	5.03%
Tax Exempt	11/17/10	12/01/33	5.00%	25,910,000	852,493	25,057,507	96.71%	5.25%
Tax Exempt	11/17/10	12/01/34	5.00%	19,270,000	890,025	18,379,975	95.38%	5.34%
Tax Exempt	11/17/10	12/01/42	4.50%	15,000,000	813,938	14,186,062	94.57%	4.83%
Tax Exempt	11/17/10	12/01/43	5.00%	81,205,000	(1,505,773)	82,710,773	101.85%	4.89%
UTMA Note	12/30/92	12/31/13	9.00%	1,967,462		1,967,462	100.00%	9.00%
Unsecured Note	03/31/06	03/31/23	5.95%	10,000,000	28,082	9,971,918	99.72%	5.98%
Unsecured Note	03/31/06	03/31/24	5.95%	10,000,000	28,082	9,971,918	99.72%	5.98%
Unsecured Note	03/31/06	03/31/33	5.95%	10,000,000	28,082	9,971,918	99.72%	5.97%
Unsecured Note	03/31/06	03/31/34	5.95%	10,000,000	28,082	9,971,918	99.72%	5.97%
Unsecured Note	09/29/06	09/30/14	5.64%	4,584,000	15,453	4,568,547	99.66%	5.69%
Unsecured Note	09/29/06	09/30/16	5.64%	4,489,000	15,453	4,473,547	99.66%	5.69%
Unsecured Note	09/29/06	09/30/20	5.64%	5,466,000	15,453	5,450,547	99.72%	5.67%
Unsecured Note	09/29/06	09/30/21	5.64%	5,461,000	15,453	5,445,547	99.72%	5.67%
Unsecured Note	05/15/07	05/15/17	5.50%	2,132,180	156,011	1,976,169	92.68%	6.51%
Unsecured Note	12/28/07	12/28/14	5.66%	40,000,000	145,036	39,854,964	99.64%	5.72%
Pennvest loans:								
Shenango	12/01/91	12/01/11	1.000%	1,250,000	458	1,249,542	99.96%	1.00%
Western	03/17/97	06/01/14	1.000%	694,500	1,899	692,601	99.73%	1.02%
Ferndale Booster	03/22/00	12/01/20	1.350%	651,125	3,407	647,718	99.48%	1.38%
Bristol	08/01/00	08/01/19	3.550%	5,949,630	41,479	5,908,151	99.30%	3.60%
Susquehanna	08/08/00	12/01/20	3.631%	175,725	1,278	174,447	99.27%	3.68%
Glenside Tank	08/08/00	12/01/20	4.047%	415,250	2,963	412,287	99.29%	4.10%
Fernhill Tank	08/08/00	12/01/20	4.047%	768,543	5,391	763,152	99.30%	4.10%
Susquehanna	11/29/00	05/01/21	3.631%	487,000	3,307	483,693	99.32%	3.68%
Pickering Dam	11/29/00	08/01/21	4.047%	920,802	6,074	914,728	99.34%	4.09%
North Wayne # 2	11/29/00	08/01/21	4.050%	1,174,916	9,281	1,165,635	99.21%	4.11%
Shenango	03/13/01	09/01/21	3.030%	1,715,000	10,230	1,704,770	99.40%	3.07%
North Wayne # 1	03/13/01	08/01/22	3.810%	1,346,773	10,628	1,336,145	99.21%	3.86%
Ingrams Mill	11/14/01	11/14/21	3.470%	9,582,806	83,419	9,499,387	99.13%	3.53%
Tank Paintings	12/13/01	12/13/21	3.790%	2,025,180	18,396	2,006,784	99.09%	3.86%
Tinicum Boster	12/13/01	12/13/21	3.430%	356,520	3,435	353,085	99.04%	3.50%
Whitehaven	03/09/02	03/09/12	1.000%	1,129,906	1,020	1,128,886	99.91%	1.01%
Well #20	04/10/02	04/10/22	3.330%	843,227	6,327	836,900	99.25%	3.38%
NUI	06/27/02	03/01/24	2.730%	5,538,900	49,429	5,489,471	99.11%	2.78%
Fawn Lake	11/05/02	04/01/24	1.390%	2,201,840	20,351	2,181,489	99.08%	1.44%
Ralpho Tank	12/12/02	11/01/23	1.000%	778,625	6,402	772,223	99.18%	1.04%
Meyers Tract	07/23/03	07/23/23	3.430%	1,547,054	12,772	1,534,282	99.17%	3.49%
Neshmainy	08/07/03	01/01/25	3.465%	6,366,625	60,070	6,306,555	99.06%	3.53%
Crum Water Treatment	09/07/03	05/01/25	3.460%	9,975,741	84,707	9,891,034	99.15%	3.52%
Canaan	12/19/03	03/01/24	2.770%	1,646,400	16,471	1,629,929	99.00%	2.84%
Wapwallopen	08/01/04	08/01/24	1.387%	333,878	3,066	330,812	99.08%	1.44%
Tafton Water System	12/01/04	04/01/35	1.000%	600,000	5,752	594,248	99.04%	1.04%
NE PA Mains	03/23/05	03/23/25	1.362%	2,122,850	22,346	2,100,504	98.95%	1.42%
Coal Twsp Tank	04/21/05	05/01/26	1.372%	1,054,868	9,671	1,045,197	99.08%	1.42%
Shickshinny	05/25/05	04/01/26	1.387%	321,522	3,256	318,266	98.99%	1.44%
White Rock Acres	05/25/05	05/01/26	2.774%	677,839	6,882	670,957	98.98%	2.84%
Wilbar	08/02/05	05/01/27	1.387%	2,311,200	21,948	2,289,252	99.05%	1.44%
Moscow	08/25/05	10/01/26	1.942%	1,151,000	11,236	1,139,764	99.02%	2.00%
Paupac	10/02/05	10/01/26	2.568%	2,249,960	26,215	2,223,745	98.83%	2.64%
Midway Manor	04/05/06	07/01/27	1.387%	2,611,380	28,744	2,582,636	98.90%	1.45%
NE Mains 2005	07/25/06	04/01/27	1.278%	1,253,000	12,689	1,240,311	98.99%	1.33%
Pickering West	07/25/06	10/01/27	2.556%	2,225,000	23,624	2,201,376	98.94%	2.62%
Eagle Rock/Oneida	04/18/07	05/01/28	1.278%	1,395,800	15,981	1,379,819	98.86%	1.34%
Sharon New Castle	05/27/08	10/01/28	1.274%	698,000	4,418	693,582	99.37%	1.31%
Roaring Creek Main Repl	06/04/08	02/01/29	1.274%	1,708,100	8,734	1,699,366	99.49%	1.30%
Mountain Home	06/17/08	02/01/30	1.274%	2,045,000	22,090	2,022,910	98.92%	1.33%
NE Mains 2007	09/30/08	07/01/29	1.274%	723,089	5,856	717,213	99.19%	1.32%
Crum Filtration	09/30/08	08/01/29	2.270%	1,493,848	15,969	1,477,879	98.93%	2.34%
Brush Valley Wells	02/05/09	05/01/30	1.274%	1,697,000	12,347	1,684,653	99.27%	1.31%
Forest Park	07/22/09	09/01/30	1.274%	1,132,200	13,513	1,118,687	98.81%	1.34%
Emlenton	10/07/10	10/01/30	1.000%	3,138,825	34,866	3,103,959	98.89%	1.06%
Country Club Gardens	01/26/10	01/01/31	2.547%	71,098	1,249	69,849	98.24%	2.66%
Hawley	05/01/94	10/01/21	1.000%	972,041	5,297	966,744	99.46%	1.02%
Hawley	04/19/00	12/01/20	1.349%	343,845	2,516	341,329	99.27%	1.39%
Honesdale	08/01/96	08/01/16	1.000%	4,062,815	15,787	4,047,028	99.61%	1.02%

Notes:

[1] The effective cost for each issue is the yield to maturity using as inputs the date of issue, the date of maturity, the coupon rate, and the net proceeds ratio.

Company provided data

Aqua Pennsylvania, Inc.
Calculation of the Embedded Cost of Long-Term Debt
Actual at June 30, 2012

Series	Principal Amount Outstanding	Percent to Total	Effective Cost Rate [1]	Weighted Cost Rate
First Mortgage Bonds	$ 5,000,000	0.57%	10.01%	0.06%
First Mortgage Bonds	5,000,000	0.57%	10.07%	0.06%
First Mortgage Bonds-Roaring Creek	-	0.00%	9.74%	0.00%
First Mortgage Bonds	-	0.00%	9.22%	0.00%
First Mortgage Bonds	4,000,000	0.46%	9.22%	0.04%
First Mortgage Bonds	12,000,000	1.37%	9.36%	0.13%
First Mortgage Bonds-Susquehana	1,500,000	0.17%	8.56%	0.02%
First Mortgage Bonds-Shenango	3,500,000	0.40%	8.49%	0.03%
First Mortgage Bonds	15,000,000	1.72%	7.81%	0.13%
First Mortgage Bonds-Shenango	4,000,000	0.46%	8.26%	0.04%
First Mortgage Bonds	12,000,000	1.37%	8.99%	0.10%
First Mortgage Bonds	-	0.00%	6.25%	0.00%
First Mortgage Bonds	25,000,000	2.86%	6.02%	0.17%
First Mortgage Bonds	20,000,000	2.29%	5.19%	0.12%
First Mortgage Bonds	7,000,000	0.80%	5.27%	0.04%
First Mortgage Bonds	15,000,000	1.72%	5.84%	0.10%
First Mortgage Bonds	5,000,000	0.57%	5.84%	0.03%
First Mortgage Bonds	15,000,000	1.72%	6.13%	0.11%
First Mortgage Bonds	5,000,000	0.57%	6.13%	0.04%
First Mortgage Bonds	3,000,000	0.34%	6.05%	0.02%
Tax Exempt (FGIC)	14,000,000	1.60%	5.57%	0.09%
Tax Exempt (AMBAC)	30,000,000	3.43%	5.56%	0.19%
Tax Exempt (AMBAC)	25,000,000	2.86%	5.40%	0.15%
Tax Exempt (FGIC)	25,000,000	2.86%	5.75%	0.16%
Tax Exempt (FGIC)	21,770,000	2.49%	5.09%	0.13%
Tax Exempt (FGIC)	24,165,000	2.76%	5.09%	0.14%
Tax Exempt (FGIC)	25,375,000	2.90%	5.10%	0.15%
Tax Exempt (FGIC)	24,675,000	2.82%	5.07%	0.14%
Tax Exempt (FGIC)	23,915,000	2.74%	4.89%	0.13%
Tax Exempt (FGIC)	23,915,000	2.74%	4.89%	0.13%
Tax Exempt (No Ins. - S&P)	24,830,000	2.84%	5.34%	0.15%
Tax Exempt	24,830,000	2.84%	5.33%	0.15%
Tax Exempt	9,000,000	1.03%	6.92%	0.07%
Tax Exempt	13,000,000	1.49%	7.09%	0.11%
Tax Exempt	58,000,000	6.63%	5.37%	0.36%
Tax Exempt	62,165,000	7.11%	5.06%	0.36%
Tax Exempt	12,520,000	1.43%	5.03%	0.07%
Tax Exempt	25,910,000	2.96%	5.25%	0.16%
Tax Exempt	19,270,000	2.20%	5.34%	0.12%
Tax Exempt	8,997,193 [2]	1.03%	4.83%	0.05%
Tax Exempt	48,707,807 [2]	5.57%	4.89%	0.27%
UTMA Note	346,934	0.04%	9.00%	0.00%
Unsecured Note	10,000,000	1.14%	5.98%	0.07%
Unsecured Note	10,000,000	1.14%	5.98%	0.07%
Unsecured Note	10,000,000	1.14%	5.97%	0.07%
Unsecured Note	10,000,000	1.14%	5.97%	0.07%
Unsecured Note	4,584,000	0.52%	5.69%	0.03%
Unsecured Note	4,489,000	0.51%	5.69%	0.03%
Unsecured Note	5,466,000	0.63%	5.67%	0.04%
Unsecured Note	4,381,152 [3]	0.50%	5.67%	0.03%
Unsecured Note	2,132,180	0.24%	8.51%	0.02%
Unsecured Note	40,000,000	4.57%	5.72%	0.26%
Pennvest loans:				
Shenango	-	0.00%	1.00%	0.00%
Western	109,017	0.01%	1.02%	0.00%
Ferndale Booster	236,282	0.03%	1.38%	0.00%
Bristol	2,858,821	0.33%	3.60%	0.01%
Susquehanna	89,341	0.01%	3.68%	0.00%
Glenside Tank	207,427	0.02%	4.10%	0.00%
Fernhill Tank	377,361	0.04%	4.10%	0.00%
Susquehanna	231,980	0.03%	3.68%	0.00%
Pickering Dam	426,737	0.05%	4.09%	0.00%
North Wayne # 2	653,305	0.08%	4.11%	0.00%
Shenango	718,166	0.08%	3.07%	0.00%
North Wayne # 1	752,766	0.09%	3.86%	0.00%
Ingrams Mill	5,922,967	0.68%	3.53%	0.02%
Tank Palnitings	1,310,540	0.15%	3.86%	0.01%
Tinicum Boster	246,015	0.03%	3.50%	0.00%
Whitehaven	-	0.00%	1.01%	0.00%
Well #20	448,357	0.05%	3.38%	0.00%
NUI	3,519,584	0.40%	2.78%	0.01%
Fawn Lake	1,449,904	0.17%	1.44%	0.00%
Ralpho Tank	452,602	0.05%	1.04%	0.00%
Meyers Tract	903,567	0.10%	3.49%	0.00%
Neshmainy	4,296,569	0.49%	3.53%	0.02%
Crum Water Treatment	8,006,104	0.69%	3.52%	0.02%
Canan	1,171,119	0.13%	2.84%	0.00%
Wapwallopen	218,626	0.03%	1.44%	0.00%
Tafton Water System	418,910	0.05%	1.04%	0.00%
NE PA Mains	1,600,688	0.18%	1.42%	0.00%
Coal Twsp Tank	694,747	0.08%	1.42%	0.00%
Shickshinny	233,916	0.03%	1.44%	0.00%
White Rock Acres	495,576	0.06%	2.84%	0.00%
Wilbar	1,557,578	0.18%	1.44%	0.00%
Moscow	807,901	0.09%	2.00%	0.00%
Paupac	1,885,053	0.22%	2.64%	0.01%
Midway Manor	2,063,609	0.24%	1.45%	0.00%
NE Mains 2005	906,419	0.10%	1.33%	0.00%
Pickering West	1,899,250	0.19%	2.62%	0.01%
Eagle Rock/Oneida	1,149,675	0.13%	1.34%	0.00%
Sharon New Castle	255,599	0.03%	1.31%	0.00%
Roaring Creek Main Repl	214,895	0.03%	1.30%	0.00%
Mountain Home	1,578,876	0.18%	1.33%	0.00%
NE Mains 2007	412,102	0.05%	1.32%	0.00%
Crum Filtration	-	0.00%	2.34%	0.00%
Brush Valley Wells	855,720	0.10%	1.31%	0.00%
Forest Park	16,862	0.00%	1.34%	0.00%
Emlenton	2,464,857	0.28%	1.06%	0.00%
Country Club Gardens	71,098	0.01%	2.66%	0.00%
Hawley	369,450	0.04%	1.02%	0.00%
Hawley	174,534	0.02%	1.39%	0.00%
Honesdale	1,014,984	0.12%	1.02%	0.00%
New Drawe	17,444,000	2.00%	2.56%	0.05%
Total Long -Term Debt	874,417,327	100.00%		5.40%
Unamortized Call Premium	(484,813)			
Long Term- Debt	$ 873,932,514			
Annualized Cost	$ 47,244,768			
Amortization of Loss on Reacquired Debt	24,935			
Total Cost	$ 47,269,703			5.41%

Notes:
[1] As calculated on page 4 of this schedule.
[2] Less: funds (held by trustee) restricted for construction activity of $38.500 million.
[3] Less: wastewater debt of $1.100 million.

Source of Information: Company provided data

Aqua Pennsylvania, Inc.
Calculation of the Effective Cost of Long-Term Debt by Series
Actual at June 30, 2012

Series	Date of Issue	Date of Maturity	Coupon Rate	Principal Amount Issued	Discount and Expense	Net Proceeds	Net Proceeds Ratio	Effective Cost Rate [1]
First Mortgage Bonds	06/01/88	06/01/13	9.93%	$ 5,000,000	$ 38,741	$ 4,961,259	99.23%	10.01%
First Mortgage Bonds	06/01/88	06/01/18	9.97%	5,000,000	46,489	4,953,511	99.07%	10.07%
First Mortgage Bonds-Roaring Creek	12/15/89	12/15/19	9.53%	4,000,000	79,762	3,920,238	98.01%	9.74%
First Mortgage Bonds	11/01/91	09/15/11	9.17%	5,000,000	21,663	4,978,337	99.57%	9.22%
First Mortgage Bonds	11/01/91	09/15/21	9.17%	8,000,000	44,192	7,955,808	99.45%	9.22%
First Mortgage Bonds	11/01/91	09/15/26	9.29%	12,000,000	90,983	11,909,017	99.24%	9.36%
First Mortgage Bonds-Susquehana	11/01/92	11/01/22	8.26%	1,500,000	47,970	1,452,030	96.80%	8.56%
First Mortgage Bonds-Shenango	11/01/92	11/01/22	8.32%	3,500,000	63,691	3,436,309	98.18%	8.49%
First Mortgage Bonds	05/19/95	05/15/25	7.72%	15,000,000	160,429	14,839,571	98.93%	7.81%
First Mortgage Bonds-Shenango	11/01/95	11/01/25	8.14%	4,000,000	62,676	3,937,324	98.43%	8.28%
First Mortgage Bonds	12/15/95	12/15/15	6.89%	12,000,000	128,343	11,871,657	98.93%	6.99%
First Mortgage Bonds	10/25/01	11/01/11	6.21%	15,000,000	49,350	14,950,650	99.67%	6.25%
First Mortgage Bonds	06/26/02	07/01/12	5.93%	25,000,000	167,492	24,832,508	99.33%	6.02%
First Mortgage Bonds	05/10/04	05/15/15	5.08%	20,000,000	180,101	19,819,899	99.10%	5.19%
First Mortgage Bonds	05/10/04	05/10/17	5.17%	7,000,000	63,035	6,936,965	99.10%	5.27%
First Mortgage Bonds	05/10/04	05/15/19	5.751%	15,000,000	135,076	14,864,924	99.10%	5.84%
First Mortgage Bonds	05/10/04	05/15/19	5.751%	5,000,000	45,025	4,954,975	99.10%	5.84%
First Mortgage Bonds	05/10/04	05/10/27	6.06%	15,000,000	135,076	14,864,924	99.10%	6.13%
First Mortgage Bonds	05/10/04	05/15/27	6.06%	5,000,000	45,025	4,954,975	99.10%	6.13%
First Mortgage Bonds	05/10/04	05/15/28	5.98%	3,000,000	27,015	2,972,985	99.10%	6.05%
Tax Exempt (FGIC)	11/30/04	10/01/39	5.05%	14,000,000	1,120,090	12,879,910	92.00%	5.57%
Tax Exempt (AMBAC)	11/01/01	10/01/31	5.35%	30,000,000	930,951	29,069,049	96.90%	5.56%
Tax Exempt (AMBAC)	06/26/02	09/01/32	5.15%	25,000,000	945,608	24,054,392	96.22%	5.40%
Tax Exempt (FGIC)	06/01/02	09/01/32	5.55%	25,000,000	711,122	24,288,878	97.16%	5.75%
Tax Exempt (FGIC)	05/19/05	11/01/38	5.00%	21,770,000	302,837	21,467,163	98.61%	5.09%
Tax Exempt (FGIC)	05/19/05	11/01/38	5.00%	24,165,000	355,968	23,809,032	98.53%	5.09%
Tax Exempt (FGIC)	05/19/05	11/01/38	5.00%	25,375,000	394,346	24,980,654	98.45%	5.10%
Tax Exempt (FGIC)	12/28/05	02/01/35	5.00%	24,675,000	258,804	24,416,196	98.95%	5.07%
Tax Exempt (FGIC)	01/16/07	02/01/40	5.00%	23,915,000	(436,311)	24,351,311	101.82%	4.89%
Tax Exempt (FGIC)	01/16/07	02/01/41	5.00%	23,915,000	(436,311)	24,351,311	101.82%	4.89%
Tax Exempt (No Ins. - S&P)	12/20/07	07/01/42	5.25%	24,830,000	334,241	24,495,759	98.65%	5.34%
Tax Exempt	12/20/07	07/01/43	5.25%	24,830,000	333,880	24,496,120	98.66%	5.33%
Tax Exempt	12/18/08	10/01/17	6.25%	9,000,000	393,428	8,606,572	95.63%	6.92%
Tax Exempt	12/18/08	10/01/18	6.75%	13,000,000	309,196	12,690,804	97.62%	7.09%
Tax Exempt	07/16/09	10/01/39	5.00%	58,000,000	3,206,179	54,793,821	94.47%	5.37%
Tax Exempt	11/17/09	11/15/40	5.00%	62,165,000	601,078	61,563,922	99.03%	5.06%
Tax Exempt	11/17/09	11/15/40	4.75%	12,520,000	541,477	11,978,523	95.68%	5.03%
Tax Exempt	11/17/10	12/01/33	5.00%	25,910,000	852,493	25,057,507	96.71%	5.25%
Tax Exempt	11/17/10	12/01/34	5.00%	19,270,000	890,025	18,379,975	95.38%	5.34%
Tax Exempt	11/17/10	12/01/42	4.50%	15,000,000	813,938	14,186,062	94.57%	4.83%
Tax Exempt	11/17/10	12/01/43	5.00%	81,205,000	(1,505,773)	82,710,773	101.85%	4.89%
UTMA Note	12/30/92	12/31/13	9.00%	1,967,462		1,967,462	100.00%	9.00%
Unsecured Note	03/31/06	03/31/23	5.95%	10,000,000	28,082	9,971,918	99.72%	5.98%
Unsecured Note	03/31/06	03/31/24	5.95%	10,000,000	28,082	9,971,918	99.72%	5.98%
Unsecured Note	03/31/06	03/31/33	5.95%	10,000,000	28,082	9,971,918	99.72%	5.97%
Unsecured Note	03/31/06	03/31/34	5.95%	10,000,000	28,082	9,971,918	99.72%	5.97%
Unsecured Note	09/29/06	09/30/14	5.64%	4,584,000	15,453	4,568,547	99.66%	5.69%
Unsecured Note	09/29/06	09/30/16	5.64%	4,489,000	15,453	4,473,547	99.66%	5.69%
Unsecured Note	09/29/06	09/30/20	5.64%	5,466,000	15,453	5,450,547	99.72%	5.67%
Unsecured Note	09/29/06	09/30/21	5.64%	5,461,000	15,453	5,445,547	99.72%	5.67%
Unsecured Note	05/15/07	05/15/17	5.50%	2,132,180	156,011	1,976,169	92.68%	6.51%
Unsecured Note	12/28/07	12/28/14	5.66%	40,000,000	145,036	39,854,964	99.64%	5.72%
Pennvest loans:								
Shenango	12/01/91	12/01/11	1.000%	1,250,000	458	1,249,542	99.96%	1.00%
Western	03/17/97	08/01/14	1.000%	694,500	1,899	692,601	99.73%	1.02%
Ferndale Booster	03/22/00	12/01/20	1.350%	651,125	3,407	647,718	99.48%	1.38%
Bristol	08/01/00	08/01/19	3.550%	5,949,830	41,479	5,908,151	99.30%	3.60%
Susquehanna	08/08/00	12/01/20	3.631%	175,725	1,278	174,447	99.27%	3.68%
Glenside Tank	08/08/00	12/01/20	4.047%	415,250	2,963	412,287	99.29%	4.10%
Fernhill Tank	08/08/00	12/01/20	4.047%	788,543	5,391	783,152	99.30%	4.10%
Susquehanna	11/29/00	05/01/21	3.631%	487,000	3,307	483,693	99.32%	3.68%
Pickering Dam	11/29/00	08/01/21	4.047%	920,802	6,074	914,728	99.34%	4.09%
North Wayne # 2	11/29/00	08/01/21	4.050%	1,174,916	9,281	1,165,635	99.21%	4.11%
Shenango	03/13/01	09/01/21	3.030%	1,715,000	10,230	1,704,770	99.40%	3.07%
North Wayne # 1	03/13/01	08/01/22	3.810%	1,346,773	10,628	1,336,145	99.21%	3.86%
Ingrams Mill	11/14/01	11/14/21	3.470%	9,562,866	63,419	9,499,387	99.13%	3.53%
Tank Paintings	12/13/01	12/13/21	3.790%	2,025,180	18,396	2,006,784	99.09%	3.86%
Tinicum Booster	12/13/01	12/13/21	3.430%	356,520	3,435	353,085	99.04%	3.50%
Whitehaven	03/09/02	03/09/12	1.000%	1,129,906	1,020	1,128,886	99.91%	1.01%
Well #20	04/10/02	04/10/22	3.330%	843,227	6,327	836,900	99.25%	3.38%
NUI	06/27/02	03/01/24	2.730%	5,538,900	49,429	5,489,471	99.11%	2.78%
Fawn Lake	11/05/02	04/01/24	1.390%	2,201,840	20,351	2,181,489	99.08%	1.44%
Ralpho Tank	12/12/02	11/01/23	1.000%	778,625	6,402	772,223	99.18%	1.04%
Meyers Tract	07/23/03	07/23/23	3.430%	1,547,054	12,772	1,534,282	99.17%	3.49%
Neshmainy	08/07/03	01/01/25	3.465%	6,366,625	60,070	6,306,555	99.06%	3.53%
Crum Water Treatment	08/07/03	05/01/25	3.460%	9,975,741	84,707	9,891,034	99.15%	3.52%
Canan	12/19/03	03/01/24	2.770%	1,646,400	16,471	1,629,929	99.00%	2.84%
Wapwallopen	06/01/04	06/01/24	1.387%	333,878	3,066	330,812	99.08%	1.44%
Taffton Water System	12/01/04	04/01/35	1.000%	600,000	5,752	594,248	99.04%	1.04%
NE PA Mains	03/23/05	03/23/25	1.362%	2,122,850	22,346	2,100,504	98.95%	1.42%
Coal Twsp Tank	04/21/05	05/01/26	1.372%	1,054,868	9,671	1,045,197	99.08%	1.42%
Shickshinny	05/25/05	04/01/26	1.387%	321,522	3,256	318,266	98.99%	1.44%
White Rock Acres	05/25/05	05/01/26	2.774%	677,839	6,882	670,957	98.98%	2.84%
Wilbar	08/02/05	05/01/27	1.387%	2,311,200	21,948	2,289,252	99.05%	1.44%
Moscow	08/25/05	10/01/26	1.942%	1,151,000	11,236	1,139,764	99.02%	2.00%
Paupac	10/02/05	10/01/26	2.566%	2,249,960	26,215	2,223,745	98.83%	2.64%
Midway Manor	04/05/06	07/01/27	1.387%	2,611,380	28,744	2,582,636	98.90%	1.45%
NE Mains 2005	07/25/06	04/01/27	1.278%	1,253,000	12,689	1,240,311	98.99%	1.33%
Pickering West	07/25/06	10/01/27	2.556%	2,225,000	23,624	2,201,376	98.94%	2.62%
Eagle Rock/Oneida	04/18/07	05/01/28	1.278%	1,395,800	15,981	1,379,819	98.86%	1.34%
Sharon New Castle	05/27/08	10/01/28	1.274%	698,000	4,418	693,582	99.37%	1.31%
Roaring Creek Main Repl	08/04/08	02/01/29	1.274%	1,708,100	8,734	1,699,366	99.49%	1.30%
Mountain Home	08/17/08	02/01/30	1.274%	2,045,000	22,090	2,022,910	98.92%	1.33%
NE Mains 2007	09/30/08	07/01/29	1.274%	723,069	5,856	717,213	99.19%	1.32%
Crum Filtration	09/30/08	08/01/29	2.270%	1,493,848	15,969	1,477,879	98.93%	2.34%
Brush Valley Wells	02/05/09	05/01/30	1.274%	1,697,000	12,347	1,684,653	99.27%	1.31%
Forest Park	07/22/09	09/01/30	1.274%	1,132,200	13,513	1,118,687	98.81%	1.34%
Emlenton	10/07/10	10/01/30	1.000%	3,138,825	34,866	3,103,959	98.89%	1.06%
Country Club Gardens	01/26/10	01/01/31	2.547%	71,098	1,249	69,849	98.24%	2.66%
Hawley	05/01/94	10/01/21	1.000%	972,041	5,297	966,744	99.46%	1.02%
Hawley	04/19/00	12/01/20	1.349%	343,845	2,516	341,329	99.27%	1.39%
Honesdale	08/01/96	08/01/16	1.000%	4,082,815	15,787	4,047,028	99.61%	1.02%
New Draws	12/31/11 [2]	12/31/31	2.500%	17,444,000	175,000	17,269,000	99.00%	2.56%

Notes:

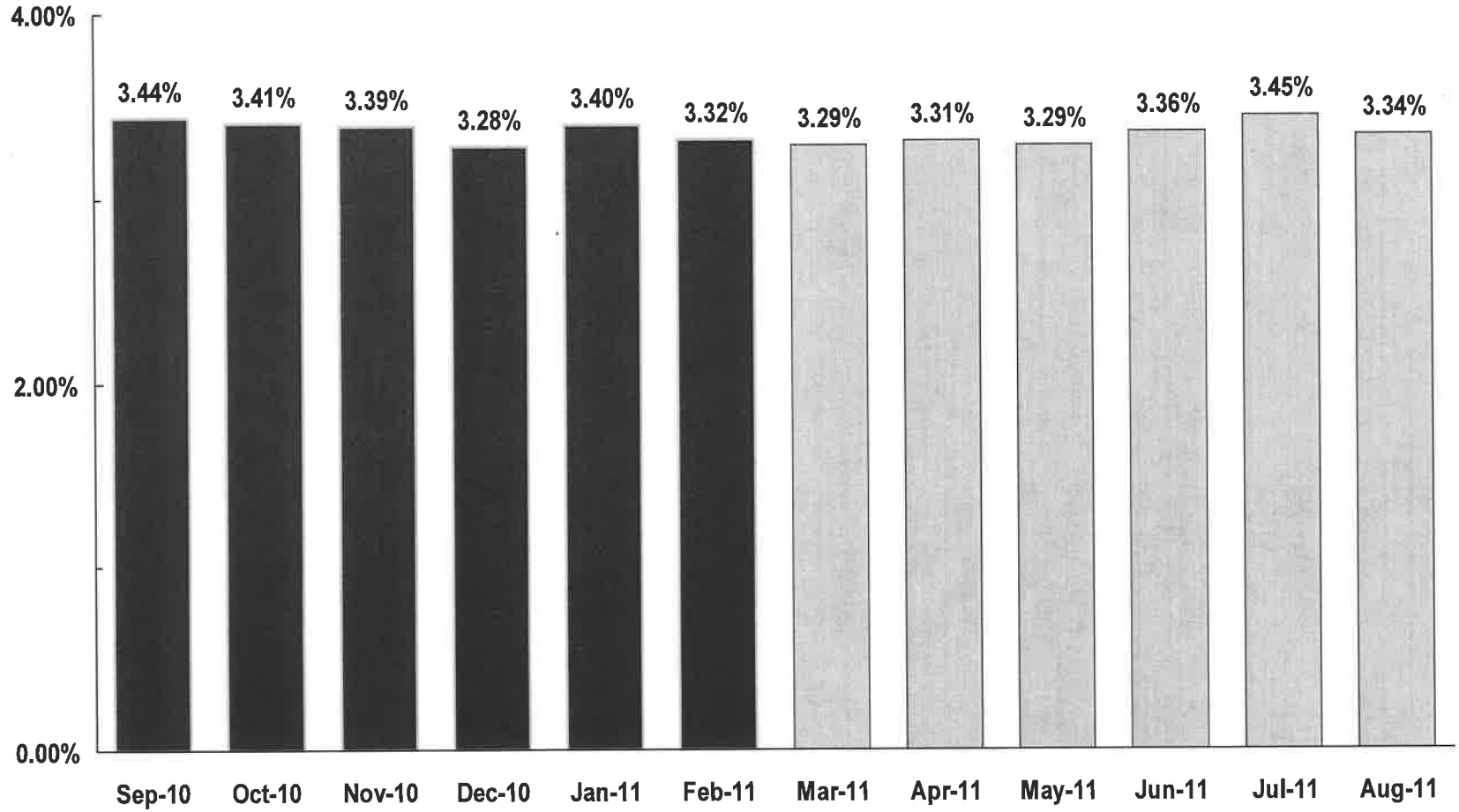
[1] The effective cost for each issue is the yield to maturity using as inputs the date of issue, the date of maturity, the coupon rate, and the net proceeds ratio.

[2] Take downs occur at various times during the future test year. Dates are assumed for the purpose of calculationg the YTM.

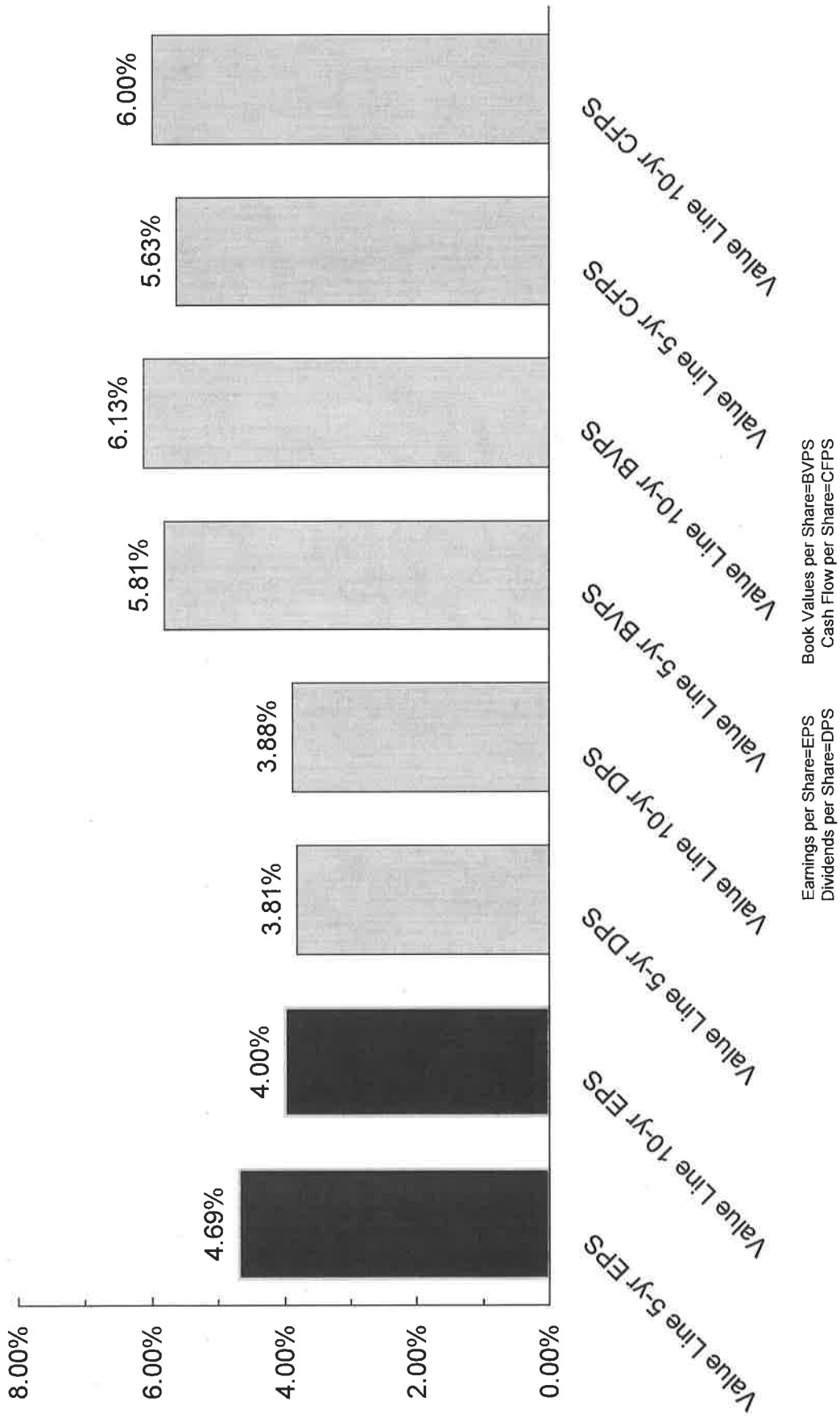
Company provided data

Water Group

Monthly Dividend Yields

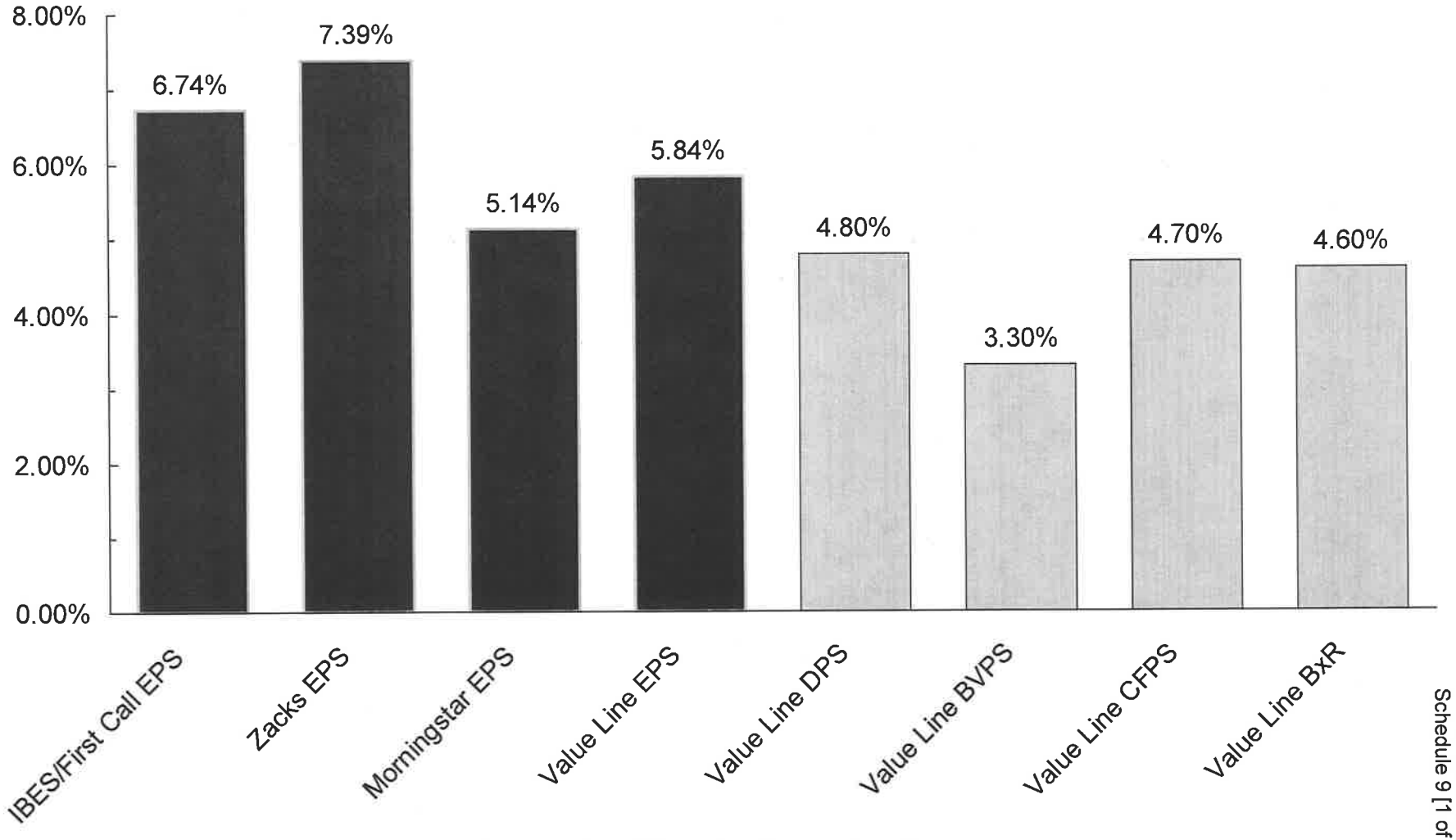


Water Group
Historical Growth Rates



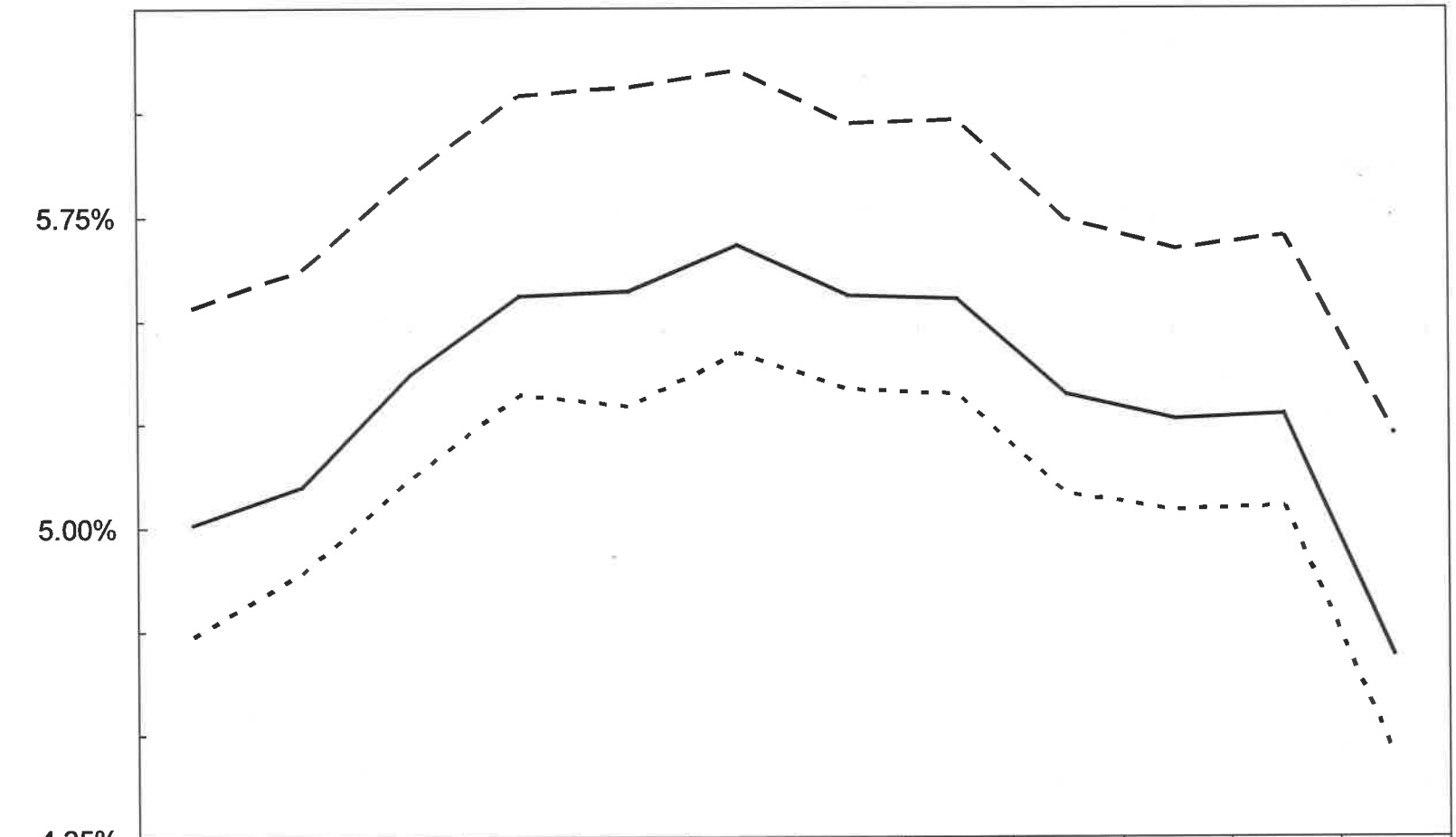
Water Group

Five-Year Projected Growth Rates



Earnings per Share=EPS Book Values per Share=BVPS
Dividends per Share=DPS Cash Flow per Share=CFPS
Percent Retained to Common Equity=BxR

Interest Rates for
Investment Grade Public Utility Bonds



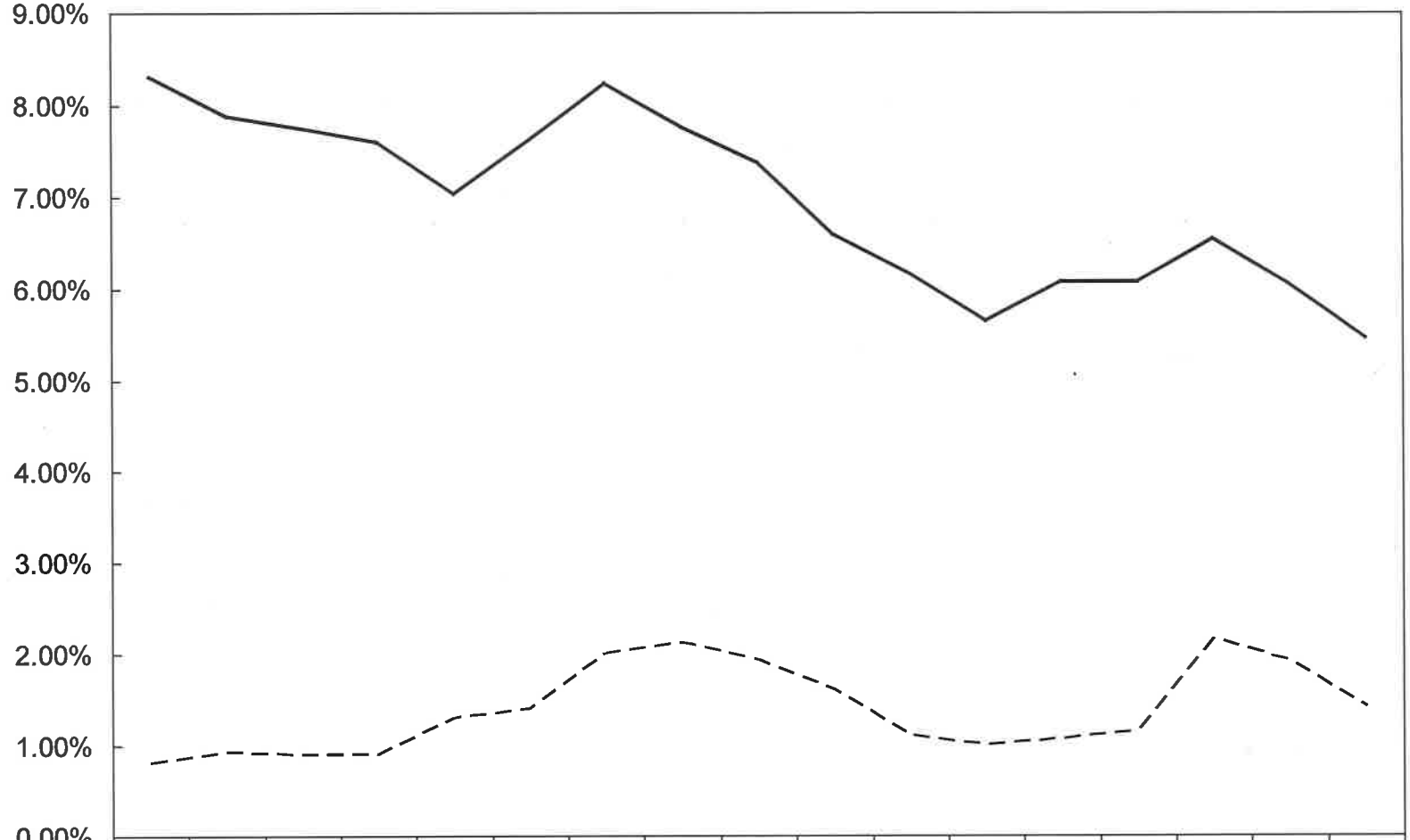
	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11
- - - - Aa	4.74%	4.89%	5.12%	5.32%	5.29%	5.42%	5.33%	5.32%	5.08%	5.04%	5.05%	4.44%
——— A	5.01%	5.10%	5.37%	5.56%	5.57%	5.68%	5.56%	5.55%	5.32%	5.26%	5.27%	4.69%
— — Baa	5.53%	5.62%	5.85%	6.04%	6.06%	6.10%	5.97%	5.98%	5.74%	5.67%	5.70%	5.22%

Interest Rates for Investment Grade Public Utility Bonds
Yearly for 2006-2010
and the Twelve Months Ended August 2011

Years	Aa Rated	A Rated	Baa Rated	Average
2006	5.84%	6.07%	6.32%	6.08%
2007	5.94%	6.07%	6.33%	6.11%
2008	6.18%	6.53%	7.24%	6.65%
2009	5.75%	6.04%	7.06%	6.28%
2010	5.24%	5.46%	5.96%	5.55%
Five-Year Average	5.79%	6.03%	6.58%	6.13%
Months				
Sep-10	4.74%	5.01%	5.53%	5.10%
Oct-10	4.89%	5.10%	5.62%	5.20%
Nov-10	5.12%	5.37%	5.85%	5.45%
Dec-10	5.32%	5.56%	6.04%	5.64%
Jan-11	5.29%	5.57%	6.06%	5.64%
Feb-11	5.42%	5.68%	6.10%	5.73%
Mar-11	5.33%	5.56%	5.97%	5.62%
Apr-11	5.32%	5.55%	5.98%	5.62%
May-11	5.08%	5.32%	5.74%	5.38%
Jun-11	5.04%	5.26%	5.67%	5.33%
Jul-11	5.05%	5.27%	5.70%	5.34%
Aug-11	4.44%	4.69%	5.22%	4.78%
Twelve-Month Average	5.09%	5.33%	5.79%	5.40%
Six-Month Average	5.04%	5.28%	5.71%	5.35%
Three-Month Average	4.84%	5.07%	5.53%	5.15%

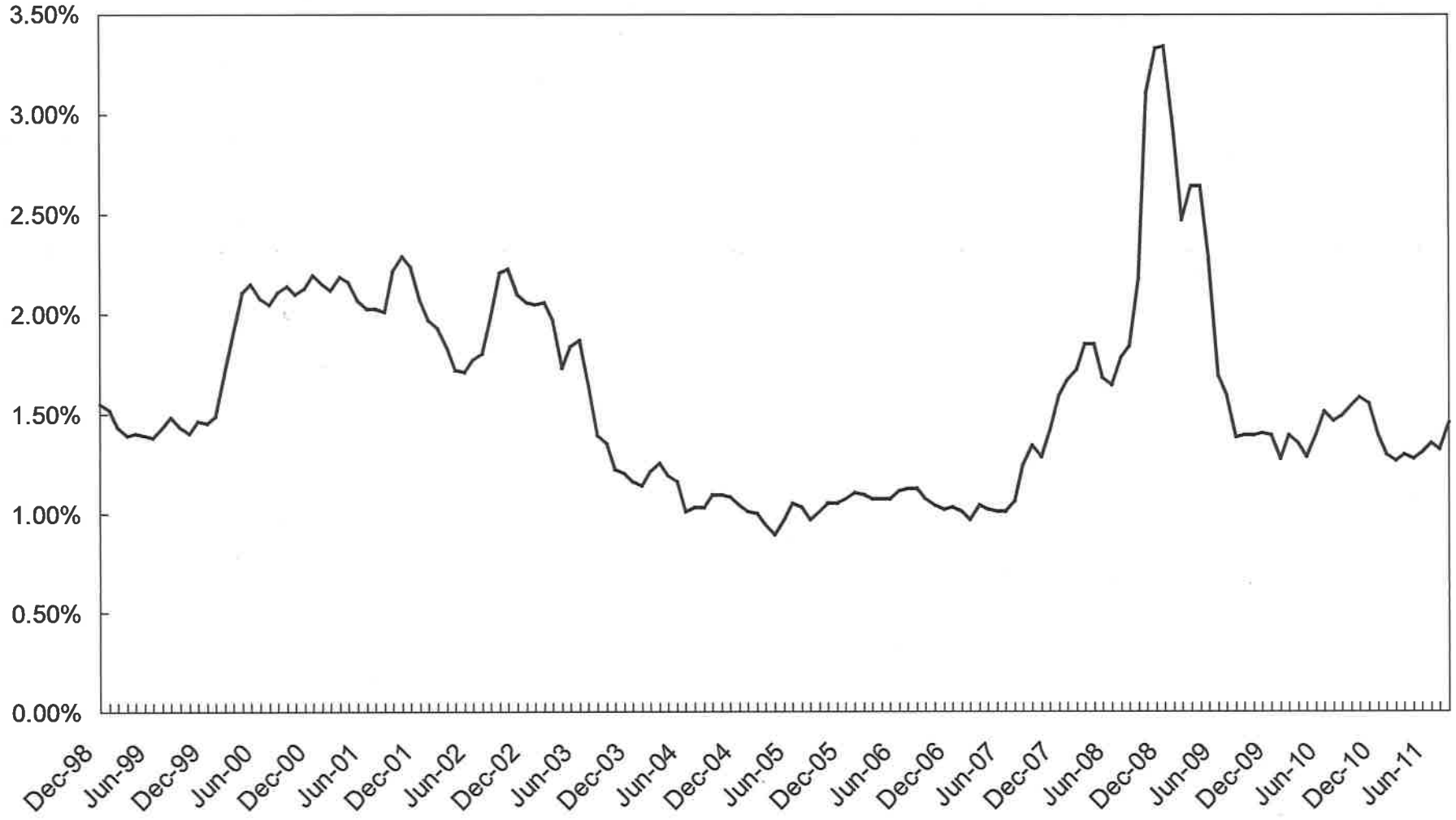
Source: Mergent Bond Record

Yields on
A-rated Public Utility Bonds and
Spreads over 20-Year Treasuries



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
——— A-rated Public Utility	8.31%	7.89%	7.75%	7.60%	7.04%	7.62%	8.24%	7.76%	7.37%	6.58%	6.16%	5.65%	6.07%	6.07%	6.53%	6.04%	5.46%
– – – Spread vs. 20-year	0.82%	0.94%	0.92%	0.91%	1.32%	1.42%	2.01%	2.13%	1.94%	1.62%	1.12%	1.01%	1.08%	1.16%	2.17%	1.93%	1.43%

Interest Rate Spreads
A-rated Public Utility Bonds
over 20-Year Treasuries



AP Exhibit 4-A
Page 20 of 31
Schedule 10 [4 of 5]

A rated Public Utility Bonds over 20-Year Treasuries

Year	A-rated Public Utility	20-Year Treasuries Yield	20-Year Treasuries Spread
Dec-98	6.91%	5.36%	1.55%
Jan-99	6.97%	5.45%	1.52%
Feb-99	7.09%	5.66%	1.43%
Mar-99	7.26%	5.87%	1.39%
Apr-99	7.22%	5.82%	1.40%
May-99	7.47%	6.08%	1.39%
Jun-99	7.74%	6.36%	1.38%
Jul-99	7.71%	6.28%	1.43%
Aug-99	7.91%	6.43%	1.48%
Sep-99	7.93%	6.50%	1.43%
Oct-99	8.06%	6.66%	1.40%
Nov-99	7.94%	6.48%	1.46%
Dec-99	8.14%	6.69%	1.45%
Jan-00	8.35%	6.86%	1.49%
Feb-00	8.25%	6.54%	1.71%
Mar-00	8.28%	6.38%	1.90%
Apr-00	8.29%	6.18%	2.11%
May-00	8.70%	6.55%	2.15%
Jun-00	8.36%	6.28%	2.08%
Jul-00	8.25%	6.20%	2.05%
Aug-00	8.13%	6.02%	2.11%
Sep-00	8.23%	6.09%	2.14%
Oct-00	8.14%	6.04%	2.10%
Nov-00	8.11%	5.98%	2.13%
Dec-00	7.84%	5.64%	2.20%
Jan-01	7.80%	5.65%	2.15%
Feb-01	7.74%	5.62%	2.12%
Mar-01	7.68%	5.49%	2.19%
Apr-01	7.94%	5.78%	2.16%
May-01	7.99%	5.92%	2.07%
Jun-01	7.85%	5.82%	2.03%
Jul-01	7.78%	5.75%	2.03%
Aug-01	7.59%	5.58%	2.01%
Sep-01	7.75%	5.53%	2.22%
Oct-01	7.63%	5.34%	2.29%
Nov-01	7.57%	5.33%	2.24%
Dec-01	7.83%	5.76%	2.07%
Jan-02	7.66%	5.69%	1.97%
Feb-02	7.54%	5.61%	1.93%
Mar-02	7.76%	5.93%	1.83%
Apr-02	7.57%	5.85%	1.72%
May-02	7.52%	5.81%	1.71%
Jun-02	7.42%	5.65%	1.77%
Jul-02	7.31%	5.51%	1.80%
Aug-02	7.17%	5.19%	1.98%
Sep-02	7.08%	4.87%	2.21%
Oct-02	7.23%	5.00%	2.23%
Nov-02	7.14%	5.04%	2.10%
Dec-02	7.07%	5.01%	2.06%
Jan-03	7.07%	5.02%	2.05%
Feb-03	6.93%	4.87%	2.06%
Mar-03	6.79%	4.82%	1.97%
Apr-03	6.64%	4.91%	1.73%
May-03	6.36%	4.52%	1.84%
Jun-03	6.21%	4.34%	1.87%
Jul-03	6.57%	4.92%	1.65%
Aug-03	6.78%	5.39%	1.39%
Sep-03	6.56%	5.21%	1.35%
Oct-03	6.43%	5.21%	1.22%
Nov-03	6.37%	5.17%	1.20%
Dec-03	6.27%	5.11%	1.16%
Jan-04	6.15%	5.01%	1.14%
Feb-04	6.15%	4.94%	1.21%
Mar-04	5.97%	4.72%	1.25%
Apr-04	6.35%	5.16%	1.19%
May-04	6.62%	5.46%	1.16%
Jun-04	6.46%	5.45%	1.01%
Jul-04	6.27%	5.24%	1.03%
Aug-04	6.14%	5.07%	1.07%
Sep-04	5.98%	4.89%	1.09%
Oct-04	5.94%	4.85%	1.09%
Nov-04	5.97%	4.89%	1.08%
Dec-04	5.92%	4.88%	1.04%
Jan-05	5.78%	4.77%	1.01%
Feb-05	5.61%	4.61%	1.00%
Mar-05	5.83%	4.89%	0.94%
Apr-05	5.64%	4.75%	0.89%
May-05	5.53%	4.56%	0.97%
Jun-05	5.40%	4.35%	1.05%
Jul-05	5.51%	4.48%	1.03%
Aug-05	5.50%	4.53%	0.97%
Sep-05	5.52%	4.51%	1.01%
Oct-05	5.79%	4.74%	1.05%
Nov-05	5.88%	4.83%	1.05%
Dec-05	5.80%	4.73%	1.07%
Jan-06	5.75%	4.65%	1.10%
Feb-06	5.82%	4.73%	1.09%
Mar-06	5.98%	4.91%	1.07%
Apr-06	6.29%	5.22%	1.07%
May-06	6.42%	5.35%	1.07%
Jun-06	6.40%	5.29%	1.11%
Jul-06	6.37%	5.25%	1.12%
Aug-06	6.20%	5.08%	1.12%
Sep-06	6.00%	4.93%	1.07%
Oct-06	5.98%	4.94%	1.04%
Nov-06	5.80%	4.78%	1.02%
Dec-06	5.81%	4.78%	1.03%
Jan-07	5.96%	4.95%	1.01%
Feb-07	5.90%	4.93%	0.97%
Mar-07	5.85%	4.81%	1.04%
Apr-07	5.97%	4.95%	1.02%
May-07	5.99%	4.98%	1.01%
Jun-07	6.30%	5.29%	1.01%
Jul-07	6.25%	5.19%	1.06%
Aug-07	6.24%	5.00%	1.24%
Sep-07	6.18%	4.84%	1.34%
Oct-07	6.11%	4.83%	1.28%
Nov-07	5.97%	4.56%	1.41%
Dec-07	6.16%	4.57%	1.59%
Jan-08	6.02%	4.35%	1.67%
Feb-08	6.21%	4.49%	1.72%
Mar-08	6.21%	4.36%	1.85%
Apr-08	6.29%	4.44%	1.85%
May-08	6.28%	4.60%	1.68%
Jun-08	6.38%	4.74%	1.64%
Jul-08	6.40%	4.62%	1.78%
Aug-08	6.37%	4.53%	1.84%
Sep-08	6.49%	4.32%	2.17%
Oct-08	7.56%	4.45%	3.11%
Nov-08	7.60%	4.27%	3.33%
Dec-08	6.52%	3.18%	3.34%
Jan-09	6.39%	3.46%	2.93%
Feb-09	6.30%	3.83%	2.47%
Mar-09	6.42%	3.78%	2.64%
Apr-09	6.48%	3.84%	2.64%
May-09	6.49%	4.22%	2.27%
Jun-09	6.20%	4.51%	1.69%
Jul-09	5.97%	4.38%	1.59%
Aug-09	5.71%	4.33%	1.38%
Sep-09	5.53%	4.14%	1.39%
Oct-09	5.55%	4.16%	1.39%
Nov-09	5.64%	4.24%	1.40%
Dec-09	5.79%	4.40%	1.39%
Jan-10	5.77%	4.50%	1.27%
Feb-10	5.87%	4.48%	1.39%
Mar-10	5.84%	4.49%	1.35%
Apr-10	5.81%	4.53%	1.28%
May-10	5.50%	4.11%	1.39%
Jun-10	5.46%	3.95%	1.51%
Jul-10	5.26%	3.80%	1.46%
Aug-10	5.01%	3.52%	1.49%
Sep-10	5.01%	3.47%	1.54%
Oct-10	5.10%	3.52%	1.58%
Nov-10	5.37%	3.82%	1.55%
Dec-10	5.56%	4.17%	1.39%
Jan-11	5.57%	4.28%	1.29%
Feb-11	5.68%	4.42%	1.26%
Mar-11	5.56%	4.27%	1.29%
Apr-11	5.55%	4.28%	1.27%
May-11	5.32%	4.02%	1.30%
Jun-11	5.26%	3.91%	1.35%
Jul-11	5.27%	3.95%	1.32%
Aug-11	4.69%	3.24%	1.45%

Average:	
12-months	1.38%
6-months	1.33%
3-months	1.37%

S&P Composite Index and S&P Public Utility Index
Long-Term Corporate and Public Utility Bonds
Yearly Total Returns
1928-2007

Year	S & P Composite Index	S & P Public Utility Index	Long Term Corporate Bonds	Public Utility Bonds
1928	43.61%	57.47%	2.84%	3.08%
1929	-8.42%	11.02%	3.27%	2.34%
1930	-24.90%	-21.96%	7.98%	4.74%
1931	-43.34%	-35.90%	-1.85%	-11.11%
1932	-8.19%	-0.54%	10.82%	7.25%
1933	53.99%	-21.87%	10.38%	-3.82%
1934	-1.44%	-20.41%	13.84%	22.61%
1935	47.67%	76.63%	9.61%	16.03%
1936	33.92%	20.69%	6.74%	8.30%
1937	-35.03%	-37.04%	2.75%	-4.05%
1938	31.12%	22.45%	6.13%	8.11%
1939	-0.41%	11.26%	3.97%	6.76%
1940	-9.78%	-17.15%	3.39%	4.45%
1941	-11.59%	-31.57%	2.73%	2.15%
1942	20.34%	15.39%	2.60%	3.81%
1943	25.90%	46.07%	2.83%	7.04%
1944	19.75%	18.03%	4.73%	3.29%
1945	36.44%	53.33%	4.08%	5.92%
1946	-8.07%	1.26%	1.72%	2.98%
1947	5.71%	-13.16%	-2.34%	-2.19%
1948	5.50%	4.01%	4.14%	2.65%
1949	18.79%	31.39%	3.31%	7.16%
1950	31.71%	3.25%	2.12%	2.01%
1951	24.02%	18.63%	-2.69%	-2.77%
1952	18.37%	19.25%	3.52%	2.99%
1953	-0.99%	7.85%	3.41%	2.08%
1954	52.62%	24.72%	5.39%	7.57%
1955	31.56%	11.26%	0.48%	0.12%
1956	6.56%	5.06%	-6.81%	-6.25%
1957	-10.78%	6.36%	8.71%	3.58%
1958	43.36%	40.70%	-2.22%	0.18%
1959	11.96%	7.49%	-0.97%	-2.29%
1960	0.47%	20.26%	9.07%	9.01%
1961	26.89%	29.33%	4.82%	4.65%
1962	-8.73%	-2.44%	7.95%	6.55%
1963	22.80%	12.36%	2.19%	3.44%
1964	16.48%	15.91%	4.77%	4.94%
1965	12.45%	4.67%	-0.46%	0.50%
1966	-10.06%	-4.48%	0.20%	-3.45%
1967	23.98%	-0.63%	-4.95%	-3.63%
1968	11.06%	10.32%	2.57%	1.87%
1969	-8.50%	-15.42%	-8.09%	-6.66%
1970	4.01%	16.56%	18.37%	15.90%
1971	14.31%	2.41%	11.01%	11.59%
1972	18.98%	8.15%	7.26%	7.19%
1973	-14.66%	-18.07%	1.14%	2.42%
1974	-26.47%	-21.55%	-3.06%	-5.28%
1975	37.20%	44.49%	14.64%	15.50%
1976	23.84%	31.81%	18.65%	19.04%
1977	-7.18%	8.64%	1.71%	5.22%
1978	6.56%	-3.71%	-0.07%	-0.98%
1979	18.44%	13.58%	-4.18%	-2.75%
1980	32.42%	15.08%	-2.76%	-0.23%
1981	-4.91%	11.74%	-1.24%	4.27%
1982	21.41%	26.52%	42.56%	33.52%
1983	22.51%	20.01%	6.26%	10.33%
1984	6.27%	26.04%	16.86%	14.82%
1985	32.16%	33.05%	30.09%	26.48%
1986	18.47%	28.53%	19.85%	18.16%
1987	5.23%	-2.92%	-0.27%	3.02%
1988	16.81%	18.27%	10.70%	10.19%
1989	31.49%	47.80%	16.23%	15.61%
1990	-3.17%	-2.57%	6.78%	8.13%
1991	30.55%	14.61%	19.89%	19.25%
1992	7.67%	8.10%	9.39%	8.65%
1993	9.99%	14.41%	13.19%	10.59%
1994	1.31%	-7.94%	-5.76%	-4.72%
1995	37.43%	42.15%	27.20%	22.81%
1996	23.07%	3.14%	1.40%	3.04%
1997	33.36%	24.69%	12.95%	11.39%
1998	28.58%	14.82%	10.76%	9.44%
1999	21.04%	-8.85%	-7.45%	-1.69%
2000	-9.11%	59.70%	12.87%	9.45%
2001	-11.88%	-30.41%	10.65%	5.85%
2002	-22.10%	-30.04%	16.33%	1.63%
2003	28.70%	26.11%	5.27%	10.01%
2004	10.87%	24.22%	8.72%	6.03%
2005	4.91%	16.79%	5.87%	3.02%
2006	15.80%	20.95%	3.24%	3.94%
2007	5.49%	19.39%	2.60%	5.20%
Geometric Mean	10.04%	8.92%	5.81%	5.45%
Arithmetic Mean	11.95%	11.24%	6.13%	5.72%
Standard Deviation	20.02%	22.43%	8.52%	7.84%
Median	13.38%	12.05%	4.11%	4.55%

Tabulation of Risk Rate Differentials for
S&P Public Utility Index and Public Utility Bonds
For the Years 1928-2007, 1952-2007, 1974-2007, and 1979-2007

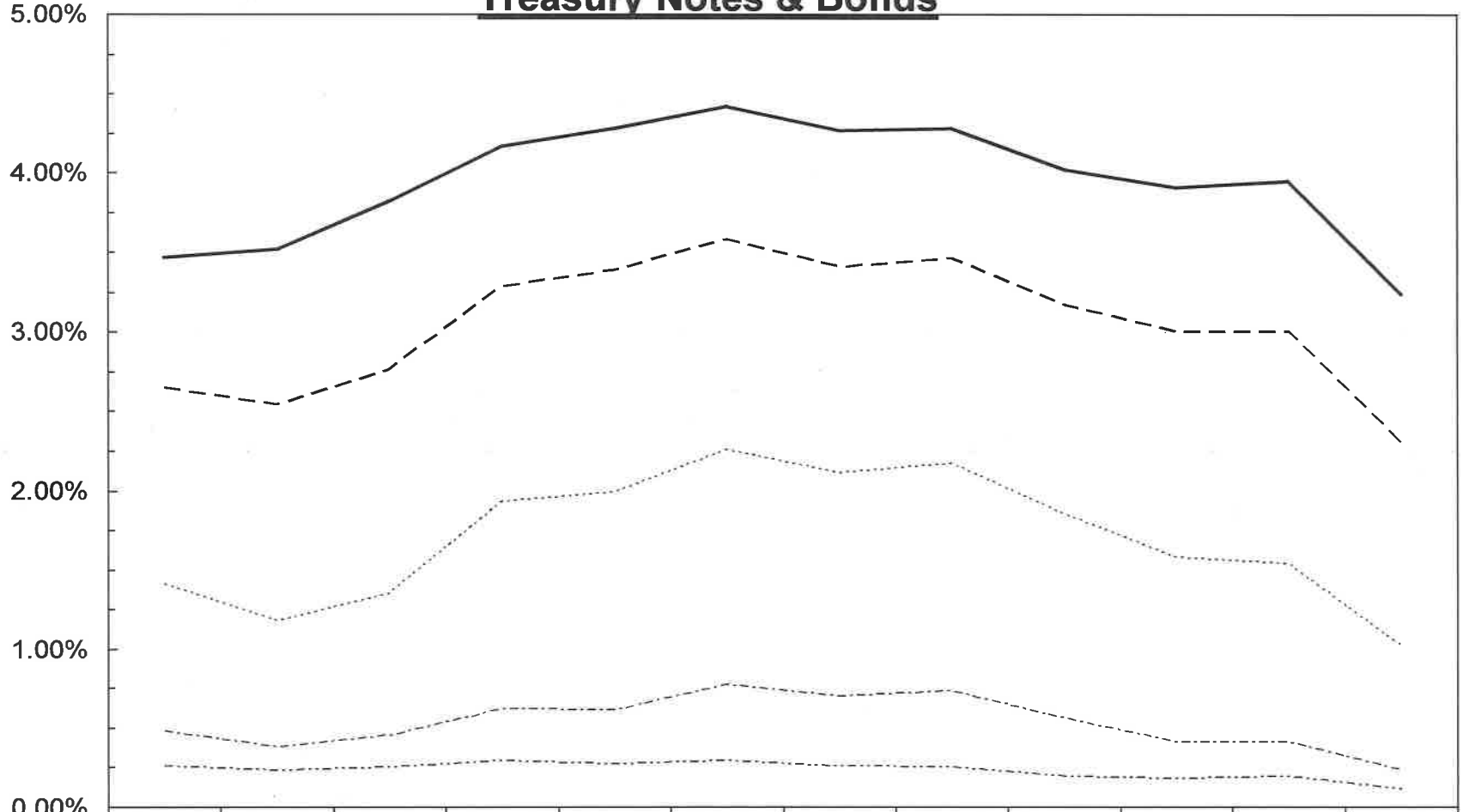
Total Returns	Range: Geometric Mean	Range: Median	Midpoint	Point Estimate: Arithmetic Mean	Average of the Midpoint of Range and Point Estimate
1928-2007					
S&P Public Utility Index	8.92%	12.05%		11.24%	
Public Utility Bonds	5.45%	4.55%		5.72%	
Risk Differential	3.47%	7.50%	5.49%	5.52%	5.51%
1952-2007					
S&P Public Utility Index	11.14%	14.00%		12.65%	
Public Utility Bonds	6.15%	5.07%		6.45%	
Risk Differential	4.99%	8.93%	6.96%	6.20%	6.58%
1974-2007					
S&P Public Utility Index	12.98%	15.94%		14.90%	
Public Utility Bonds	8.45%	8.39%		8.79%	
Risk Differential	4.53%	7.55%	6.04%	6.11%	6.08%
1979-2007					
S&P Public Utility Index	13.62%	16.79%		15.41%	
Public Utility Bonds	8.83%	8.65%		9.15%	
Risk Differential	4.79%	8.14%	6.47%	6.26%	6.37%

Value Line Betas

Water Group	
American States Water	0.75
American Water Works Co.	0.65
Aqua America, Inc.	0.65
Artesian Resources Corporation	0.60
California Water Serv. Grp.	0.70
Connecticut Water Services	0.80
Middlesex Water Company	0.75
SJW Corporation	0.90
York Water Company	0.70
Average	0.72

Source of Information:
The Value Line Investment Survey
July 22, 2011

Yields on
Treasury Notes & Bonds



	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11
1-Year	0.26%	0.23%	0.25%	0.29%	0.27%	0.29%	0.26%	0.25%	0.19%	0.18%	0.19%	0.11%
2-Year	0.48%	0.38%	0.45%	0.62%	0.61%	0.77%	0.70%	0.73%	0.56%	0.41%	0.41%	0.23%
5-Year	1.41%	1.18%	1.35%	1.93%	1.99%	2.26%	2.11%	2.17%	1.85%	1.58%	1.54%	1.02%
10-Year	2.65%	2.54%	2.76%	3.29%	3.39%	3.58%	3.41%	3.46%	3.17%	3.00%	3.00%	2.30%
20-Year	3.47%	3.52%	3.82%	4.17%	4.28%	4.42%	4.27%	4.28%	4.02%	3.91%	3.95%	3.24%

Yields for Treasury Constant Maturities
Yearly for 2006-2010
and the Twelve Months Ended August 2011

Years	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	20-Year
2006	4.93%	4.82%	4.77%	4.75%	4.76%	4.79%	4.99%
2007	4.52%	4.36%	4.34%	4.43%	4.50%	4.63%	4.91%
2008	1.82%	2.00%	2.24%	2.80%	3.17%	3.67%	4.36%
2009	0.47%	0.96%	1.43%	2.19%	2.81%	3.26%	4.11%
2010	0.32%	0.70%	1.11%	1.93%	2.62%	3.21%	4.03%
Five-Year Average	2.41%	2.57%	2.78%	3.22%	3.57%	3.91%	4.48%
Months							
Sep-10	0.26%	0.48%	0.74%	1.41%	2.05%	2.65%	3.47%
Oct-10	0.23%	0.38%	0.57%	1.18%	1.85%	2.54%	3.52%
Nov-10	0.25%	0.45%	0.67%	1.35%	2.02%	2.76%	3.82%
Dec-10	0.29%	0.62%	0.99%	1.93%	2.66%	3.29%	4.17%
Jan-11	0.27%	0.61%	1.03%	1.99%	2.72%	3.39%	4.28%
Feb-11	0.29%	0.77%	1.28%	2.26%	2.96%	3.58%	4.42%
Mar-11	0.26%	0.70%	1.17%	2.11%	2.80%	3.41%	4.27%
Apr-11	0.25%	0.73%	1.21%	2.17%	2.84%	3.46%	4.28%
May-11	0.19%	0.56%	0.94%	1.85%	2.52%	3.17%	4.02%
Jun-11	0.18%	0.41%	0.71%	1.58%	2.29%	3.00%	3.91%
Jul-11	0.19%	0.41%	0.68%	1.54%	2.28%	3.00%	3.95%
Aug-11	0.11%	0.23%	0.38%	1.02%	1.63%	2.30%	3.24%
Twelve-Month Average	0.23%	0.53%	0.86%	1.70%	2.39%	3.05%	3.95%
Six-Month Average	0.20%	0.51%	0.85%	1.71%	2.39%	3.06%	3.94%
Three-Month Average	0.16%	0.35%	0.59%	1.38%	2.07%	2.77%	3.70%

Source: Federal Reserve statistical release H.15

Measures of the Risk-Free Rate & Corporate Bond Yields
The forecast of Treasury and Corporate yields
per the consensus of nearly 50 economists
reported in the Blue Chip Financial Forecasts dated September 1, 2011

		Treasury					Corporate	
Year	Quarter	1-Year Bill	2-Year Note	5-Year Note	10-Year Note	30-Year Bond	Aaa Bond	Baa Bond
2011	Third	0.2%	0.3%	1.2%	2.5%	3.8%	4.5%	5.5%
2011	Fourth	0.2%	0.3%	1.2%	2.5%	3.8%	4.5%	5.4%
2012	First	0.2%	0.4%	1.4%	2.7%	3.9%	4.6%	5.5%
2012	Second	0.3%	0.5%	1.5%	2.8%	4.0%	4.6%	5.6%
2012	Third	0.3%	0.6%	1.6%	2.9%	4.1%	4.7%	5.7%
2012	Fourth	0.4%	0.8%	1.8%	3.1%	4.2%	4.9%	5.8%

THE VALUE LINE Investment Survey®

Part 1 Summary & Index

File at the front of the *Ratings & Reports* binder. Last week's *Summary & Index* should be removed.

September 9, 2011

TABLE OF SUMMARY & INDEX CONTENTS

The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

13.9

26 Weeks Ago	Market Low	Market High
16.3	3-9-09 10.3	7-13-07 19.7

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend paying stocks under review

2.3%

26 Weeks Ago	Market Low	Market High
1.9%	3-9-09 4.0%	7-13-07 1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized economic environment 3 to 5 years hence

80%

26 Weeks Ago	Market Low	Market High
55%	3-9-09 185%	7-13-07 35%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

Numeral in parenthesis after the industry is rank for probable performance (next 12 months).

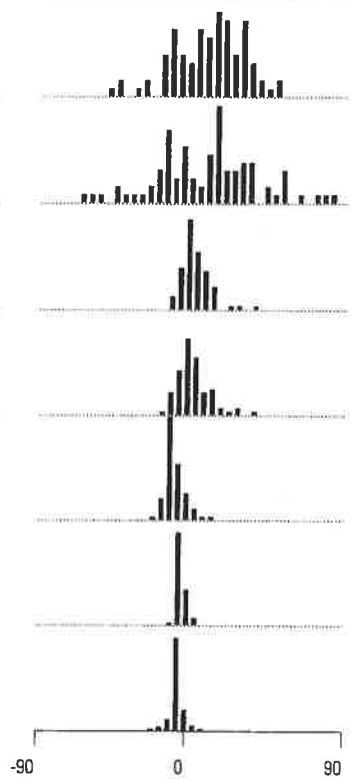
*Reviewed in this week's issue.

In three parts: This is Part 1, the Summary & Index. Part 2 is Selection & Opinion. Part 3 is Ratings & Reports. Volume LXVII, No. 3.

Published weekly by VALUE LINE PUBLISHING LLC, 220 East 42nd Street, New York, N.Y. 10017-5891

Table 2-1: Basic Series: Summary Statistics of Annual Total Returns

Series	Geometric Mean (%)	Arithmetic Mean (%)	Standard Deviation (%)	Distribution (%)
Large Company Stocks	9.9	11.9	20.4	
Small Company Stocks*	12.1	16.7	32.6	
Long-Term Corporate Bonds	5.9	6.2	8.3	
Long-Term Government Bonds	5.5	5.9	9.5	
Intermediate-Term Government Bonds	5.4	5.5	5.7	
U.S. Treasury Bills	3.6	3.7	3.1	
Inflation	3.0	3.1	4.2	



Data from 1926–2010. * The 1933 Small Company Stocks Total Return was 142.9 percent.

Table 10-1: Building Blocks for Expected Return Construction

	Value (%)
Yields (Riskless Rates)†	
Long-Term (20-year) U.S. Treasury Coupon Bond Yield	4.1
Intermediate-Term (5-year) U.S. Treasury Coupon Note Yield	1.7
Short-Term (30-day) U.S. Treasury Bill Yield	0.1
Fixed Income Risk Premia†, ‡	
Expected default premium: *long-term corporate bond total returns minus long-term government bond total returns*	0.1
Expected long-term horizon premium: *long-term government bond income returns minus U.S. Treasury bill total returns**	1.7
Expected intermediate-term horizon premium: *intermediate-term government bond income returns minus U.S. Treasury bill total returns**	1.1
Equity Risk Premia †, ◊	
Long-horizon expected equity risk premium: *large company stock total returns minus long-term government bond income returns*	6.7
Intermediate-horizon expected equity risk premium: *large company stock total returns minus intermediate-term government bond income returns*	7.2
Short-horizon expected equity risk premium: *large company stock total returns minus U.S. Treasury bill total returns**	8.2
Small Stock Premium: *small company stock total return minus large company stock total return*	4.9

† As of December 31, 2010. Maturities are approximate.
‡ Expected risk premia for fixed income are based on the differences of historical arithmetic mean returns from 1970-2010.
◊ Expected risk premia for equities are based on the differences of historical arithmetic mean returns from 1926–2010
* For U.S. Treasury bills, the income return and total return are the same.

Comparable Earnings Approach
Using All Value Line Non-Utility Companies with
Timeliness of 1, 2, 3 & 4; Safety Rank of 2 & 3; Financial Strength of B, B+ & B++;
Price Stability of 70 to 100; Betas of .60 to .90; and Technical Rank of 3 & 4

Company	Industry	Timeliness Rank	Safety Rank	Financial Strength	Price Stability	Beta	Technical Rank
ABM Industries Inc.	INDUSRV	4	3	B++	70	0.90	3
ADTRAN Inc.	TELEQUIP	3	3	B++	80	0.85	3
Activision Blizzard	ENTTECH	4	3	B+	70	0.75	3
Advance Auto Parts	RETAUTO	2	3	B+	75	0.85	3
Alexion Pharmac.	DRUG	3	3	B+	75	0.80	4
Alliant Techsystems	DEFENSE	3	3	B+	95	0.80	3
AmerisourceBergen	MEDICNON	2	2	B++	100	0.70	3
Analogic Corp.	INSTRMNT	3	3	B+	70	0.80	3
AptarGroup	PACKAGE	2	2	B++	90	0.90	3
AutoZone Inc.	RETAUTO	2	3	B	90	0.70	3
Bio-Rad Labs. 'A'	MEDICNON	3	3	B++	80	0.90	3
Block (H&R)	FINSERV	3	3	B+	70	0.85	3
CA Inc.	SOFTWARE	2	2	B++	90	0.90	3
CACI Int'l	ITSERV	1	3	B++	85	0.80	3
CLARCOR Inc.	PACKAGE	3	3	B++	80	0.90	4
Casey's Gen'l Stores	GROCERY	2	3	B+	80	0.70	3
Charles River	MEDICNON	3	2	B++	80	0.90	4
Chemed Corp.	DIVERSIF	3	3	B+	75	0.80	3
Cintas Corp.	INDUSRV	3	2	B++	85	0.90	3
Clean Harbors	ENVIRONM	3	3	B++	85	0.75	4
Coca-Cola Bottling	BEVERAGE	2	3	B	80	0.70	3
Computer Prog. & Sys.	HLTHSYS	3	3	B+	70	0.75	3
Compuware Corp.	SOFTWARE	4	3	B+	70	0.90	4
Conmed Corp.	MEDICINV	3	3	B+	75	0.85	4
Core-Mark Holding	GROCERY	3	3	B+	80	0.85	4
Covanta Holding Corp.	POWER	3	3	B	75	0.90	3
Dun & Bradetreet	INFOSER	3	3	B	100	0.75	3
Endo Pharmac. Hldgs.	DRUG	3	3	B++	80	0.70	3
Equifax Inc.	INFOSER	3	2	B++	95	0.90	3
Erie Indemnity Co.	INSPRPTY	4	2	B++	100	0.70	3
Forrester Research	INFOSER	4	3	B+	80	0.80	3
G&K Services 'A'	INDUSRV	3	3	B+	80	0.85	4
Gilead Sciences	DRUG	2	3	B+	90	0.65	3
Greatbatch Inc.	ELECTRNX	2	3	B+	80	0.75	3
HCC Insurance Hldgs.	INSPRPTY	4	3	B+	95	0.80	3
Haemonetics Corp.	MEDICNON	3	2	B++	95	0.60	3
Hanover Insurance	INSPRPTY	4	2	B++	90	0.85	3
Hasbro Inc.	RECREATE	4	2	B++	85	0.75	3
Healthcare Svcs.	INDUSRV	3	3	B+	75	0.75	3
Henry (Jack) & Assoc.	ITSERV	3	2	B++	95	0.85	3
Hillenbrand Inc.	FUNL SVC	3	3	B++	85	0.60	3
Hospira Inc.	DRUG	3	3	B+	90	0.70	3
Hudson City Bancorp	THRIFT	4	3	B	90	0.80	3
IHS Inc.	INFOSER	4	3	B++	75	0.90	3
Informatica Corp.	B2B	3	3	B++	75	0.90	4
Int'l Speedway 'A'	RECREATE	3	3	B+	80	0.90	3
Invacare Corp.	MEDICNON	3	3	B+	75	0.75	3
Investors Bancorp	THRIFT	3	3	B+	90	0.75	3
J&J Snack Foods	FOODPROC	3	2	B++	90	0.70	4
Knight Transportation	TRUCKING	3	3	B++	75	0.85	3
Life Technologies	MEDICNON	3	2	B++	85	0.85	3
MAXIMUS Inc.	INDUSRV	3	2	B++	85	0.80	3
MTS Systems	INSTRMNT	2	3	B+	80	0.90	3
ManTech Int'l 'A'	ITSERV	2	3	B+	80	0.75	3
Matthews Int'l	FUNL SVC	3	3	B+	85	0.85	3
Mercury General	INSPRPTY	4	2	B++	95	0.70	3
Molson Coors Brewing	BEVERAGE	3	2	B++	90	0.60	3
Nash Finch Co.	GROCERY	3	3	B	75	0.70	3
National Instruments	INSTRMNT	4	3	B++	85	0.90	3
NeuStar Inc.	TELEQUIP	2	3	B++	75	0.90	3
New York Community	THRIFT	4	3	B	80	0.85	3
Northwest Bancshares	THRIFT	4	3	B+	90	0.75	3
Orbital Sciences	DEFENSE	3	3	B+	75	0.85	4
Papa John's Int'l	RESTRNT	2	3	B++	75	0.85	3
Peet's Coffee & Tea	FOODPROC	3	3	B++	70	0.75	3
People's United Fin'l	THRIFT	4	3	B+	95	0.65	3
Perrigo Co.	DRUG	3	3	B++	75	0.70	3
PetSmart Inc.	RETAILHL	2	3	B+	80	0.80	3
Pharmac. Product	DRUG	3	3	B++	75	0.85	3
Pitney Bowes	OFFICE	3	3	B+	85	0.90	3
Quest Diagnostics	MEDSERV	3	2	B++	95	0.70	3
Reynolds American	TOBACCO	4	2	B+	100	0.60	3
SAIC Inc.	INDUSRV	3	2	B++	100	0.60	3
STERIS Corp.	MEDICINV	3	3	B++	80	0.90	3
Scheln (Henry)	MEDICNON	3	3	B+	95	0.75	3
Sealed Air	PACKAGE	3	3	B+	75	0.85	3
Sensient Techn.	FOODPROC	3	3	B+	90	0.85	4
Stericycle Inc.	ENVIRONM	3	3	B++	95	0.70	3
Symantec Corp.	SOFTWARE	2	3	B++	75	0.90	3
Synopsys Inc.	SOFTWARE	3	2	B++	90	0.85	3
Total System Svcs.	FINSERV	3	3	B++	85	0.90	3
TreeHouse Foods	FOODPROC	4	3	B++	80	0.60	3
UniFirst Corp.	INDUSRV	3	3	B+	75	0.85	4
Universal Corp.	TOBACCO	3	3	B++	75	0.85	3
Universal Health Sv. 'B'	MEDSERV	1	3	B+	80	0.85	3
VCA Antech	MEDSERV	4	3	B+	70	0.90	3
ViaSat Inc.	WIRELESS	3	3	B+	70	0.90	4
Werner Enterprises	TRUCKING	2	3	B++	75	0.90	3
West Pharmac. Svcs.	MEDICNON	3	3	B+	85	0.80	3
Wiley (John) & Sons	PUBLISH	3	3	B+	90	0.90	4
Average		3	3	B+	83	0.80	3
Water Group	Average	3	3	B+	91	0.72	3

Source of Information: Value Line Investment Survey for Windows, August 2011

Comparable Earnings Approach
Five -Year Average Historical Earned Returns
for Years 2006-2010 and
Projected 3-5 Year Returns

Company	2006	2007	2008	2009	2010	Average	Projected 2014-16
ABM Industries Inc.	8.9%	8.2%	8.7%	10.0%	8.6%	8.9%	12.0%
ADTRAN Inc.	18.0%	20.2%	20.9%	16.4%	19.9%	19.1%	17.0%
Activision Blizzard	-	-	NMF	3.2%	5.9%	4.6%	8.5%
Advance Auto Parts	22.4%	23.6%	24.3%	22.4%	33.3%	25.2%	25.0%
Alexion Pharmac.	NMF	NMF	13.4%	11.6%	11.3%	12.1%	20.5%
Alliant Techsystems	31.9%	30.5%	42.9%	37.4%	26.9%	33.9%	15.0%
AmerisourceBergen	11.3%	15.9%	17.3%	18.8%	21.6%	17.0%	18.0%
Analogic Corp.	1.1%	3.9%	5.5%	0.9%	3.8%	3.0%	7.0%
AptarGroup	10.9%	12.5%	13.6%	9.9%	13.6%	12.1%	12.5%
AutoZone Inc.	NMF	NMF	NMF	NMF	NMF	-	NMF
Bio-Rad Labs. 'A'	11.4%	10.4%	11.2%	11.5%	10.8%	11.1%	13.0%
Block (H&R)	26.5%	46.0%	36.5%	33.9%	29.5%	34.5%	55.0%
CA Inc.	3.2%	13.5%	16.0%	15.5%	15.5%	12.7%	11.0%
CACI Int'l	11.4%	9.6%	9.1%	9.6%	9.1%	9.8%	9.0%
CLARCOR Inc.	15.4%	16.3%	14.7%	10.4%	12.7%	13.9%	13.0%
Casey's Gen'l Stores	10.6%	13.1%	12.7%	14.2%	25.0%	15.1%	18.0%
Charles River	7.8%	8.5%	14.8%	8.0%	9.8%	9.8%	8.5%
Chemed Corp.	13.7%	20.9%	19.2%	15.5%	17.7%	17.4%	18.0%
Cintas Corp.	15.7%	15.4%	14.9%	11.8%	9.0%	13.4%	11.0%
Clean Harbors	30.2%	21.8%	13.9%	6.3%	16.4%	17.7%	11.0%
Coca-Cola Bottling	24.7%	16.5%	21.1%	28.2%	28.4%	23.8%	17.0%
Computer Prog. & Sys.	40.9%	33.7%	38.1%	35.6%	40.3%	37.7%	31.0%
Compuware Corp.	14.0%	14.5%	15.9%	15.4%	11.5%	14.3%	18.5%
Conmed Corp.	6.4%	7.9%	8.5%	4.6%	6.4%	6.8%	7.5%
Core-Mark Holding	9.6%	9.0%	6.5%	14.3%	4.9%	8.9%	7.5%
Covanta Holding Corp.	12.0%	14.8%	12.1%	7.3%	2.6%	9.8%	9.5%
Dun & Bradstreet	-	-	-	-	-	-	47.0%
Endo Pharmac. Hldgs.	13.2%	17.6%	23.2%	17.8%	14.9%	17.3%	14.5%
Equifax Inc.	31.1%	22.0%	24.6%	18.4%	17.5%	22.7%	15.0%
Erie Indemnity Co.	17.6%	20.6%	18.0%	12.0%	17.8%	17.2%	22.5%
Forrester Research	6.6%	6.9%	9.6%	9.4%	9.1%	8.3%	13.0%
G&K Services `A'	7.6%	7.3%	8.3%	7.3%	6.1%	7.3%	8.5%
Gilead Sciences	64.0%	46.7%	48.4%	40.5%	47.4%	49.4%	39.0%
Greatbatch Inc.	5.4%	10.1%	9.4%	9.2%	8.4%	8.5%	9.0%
HCC Insurance Hldgs.	16.8%	15.6%	12.0%	11.7%	10.3%	13.3%	11.0%
Haemonetics Corp.	10.5%	11.4%	11.9%	12.5%	12.0%	11.7%	12.0%
Hanover Insurance	9.7%	10.2%	9.7%	8.0%	6.2%	8.8%	9.5%
Hasbro Inc.	15.0%	25.0%	22.1%	23.5%	23.7%	21.9%	28.0%
Healthcare Svcs.	15.4%	15.2%	13.2%	14.5%	16.2%	14.9%	26.5%
Henry (Jack) & Assoc.	15.6%	17.5%	17.5%	16.5%	15.7%	16.6%	15.5%
Hillenbrand Inc.	58.8%	55.0%	36.4%	33.7%	24.8%	41.7%	23.0%
Hospira Inc.	22.8%	20.1%	23.0%	19.3%	17.6%	20.6%	23.5%
Hudson City Bancorp	5.9%	6.4%	9.0%	9.9%	9.7%	8.2%	10.0%
IHS Inc.	10.3%	10.0%	12.4%	13.3%	12.0%	11.6%	12.5%
Informatica Corp.	15.9%	17.5%	15.7%	13.3%	13.4%	15.2%	20.0%
Int'l Speedway 'A'	15.0%	13.1%	12.2%	8.0%	6.2%	10.9%	7.5%
Invacare Corp.	7.8%	6.4%	9.0%	7.2%	9.2%	7.9%	9.0%
Investors Bancorp	1.7%	2.6%	1.9%	NMF	6.9%	3.3%	9.5%
J&J Snack Foods	11.2%	10.9%	8.8%	12.0%	12.7%	11.1%	13.0%
Knight Transportation	17.1%	12.9%	11.6%	9.7%	12.0%	12.7%	16.0%
Life Technologies	4.9%	7.4%	9.4%	13.7%	15.2%	10.1%	16.0%
MAXIMUS Inc.	0.6%	4.9%	11.1%	18.4%	19.2%	10.8%	35.0%
MTS Systems	23.0%	22.1%	23.0%	11.3%	13.8%	18.6%	17.0%
ManTech Int'l 'A'	12.1%	12.2%	13.3%	13.7%	12.9%	12.8%	12.0%
Matthews Int'l	16.6%	16.1%	17.9%	15.5%	14.8%	16.2%	14.0%
Mercury General	11.8%	12.0%	7.7%	10.0%	6.4%	9.6%	11.0%
Molson Coors Brewing	6.4%	7.1%	8.6%	10.0%	8.6%	8.1%	8.0%
Nash Finch Co.	8.5%	10.7%	12.2%	12.3%	11.7%	11.1%	10.5%
National Instruments	12.2%	16.2%	12.8%	5.9%	14.7%	12.4%	19.0%
NeuStar Inc.	21.7%	19.2%	20.2%	20.1%	19.2%	20.1%	17.0%
New York Community	6.3%	6.7%	6.6%	7.4%	9.8%	7.4%	11.5%
Northwest Bancshares	8.5%	8.0%	7.8%	2.5%	4.4%	6.2%	7.0%
Orbital Sciences	8.8%	13.1%	13.8%	7.3%	8.3%	10.3%	12.0%
Papa John's Int'l	32.0%	39.3%	36.5%	22.6%	23.0%	30.7%	22.5%
Peet's Coffee & Tea	7.0%	6.2%	7.8%	8.4%	10.4%	8.0%	13.5%
People's United Fin'l	9.3%	3.4%	2.7%	2.0%	1.6%	3.8%	5.5%
Perrigo Co.	11.6%	10.4%	16.1%	19.1%	24.2%	16.3%	24.5%
PetSmart Inc.	18.5%	19.7%	16.8%	16.9%	20.5%	18.5%	19.5%
Pharmac. Product	16.4%	14.2%	15.9%	11.8%	9.6%	13.6%	17.5%
Pitney Bowes	86.8%	93.5%	-	NMF	NMF	90.2%	100.0%
Quest Diagnostics	21.2%	16.7%	17.8%	18.3%	17.9%	18.4%	15.0%
Reynolds American	16.1%	18.1%	22.5%	20.8%	22.4%	20.0%	23.0%
SAIC Inc.	24.0%	20.3%	21.4%	21.8%	22.8%	22.1%	15.0%
STERIS Corp.	11.4%	12.8%	15.4%	17.0%	16.5%	14.6%	15.0%
Schein (Henry)	12.4%	13.2%	14.0%	13.3%	13.9%	13.4%	10.5%
Sealed Air	17.1%	17.5%	9.3%	11.1%	10.7%	13.1%	11.0%
Sensient Techn.	9.4%	9.6%	11.1%	10.3%	10.9%	10.3%	12.0%
Stericycle Inc.	17.4%	18.0%	22.8%	21.1%	20.3%	19.9%	15.5%
Symantec Corp.	3.5%	4.4%	17.5%	14.0%	12.3%	10.3%	14.5%
Synopsys Inc.	6.7%	10.8%	13.1%	10.8%	9.1%	10.1%	11.0%
Total System Svcs.	20.5%	30.7%	25.6%	18.7%	15.9%	22.3%	14.5%
TreeHouse Foods	5.8%	6.6%	8.1%	9.7%	10.3%	8.1%	9.0%
UniFirst Corp.	8.7%	9.4%	11.0%	12.1%	10.8%	10.4%	9.5%
Universal Corp.	10.6%	11.5%	12.8%	15.0%	12.9%	12.6%	9.5%
Universal Health Sv. `B'	10.9%	10.8%	12.5%	14.0%	12.6%	12.2%	14.5%
VCA Antech	22.9%	20.9%	18.7%	15.3%	12.4%	18.0%	10.0%
ViaSat Inc.	11.2%	10.8%	10.9%	7.2%	7.1%	9.4%	10.0%
Werner Enterprises	11.3%	9.5%	9.1%	8.0%	12.0%	10.0%	15.0%
West Pharmac. Svcs.	15.7%	17.0%	16.8%	12.5%	11.6%	14.7%	14.5%
Wiley (John) & Sons	17.8%	18.7%	24.5%	21.2%	19.0%	20.2%	16.5%
Average						15.7%	16.5%
Average (excluding values >20%)						11.6%	12.2%