Appendix A
Educational Background, Research, and Related Business Experience
J. Randall Woolridge

J. Randall Woolridge is a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed Faculty Fellow in Business Administration in the College of Business Administration of the Pennsylvania State University in University Park, PA. In addition, Professor Woolridge is Director of the Smeal College Trading Room and President and CEO of the Nittany Lion Fund, LLC.

Professor Woolridge received a Bachelor of Arts degree in Economics from the University of North Carolina, a Master of Business Administration degree from the Pennsylvania State University, and a Doctor of Philosophy degree in Business Administration (major area-finance, minor area-statistics) from the University of Iowa. He has taught Finance courses including corporation finance, commercial and investment banking, and investments at the undergraduate, graduate, and executive MBA levels.

Professor Woolridge's research has centered on empirical issues in corporation finance and financial markets. He has published over 35 articles in the best academic and professional journals in the field, including the *Journal of Finance,* the *Journal of Financial Economics,* and the *Harvard Business Review.* His research has been cited extensively in the business press. His work has been featured in the *New York Times*, *Forbes, Fortune, The Economist*, *Barron's*, *Wall Street Journal*, *Business Week*, *Investors' Business Daily*, *USA Today*, and other publications. In addition, Dr. Woolridge has appeared as a guest to discuss the implications of his research on CNN's *Money Line*, CNBC's *Morning Call* and *Business Today*, and Bloomberg's *Morning Call.*

Professor Woolridge's stock valuation book, *The StreetSmart Guide to Valuing a Stock* (McGraw-Hill, 2003), was released in its second edition. He has also co-authored *Spinoffs and Equity Carve-Outs: Achieving Faster Growth and Better Performance* (Financial Executives Research Foundation, 1999) as well as a textbook entitled *Basic Principles of Finance* (Kendall Hunt, 2011).

Professor Woolridge has also consulted with corporations, financial institutions, and government agencies. In addition, he has directed and participated in university- and company-sponsored professional development programs for executives in 25 countries in North and South America, Europe, Asia, and Africa.

Over the past twenty-five years Dr. Woolridge has prepared testimony and/or provided consultation services in regulatory rate cases in the rate of return area in following states: Alaska, Arizona, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Indiana, Kansas, Kentucky, Massachusetts, Missouri, Nebraska, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and Washington, D.C. He has also prepared testimony which was submitted to the Federal Energy Regulatory Commission.

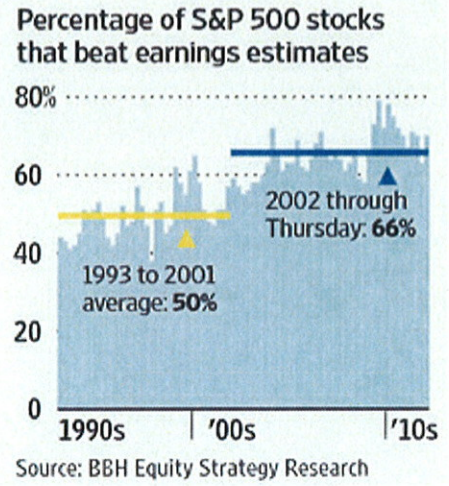
Appendix B
The Research on Analysts' Long-Term EPS Growth Rate Forecasts

Most of the attention given to the accuracy of analysts' EPS forecasts comes from media coverage of companies' quarterly earnings announcements. When companies' announced earnings beat Wall Street's EPS estimates ("a positive surprise"), their stock prices usually go up. When a company's EPS figure misses or is below Wall Street's forecasted EPS ("a negative surprise"), their stock price usually declines, sometimes precipitously so. Wall Street's estimate is the consensus forecast for quarterly EPS made by analysts who follow the stock as of the announcement date. And so Wall Street's estimate is the consensus EPS made in the days leading up to the EPS announcement.

In recent years, it has become more common for companies to beat Wall Street's quarterly EPS estimate. A recent *Wall Street Journal* article summarized the results for the first quarter of 2012: "While this "positive surprise ratio" of 70% is above the 20 year average of 58% and also higher than last quarter's tally, it is just middling since the current bull market began in 2009. In the past decade, the ratio only dipped below 60% during the financial crisis. Look before 2002, though, and 70% would have been literally off the chart. From 1993 through 2001, about half of companies had positive surprises."[1] Figure 1 below provides the record for companies beating Wall Street's EPS estimate on a quarterly basis over the past twenty years.

[1] Spencer Jakab, "Earnings Surprises Lose Punch," *Wall Street Journal* (May 7, 2012), p. C1.

Figure 1
Percent of Companies Beating Wall Street's Quarterly Estimates



A. RESEARCH ON THE ACCURACY OF ANALYSTS' NEAR-TERM EPS ESTIMATES

There is a long history of studies that evaluate how well analysts forecast near-term EPS estimates and long-term EPS growth rates. Most of these studies have evaluated the accuracy of earnings forecasts for the current quarter or year. Many of the early studies indicated that analysts make overly optimistic EPS earnings forecasts for quarter-to-quarter EPS (Stickel (1990); Brown (1997); Chopra (1998)).[2] More recent studies have shown that the optimistic bias tends to be larger for longer-term forecasts and smaller for forecasts made nearer to the EPS announcement date. Richardson, Teoh, and Wysocki (2004) report that the upward bias in earnings growth rates declines in the quarters leading up to the earnings announcement date.[3] They call this result the "walk-down to beatable analyst forecasts." They hypothesize that the walk-down might be driven by the "earning-guidance game," in which analysts give optimistic

[2] S. Stickel, "Predicting Individual Analyst Earnings Forecasts," *Journal of Accounting Research*, Vol. 28, 409-417, 1990. Brown, L.D., "Analyst Forecasting Errors: Additional Evidence," *Financial Analysts Journal*, Vol. 53, 81-88, 1997, and Chopra, V.K., "Why So Much Error in Analysts' Earnings Forecasts?" *Financial Analysts Journal*, Vol. 54, 30-37 (1998).

[3] S. Richardson, S. Teoh, and P. Wysocki, "The Walk-Down to Beatable Analyst Forecasts: The Role of Equity Issuance and Insider Trading Incentives," *Contemporary Accounting Research*, pp. 885–924, (2004).

forecasts at the start of a fiscal year, then revise their estimates downwards until the firm can beat the forecasts at the earnings announcement date.

However, two regulatory developments over the past decade have potentially impacted analysts' EPS growth rate estimates. First, Regulation Fair Disclosure ("Reg FD") was introduced by the Securities and Exchange Commission ("SEC") in October of 2000. Reg FD prohibits private communication between analysts and management so as to level the information playing field in the markets. With Reg FD, analysts are less dependent on gaining access to management to obtain information and, therefore, are not as likely to make optimistic forecasts to gain access to management. Second, the conflict of interest within investment firms with investment banking and analyst operations was addressed in the Global Analysts Research Settlements ("GARS"). GARS, as agreed upon on April 23, 2003, between the SEC, NASD, NYSE and ten of the largest U.S. investment firms, includes a number of regulations that were introduced to prevent investment bankers from pressuring analysts to provide favorable projections.

The previously cited *Wall Street Journal* article acknowledged the impact of the new regulatory rules in explaining the recent results:[4] "What changed? One potential reason is the tightening of rules governing analyst contacts with management. Analysts now must rely on publicly available guidance or, gasp, figure things out by themselves. That puts companies, with an incentive to set the bar low so that earnings are received positively, in the driver's seat. While that makes managers look good short-term, there is no lasting benefit for buy-and-hold investors."

[4] Spencer Jakab, "Earnings Surprises Lose Punch," *Wall Street Journal* (May 7, 2012), p. C1.

These comments on the impact of regulatory developments on the accuracy of short-term EPS estimates were addressed in a study by Hovakimian and Saenyasiri (2010).[5] The authors investigate analysts' forecasts of annual earnings for the following time periods: (1) the time prior to Reg FD (1984-2000); (2) the time period after Reg FD but prior to GARS (2000-2002);[6] and (3) the time period after GARS (2002-2006). For the pre-Reg FD period, Hovakimian and Saenyasiri find that analysts generally make overly optimistic forecasts of annual earnings. The forecast bias is higher for early forecasts and steadily declines in the months leading up to the earnings announcement. The results are similar for the time period after Reg FD but prior to GARS. However, the bias is lower in the later forecasts (the forecasts made just prior to the announcement). For the time period after GARS, the average forecasts declined significantly, but a positive bias remains. In sum, Hovakimian and Saenyasiri find that: (1) analysts make overly optimistic short-term forecasts of annual earnings; (2) Reg FD had no effect on this bias; and (3) GARS did result in a significant reduction in the bias, but analysts' short-term forecasts of annual earnings still have a small positive bias.

B. RESEARCH ON THE ACCURACY OF ANALYSTS' LONG-TERM EPS GROWTH RATE FORECASTS

There have been very few studies regarding the accuracy of analysts' long-term EPS growth rate forecasts. Cragg and Malkiel (1968) studied analysts' long-term EPS growth rate forecasts made in 1962 and 1963 by five brokerage houses for 185 firms. They concluded that analysts' long-term earnings growth forecasts are on the whole no more accurate than naive forecasts

[5] A. Hovakimian and E. Saenyasiri, "Conflicts of Interest and Analysts Behavior: Evidence from Recent Changes in Regulation," *Financial Analysts* Journal (July-August, 2010), pp. 96-107.

[6] Whereas the GARS settlement was signed in 2003, rules addressing analysts' conflict of interest by separating the research and investment banking activities of analysts went into effect with the passage of NYSE and NASD rules in July of 2002.

based on past earnings growth. Harris (1999) evaluated the accuracy of analysts' long-term EPS forecasts over the 1982-1997 time period using a sample of 7,002 firm-year observations.[7] He concluded the following: (1) the accuracy of analysts' long-term EPS forecasts is very low; (2) a superior long-run method to forecast long-term EPS growth is to assume that all companies will have an earnings growth rate equal to historic GDP growth; and (3) analysts' long-term EPS forecasts are significantly upwardly biased, with forecasted earnings growth exceeding actual earnings growth by seven percent per annum. Subsequent studies by DeChow, P., A. Hutton, and R. Sloan (2000), and Chan, Karceski, and Lakonishok (2003) also conclude that analysts' long-term EPS growth rate forecasts are overly optimistic and upwardly biased.[8] The Chan, Karceski, and Lakonishok (2003) study evaluated the accuracy of analysts' long-term EPS growth rate forecasts over the 1982-98 time period. They reported a median IBES growth forecast of 14.5%, versus a median realized five-year growth rate of about 9%. They also found the IBES forecasts of EPS beyond two years are not accurate. They concluded the following: "Over long horizons, however, there is little forecastability in earnings, and analysts' estimates tend to be overly optimistic."

Lacina, Lee, and Xu (2011) evaluated the accuracy of analysts' long-term earnings growth rate forecasts over the 1983-2003 time period.[9] The study included 27,081 firm year

[7] R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting*, pp. 725-55 (June/July 1999).

[8] P. DeChow, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research (2000)* and K. Chan, L., Karceski, J., & Lakonishok, J., "The Level and Persistence of Growth Rates," *Journal of Finance* pp. 643−684, (2003).

[9] M. Lacina, B. Lee and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101

observations, and compared the accuracy of analysts' EPS forecasts to those produced by two naïve forecasting models: (1) a random walk model ("RW") where the long-term EPS (t+5) is simply equal to last year's EPS figure (t-1); and (2) a RW model with drift ("RWGDP"), where the drift or growth rate is GDP growth for period t-1. In this model, long-term EPS (t+5) is simply equal to last year's EPS figure (t-1) times (1 + GDP growth (t-1)). The authors conclude that that using the RW model to forecast EPS in the next 3-5 years proved to be just as accurate as using the EPS estimates from analysts' long-term earnings growth rate forecasts. They find that the RWGDP model performs better than the pure RW model, and that both models perform as well as analysts in forecasting long-term EPS. They also discover an optimistic bias in analysts' long-term EPS forecasts. In the authors' opinion, these results indicate that analysts' long-term earnings growth rate forecasts should be used with caution as inputs for valuation and cost of capital purposes.

C. ISSUES REGARDING THE SUPERIORITY OF ANALYSTS' EPS FORECASTS OVER HISTORIC AND TIME-SERIES ESTIMATES OF LONG-TERM EPS GROWTH

As highlighted by the classic study by Brown and Rozeff (1976) and the other studies that followed, analysts' forecasts of quarterly earnings estimates are superior to the estimates derived from historic and time-series analyses.[10] This is often attributed to the information and timing advantage that analysts have over historic and time-series analyses. These studies relate to analysts' forecasts of quarterly and/or annual forecasts, and not to long-term EPS growth rate forecasts. The previously cited studies by Harris (1999), Chan, Karceski, and Lakonishok (2003), and Lacina, Lee, and Xu (2011) all conclude that analysts' forecasts are no better than time-series models and

[10] L. Brown and M. Rozeff, "The Superiority of Analyst Forecasts as Measures of Expectations: Evidence from Earnings," *The Journal of Finance* 33 (1): pp. 1-16 (1976).

historic growth rates in forecasting long-term EPS. Harris (1999) and Lacina, Lee, and Xu (2011) concluded that historic GDP growth was superior to analysts' forecasts for long run earnings growth. These overall results are similar to the findings by Bradshaw, Drake, Myers, and Myers (2009) that discovered that time-series estimates of annual earnings are more accurate over longer horizons than analysts' forecasts of earnings. As the authors state, "These findings suggest an incomplete and misleading generalization about the superiority of analysts' forecasts over even simple time-series-based earnings forecasts."[11]

D. STUDY OF THE ACCURACY OF ANALYSTS' LONG-TERM EARNINGS GROWTH RATES

To evaluate the accuracy of analysts' EPS forecasts, I have compared actual 3-5 year EPS growth rates with forecasted EPS growth rates on a quarterly basis over the past 20 years for all companies covered by the I/B/E/S data base. In Panel A of page 1 of Exhibit JRW-B1, I show the average analysts' forecasted 3-5 year EPS growth rate with the average actual 3-5 year EPS growth rate for the past twenty years.

The following example shows how the results can be interpreted. For the 3-5 year period prior to the first quarter of 1999, analysts had projected an EPS growth rate of 15.13%, but companies only generated an average annual EPS growth rate over the 3-5 years of 9.37%. This projected EPS growth rate figure represented the average projected growth rate for over 1,510 companies, with an average of 4.88 analysts' forecasts per company. For the entire twenty-year period of the study, for each quarter there were on average 5.6 analysts' EPS projections for 1,281 companies. Overall, my findings indicate that forecast errors for long-term estimates are predominantly positive, which indicates an upward bias in growth rate estimates. The mean and

[11] M. Bradshaw, M. Drake, J. Myers, and L. Myers, "A Re-examination of Analysts' Superiority Over Time-Series Forecasts," Workings paper, (1999), http://ssrn.com/abstract=1528987.

median forecast errors over the observation period are 143.06% and 75.08%, respectively. The forecasting errors are negative for only eleven of the eighty quarterly time periods: five consecutive quarters starting at the end of 1995 and six consecutive quarters starting in 2006. As shown in Panel A of page 1 of Exhibit JRW-B1, the quarters with negative forecast errors were for the 3-5 year periods following earnings declines associated with the 1991 and 2001 economic recessions in the U.S. Thus, there is evidence of a persistent upward bias in long-term EPS growth forecasts.

The average 3-5 year EPS growth rate projections for all companies provided in the I/B/E/S database on a quarterly basis from 1988 to 2008 are shown in Panel B of page 1 of Exhibit JRW-B1. In this graph, no comparison to actual EPS growth rates is made, and hence, there is no follow-up period. Therefore, since companies are not lost from the sample due to a lack of follow-up EPS data, these results are for a larger sample of firms. The average projected growth rate increased to the 18.0% range in 2006, and has since decreased to about 14.0%.

The upward bias in analysts' long-term EPS growth rate forecasts appears to be known in the markets. Page 2 of Exhibit JRW-B1 provides an article published in the *Wall Street Journal*, dated March 21, 2008, that discusses the upward bias in analysts' EPS growth rate forecasts.[12] In addition, a recent *Bloomberg Businessweek* article also highlighted the upward bias in analysts' EPS forecasts, citing a study by McKinsey Associates. This article is provided on pages 3 and 4 of Exhibit JRW-B1. The article concludes with the following:[13]

[12] Andrew Edwards, "Study Suggests Bias in Analysts' Rosy Forecasts," *Wall Street Journal* (March 21, 2008), p. C6.

[13] Roben Farzad, 'For Analysts, Things are Always Looking Up,' *Bloomberg Businessweek* (June 14, 2010), pp. 39-40.

The bottom line: *Despite reforms intended to improve Wall Street research, stock analysts seem to be promoting an overly rosy view of profit prospects.*

E. REGULATORY DEVELOPMENTS AND THE ACCURACY OF ANALYSTS' LONG-TERM EARNINGS GROWTH RATES FORECASTS

Whereas Hovakimian and Saenyasiri evaluated the impact of regulations on analysts' short-term EPS estimates, there is little research on the impact of Reg FD and GARS on the long-term EPS forecasts of Wall Street analysts. My study with Patrick Cusatis did find that the long-term EPS growth rate forecasts of analysts did not decline significantly and have continued to be overly optimistic in the post-Reg FD and GARS period.[14] Analysts' long-term EPS growth rate forecasts before and after GARS are about two times the level of historic GDP growth. These observations are supported by a *Wall Street Journal* article entitled "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation." The following quote provides insight into the continuing bias in analysts' forecasts:

> Hope springs eternal, says Mark Donovan, who manages Boston Partners Large Cap Value Fund. "You would have thought that, given what happened in the last three years, people would have given up the ghost. But in large measure they have not.
>
> These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed. Research remains rosy and many believe it always will.[15]

[14] P. Cusatis and J. R. Woolridge, "The Accuracy of Analysts' Long-Term EPS Growth Rate Forecasts," Working Paper (July 2008).

[15] Ken Brown, "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation," *Wall Street Journal*, p. C1, (January 27, 2003).

These observations are echoed in a recent McKinsey study entitled "Equity Analysts: Still too Bullish," which involved a study of the accuracy on analysts long-term EPS growth rate forecasts. The authors conclude that after a decade of stricter regulation, analysts' long-term earnings forecasts continue to be excessively optimistic. They made the following observation (emphasis added): [16]

> Alas, a recently completed update of our work only reinforces this view—despite a series of rules and regulations, dating to the last decade, that were intended to improve the quality of the analysts' long-term earnings forecasts, restore investor confidence in them, and prevent conflicts of interest. For executives, many of whom go to great lengths to satisfy Wall Street's expectations in their financial reporting and long-term strategic moves, this is a cautionary tale worth remembering. This pattern confirms our earlier findings that analysts typically lag behind events in revising their forecasts to reflect new economic conditions. When economic growth accelerates, the size of the forecast error declines; when economic growth slows, it increases. So as economic growth cycles up and down, the actual earnings S&P 500 companies report occasionally coincide with the analysts' forecasts, as they did, for example, in 1988, from 1994 to 1997, and from 2003 to 2006. Moreover, analysts have been persistently overoptimistic for the past 25 years, with estimates ranging from 10 to 12 percent a year, compared with actual earnings growth of 6 percent. Over this time frame, actual earnings growth surpassed forecasts in only two instances, both during the earnings recovery following a recession. On average, analysts' forecasts have been almost 100 percent too high.

F. ANALYSTS' LONG-TERM EPS GROWTH RATE FORECASTS FOR UTILITY COMPANIES

To evaluate whether analysts' EPS growth rate forecasts are upwardly biased for utility companies, I conducted a study similar to the one described above using a group of electric utility and gas distribution companies. The results are shown on Panels A and B of page 5 of

[16] Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010).

Exhibit JRW-B1. The projected EPS growth rates for electric utilities have been in the 4% to 6% range over the last twenty years, with the recent figures at approximately 5%. As shown, the achieved EPS growth rates have been volatile and, on average, below the projected growth rates. Over the entire period, the average quarterly 3-5 year projected and actual EPS growth rates are 4.59% and 2.90%, respectively.

For gas distribution companies, the projected EPS growth rates have declined from about 6% in the 1990s to about 5% in the 2000s. The achieved EPS growth rates have been volatile. Over the entire period, the average quarterly 3-5 year projected and actual EPS growth rates are 5.15% and 4.53%, respectively.

Overall, the upward bias in EPS growth rate projections for electric utility and gas distribution companies is not as pronounced as it is for all companies. Nonetheless, the results here are consistent with the results for companies in general -- analysts' projected EPS growth rate forecasts are upwardly biased for utility companies.

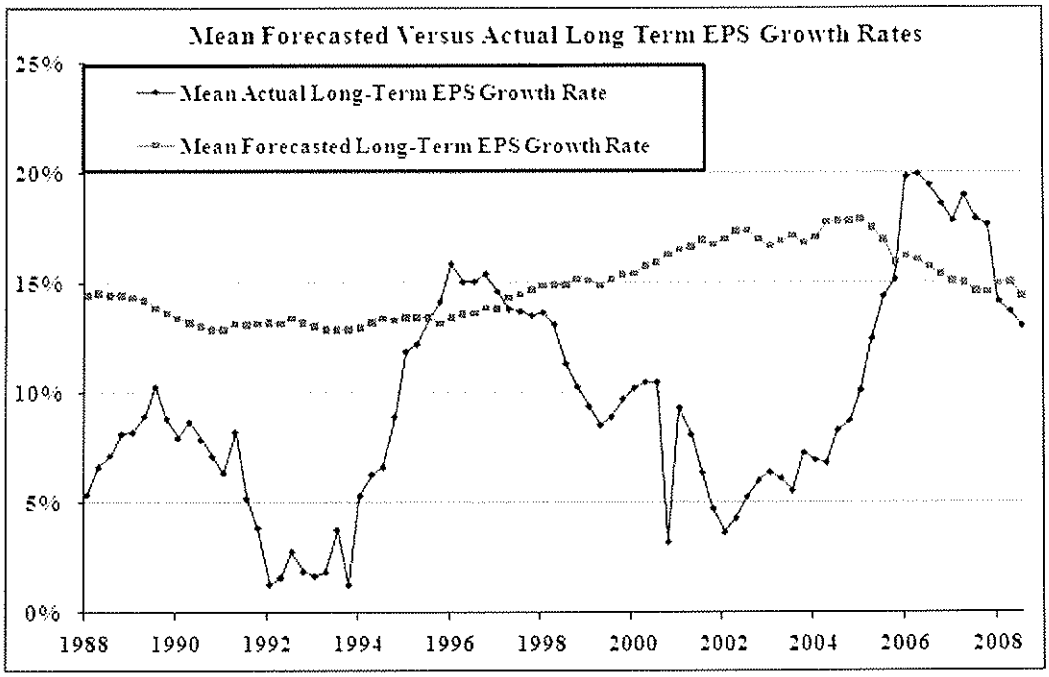
G. *VALUE LINE*'S LONG-TERM EPS GROWTH RATE FORECASTS

To assess *Value Line*'s earnings growth rate forecasts, I used the *Value Line Investment Analyzer*. The results are summarized in Panel A of Page 6 of Exhibit JRW-B1. I initially filtered the database and found that *Value Line* has 3-5 year EPS growth rate forecasts for 2,333 firms. The average projected EPS growth rate was 14.70%. This is high given that the average historical EPS growth rate in the U.S. is about 7%. A major factor seems to be that *Value Line* only predicts negative EPS growth for 43 companies. This is less than two percent of the companies covered by *Value Line*. Given the ups and downs of corporate earnings, this is unreasonable.

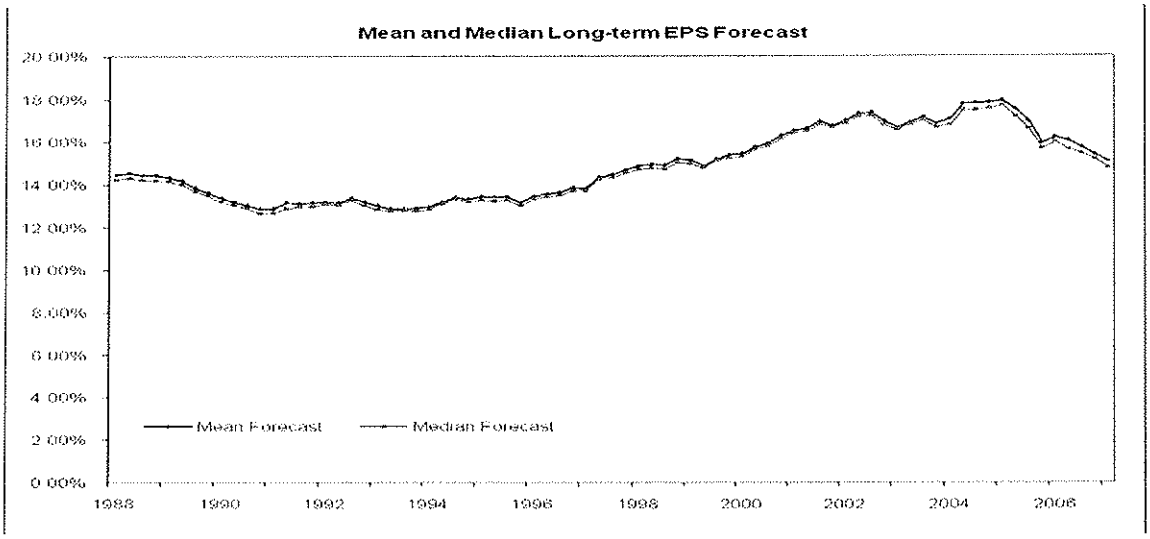
To put this figure in perspective, I screened the *Value Line* companies to see what percent of companies covered by *Value Line* had experienced negative EPS growth rates over the past five years. *Value Line* reported a five-year historic growth rate for 2,219 companies. The results are shown in Panel B of page 6 of Exhibit JRW-B1 and indicate that the average 5-year historic growth rate was 3.90%, and *Value Line* reported negative historic growth for 844 firms which represents 38.0% of these companies.

These results indicate that *Value Line*'s EPS forecasts are excessive and unrealistic. It appears that the analysts at *Value Line* are similar to their Wall Street brethren in that they are reluctant to forecast negative earnings growth.

Panel A
Long-Term Forecasted Versus Actual EPS Growth Rates
1988-2009



Panel B
Long-Term Forecasted EPS Growth Rates
1988-2007



Source: Patrick J. Cusatis and J. Randall Woolridge, "The Accuracy of Analysts' Long-Term Earnings Per Share Growth Rate Forecasts," (July, 2008).

THE WALL STREET JOURNAL.

Study Suggests Bias in Analysts' Rosy Forecasts

By ANDREW EDWARDS
March 21, 2008; Page C6

Despite an economy teetering on the brink of a recession -- if not already in one -- analysts are still painting a rosy picture of earnings growth, according to a study done by Penn State's Smeal College of Business.

The report questions analysts' impartiality five years after then-New York Attorney General Eliot Spitzer forced analysts to pay $1.5 billion in damages after finding evidence of bias.

"Wall Street analysts basically do two things: recommend stocks to buy and forecast earnings," said J. Randall Woolridge, professor of finance. "Previous studies suggest their stock recommendations do not perform well, and now we show that their long-term earnings-per-share growth-rate forecasts are excessive and upwardly biased."

The report, which examined analysts' long-term (three to five years) and one-year per-share earnings expectations from 1984 through 2006 found that companies' long-term earnings growth surpassed analysts' expectations in only two instances, and those came right after recessions.

Over the entire time period, analysts' long-term forecast earnings-per-share growth averaged 14.7%, compared with actual growth of 9.1%. One-year per-share earnings expectations were slightly more accurate: The average forecast was for 13.8% growth and the average actual growth rate was 9.8%.

"A significant factor in the upward bias in long-term earnings-rate forecasts is the reluctance of analysts to forecast" profit declines, Mr. Woolridge said. The study found that nearly one-third of all companies experienced profit drops over successive three-to-five-year periods, but analysts projected drops less than 1% of the time.

The study's authors said, "Analysts are rewarded for biased forecasts by their employers, who want them to hype stocks so that the brokerage house can garner trading commissions and win underwriting deals."

They also concluded that analysts are under pressure to hype stocks to generate trading commissions, and they often don't follow stocks they don't like.

Write to Andrew Edwards at andrew.edwards@dowjones.com

Markets & Finance June 10, 2010, 5:00PM EST

Bloomberg Businessweek

For Analysts, Things Are Always Looking Up

They're raising earnings estimates for U.S. companies at a record pace

By Reben Farzad

For years, the rap on Wall Street securities analysts was that they were shills, reflexively producing upbeat research on companies they cover to help their employers win investment banking business. The dynamic was well understood: Let my bank take your company public, or advise it on this acquisition, and—wink, wink—I will recommend your stock through thick or thin. After the Internet bubble burst, that was supposed to change. In April 2003 the Securities & Exchange Commission reached a settlement with 10 Wall Street firms in which they agreed, among other things, to separate research from investment banking.

Seven years on, Wall Street analysts remain a decidedly optimistic lot. Some economists look at the global economy and see troubles—the European debt crisis, persistently high unemployment worldwide, and housing woes in the U.S. Stock analysts as a group seem unfazed. Projected 2010 profit growth for companies in the Standard & Poor's 500-stock index has climbed seven percentage points this quarter, to 34 percent, data compiled by Bloomberg show. According to Sanford C. Bernstein (AB), that's the fastest pace since 1980, when the Dow Jones industrial average was quoted in the hundreds and Nancy Reagan was getting ready to order new window treatments for the Oval Office.

Among the companies analysts expect to excel: Intel (INTL) is projected to post an increase in net income of 142 percent this year. Caterpillar, a multinational that gets much of its revenue abroad, is expected to boost its net income by 47 percent this year. Analysts have also hiked their S&P 500 profit estimate for 2011 to $95.53 a share, up from $92.45 at the beginning of January, according to Bloomberg data. That would be a record, surpassing the previous high reached in 2007.

With such prospects, it's not surprising that more than half of S&P 500-listed stocks boast overall buy ratings. It is telling that the proportion has essentially held constant at both the market's October 2007 high and March 2009 low, bookends of a period that saw stocks fall by more than half. If the analysts are correct, the market would appear to be attractively priced right now. Using the $95.53 per share figure, the price-to-earnings ratio of the S&P 500 is a modest 11 as of June 9. If, however, analysts end up being too high by, say, 20 percent, the P/E would jump to almost 14.

If history is any guide, chances are good that the analysts are wrong. According to a recent McKinsey report by Marc Goedhart, Rishi Raj, and Abhishek Saxena, "Analysts have been persistently over-optimistic for 25 years," a stretch that saw them peg earnings growth at 10 percent to 12 percent a year when the actual number was ultimately 6 percent. "On average," the researchers note, "analysts' forecasts have been almost 100 percent too high," even after regulations were enacted to weed out conflicts and improve the rigor of their calculations. As the chart below shows, in most years analysts have been forced to lower their estimates after it became apparent they had set them too high.

While a few analysts, like Meredith Whitney, have made their names on bearish calls, most are chronically bullish. Part of the problem is that despite all the reforms they remain too aligned with the companies they cover. "Analysts still need to get the bulk of their information from companies, which have an incentive to be over-optimistic," says Stephen Bainbridge, a professor at UCLA Law School who specializes in the securities industry. "Meanwhile, analysts don't want to threaten that ongoing access by being too negative." Bainbridge says that with the era of the overpaid, superstar analyst long over, today's job description calls for resisting the urge to be an iconoclast. "It's a matter of herd behavior," he says.

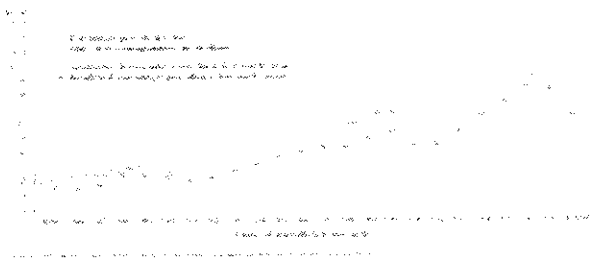
So what's a more plausible estimate of companies' earning power? Looking at factors including the strengthening dollar, which hurts exports, and higher corporate borrowing costs, David Rosenberg, chief economist at Toronto-based investment shop Gluskin Sheff + Associates, says "disappointment looms." Bernstein's Adam Parker says every 10 percent drop in the value of the euro knocks U.S. corporate earnings down by 2.5 percent to 3 percent. He sees the S&P 500 earning $86 a share next year.

As realities hit home, "It's only natural that analysts will have to revise down their views," says Todd Salamone, senior vice-president at Schaeffer's Investment Research. The market may be making its own downward adjustment, as the S&P 500 has already fallen 14 percent from its high in April. If precedent holds, analysts are bound to curb their enthusiasm belatedly, telling us next year what we really needed to know this year.

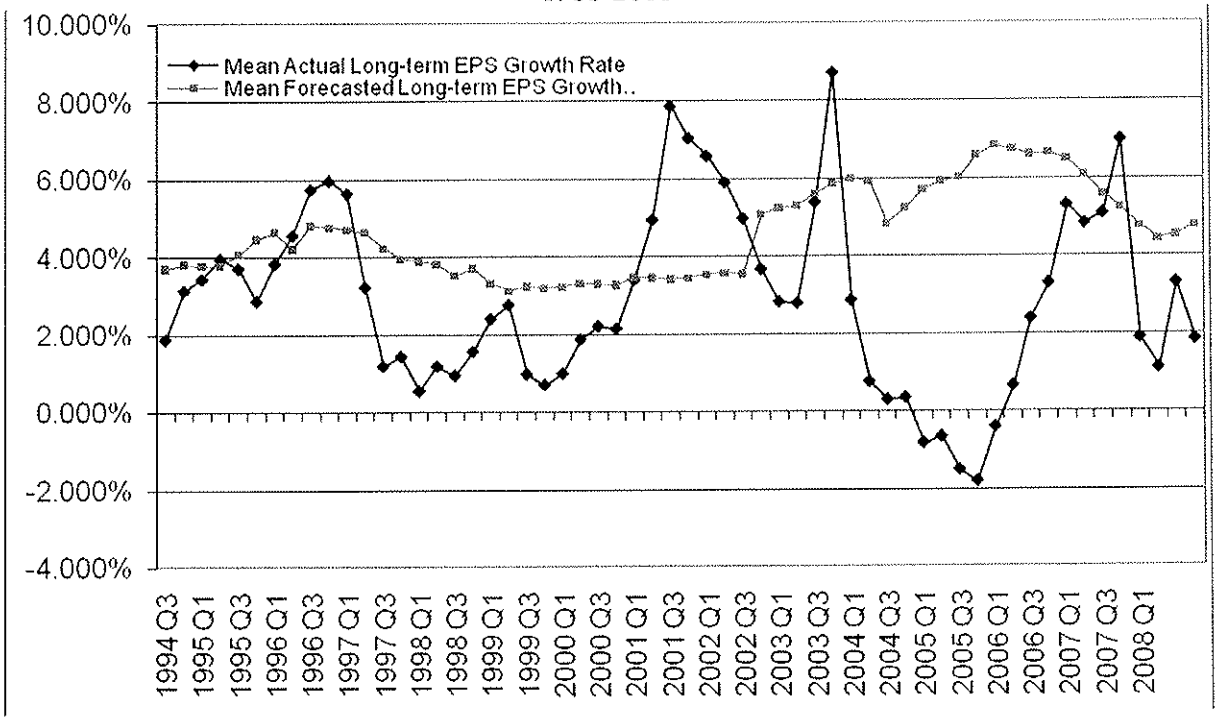
The bottom line: *Despite reforms intended to improve Wall Street research, stock analysts seem to be promoting an overly rosy view of profit prospects.*

Bloomberg Businessweek Senior Writer Farzad covers Wall Street and international finance.

The Earnings Roller Coaster

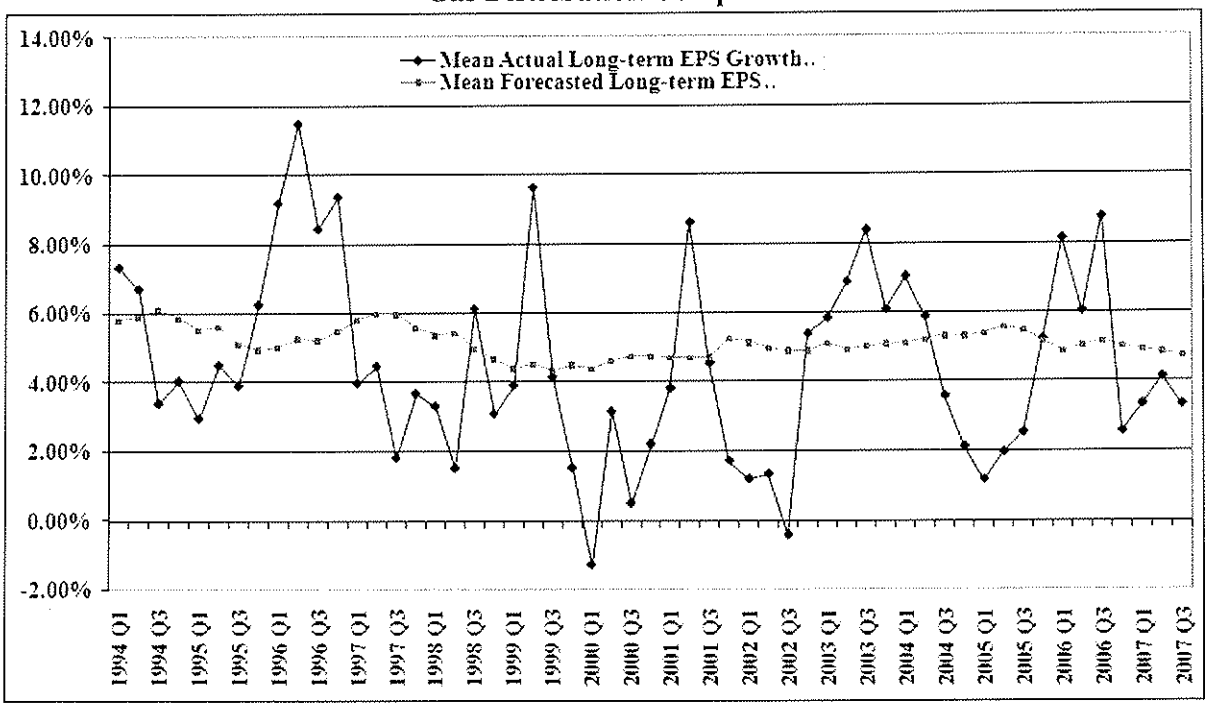


Panel A
Long-Term Forecasted Versus Actual EPS Growth Rates
Electric Utility Companies
1988-2008



Data Source: IBES

Panel B
Long-Term Forecasted Versus Actual EPS Growth Rates
Gas Distribution Companies



Panel A
Value Line 3-5 year EPS Growth Rate Forecasts

	Average Projected EPS Growth rate	Number of Negative EPS Growth Projections	Percent of Negative EPS Growth Projections
2,333 Companies	14.70%	43	1.80%

Value Line Investment Survey, June, 2012

Panel B
Historical Five-Year EPS Growth Rates for Value Line Companies

	Average Historical EPS Growth rate	Number with Negative Historical EPS Growth	Percent with Negative Historical EPS Growth
2,219 Companies	3.90%	844	38.00%

Value Line Investment Survey, June, 2012

A. THE BUILDING BLOCKS MODEL

Ibbotson and Chen (2003) evaluate the ex post historical mean stock and bond returns in what is called the Building Blocks approach.[1] They use 75 years of data and relate the compounded historical returns to the different fundamental variables employed by different researchers in building ex ante expected equity risk premiums. Among the variables included were inflation, real EPS and DPS growth, ROE and book value growth, and price-earnings ("P/E") ratios. By relating the fundamental factors to the ex post historical returns, the methodology bridges the gap between the ex post and ex ante equity risk premiums. Ilmanen (2003) illustrates this approach using the geometric returns and five fundamental variables – inflation ("CPI"), dividend yield ("D/P"), real earnings growth ("RG"), repricing gains ("PEGAIN") and return interaction/reinvestment ("INT").[2] This is shown on page 1 of Exhibit JRW-C1. The first column breaks the 1926-2000 geometric mean stock return of 10.7% into the different return components demanded by investors: the historical U.S. Treasury bond return (5.2%), the excess equity return (5.2%), and a small interaction term (0.3%). This 10.7% annual stock return over the 1926-2000 period can then be broken down into the following fundamental elements: inflation (3.1%), dividend yield (4.3%), real earnings growth (1.8%), repricing gains (1.3%) associated with higher P/E ratios, and a small interaction term (0.2%).

The third column in the graph on page 1 of Exhibit JRW-C1 shows current inputs to estimate an ex ante expected market return. These inputs include the following:

CPI – To assess expected inflation, I have employed expectations of the short-term and long-term inflation rate. Long term inflation forecasts are available in the Federal Reserve Bank

[1] Roger Ibbotson and Peng Chen, "Long Run Returns: Participating in the Real Economy," *Financial Analysts Journal*, (January 2003).

[2] Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003), p. 11.

of Philadelphia's publication entitled *Survey of Professional Forecasters*. While this survey is published quarterly, only the first quarter survey includes long-term forecasts of gross domestic product ("GDP") growth, inflation, and market returns. In the first quarter 2013 survey, published on February 15, 2013, the median long-term (10-year) expected inflation rate as measured by the CPI was 2.30% (see Panel A of page 2 of Exhibit JRW-C1).

The University of Michigan's Survey Research Center surveys consumers on their short-term (one-year) inflation expectations on a monthly basis. As shown on page 3 of Exhibit JRW-C1, the current short-term expected inflation rate is 3.1%.

As a measure of expected inflation, I will use the average of the long-term (2.3%) and short-term (3.3%) inflation rate measures, or 2.75%.

D/P – As shown on page 4 of Exhibit JRW-C1, the dividend yield on the S&P 500 has fluctuated from 1.0% to almost 3.5% over the past decade. Ibbotson and Chen (2003) report that the long-term average dividend yield of the S&P 500 is 4.3%. As of March, 2013, the indicated S&P 500 dividend yield was 2.1%. I will use this figure in my ex ante risk premium analysis.

RG – To measure expected real growth in earnings, I use the historical real earnings growth rate S&P 500 and the expected real GDP growth rate. The S&P 500 was created in 1960 and includes 500 companies which come from ten different sectors of the economy. On page 5 of Exhibit JRW-C1, real EPS growth is computed using the CPI as a measure of inflation. The real growth figure over 1960-2011 period for the S&P 500 is 2.8%.

The second input for expected real earnings growth is expected real GDP growth. The rationale is that over the long-term, corporate profits have averaged 5.50% of U.S. GDP.[3]

[3]Marc. H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.14.

Expected GDP growth, according to the Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters,* is 2.5% (see Panel B of page 2 of Exhibit JRW-C1).

Given these results, I will use 2.65%, for real earnings growth.

PEGAIN – PEGAIN is the repricing gain associated with an increase in the P/E ratio. It accounted for 1.3% of the 10.7% annual stock return in the 1926-2000 period. In estimating an ex ante expected stock market return, one issue is whether investors expect P/E ratios to increase from their current levels. The P/E ratios for the S&P 500 over the past 25 years are shown on page 4 of Exhibit JRW-C1. The run-up and eventual peak in P/Es in the year 2000 is very evident in the chart. The average P/E declined until late 2006, and then increased to higher high levels, primarily due to the decline in EPS as a result of the financial crisis and the recession. As of March, 2013, the average P/E for the S&P 500 was 14X, which is in line with the historic average. Since the current figure is near the historic average, a PEGAIN would not be appropriate in estimating an ex ante expected stock market return.

Expected Return form Building Blocks Approach - The current expected market return is represented by the last column on the right in the graph entitled "Decomposing Equity Market Returns: The Building Blocks Methodology" set forth on page 1 of Exhibit JRW-C1. As shown, the expected market return of 7.50% is composed of 2.75% expected inflation, 2.10% dividend yield, and 2.65% real earnings growth rate.

This expected return of 7.50% is consistent other expected return forecasts.

1. In the first quarter 2013 *Survey of Financial Forecasters*, published on February 15, 2013 by the Federal Reserve Bank of Philadelphia, the median long-term expected return on the S&P 500 was 6.13% (see Panel D of page 2 of Exhibit JRW-C1).

2. John Graham and Campbell Harvey of Duke University conduct a quarterly survey of corporate CFOs. The survey is a joint project of Duke University and *CFO Magazine*. In the March 2013 survey, the mean expected return on the S&P 500 over the next ten years was 6.13%.[4]

B. THE BUILDING BLOCKS EQUITY RISK PREMIUM

The current 30-year U.S. Treasury yield is 3.10%. This ex ante equity risk premium is simply the expected market return from the Building Blocks methodology minus this risk-free rate:

Ex Ante Equity Risk Premium = 7.5% - 3.10% = 4.40%

This is only one estimate of the equity risk premium. As shown on page 6 of Exhibit JRW-11, I am also using the results of other studies and surveys to determine an equity risk premium for my CAPM.

[4] The survey results are available at www.cfosurvey.org.

Exhibit JRW-C1

Decomposing Equity Market Returns
The Building Blocks Methodology

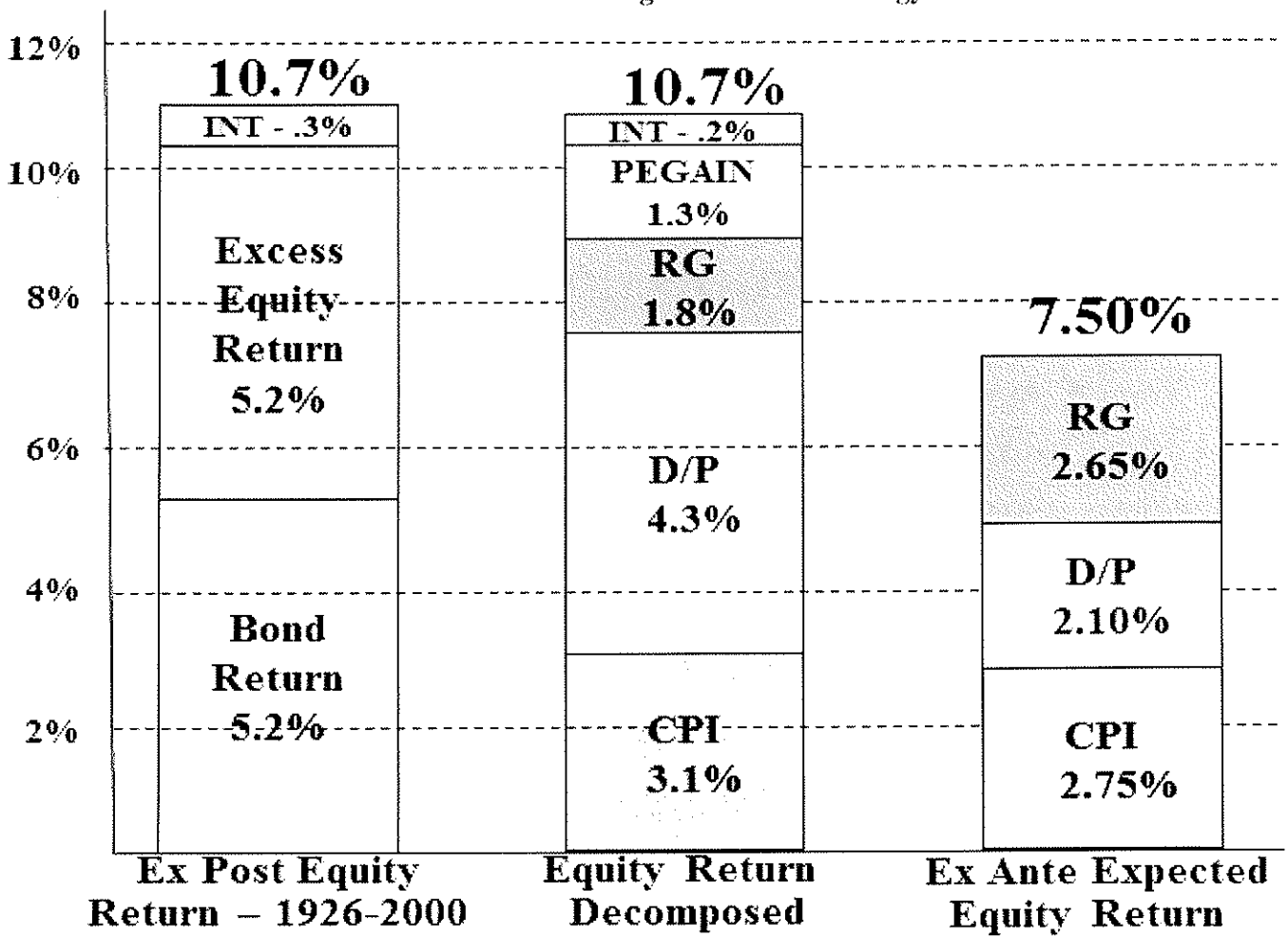


Exhibit JRW-C1

2013 Survey of Professional Forecasters
Philadelphia Federal Reserve Bank
Long-Term Forecasts

Table Seven
LONG-TERM (10 YEAR) FORECASTS

Panel A

SERIES: CPI INFLATION RATE	
STATISTIC	
MINIMUM	0.97
LOWER QUARTILE	2.05
MEDIAN	2.30
UPPER QUARTILE	2.60
MAXIMUM	3.50
MEAN	2.33
STD. DEV.	0.45
N	39
MISSING	7

Panel B

SERIES: REAL GDP GROWTH RATE	
STATISTIC	
MINIMUM	1.90
LOWER QUARTILE	2.50
MEDIAN	2.64
UPPER QUARTILE	2.90
MAXIMUM	3.75
MEAN	2.67
STD. DEV.	0.41
N	37
MISSING	8

Panel C

SERIES: PRODUCTIVITY GROWTH	
STATISTIC	
MINIMUM	0.90
LOWER QUARTILE	1.50
MEDIAN	1.80
UPPER QUARTILE	2.20
MAXIMUM	3.00
MEAN	1.86
STD. DEV.	0.51
N	30.00
MISSING	16

Panel D

SERIES: STOCK RETURNS (S&P 500)	
STATISTIC	
MINIMUM	4.00
LOWER QUARTILE	5.05
MEDIAN	6.13
UPPER QUARTILE	6.95
MAXIMUM	10.00
MEAN	6.15
STD. DEV.	1.58
N	24
MISSING	22

Panel E

SERIES: BOND RETURNS (10-YEAR)	
STATISTIC	
MINIMUM	1.90
LOWER QUARTILE	2.75
MEDIAN	3.83
UPPER QUARTILE	4.30
MAXIMUM	7.00
MEAN	3.70
STD. DEV.	1.32
N	26.00
MISSING	20

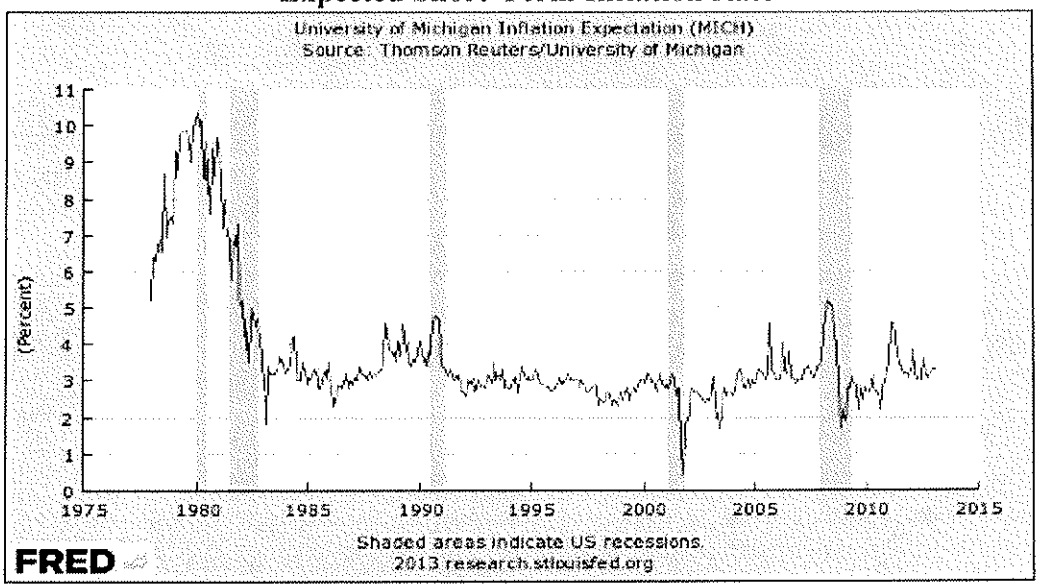
Panel F

SERIES: BILL RETURNS (3-MONTH)	
STATISTIC	
MINIMUM	0.50
LOWER QUARTILE	1.80
MEDIAN	2.40
UPPER QUARTILE	2.85
MAXIMUM	4.25
MEAN	2.46
STD. DEV.	0.98
N	25
MISSING	21

Source: Philadelphia Federal Researve Bank, Survey of Professional Forecasters, February 15, 2013.

Exhibit JRW-C1

University of Michigan Survey Research Center
Expected Short-Term Inflation Rate

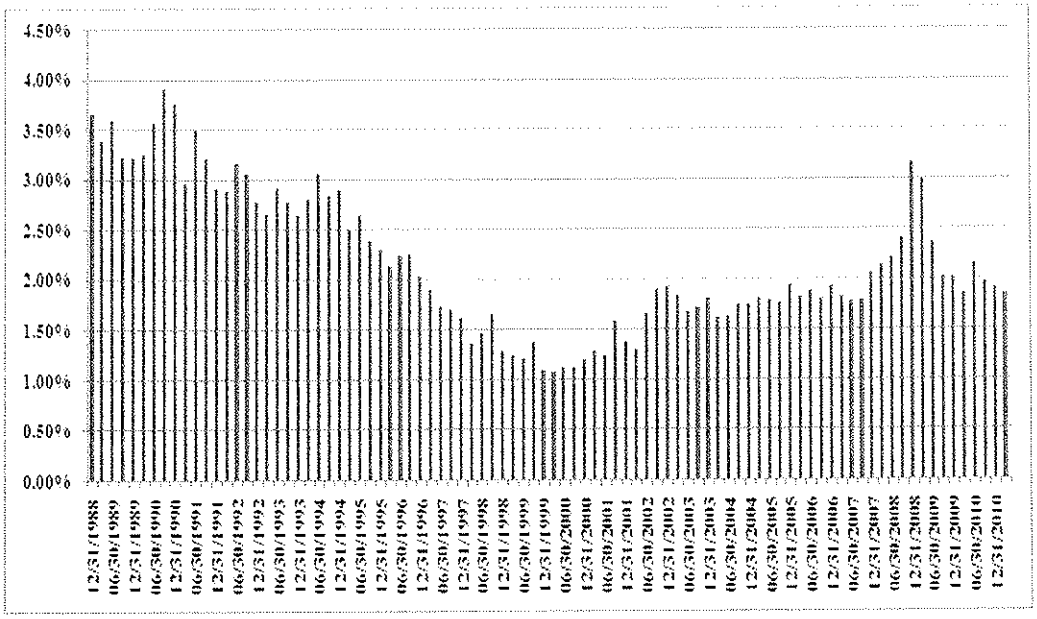


Data Source: http://research.stlouisfed.org/fred2/series/MICH?cid=98

Exhibit JRW-C1

Decomposing Equity Market Returns
The Building Blocks Methodology

S&P 500 Dividend Yield



S&P 500 P/E Ratio

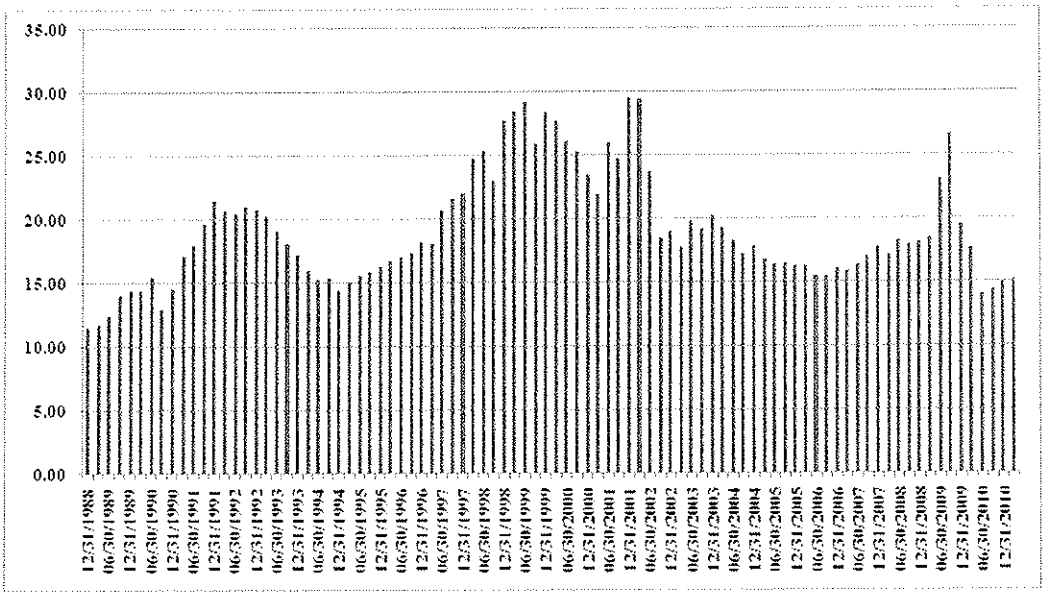


Exhibit JRW-C1

Real S&P 500 EPS Growth Rate

Year	S&P 500 EPS	Annual Inflation CPI	Inflation Adjustment Factor	Real S&P 500 EPS	
1960	3.10	1.48		3.10	
1961	3.37	0.07	1.01	3.35	
1962	3.67	1.22	1.02	3.59	
1963	4.13	1.65	1.04	3.99	
1964	4.76	1.19	1.05	4.55	
1965	5.30	1.92	1.07	4.97	
1966	5.41	3.35	1.10	4.90	
1967	5.46	3.04	1.14	4.80	
1968	5.72	4.72	1.19	4.81	
1969	6.10	6.11	1.26	4.83	10-Year
1970	5.51	5.49	1.34	4.13	2.89%
1971	5.57	3.36	1.38	4.04	
1972	6.17	3.41	1.43	4.33	
1973	7.96	8.80	1.55	5.13	
1974	9.35	12.20	1.74	5.37	
1975	7.71	7.01	1.86	4.14	
1976	9.75	4.81	1.95	4.99	
1977	10.87	6.77	2.08	5.22	
1978	11.64	9.03	2.27	5.13	
1979	14.55	13.31	2.57	5.66	10-Year
1980	14.99	12.40	2.89	5.18	2.30%
1981	15.18	8.94	3.15	4.82	
1982	13.82	3.87	3.27	4.23	
1983	13.29	3.80	3.40	3.91	
1984	16.84	3.95	3.53	4.77	
1985	15.68	3.77	3.66	4.28	
1986	14.43	1.13	3.70	3.90	
1987	16.04	4.41	3.87	4.15	
1988	22.77	4.42	4.04	5.64	
1989	24.03	4.65	4.22	5.69	10-Year
1990	21.73	6.11	4.48	4.85	-0.65%
1991	19.10	3.06	4.62	4.14	
1992	18.13	2.90	4.75	3.81	
1993	19.82	2.75	4.88	4.06	
1994	27.05	2.67	5.01	5.40	
1995	35.35	2.54	5.14	6.88	
1996	35.78	3.32	5.31	6.74	
1997	39.56	1.70	5.40	7.33	
1998	38.23	1.61	5.48	6.97	
1999	45.17	2.68	5.63	8.02	10-Year
2000	52.00	3.39	5.82	8.93	6.29%
2001	44.23	1.55	5.92	7.48	
2002	47.24	2.38	6.06	7.80	
2003	54.15	1.88	6.17	8.77	
2004	67.01	3.26	6.37	10.51	
2005	68.32	3.42	6.60	10.35	
2006	81.96	2.54	6.77	12.11	
2007	87.51	4.08	7.04	12.43	
2008	65.39	0.09	7.05	9.28	
2009	59.65	2.72	7.24	8.24	10-Year
2010	83.66	1.50	7.35	11.39	2.46%
2011	97.05	2.96	7.57	12.83	
Data Source: http://pages.stern.nyu.edu/~adamodar/				Real EPS Growth	**2.8%**

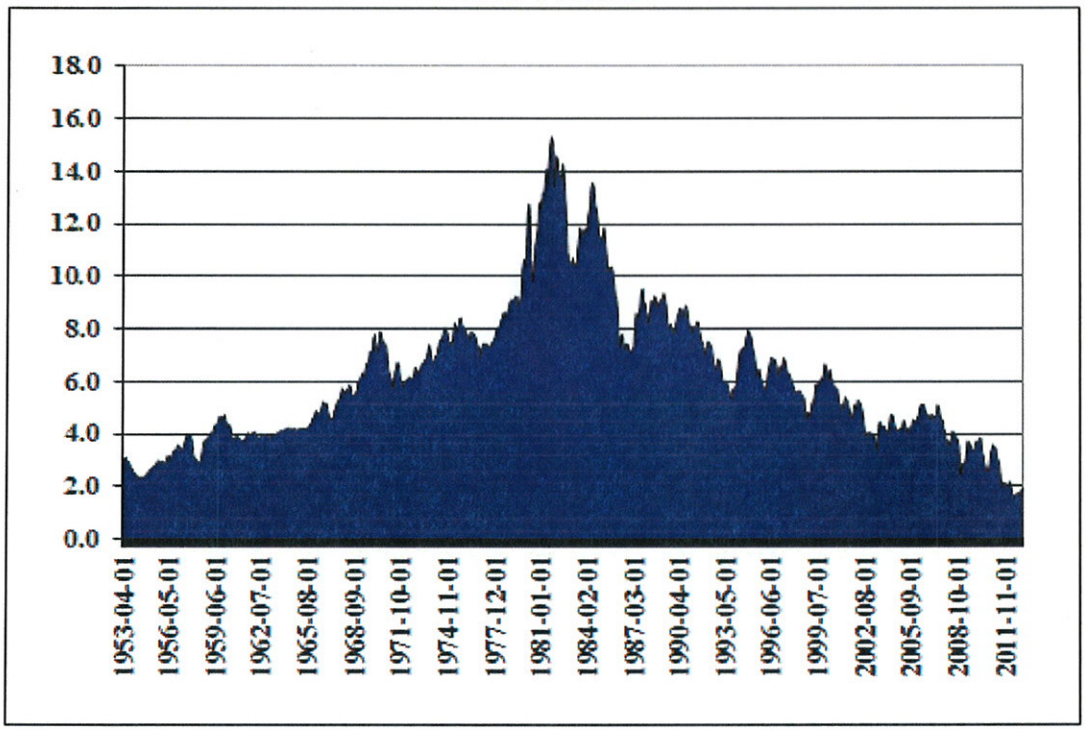
Exhibit JRW-1

Delmarva Power & Light Company
Cost of Capital

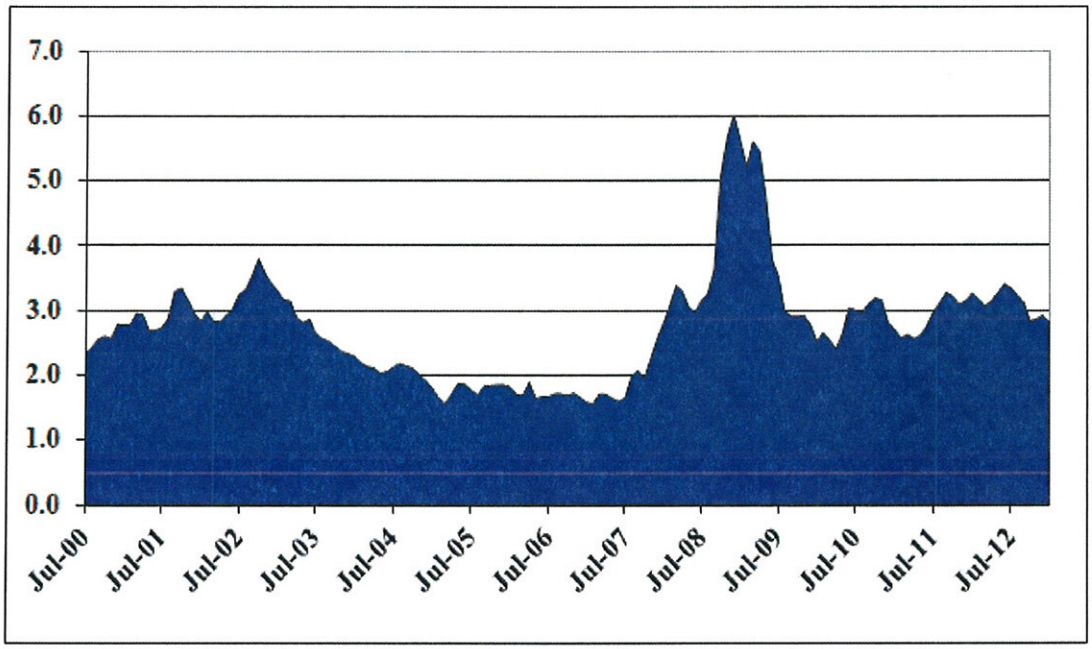
Capital Source	Capitalization Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	51.22%	4.91%	2.51%
Common Equity	48.78%	8.50%	4.15%
Total Capital	100.00%		6.66%

Exhibit JRW-2

Panel A
Ten-Year Treasury Yields
1953-Present

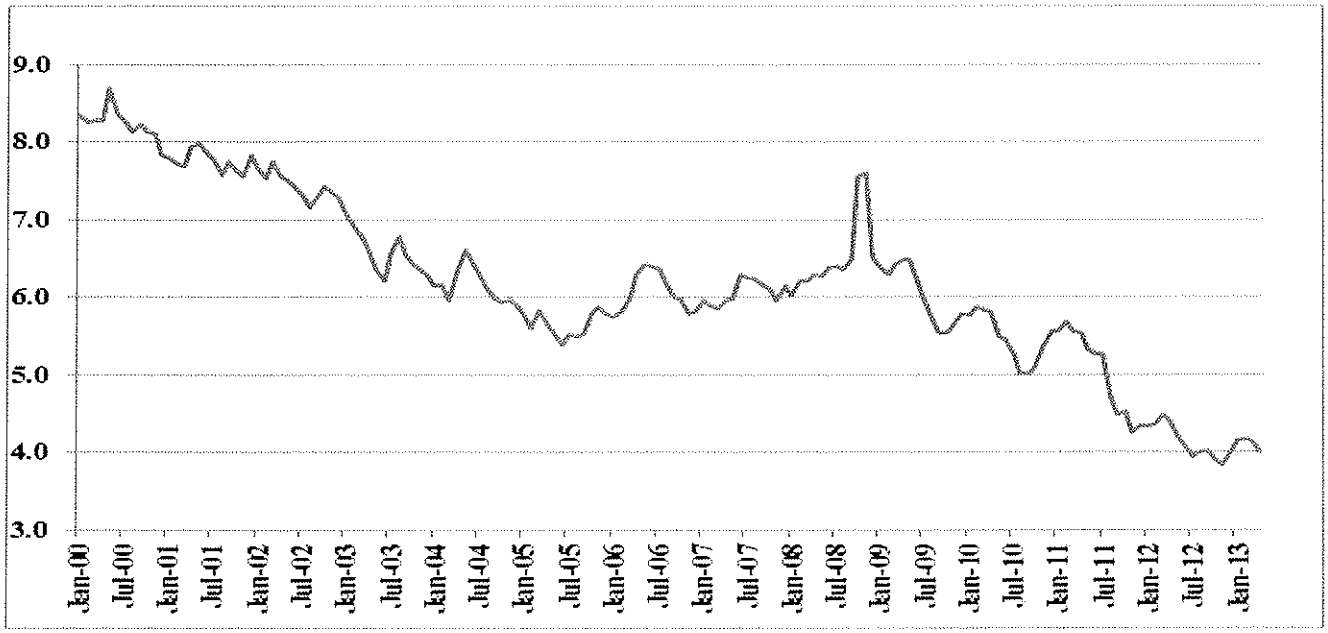


Panel B
Long-Term Moody's Baa Yields Minus Ten-Year Treasury Yields
2000-Present

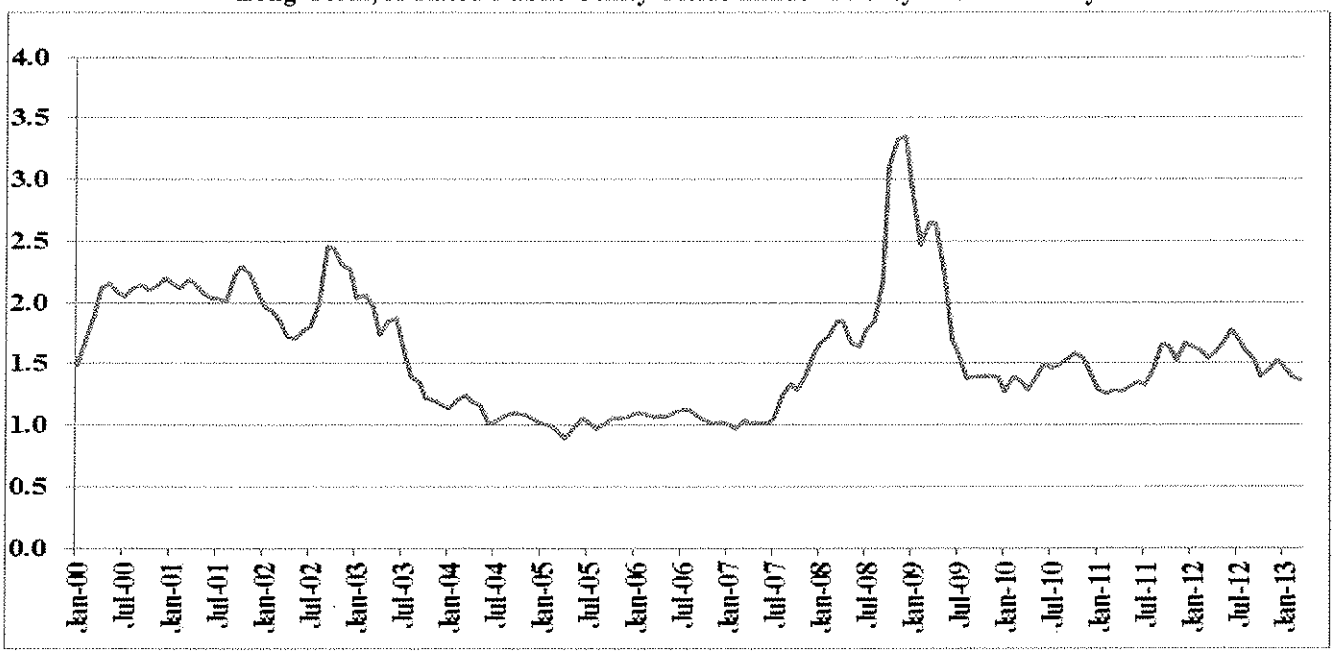


Source: Federal Reserve Bank of St. Louis, FRED Database.

Exhibit JRW-3
Panel A
Long-Term, A-Rated Public Utility Yields



Panel B
Long-Term, A-Rated Public Utility Yields minus -Twenty-Year Treasury Yields



Source: Mergent Bond Record

Panel A
Ten-Year Treasury Yields
2010 and 2012

Jan-11	3.39	Oct-12	1.80
Feb-11	3.58	Nov-12	1.65
Mar-11	3.41	Dec-12	1.53
Apr-11	3.46	Jan-13	1.91
May-11	3.17	Feb-13	1.98
Jun-11	3.00	Mar-13	1.96
Average	3.34	Average	1.81

Source: Federal Reserve Bank of St. Louis, FRED Database.

Panel B
Thirty-Year, A-Rated Public Utility Bonds
2010 and 2012

Jan-11	5.57	Oct-12	3.91
Feb-11	5.68	Nov-12	3.84
Mar-11	5.56	Dec-12	4.00
Apr-11	5.55	Jan-13	4.15
May-11	5.32	Feb-13	4.18
Jun-11	5.26	Mar-13	4.15
Average	5.49	Average	4.04

Source: Mergent Bond Record

Exhibit JRW-4

Delmarva Power & Light Company

Summary Financial Statistics

Gas Proxy Group

Company	Operating Revenue ($mil)	Percent Gas Revenue	Net Plant ($mil)	S&P Bond Rating	Moody's Bond Rating	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio	Return on Equity	Market to Book Ratio
AGL Resources Inc. (NYSE-AGL)	3,922.0	69	8,347.0	A-	A1/A2	5.6	GA,TN,VA,NJ, FL,MD,IL	40.8	8.1	1.50
Atmos Energy Corporation (NYSE-ATO)	3,371.5	71	5,595.3	BBB+	Baa1	3.1	LA,KY,TX,MS, CO,KS,KY	46.5	9.6	1.64
Laclede Group, Inc. (NYSE-LG)	1,021.6	75	1,037.9	A	A2	4.6	MO	58.1	10.4	1.64
Northwest Natural Gas Co. (NYSE-NWN)	730.6	96	1,973.6	A+	A1	3.4	OR,WA	45.4	8.3	1.65
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	1,166.8	100	3,220.4	A	A3	3.4	NC,SC,TN	42.2	12.2	2.28
South Jersey Industries, Inc. (NYSE-SJI)	706.3	60	1,578.0	A	A2	6.3	NJ	43.3	13.5	2.59
Southwest Gas Corporation (NYSE-SWX)	1,927.8	69	3,343.8	BBB+	Baa1	3.8	AZ,NV,CA	49.9	10.5	1.74
WGL Holdings, Inc. (NYSE-WGL)	2,384.3	46	2,701.1	A+	A2	5.7	DC,MD,VA	57.1	11.2	1.78
Mean	1,903.9	73	3,474.6	A/A-	A2/A3	4.5		47.9	10.5	1.85
Median	1,547.3	70	2,960.8	A/A-	A2/A3	4.2		46.0	10.5	1.70

Data Source: AUS *Utility Reports*, May 2013; Pre-Tax Interest Coverage and Primary Service Territory are from *Value Line Investment Survey*, 2013.

Exhibit JRW-4
Delmarva Power & Light Company
Value Line Risk Metrics

Gas Proxy Group

Company	Beta	Safety Rank	Financial Strength	Earnings Predictability	Price Stability
AGL Resources Inc. (NYSE-ATG)	0.75	1	A	75	100
Atmos Energy Corporation (NYSE-ATO)	0.70	2	B++	90	100
Laclede Group, Inc. (NYSE-LG)	0.55	2	B++	80	100
Northwest Natural Gas Co. (NYSE-NWN)	0.60	1	A	90	100
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	0.65	2	B++	100	100
South Jersey Industries, Inc. (NYSE-SJI)	0.65	2	B++	85	100
Southwest Gas Corporation (NYSE-SWX)	0.75	3	B	75	100
WGL Holdings, Inc. (NYSE-WGL)	0.65	1	A	95	100
Mean	0.66	1.8	B++	86	100

Data Source: *Value Line Investment Survey*, 2013.

Exhibit JRW-5
Delmarva Power & Light Company
Capital Structure Ratios and Cost of Capital

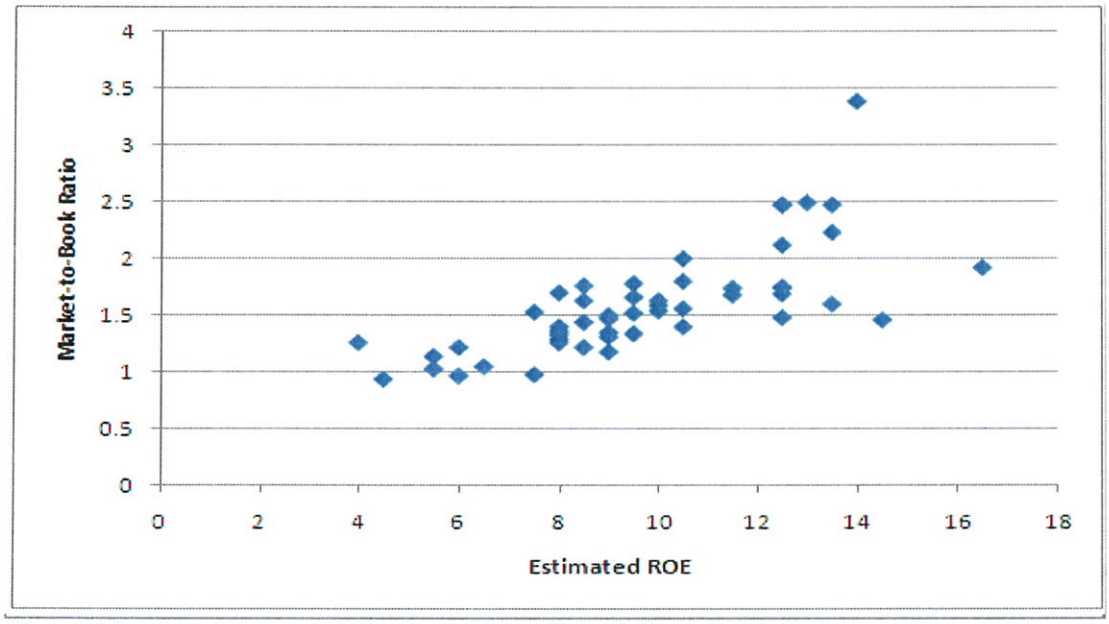
Panel A - Delmarva's Proposed Capitalization Ratios and Senior Capital Cost Rates

Capital Source	Capitalization Ratio	Cost Rates
Long-Term Debt	51.22%	4.91%
Common Equity	48.78%	

Panel B -Proposed Capitalization Ratios and Senior Capital Cost Rates

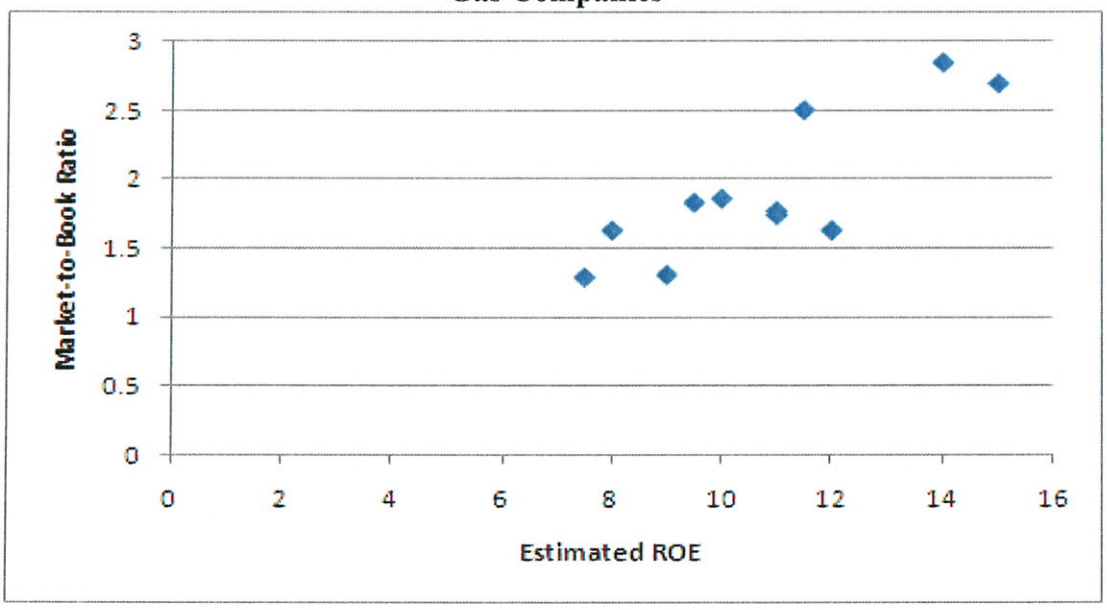
Capital Source	Capitalization Ratio	Cost Rates
Long-Term Debt	51.22%	4.91%
Common Equity	48.78%	

Exhibit JRW-6
Electric Utilities
Panel A



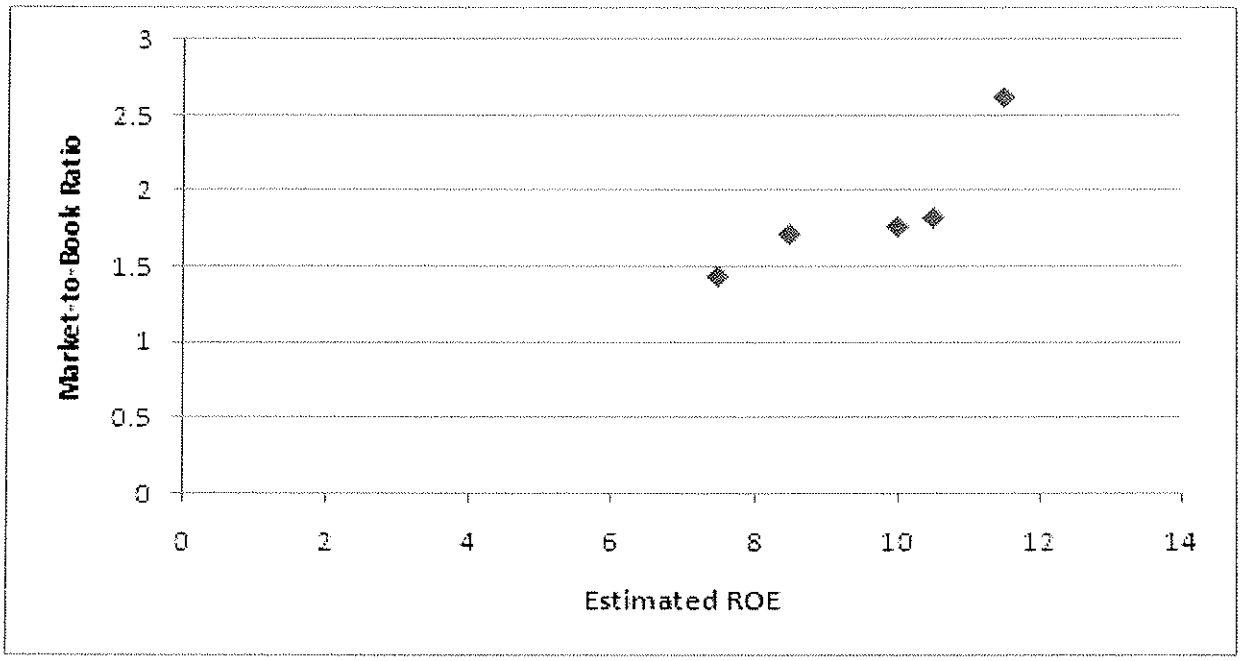
R-Square = .52, N=51.

Panel B
Gas Companies



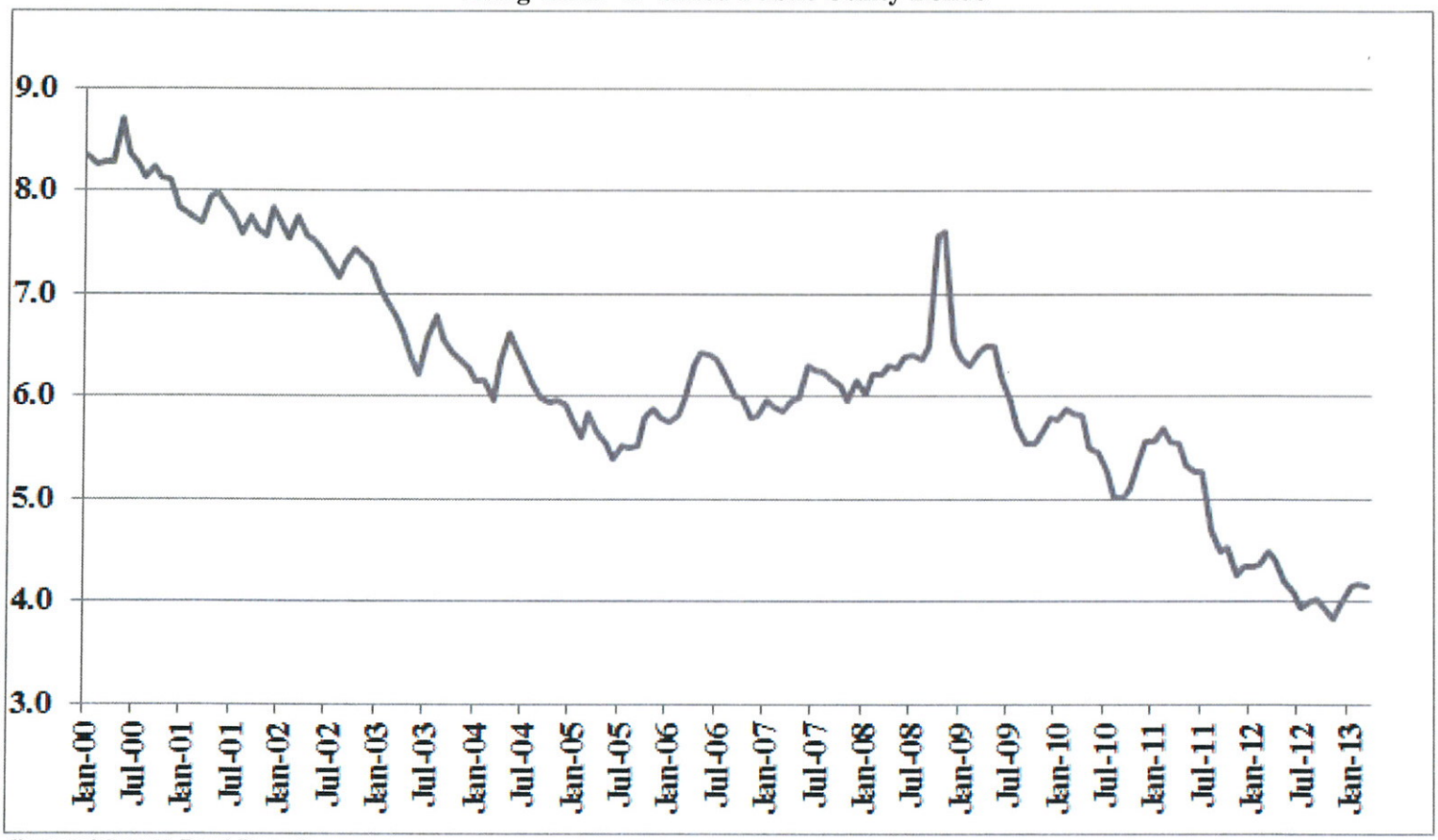
R-Square = .71, N=11.

Exhibit JRW-6
Water Companies
Panel C



R-Square = .77, N=5.

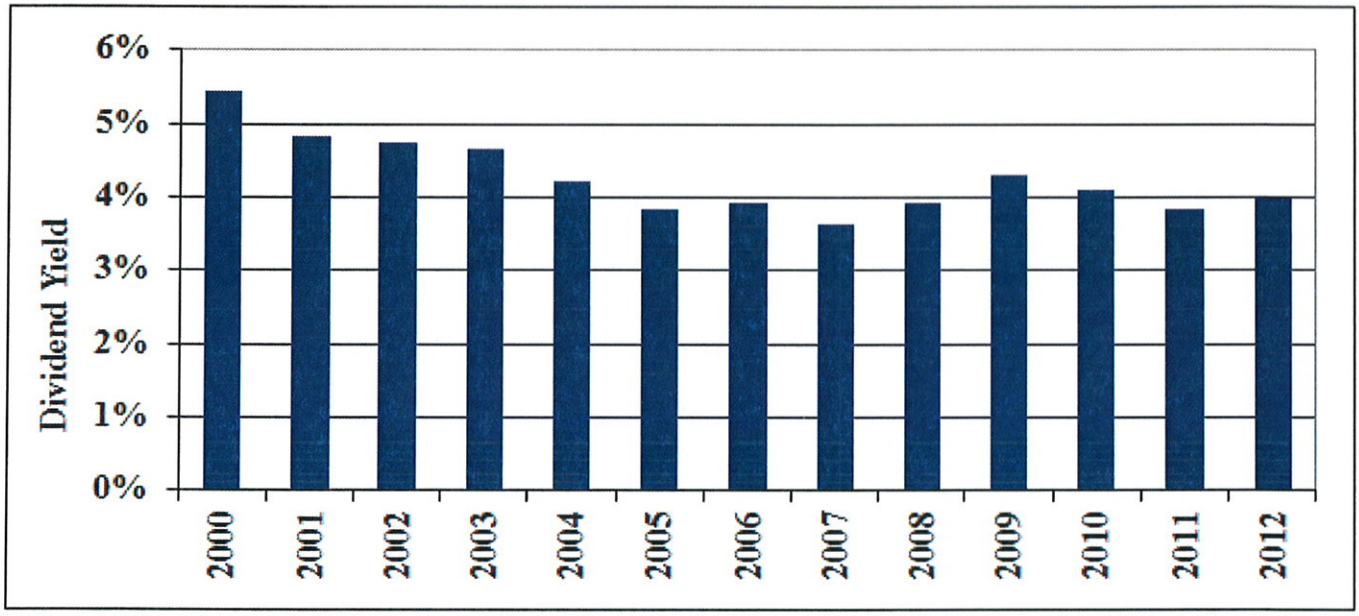
Exhibit JRW-7
Long-Term 'A' Rated Public Utility Bonds



Source: Mergent Bond Record

Exhibit JRW-7

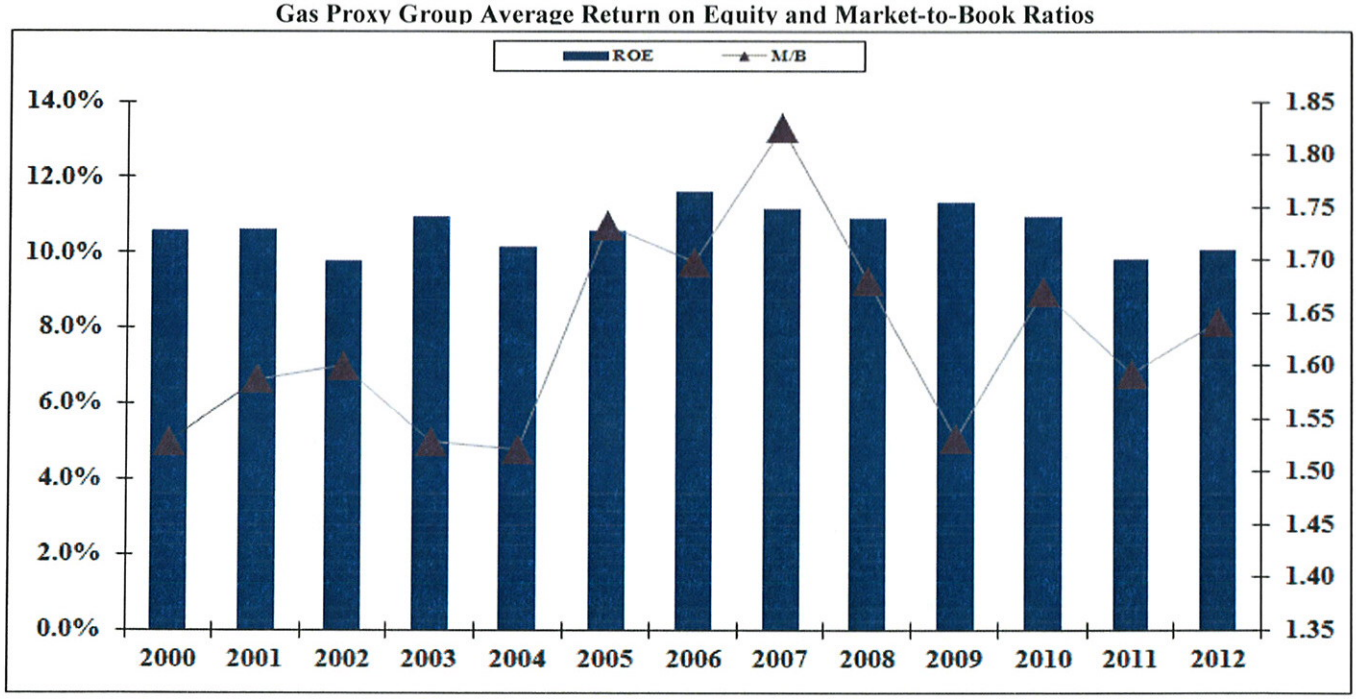
Gas Proxy Group Average Dividend Yield



Data Source: *Value Line Investment Survey.*

Exhibit JRW-7

Gas Proxy Group Average Return on Equity and Market-to-Book Ratios



Data Source: *Value Line Investment Survey.*

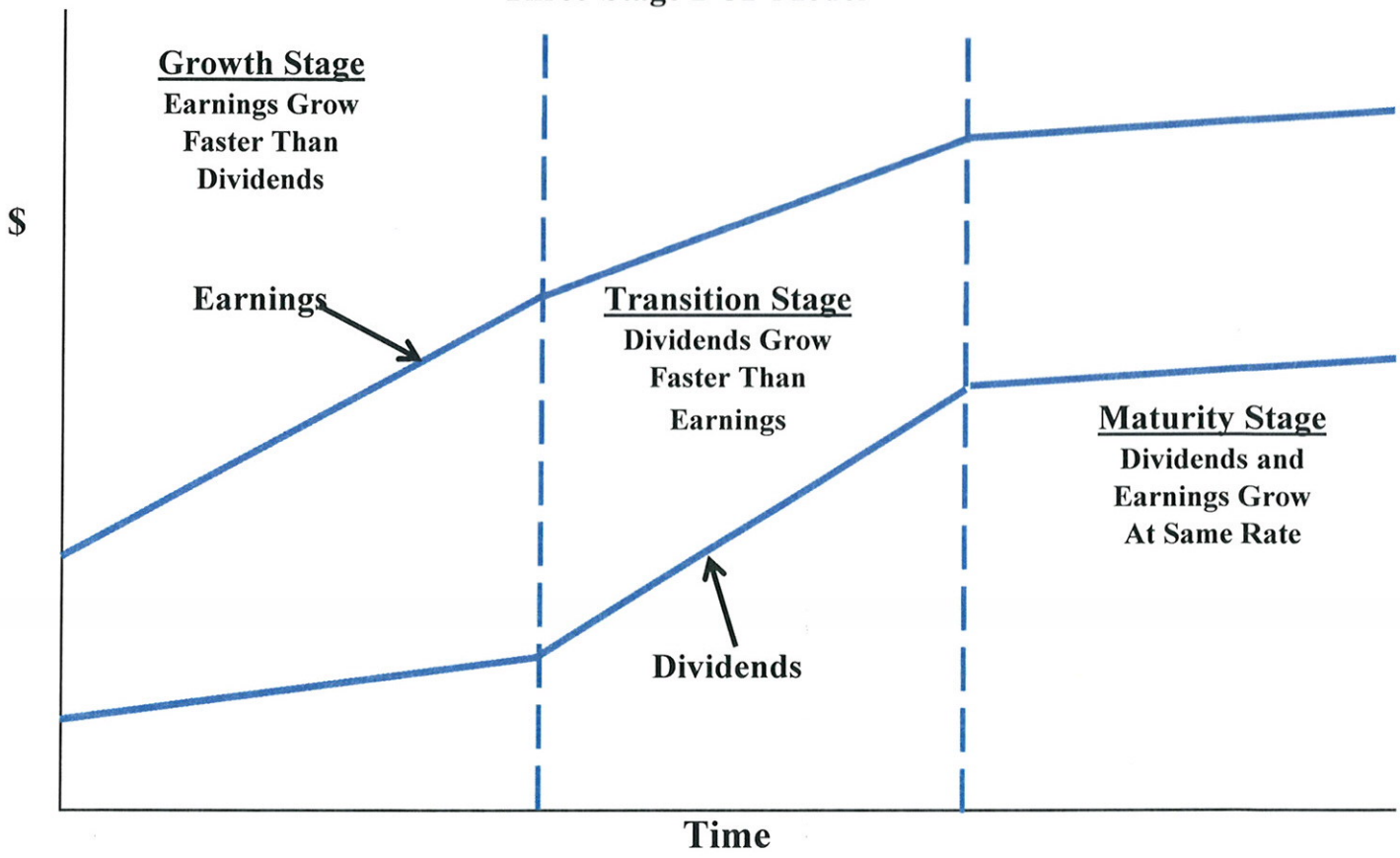
Exhibit JRW-8

Industry Average Betas

Industry Name	No.	Beta	Industry Name	No.	Beta	Industry Name	No.	Beta
Public/Private Equity	11	2.18	Natural Gas (Div.)	29	1.33	IT Services	60	1.06
Advertising	31	2.02	Financial Svcs. (Div.)	225	1.31	Retail Building Supply	8	1.04
Furn/Home Furnishings	35	1.81	Toiletries/Cosmetics	15	1.30	Computer Software	184	1.04
Heavy Truck & Equip	21	1.80	Apparel	57	1.30	Med Supp Non-Invasiv	146	1.03
Semiconductor Equip	12	1.79	Computers/Peripherals	87	1.30	Biotechnology	158	1.03
Retail (Hardlines)	75	1.77	Retail Store	37	1.29	E-Commerce	57	1.03
Newspaper	13	1.76	Chemical (Specialty)	70	1.28	Telecom. Equipment	99	1.02
Hotel/Gaming	51	1.74	Precision Instrument	77	1.28	Pipeline MLPs	27	0.98
Auto Parts	51	1.70	Wireless Networking	57	1.27	Telecom. Services	74	0.98
Steel	32	1.68	Restaurant	63	1.27	Oil/Gas Distribution	13	0.96
Entertainment	77	1.63	Shoe	19	1.25	Utility (Foreign)	4	0.96
Metal Fabricating	24	1.59	Publishing	24	1.25	Industrial Services	137	0.93
Automotive	12	1.59	Trucking	36	1.24	Bank (Midwest)	45	0.93
Insurance (Life)	30	1.58	Human Resources	23	1.24	Reinsurance	13	0.93
Oilfield Svcs/Equip.	93	1.55	Entertainment Tech	40	1.23	Food Processing	112	0.91
Coal	20	1.53	Engineering & Const	25	1.22	Medical Services	122	0.91
Chemical (Diversified)	31	1.51	Air Transport	36	1.21	Insurance (Prop/Cas.)	49	0.91
Building Materials	45	1.50	Machinery	100	1.20	Beverage	34	0.88
Semiconductor	141	1.50	Securities Brokerage	28	1.20	Telecom. Utility	25	0.88
R.E.I.T.	5	1.47	Petroleum (Integrated)	20	1.18	Tobacco	11	0.85
Homebuilding	23	1.45	Healthcare Information	25	1.17	Med Supp Invasive	83	0.85
Recreation	56	1.45	Packaging & Container	26	1.16	Educational Services	34	0.83
Railroad	12	1.44	Precious Metals	84	1.15	Environmental	82	0.81
Retail (Softlines)	47	1.44	Diversified Co.	107	1.14	Bank	426	0.77
Maritime	52	1.40	Funeral Services	6	1.14	Electric Util. (Central)	21	0.75
Office Equip/Supplies	24	1.38	Property Management	31	1.13	Electric Utility (West)	14	0.75
Cable TV	21	1.37	Pharmacy Services	19	1.12	Retail/Wholesale Food	30	0.75
Retail Automotive	20	1.37	Drug	279	1.12	Thrift	148	0.71
Chemical (Basic)	16	1.36	Aerospace/Defense	64	1.10	Electric Utility (East)	21	0.70
Paper/Forest Products	32	1.36	Foreign Electronics	9	1.09	Natural Gas Utility	22	0.66
Power	93	1.35	Internet	186	1.09	Water Utility	11	0.66
Petroleum (Producing)	176	1.34	Information Services	27	1.07	Total Market	5891	1.15
Electrical Equipment	68	1.33	Household Products	26	1.07			
Metals & Mining (Div.)	73	1.33	Electronics	139	1.07			

Source: Damodaran Online 2012 - http://pages.stern.nyu.edu/~adamodar/

Exhibit JRW-9
Three-Stage DCF Model



Source: William F. Sharpe, Gordon J. Alexander, and Jeffrey V. Bailey, Investments (Prentice-Hall, 1995), pp. 590-91.

Exhibit JRW-10

Delmarva Power & Light Company
Discounted Cash Flow Analysis

Gas Proxy Group

Dividend Yield*	**3.75%**
Adjustment Factor (1 + 1/2g)	**1.02375**
Adjusted Dividend Yield	**3.84%**
Growth Rate**	**4.75%**
Equity Cost Rate	**8.6%**

* Page 2 of Exhibit JRW-10.

** Based on data provided on pages 3, 4, 5, and 6 of Exhibit JRW-10

Exhibit JRW-10

Delmarva Power & Light Company
Monthly Dividend Yields

Gas Proxy Group

Company	Dec	Jan	Feb	Mar	Apr	May	Mean
AGL Resources Inc. (NYSE-ATG)	4.8%	4.6%	4.5%	4.7%	4.6%	4.3%	4.6%
Atmos Energy Corporation (NYSE-ATO)	4.0%	3.9%	3.8%	3.7%	3.4%	3.2%	3.7%
Laclede Group, Inc. (NYSE-LG)	4.2%	4.3%	4.4%	4.2%	4.2%	3.8%	4.2%
Northwest Natural Gas Co. (NYSE-NWN)	4.2%	4.1%	4.2%	4.0%	4.2%	4.1%	4.1%
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	4.0%	3.7%	3.7%	3.7%	3.6%	3.6%	3.7%
South Jersey Industries, Inc. (NYSE-SJI)	3.3%	3.5%	3.4%	3.2%	3.2%	2.9%	3.3%
Southwest Gas Corporation (NYSE-SWX)	2.9%	2.8%	2.7%	2.6%	3.5%	2.4%	2.8%
WGL Holdings, Inc. (NYSE-WGL)	4.3%	4.0%	4.0%	3.8%	3.6%	3.7%	3.9%
Mean	4.0%	3.9%	3.8%	3.7%	3.8%	3.5%	3.8%
Median	4.1%	4.0%	3.9%	3.8%	3.6%	3.7%	3.8%

Data Source: AUS *Utility Reports*, monthly issues.

Exhibit JRW-10

Delmarva Power & Light Company
DCF Equity Cost Growth Rate Measures
Value Line Historic Growth Rates

Gas Proxy Group

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
AGL Resources Inc. (NYSE-ATG)	8.0%	5.0%	8.0%	1.5%	6.5%	5.0%
Atmos Energy Corporation (NYSE-ATO)	5.0%	1.5%	6.5%	3.0%	1.5%	4.0%
Laclede Group, Inc. (NYSE-LG)	7.0%	2.0%	5.5%	4.0%	3.0%	6.5%
Northwest Natural Gas Co. (NYSE-NWN)	4.0%	3.0%	4.0%	4.5%	4.5%	4.0%
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	5.0%	5.0%	5.0%	3.5%	5.5%	3.0%
South Jersey Industries, Inc. (NYSE-SJI)	9.5%	6.5%	10.5%	7.0%	9.5%	7.0%
Southwest Gas Corporation (NYSE-SWX)	6.0%	2.0%	4.5%	6.5%	4.0%	5.0%
WGL Holdings, Inc. (NYSE-WGL)	4.0%	2.0%	4.0%	3.0%	3.0%	4.5%
Mean	6.1%	3.4%	6.0%	4.1%	4.7%	4.9%
Median	5.5%	2.5%	5.3%	3.8%	4.3%	4.8%
Data Source: *Value Line Investment Survey, 2013.*	Average of Median Figures =			4.3%		

Exhibit JRW-10

Delmarva Power & Light Company
DCF Equity Cost Growth Rate Measures
Value Line Projected Growth Rates

Gas Proxy Group

Company	*Value Line* Projected Growth Est'd. '09-'11 to '15-'17			*Value Line* Sustainable Growth		
	Earnings	Dividends	Book Value	Return on Equity	Retention Rate	Internal Growth
AGL Resources Inc. (NYSE-ATG)	9.0%	2.0%	5.0%	6.0%	50.0%	3.0%
Atmos Energy Corporation (NYSE-ATO)	5.5%	1.5%	5.5%	8.5%	50.0%	4.3%
Laclede Group, Inc. (NYSE-LG)	5.5%	2.0%	5.5%	10.5%	50.0%	5.3%
Northwest Natural Gas Co. (NYSE-NWN)	3.0%	2.5%	1.0%	11.5%	39.0%	4.5%
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	3.0%	3.0%	4.0%	11.0%	26.0%	2.9%
South Jersey Industries, Inc. (NYSE-SJI)	9.0%	9.0%	7.0%	15.5%	48.0%	7.4%
Southwest Gas Corporation (NYSE-SWX)	8.0%	7.0%	5.0%	10.5%	58.0%	6.1%
WGL Holdings, Inc. (NYSE-WGL)	2.0%	3.0%	3.5%	9.5%	32.0%	3.0%
Mean	5.6%	3.8%	4.6%	10.4%	44.1%	4.6%
Median	5.5%	2.8%	5.0%	10.5%	49.0%	4.4%
Average of Median Figures =		4.4%			Median =	4.4%

Data Source: *Value Line Investment Survey, 2013.*

Exhibit JRW-10

Delmarva Power & Light Company
DCF Equity Cost Growth Rate Measures
Analysts Projected EPS Growth Rate Estimates

Gas Proxy Group

Company	Yahoo	Zack's	Reuters	Average
AGL Resources Inc. (NYSE-GAS)	NA	3.5%	3.8%	3.7%
Atmos Energy Corporation (NYSE-ATO)	6.0%	6.0%	6.0%	6.0%
Laclede Group, Inc. (NYSE-LG)	5.3%	3.0%	n/a	4.2%
Northwest Natural Gas Co. (NYSE-NWN)	4.5%	3.8%	3.8%	4.0%
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	5.0%	4.3%	5.0%	4.8%
South Jersey Industries, Inc. (NYSE-SJI)	6.0%	6.0%	n/a	6.0%
Southwest Gas Corporation (NYSE-SWX)	6.0%	4.8%	6.0%	5.6%
WGL Holdings, Inc. (NYSE-WGL)	5.3%	5.3%	5.3%	5.3%
Mean	5.4%	4.6%	5.0%	4.9%
Median	5.3%	4.6%	5.1%	5.0%

Data Sources: www.reuters.com, www.zacks.com, http://quote.yahoo.com, May 8, 2013

Exhibit JRW-10

Delmarva Power & Light Company

DCF Growth Rate Indicators

Summary Growth Rates

Growth Rate Indicator	Gas Proxy Group
Historic *Value Line* Growth in EPS, DPS, and BVPS	4.3%
Projected *Value Line* Growth in EPS, DPS, and BVPS	4.4%
Sustainable Growth ROE * Retention Rate	4.4%
Projected EPS Growth from Yahoo, Zacks, and Reuters	5.0%
Average of Historic and Projected Growth Rates	4.5%
Average of Sustainable and Projected Growth Rates	4.6%

Exhibit JRW-11

Delmarva Power & Light Company
Capital Asset Pricing Model

Gas Proxy Group

Risk-Free Interest Rate	**4.00%**
Beta*	**0.65**
Ex Ante Equity Risk Premium**	**5.00%**
CAPM Cost of Equity	**7.3%**

* See page 3 of Exhibit JRW-11

** See pages 5 and 6 of Exhibit JRW-11

Exhibit JRW-11

Ten-Year U.S. Treasury Yields
January 2000-Present

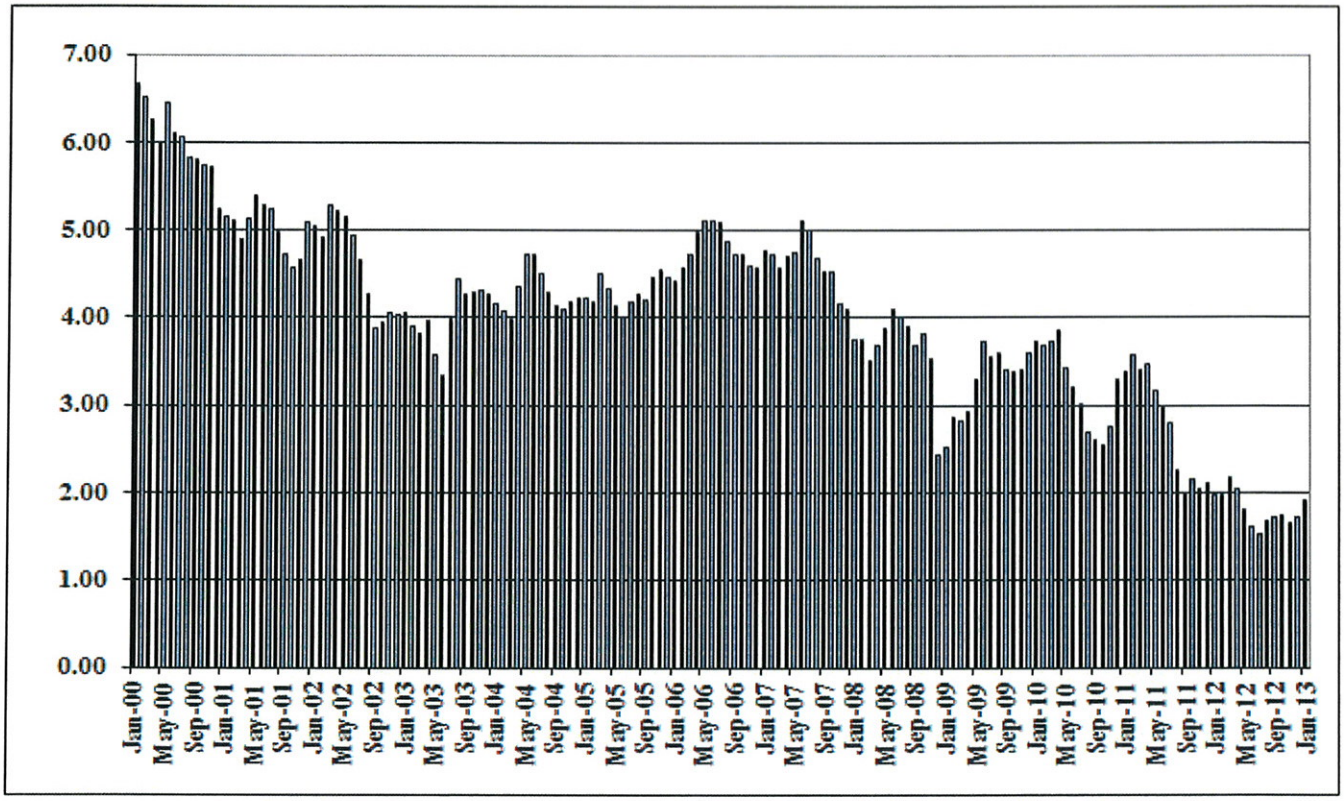
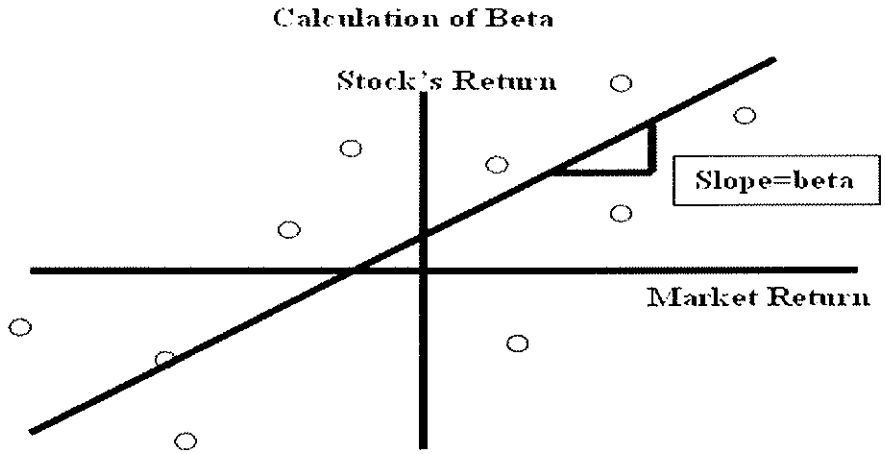


Exhibit JRW-11

Panel A
Betas



Gas Proxy Group

Company	Beta
AGL Resources Inc. (NYSE-ATG)	0.75
Atmos Energy Corporation (NYSE-ATO)	0.70
Laclede Group, Inc. (NYSE-LG)	0.55
Northwest Natural Gas Co. (NYSE-NWN)	0.60
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	0.65
South Jersey Industries, Inc. (NYSE-SJI)	0.65
Southwest Gas Corporation (NYSE-SWX)	0.75
WGL Holdings, Inc. (NYSE-WGL)	0.65
Mean	0.66
Median	0.65

Data Source: *Value Line Investment Survey, 2013.*

Exhibit JRW-11
Risk Premium Approaches

	Historical Ex Post Returns	Surveys	Expected Return Models and Market Data
Means of Assessing The Market Risk Premium	Historical Average Stock Minus Bond Returns	Surveys of CFOs, Financial Forecasters, Companies, Analysts on Expected Returns and Market Risk Premiums	Use Market Prices and Market Fundamentals (such as Growth Rates) to Compute Expected Returns and Market Risk Premiums
Problems/Debated Issues	Time Variation in Required Returns, Measurement and Time Period Issues, and Biases such as Market and Company Survivorship Bias	Questions Regarding Survey Histories, Responses, and Representativeness Surveys may be Subject to Biases, such as Extrapolation	Assumptions Regarding Expectations, Especially Growth

Source: Adapted from Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003).

Exhibit JRW-11

Delmarva Power & Light Company
Capital Asset Pricing Model
Equity Risk Premium

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Median
Historical Risk Premium										
	Ibbotson	2013	1926-2012	Historical Stock Returns - Bond Returns	Arithmetic				5.70%	
					Geometric				4.10%	
	Bate	2008	1900-2007	Historical Stock Returns - Bond Returns	Geometric				4.50%	
	Shiller	2006	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				7.00%	
					Geometric				5.50%	
	Damodoran	2006	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				6.70%	
					Geometric				5.10%	
	Siegel	2005	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				6.10%	
					Geometric				4.60%	
	Dimson, Marsh, and Staunton	2006	1900-2005	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
	Goyal & Welch	2006	1872-2004	Historical Stock Returns - Bond Returns					4.77%	
	Median									5.50%
Ex Ante Models (Puzzle Research)										
	Claus Thomas	2001	1985-1998	Abnormal Earnings Model					3.00%	
	Arnott and Bernstein	2002	1810-2001	Fundamentals - Div Yld + Growth					2.40%	
	Constantinides	2002	1872-2000	Historical Returns & Fundamentals - P/D & P/E					6.90%	
	Cornell	1999	1926-1997	Historical Returns & Fundamental GDP/Earnings		3.50%	5.50%	4.50%	4.50%	
	Easton, Taylor, et al	2002	1981-1998	Residual Income Model					5.30%	
	Fama French	2002	1951-2000	Fundamental DCF with EPS and DPS Growth		2.55%	4.32%		3.44%	
	Harris & Marston	2001	1982-1998	Fundamental DCF with Analysts' EPS Growth					7.14%	
	Best & Byrne	2001								
	McKinsey	2002	1962-2002	Fundamental (P/E, D/P, & Earnings Growth)		3.50%	4.00%		3.75%	
	Siegel	2005	1802-2001	Historical Earnings Yield	Geometric				2.50%	
	Grabowski	2006	1926-2005	Historical and Projected		3.50%	6.00%	4.75%	4.75%	
	Maheu & McCurdy	2006	1885-2003	Historical Excess Returns, Structural Breaks,		4.02%	5.10%	4.56%	4.56%	
	Bostock	2004	1960-2002	Bond Yields, Credit Risk, and Income Volatility		3.90%	1.30%	2.60%	2.60%	
	Bakshi & Chen	2005	1982-1998	Fundamentals - Interest Rates					7.31%	
	Donaldson, Kamstra, & Kramer	2006	1952-2004	Fundamental, Dividend yld., Returns., & Volatility		3.00%	4.00%	3.50%	3.50%	
	Campbell	2008	1982-2007	Historical & Projections (D/P & Earnings Growth)		4.10%	5.40%		4.75%	
	Best & Byrne	2001	Projection	Fundamentals - Div Yld + Growth					2.00%	
	Fernandez	2007	Projection	Required Equity Risk Premium					4.00%	
	DeLong & Magin	2008	Projection	Earnings Yield - TIPS					3.22%	
	Damodoran	2013	Projection	Fundamentals - Implied from FCF to Equity Model					5.71%	
	Social Security									
	Office of Chief Actuary		1900-1995							
	John Campbell	2001	1860-2000	Historical & Projections (D/P & Earnings Growth)	Arithmetic	3.00%	4.00%	3.50%	3.50%	
			Projected for 75 Years		Geometric	1.50%	2.50%	2.00%	2.00%	
	Peter Diamond	2001	Projected for 75 Years	Fundamentals (D/P, GDP Growth)		3.00%	4.80%	3.90%	3.90%	
	John Shoven	2001	Projected for 75 Years	Fundamentals (D/P, P/E, GDP Growth)		3.00%	3.50%	3.25%	3.25%	
	Median									3.75%
Surveys										
	Survey of Financial Forecasters	2013	10-Year Projection	About 50 Financial Forecastsers					2.30%	
	Duke - CFO Magazine Survey	2013	10-Year Projection	Approximately 350 CFOs					4.50%	
	Welch - Academics	2008	30-Year Projection	Random Academics		5.00%	5.74%	5.37%	5.37%	
	Fernandez - Academics	2012	Long-Term	Survey of Academics					5.60%	
	Fernandez - Analysts	2012	Long-Term	Survey of Analysts					5.00%	
	Fernandez - Companies	2012	Long-Term	Survey of Companies					5.50%	
	Median									5.19%
Building Block										
	Ibbotson and Chen	2013	1926-2012	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			6.13%	5.11%	
					Geometric			4.09%		
	Woolridge		2013	Current Supply Model (D/P & Earnings Growth)					4.40%	
	Median									4.76%
Mean										**4.80%**
Median										**4.97%**

Exhibit JRW-11

Delmarva Power & Light Company
Capital Asset Pricing Model
Equity Risk Premium

Summary of 2010-13 Equity Risk Premium Studies

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Average
Historical Risk Premium										
	Ibbotson	2013	1926-2012	Historical Stock Returns - Bond Returns	Arithmetic				5.70%	
					Geometric				4.10%	
	Median									4.90%
Ex Ante Models (Puzzle Research)										
	Damodoran	2013	Projection	Fundamentals - Implied from FCF to Equity Model					5.71%	
	Median									5.71%
Surveys										
	Survey of Financial Forecasters	2013	10-Year Projection	About 50 Financial Forecastsers					2.30%	
	Duke - CFO Magazine Survey	2013	10-Year Projection	Approximately 350 CFOs					4.50%	
	Fernandez - Academics	2012	Long-Term	Survey of Academics					5.60%	
	Fernandez - Analysts	2012	Long-Term	Survey of Analysts					5.00%	
	Fernandez - Companies	2012	Long-Term	Survey of Companies					5.50%	4.75%
Building Block										
	Ibbotson and Chen	2013	1926-2012	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			6.13%	5.11%	
					Geometric			4.09%		
	Woolridge		2013	Current Supply Model (D/P & Earnings Growth)					4.40%	
	Median									4.76%
Mean										5.03%
Median										4.83%

Exhibit JRW-12

Delmarva Power & Light Company
Cost of Capital

Capital Source	Capitalization Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	51.22%	4.91%	2.51%
Common Equity	48.78%	10.25%	5.00%
Total Capital	100.00%		7.51%

Summary of Delmarva's ROE Results

Panel A
Summary of Mr. Hevert's DCF Results

Summary of Mr. Hevert's Quarterly DCF Results

	Mean Low	Mean	Mean High
Quarterly Growth DCF Model			
30-Day Average	7.51%	9.35%	11.37%
90-Day Average	7.55%	9.39%	11.42%
180-Day Average	7.62%	9.46%	11.49%

Summary of Mr. Hevert's Constant Growth DCF Results

	Mean Low	Mean	Mean High
Constant Growth DCF Model			
30-Day Average	7.38%	9.16%	11.12%
90-Day Average	7.42%	9.20%	11.16%
180-Day Average	7.49%	9.27%	11.23%

Summary of Mr. Hevert's Multi-Stage Growth DCF Results

	Mean Low	Mean	Mean High
Multi-Stage Growth DCF Model			
30-Day Average	9.26%	9.98%	10.89%
90-Day Average	9.28%	10.02%	10.92%
180-Day Average	9.33%	10.10%	10.99%

Panel B
Summary of Mr. Hevert's CAPM Results

	Sharpe Ratio Derived Market Risk Premium	Bloomberg Derived Market Risk Premium	Capital IQ Derived Market Risk Premium
Average Bloomberg Beta - 0.732			
Current 30-Year Treasury - 2.87%	8.38%	10.24%	10.19%
Near-Term Projected 30-Year Treasury (3.15%)	8.66%	10.52%	10.47%
Average Value Line Beta - 0.661			
Current 30-Year Treasury - 2.87%	7.85%	9.52%	9.48%
Near-Term Projected 30-Year Treasury (3.15%)	8.13%	9.80%	9.76%

Panel C
Summary of Mr. Hevert's RP Results

	30-Year Treasury Yield	Risk Premium	Return on Equity
Current 30-Year Treasury - 2.87%	2.87%	7.25%	10.12%
Near-Term Projected 30-Year Treasury (3.15%)	3.15%	6.98%	10.13%
Long-Term Projected 30-Year Treasury (5.30%)	5.30%	5.44%	10.74%

Panel A
Historic GDP Growth Rates

10-Year Average	4.0%
20-Year Average	4.6%
30-Year Average	5.1%
40-Year Average	6.6%
50-Year Average	6.8%

Calculated using GDP data on Page 2 of Exhibit JRW-14

Panel B
Projected GDP Growth Rates

	Time Frame	Projected Nominal GDP Growth Rate
Congressional Budget Office	2013-2023	4.6%
Survey of Financial Forecasters	Ten Year	4.8%
Energy Information Administration	2011-2040	4.5%

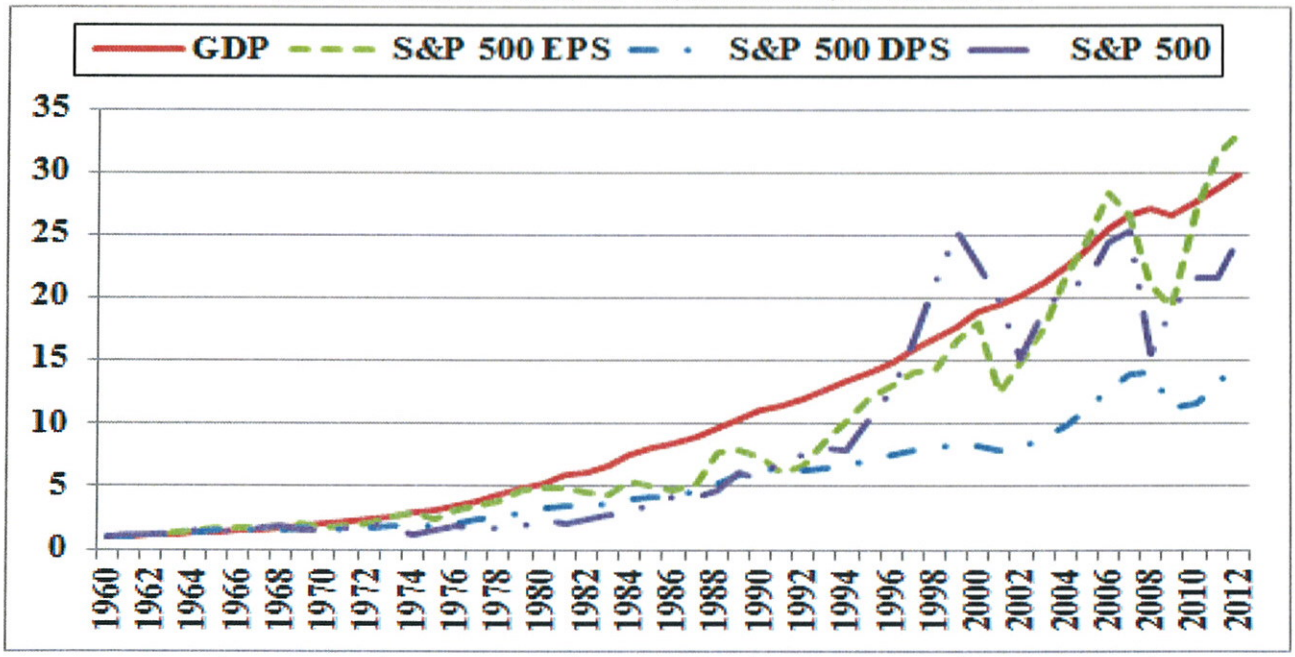
Sources:
http://www.cbo.gov/ftpdocs/120xx/doc12039/01-26_FY2013Outlook.pdf page XIII
http://www.eia.gov/forecasts/aeo/tables_ref.cfm Table 20
http://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/2013/survq113.cfm

Growth Rates
GDP, S&P 500 Price, EPS, and DPS

	GDP	S&P 500	Earnings	Dividends	
1960	526.4	58.11	3.10	1.98	
1961	544.8	71.55	3.37	2.04	
1962	585.7	63.10	3.67	2.15	
1963	617.8	75.02	4.13	2.35	
1964	663.6	84.75	4.76	2.58	
1965	719.1	92.43	5.30	2.83	
1966	787.7	80.33	5.41	2.88	
1967	832.4	96.47	5.46	2.98	
1968	909.8	103.86	5.72	3.04	
1969	984.4	92.06	6.10	3.24	
1970	1038.3	92.15	5.51	3.19	
1971	1126.8	102.09	5.57	3.16	
1972	1237.9	118.05	6.17	3.19	
1973	1382.3	97.55	7.96	3.61	
1974	1499.5	68.56	9.35	3.72	
1975	1637.7	90.19	7.71	3.73	
1976	1824.6	107.46	9.75	4.22	
1977	2030.1	95.10	10.87	4.86	
1978	2293.8	96.11	11.64	5.18	
1979	2562.2	107.94	14.55	5.97	
1980	2788.1	135.76	14.99	6.44	
1981	3126.8	122.55	15.18	6.83	
1982	3253.2	140.64	13.82	6.93	
1983	3534.6	164.93	13.29	7.12	
1984	3930.9	167.24	16.84	7.83	
1985	4217.5	211.28	15.68	8.20	
1986	4460.1	242.17	14.43	8.19	
1987	4736.4	247.08	16.04	9.17	
1988	5100.4	277.72	24.12	10.22	
1989	5482.1	353.40	24.32	11.73	
1990	5800.5	330.22	22.65	12.35	
1991	5992.1	417.09	19.30	12.97	
1992	6342.3	435.71	20.87	12.64	
1993	6667.4	466.45	26.90	12.69	
1994	7085.2	459.27	31.75	13.36	
1995	7414.7	615.93	37.70	14.17	
1996	7838.5	740.74	40.63	14.89	
1997	8332.4	970.43	44.09	15.52	
1998	8793.5	1229.23	44.27	16.20	
1999	9353.5	1469.25	51.68	16.71	
2000	9951.5	1320.28	56.13	16.27	
2001	10286.2	1148.09	38.85	15.74	
2002	10642.3	879.82	46.04	16.08	
2003	11142.2	1111.91	54.69	17.88	
2004	11853.3	1211.92	67.68	19.41	
2005	12623.0	1248.29	76.45	22.38	
2006	13377.2	1418.30	87.72	25.05	
2007	14028.7	1468.36	82.54	27.73	
2008	14291.5	903.25	65.39	28.05	
2009	13973.7	1115.10	59.65	22.31	
2010	14498.9	1257.64	83.66	23.12	
2011	15075.7	1257.60	97.05	26.02	**Average**
2012	15681.5	1426.19	102.47	30.44	
Growth Rates	**6.74**	**6.35**	**6.96**	**5.39**	**6.36**

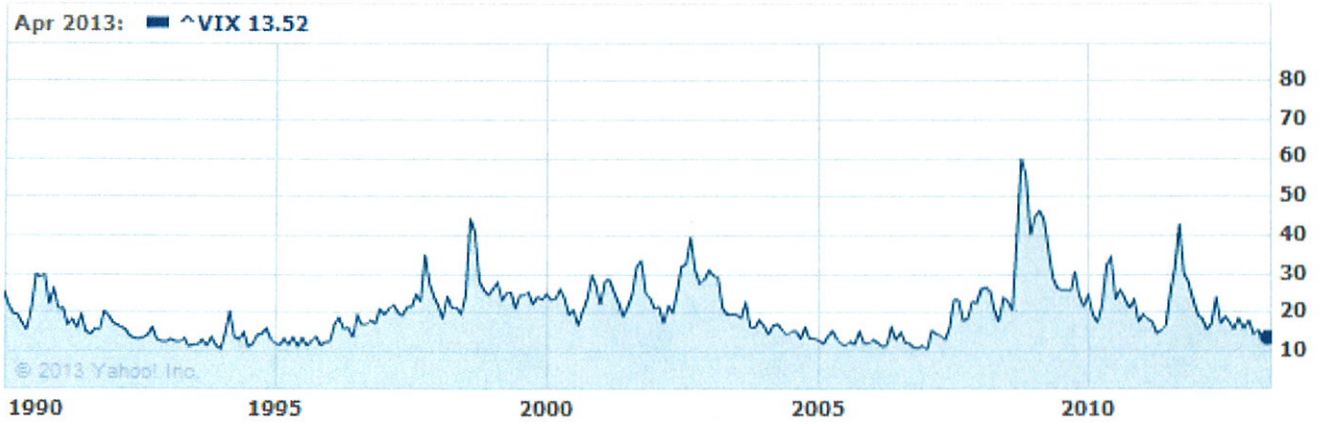
Data Sources: GDPA - http://research.stlouisfed.org/fred2/categories/106
S&P 500, EPS and DPS - http://pages.stern.nyu.edu/~adamodar/

Long-Term Growth of GDP, S&P 500, S&P 500 EPS, and S&P 500 DPS



	GDP	S&P 500	S&P 500 EPS	S&P 500 DPS
Growth Rates	6.74%	6.35%	6.96%	5.39%

Panel A
S&P 500 - VIX - 1990-Present



Panel B
S&P 500 - VIX - Last Year

Panel C
S&P 500 - VXV - Last Year

Panel A
Hevert Expected Risk Premium - VIX = .2315

Formula RBH-5

$$\frac{RP_h}{Vol_h} \times Vol_e = RP_e$$

RP_h	Vol_h		
6.6%	0.203		
Vol_e		Expected Market Sharpe Ratio	RPe
0.2315		0.3252	7.53%

RP_h = historical arithmetic average Risk Premium

Vol_h = historical market volatility

Vol_e = expected market volatility

Average Bloomberg Beta

	Rf	B	MRP	Equity Cost Rate
Current Rf	2.87%	0.732	7.53%	8.38%
Projected Rf	3.15%	0.732	7.53%	8.66%
Mean				8.52%

Average Value Line Beta

	Rf	B	MRP	Equity Cost Rate
Current Rf	2.87%	0.661	7.53%	7.85%
Projected Rf	3.15%	0.661	7.53%	8.13%
Mean				7.99%

Panel B
Current Expected Risk Premium - VIX = .14

Formula RBH-5

$$\frac{RP_h}{Vol_h} \times Vol_e = RP_e$$

RP_h	Vol_h		
6.6%	0.203		
Vol_e		Expected Market Sharpe Ratio	RPe
0.14		0.3252	4.55%

RP_h = historical arithmetic average Risk Premium

Vol_h = historical market volatility

Vol_e = expected market volatility

Average Bloomberg Beta

Calculated Beta	Rf	B	MRP	Equity Cost Rate
Current Rf	2.87%	0.732	4.55%	6.20%
Projected Rf	3.15%	0.732	4.55%	6.48%

Average Value Line Beta

	Rf	B	MRP	Equity Cost Rate
Current Rf	2.87%	0.661	4.55%	5.88%
Projected Rf	3.15%	0.661	4.55%	6.16%

Exhibit JRW-4
Delmarva Power & Light Company
Percent of Regulated Gas Revenues

Hevert Gas Group

Company	Percent Gas Revenue
AGL Resources Inc. (NYSE-AGL)	69
Atmos Energy Corporation (NYSE-ATO)	71
Laclede Group, Inc. (NYSE-LG)	75
New Jersey Resources (NYSE-NJR)	28
Northwest Natural Gas Co. (NYSE-NWN)	96
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	100
South Jersey Industries, Inc. (NYSE-SJI)	60
Southwest Gas Corporation (NYSE-SWX)	69
WGL Holdings, Inc. (NYSE-WGL)	46
Mean	68
Median	69

Data Source: AUS *Utility Reports* , May 2013.