COMMONWEALTH OF KENTUCKY

BEFORE THE

PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)
	)
ADJUSTMENT OF THE RATES OF	**) CASE NO. 2005-00042**
UNION LIGHT, HEAT, AND POWER COMPANY	)

DIRECT TESTIMONY

OF

DR. J. RANDALL WOOLRIDGE

June, 2005

UNION LIGHT, HEAT, AND POWER COMPANY
Case No. 2005-00042

Direct Testimony of
Dr. J. Randall Woolridge

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Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.

A. My name is J. Randall Woolridge and my business address is 120 Haymaker Circle, State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration at the University Park Campus of the Pennsylvania State University. I am also the Director of the Smeal College Trading Room and the President of the Nittany Lion Fund, LLC. In addition, I am affiliated with the Columbia Group Inc., a public utility consulting firm based in Georgetown, CT. A summary of my educational background, research, and related business experience is provided in Appendix A.

I. SUBJECT OF TESTIMONY AND SUMMARY OF RECOMMENDATIONS

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I have been asked by the Kentucky Office of Attorney General to provide an opinion as to the overall fair rate of return or cost of capital for Union Light, Heat, and Power Company ("ULHP" or "Company") and to evaluate ULHP's rate of return testimony in this proceeding.

Q. PLEASE REVIEW YOUR COST OF CAPITAL RETURN FINDINGS.

A. I have independently arrived at a cost of capital for the Company. I have established an equity cost rate of 8.7% for ULHP primarily by applying the Discounted Cash Flow ("DCF") approach to a group of gas distribution companies. I have also performed a Capital Asset Pricing Model ("CAPM") study. Utilizing my equity cost rate, capital structure ratios, and senior capital cost rates, I am recommending an overall fair rate of return for the Company of 7.29%. This recommendation is summarized in Exhibit_(JRW-1).

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF THE COMPANY'S RATE OF RETURN POSITION.

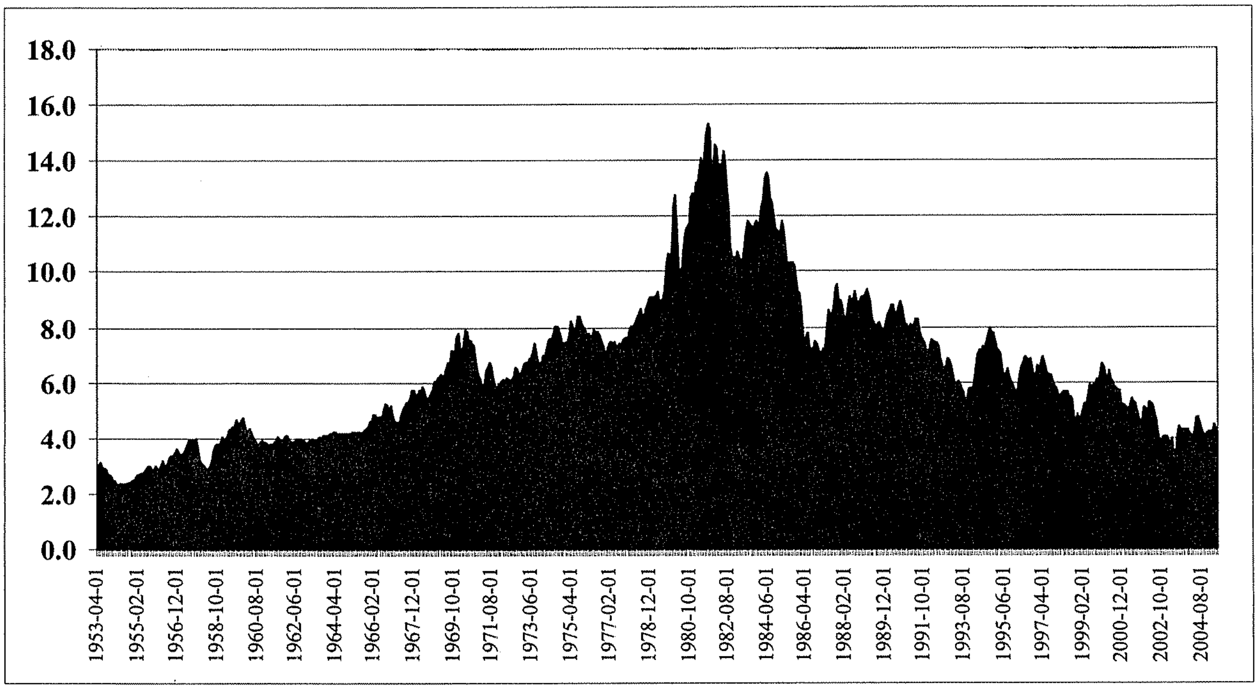
A. The Company's rate of return testimony is offered by Ms. Wendy L. Aumiller and Dr. Roger A. Morin. The Company's proposed rate of return is excessive due primarily to an overstated equity cost rate. Dr. Morin's estimated equity cost rate of 11.20% is unreasonably high due to (1) the use of a forecasted risk-free rate of interest that is well in excess of the current long-term interest rates, (2) excessive risk premium estimates in his risk premium approaches, (3) upwardly-biased expected growth rates in his DCF equity cost rate; and (4) an unnecessary flotation cost adjustment applied to his equity cost rate estimates. In addition, it should be noted that Ms. Aumiller's proposed capital structure contains significantly more equity than is found in the capital structures of publicly-traded gas distribution companies and hence contains less financial risk. By adopting ULHP's proposed capital structure, the Attorney General office is being very fair in not proposing a more economical capital structure that is more in line with the gas distribution industry for rate making purposes.

Q. PLEASE DISCUSS CAPITAL COSTS IN TODAY'S MARKETS.

A. Capital cost rates for U.S. corporations are currently at their lowest levels in more than four decades. Corporate capital cost rates are determined by the level of interest rates and the risk premium demanded by investors to buy the debt and equity capital of corporate issuers. The base level of interest rates in the US economy is indicated by the rates on U.S. Treasury bonds. The benchmark for long-term capital costs is the rate on ten-year Treasury bonds. The rates are provided in the graph below from 1953 to the present. As indicated, prior to the secular decline in rates that began last year, the 10-year Treasury had not been in the 4-5 percent range since the 1960s.

Yields on Ten-Year Treasury Bonds

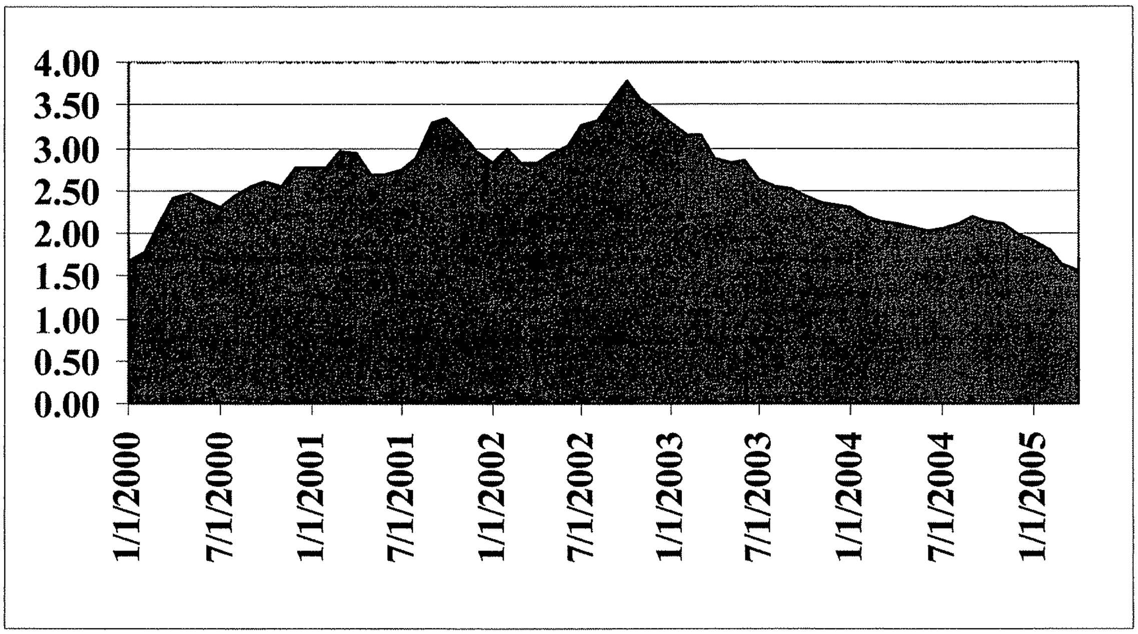
1953-Present



Source: http://research.stlouisfed.org/fred2/data/GS10.txt

The second base component of the corporate capital cost rates is the risk premium. The risk premium is the return premium required by investors to purchase riskier securities. Risk premiums for bonds are the yield differentials between different bond classes as rated by agencies such as Moody's, and Standard and Poor's. The graph below provides the yield differential between Baa-rate corporate bonds and 10-year Treasuries. This yield differential peaked at 350 basis points (BPs) in 2002 and has declined significantly since that time. This is an indication that the market price of risk has declined and therefore the risk premium has declined in recent years.

Corporate Bond Yield Spreads
Baa-Rated Corporate Bond Yield Minus Ten-Year Treasury Bond Yield



Source: http://www.treas.gov/offices/domestic-finance/debt-management/interest-rate/index.html

The equity risk premium is the return premium required to purchase stocks as opposed to bonds. Since the equity risk premium is not readily observable in the markets (as are bond risk premiums), and there are alternative approaches to estimating the equity premium, it is the subject of much debate. One way to estimate the equity risk premium is to compare the mean returns on bonds and stocks over long historic periods. Measured in this manner, the equity risk premium has been in the 5-7 percent range. But recent studies by leading academics indicate the forward-looking equity risk premium is in the 3-4 percent range. These authors indicate that historic equity risk premiums are upwardly biased measures of expected equity risk premiums. Jeremy Siegel, a Wharton finance professor and author of the popular book *Stocks for the Long Term*, published a study entitled "The Shrinking Equity Risk Premium."[1] He concludes:

> The degree of the equity risk premium calculated from data estimated from 1926 is unlikely to persist in the future. The real return on fixed-income assets is likely to be significantly higher than estimated on earlier data. This is confirmed by the yields available on Treasury index-linked securities, which currently exceed 4%. Furthermore, despite the acceleration in earnings growth, the return on equities is likely to fall from its historical level due to the very high level of equity prices relative to fundamentals.

Even Alan Greenspan, the Chairman of the Federal Reserve Board, indicated in an October 14, 1999, speech on financial risk that the fact that equity risk premiums have declined during the past decade is "not in dispute." His assessment focused on the relationship between information availability and equity risk premiums.

> There can be little doubt that the dramatic improvements in information technology in recent years have altered our approach to risk. Some analysts perceive that information technology has permanently lowered equity premiums and, hence, permanently raised the prices of the collateral that underlies all financial assets.
>
> The reason, of course, is that information is critical to the evaluation of risk. The less that is known about the current state of

[1] Jeremy J. Siegel, "The Shrinking Equity Risk Premium," *The Journal of Portfolio Management* (Fall, 1999), p.15.

> a market or a venture, the less the ability to project future outcomes and, hence, the more those potential outcomes will be discounted.
>
> The rise in the availability of real-time information has reduced the uncertainties and thereby lowered the variances that we employ to guide portfolio decisions. At least part of the observed fall in equity premiums in our economy and others over the past five years does not appear to be the result of ephemeral changes in perceptions. It is presumably the result of a permanent technology-driven increase in information availability, which by definition reduces uncertainty and therefore risk premiums. This decline is most evident in equity risk premiums. It is less clear in the corporate bond market, where relative supplies of corporate and Treasury bonds and other factors we cannot easily identify have outweighed the effects of more readily available information about borrowers.[2]

In sum, the relatively low interest rates in today's markets as well as the lower risk premiums required by investors indicate that capital costs for U.S. companies are the lowest in decades. In addition, the 2003 tax law further lowered capital cost rates for companies.

Q. HOW DID THE *JOBS AND GROWTH TAX RELIEF RECONCILIATION ACT of 2003* REDUCE THE COST OF CAPITAL FOR COMPANIES?

A. On May 28th of 2003, President Bush signed the *Jobs and Growth Tax Relief Reconciliation Act of 2003.* The primary purpose of this legislation was to reduce taxes to enhance economic growth. A primary component of the new tax law was a significant reduction in the taxation of corporate dividends for individuals. Dividends have been described as "double-taxed." First,

[2] Alan Greenspan, "Measuring Financial Risk in the Twenty-First Century," Office of the Comptroller of the Currency Conference, October 14, 1999.

corporations pay taxes on the income they earn before they pay dividends to investors, then investors pay taxes on the dividends that they receive from corporations. One of the implications of the double taxation of dividends is that, all else equal, it results in a higher cost of raising capital for corporations. The tax legislation reduced the effect of double taxation of dividends by lowering the tax rate on dividends from the 30 percent range (the average tax bracket for individuals) to 15 percent.

Overall, the 2003 tax law reduced the pre-tax return requirements of investors, thereby reducing corporations' cost of equity capital. This is because the reduction in the taxation of dividends for individuals enhances their after-tax returns and thereby reduces their pre-tax required returns. This reduction in pre-tax required returns (due to the lower tax on dividends) effectively reduces the cost of equity capital for companies. The 2003 tax law also reduced the tax rate on long-term capital gains from 20% to 15%. The magnitude of the reduction in corporate equity cost rates is debatable, but my assessment indicates that it could be as large as 100 basis points. (See Exhibit_(JRW-2)).

II. COMPARISON GROUP SELECTION

Q. PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE OF RETURN RECOMMENDATION FOR ULHP.

A. To develop a fair rate of return recommendation for ULHP, I evaluated the return requirements of investors on the common stock of publicly-held gas distribution companies.

Q. PLEASE DESCRIBE YOUR GAS DISTRIBUTION COMPANIES.

A. I have developed a group of gas distribution companies from the *Value Line Investment Survey*. I initially considered all sixteen companies listed under the Natural Gas Distribution industry in the standard edition of the *Value Line Investment Survey.* I applied three screens to this group: (1) the company must receive at least 50% of revenues from natural gas distribution; (2) the company must pay a dividend; and (3) the company's debt must be rated investment grade by Standard & Poor's (BBB or better). These screens produced a comparison group of eleven companies. Summary financial statistics for the group are provided in Exhibit_(JRW-3).

III. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES

Q. WHAT ARE THE COMPANY'S PROPOSED CAPITAL STRUCTURE RATIOS AND SENIOR CAPITAL COST RATES?

A. Ms. Aumiller has proposed a capital structure based on a thirteen month pro forma capitalization consisting of 7.389% short-term debt, 38.196% long-term debt, and 54.415% common equity. She has also proposed a long-term debt cost rate of 6.302% and a short-term debt cost rate of 3.875%. In a response to Data Request PSC-2-21, the company has modified its proposed capital structure ratios and long-term debt cost rate. The company's initial and updated capitalizations and senior capital cost rates are provided on page 1 of Exhibit_(JRW-4).

Q. ARE YOU ADOPTING THE COMPANY'S REVISED CAPITAL STRUCTURE RATIOS AND SENIOR CAPITAL COST RATES?

A. Yes, at this time. However, it should be highlighted that this proposed capital structure is very generous to the company in that it includes a common equity ratio which is significantly higher than that of other gas distribution companies. Page 2 of Exhibit_(JRW-4) shows the quarterly capital structure ratios for my group of eleven gas distribution companies over the past three years. The average common equity ratio over that time period is 46.2% as opposed to the company's 54.45%. Hence, the company's proposed capital structure has significantly more common equity. This indicates that the Company has less financial risk than the group. By using the Company's revised capital structure, it also provides the company with a buffer in terms of revenues from higher rates due solely to its capitalization relative to that of other gas distribution companies.

Q. PLEASE SUMMARIZE YOUR PROPOSED CAPITAL STRUCTURE RATIOS AND SENIOR CAPITAL COST RATES.

A. I am adopting the company's updated capital structure and senior capital cost rates which are shown below.

Union Light, Heat, and Power Company
Proposed Capital Structure and Senior Capital Cost Rates

Source of Capital	Capitalization Ratio	Cost Rate
Short-Term Debt	7.382%	3.875%
Long-Term Debt	38.164%	5.926%
Common Equity	54.454%	

IV. THE COST OF COMMON EQUITY CAPITAL

A. OVERVIEW

Q. WHY MUST AN OVERALL COST OF CAPITAL OR FAIR RATE OF RETURN BE ESTABLISHED FOR A PUBLIC UTILITY?

A. In a competitive industry, the return on a firm's common equity capital is determined through the competitive market for its goods and services. Due to the capital requirements needed to provide utility services, however, and to the economic benefit to society from avoiding duplication of these services, some public utilities are monopolies. It is not appropriate to permit monopoly utilities to set their own prices because of the lack of competition and the essential nature of the services. Thus, regulation seeks to establish prices which are fair to consumers and at the same time are sufficient to meet the operating and capital costs of the utility, i.e., provide an adequate return on capital to attract investors.

Q. PLEASE PROVIDE AN OVERVIEW OF THE COST OF CAPITAL IN THE CONTEXT OF THE THEORY OF THE FIRM.

A. The total cost of operating a business includes the cost of capital. The cost of common equity capital is the expected return on a firm's common stock that the marginal investor would deem sufficient to compensate for risk and the time value of money. In equilibrium, the expected and required rates of return on a company's common stock are equal.

Normative economic models of the firm, developed under very restrictive assumptions, provide insight into the relationship between firm performance or profitability, capital costs, and the value of the firm. Under the economist's ideal model of perfect competition, where entry and exit is costless, products are undifferentiated, and there are increasing marginal costs of production, firms produce up to the point where price equals marginal cost. Over time, a long-run equilibrium is established where price equals average cost, including the firm's capital costs. In equilibrium, total revenues equal total costs, and because capital costs represent investors' required return on the firm's capital, actual returns equal required returns and the market value and the book value of the firm's securities must be equal.

In the real world, firms can achieve competitive advantage due to product market imperfections - most notably through product differentiation (adding real or perceived value to products) and achieving economies of scale (decreasing marginal costs of production). Competitive advantage allows firms to price products above average cost and thereby earn accounting profits greater than those required to cover capital costs. When these profits are in excess of that required by investors, or when a firm earns a return on equity in excess of its cost of equity, investors respond by valuing the firm's equity in excess of its book value.

James M. McTaggart, founder of the international management consulting firm Marakon Associates, has described this essential relationship between the return on equity, the cost of equity, and the market-to-book ratio in the following manner:[3]

> Fundamentally, the value of a company is determined by the cash flow it generates over time for its owners, and the minimum acceptable rate of return

[3] James M. McTaggart, "The Ultimate Poison Pill: Closing the Value Gap," *Commentary* (Spring 1988), p. 2.

required by capital investors. This "cost of equity capital" is used to discount the expected equity cash flow, converting it to a present value. The cash flow is, in turn, produced by the interaction of a company's return on equity and the annual rate of equity growth. High return on equity (ROE) companies in low-growth markets, such as Kellogg, are prodigious generators of cash flow, while low ROE companies in high-growth markets, such as Texas Instruments, barely generate enough cash flow to finance growth.

A company's ROE over time, relative to its cost of equity, also determines whether it is worth more or less than its book value. If its ROE is consistently greater than the cost of equity capital (the investor's minimum acceptable return), the business is economically profitable and its market value will exceed book value. If, however, the business earns an ROE consistently less than its cost of equity, it is economically unprofitable and its market value will be less than book value.

As such, the relationship between a firm's return on equity, cost of equity, and market-to-book ratio is relatively straightforward. A firm which earns a return on equity above its cost of equity will see its common stock sell at a price above its book value. Conversely, a firm which earns a return on equity below its cost of equity will see its common stock sell at a price below its book value.

Q. WHAT ECONOMIC FACTORS HAVE AFFECTED THE COST OF EQUITY CAPITAL FOR PUBLIC UTILITIES?

A. Exhibit_(JRW-5) provides indicators of public utility equity cost rates over the past decade. Page 1 shows the yields on 10-year, 'A' rated public utility bonds. These yields peaked in the early 1990s at 10%, and have generally declined since that time. In particular, over the past two years they have declined from the seven percent range to the 4.5 to 5.0 percent range. Page 2 provides the dividend yields for the fifteen utilities in the Dow Jones Utilities Average over the past decade. These yields peaked in 1994 at 6.7%. Since that time they have declined and have remained in the 4.5-5.0 percent range in recent years.

Average earned returns on common equity and market-to-book ratios are given on page 3 of Exhibit_(JRW-5). Over the past decade, earned returns on common equity have consistently been in the 10.0 - 13.0 percent range. The low point was 10.3 % in 1997 and they have increased to 12.5 percent range as of the year 2003. Over the past decade, market-to-book ratios for this group bottomed out at 128% in 1994 and they have increased to the 150-180 percent range in recent years.

The indicators in Exhibit_(JRW-5), coupled with the overall decrease in interest rates, suggest that capital costs for the Dow Jones Utilities have decreased over the past decade. Specifically for the equity cost rate, the significant increase in the market-to-book ratios, coupled with only a much smaller increase in the average return on equity, suggests a substantial decline in the overall equity cost rate.

Q. WHAT FACTORS DETERMINE INVESTORS' EXPECTED OR REQUIRED RATE OF RETURN ON EQUITY?

A. The expected or required rate of return on common stock is a function of market-wide, as well as company-specific, factors. The most important market factor is the time value of money as indicated by the level of interest rates in the economy. Common stock investor requirements generally increase and decrease with like changes in interest rates. The perceived risk of a firm is the predominant factor that influences investor return requirements on a company-specific basis. A firm's investment risk is often separated into business and financial risk. Business risk encompasses all factors that affect a firm's operating revenues and expenses. Financial risk results from incurring fixed obligations in the form of debt in financing its assets.

Q. HOW DOES THE INVESTMENT RISK OF GAS DISTRIBUTION COMPANIES COMPARE WITH THAT OF OTHER INDUSTRIES?

A. Due to the essential nature of their service as well as their regulated status, public utilities are exposed to a lesser degree of business risk than other, non-regulated businesses. The relatively low level of business risk allows public utilities to meet much of their capital requirements through borrowing in the financial markets, thereby incurring greater than average financial risk. Nonetheless, the overall investment risk of public utilities is below most other industries. Exhibit_(JRW-6) provides an assessment of investment risk for 100 industries as measured by beta, which according to modern capital market theory is the only relevant measure of investment risk that need be of concern for investors. These betas come from the *Value Line Investment Survey* and are compiled by Aswath Damodoran of New York University. They may be found on the Internet at http://www.stern.nyu.edu/~adamodar/. The study shows that the investment risk of public utilities is quite low, with an average beta of 0.65. In fact, of the 100 industries, there are only thirteen industries with a lower beta than the gas distribution industry. As such, the cost of equity for the gas distribution industry is among the lowest of all industries in the U.S.

Q. HOW CAN THE EXPECTED OR REQUIRED RATE OF RETURN ON COMMON EQUITY CAPITAL BE DETERMINED?

A. The costs of debt and preferred stock are normally based on historic or book values and can be determined with a great degree of accuracy. The cost of common equity capital, however, cannot be determined precisely and must instead be estimated from market data and informed judgment. This return to the stockholder should be commensurate with returns on investments in other enterprises having comparable risks.

According to valuation principles, the present value of an asset equals the discounted value of its expected future cash flows. Investors discount these expected cash flows at their required rate of return that, as noted above, reflects the time value of money and the perceived riskiness of the expected future cash flows. As such, the cost of common equity is the rate at which investors discount expected cash flows associated with common stock ownership.

Models have been developed to ascertain the cost of common equity capital for a firm. Each model, however, has been developed using restrictive economic assumptions. Consequently, judgment is required in selecting appropriate financial valuation models to estimate a firm's cost of common equity capital, in determining the data inputs for these models, and in interpreting the models' results. All of these decisions must take into consideration the firm involved as well as conditions in the economy and the financial markets.

Q. HOW DO YOU PLAN TO ESTIMATE THE COST OF EQUITY CAPITAL FOR THE COMPANY?

A. I rely primarily on the Discounted Cash Flow ("DCF") model to estimate the cost of equity capital. I believe that the DCF model provides the best measure of equity cost rates for public utilities. I have also performed a Capital Asset Pricing Model (CAPM) study, but I give these results less weight because I believe that risk premium studies, of which the CAPM is one form, provide a less reliable indication of equity cost rates for public utilities.

B. DISCOUNTED CASH FLOW ANALYSIS

Q. BRIEFLY DESCRIBE THE THEORY BEHIND THE TRADITIONAL DCF MODEL.

A. According to the discounted cash flow model, the current stock price is equal to the discounted value of all future dividends that investors expect to receive from investment in the firm. As such, stockholders' returns ultimately result from current as well as future dividends. As owners of a corporation, common stockholders are entitled to a pro-rata share of the firm's earnings. The DCF model presumes that earnings that are not paid out in the form of dividends are reinvested in the firm so as to provide for future growth in earnings and dividends. The rate at which investors discount future dividends, which reflects the timing and riskiness of the expected cash flows, is interpreted as the market's expected or required return on the common stock. Therefore this discount rate represents the cost of common equity. Algebraically, the DCF model can be expressed as:

$$P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \dots \frac{Dn}{(1+k)^n}$$

where P is the current stock price, D_n is the dividend in year n, and k is the cost of common equity.

Q. IS THE DCF MODEL CONSISTENT WITH VALUATION TECHNIQUES EMPLOYED BY INVESTMENT FIRMS?

A. Yes. Virtually all investment firms use some form of the DCF model as a valuation technique. One common application for investment firms is called the three-stage DCF or dividend discount model (DDM). The stages in a three-stage DCF model are discussed below. This model presumes that a company's dividend payout progresses initially through a growth stage, then proceeds through a transition stage, and finally assumes a steady state stage. The dividend payment stage of a firm depends on the profitability of its internal investments, which, in turn, is largely a function of the life cycle of the product or service. These stages are depicted in the graphic below labeled the Three Stage DCF Model.[4]

1. **Growth stage**: Characterized by rapidly expanding sales, high profit margins, and abnormally high growth in earnings per share. Because of highly profitable expected investment opportunities, the payout ratio is low. Competitors are attracted by the unusually high earnings, leading to a decline in the growth rate.

2. **Transition stage**: In later years, increased competition reduces profit margins and earnings growth slows. With fewer new investment opportunities, the company begins to pay out a larger percentage of earnings.

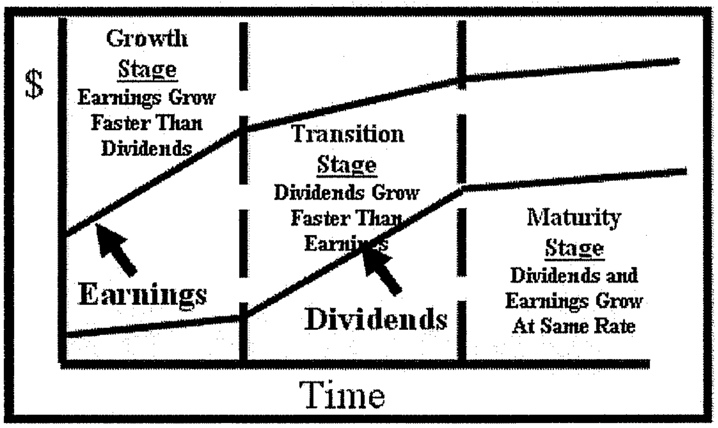
3. **Maturity (steady-state) stage**: Eventually the company reaches a position where its new investment opportunities offer, on average, only slightly attractive returns on equity. At that time its earnings growth rate, payout ratio, and return on equity stabilize for the remainder of its life. The constant-growth DCF model is appropriate when a firm is in the maturity stage of the life cycle.

In using this model to estimate a firm's cost of equity capital, dividends are projected into the future using the different growth rates in the alternative stages, and then the equity cost rate is

[4] This description comes from William F. Sharp, Gordon J. Alexander, and Jeffrey V. Bailey, *Investments* (Prentice-Hall, 1995), pp. 590-91.

the discount rate that equates the present value of the future dividends to the current stock price.

Three-Stage DCF Model



Q. HOW DO YOU ESTIMATE STOCKHOLDERS' EXPECTED OR REQUIRED RATE OF RETURN USING THE DCF MODEL?

A. Under certain assumptions, including a constant and infinite expected growth rate, and constant dividend/earnings and price/earnings ratios, the DCF model can be simplified to the following:

$$P = \frac{D_1}{k - g}$$

where D_1 represents the expected dividend over the coming year and g is the expected growth rate of dividends. This is known as the constant-growth version of the DCF model. To use the constant-growth DCF model to estimate a firm's cost of equity, one solves for k in the above expression to obtain the following:

$$k = \frac{D_1}{P} + g$$

Given the regulated status of public utilities, and especially the fact that their returns on investment are effectively set through the ratemaking process, the industry would be in the steady-state stage of a three-stage DCF. The DCF valuation procedure for companies in this stage is the constant-growth DCF. In the constant-growth version of the DCF model, the current dividend payment and stock price are directly observable. Therefore, the primary problem and controversy in applying the DCF model to estimate equity cost rates entails estimating investors' expected dividend growth rate.

Q. WHAT FACTORS SHOULD ONE CONSIDER WHEN APPLYING THE DCF METHODOLOGY?

A. One should be sensitive to several factors when using the DCF model to estimate a firm's cost of equity capital. In general, one must recognize the assumptions under which the DCF model was developed in estimating its components (the dividend yield and expected growth rate). The dividend yield can be measured precisely at any point in time, but tends to vary somewhat over time. Estimation of expected growth is considerably more difficult. One must consider recent firm performance, in conjunction with current economic developments and other information available to investors, to accurately estimate investors' expectations.

Q. PLEASE DISCUSS EXHIBIT_(JRW-7).

A. My DCF analysis is provided in Exhibit_(JRW-7). The DCF summary is on page 1 of this Exhibit and the supporting data and analysis for the dividend yield and expected growth rate are provided on the following pages.

Q. WHAT DIVIDEND YIELD DO YOU EMPLOY IN YOUR DCF ANALYSIS FOR YOUR GROUP OF GAS DISTRIBUTION COMPANIES?

A. The dividend yields on the common stock for the companies in the group are provided on page 2 of Exhibit_(JRW-7) for the five-month period ending May, 2005. Over this period, the average monthly dividend yield for the group is 4.30%. As of May, 2005, the mean dividend yield for the group is 4.40%. For the DCF dividend yields for the group, I use the average of the five month and May, 2005 dividend yields. As such, the average DCF dividend yield for the group is 4.35%

Q. PLEASE DISCUSS THE APPROPRIATE ADJUSTMENT TO THE SPOT DIVIDEND YIELD.

A. According to the traditional DCF model, the dividend yield term relates to the dividend yield over the coming period. As indicated by Professor Myron Gordon, who is commonly associated with the development of the DCF model for popular use, this is obtained by (1) multiplying the expected dividend over the coming quarter by 4, and (2) dividing this dividend by the current stock price to determine the appropriate dividend yield for a firm, which pays dividends on a quarterly basis.[5]

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[5] *Petition for Modification of Prescribed Rate of Return*, Federal Communications Commission, Docket No. 79-05,

In applying the DCF model, some analysts adjust the current dividend for growth over the coming year as opposed to the coming quarter. This can be complicated because firms tend to announce changes in dividends at different times during the year. As such, the dividend yield computed based on presumed growth over the coming quarter as opposed to the coming year can be quite different. Consequently, it is common for analysts to adjust the dividend yield by some fraction of the long-term expected growth rate.

The appropriate adjustment to the dividend yield is further complicated in the regulatory process when the overall cost of capital is applied to a projected or end-of-future-test-year rate base. The net effect of this application is an overstatement of the equity cost rate estimate derived from the DCF model. In the context of the constant-growth DCF model, both the adjusted dividend yield and the growth component are overstated. Put simply, the overstatement results from applying an equity cost rate computed using current market data to a future or test-year-end rate base which includes growth associated with the retention of earnings during the year.

Q. GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR WILL YOU USE FOR YOUR DIVIDEND YIELD?

A. I will adjust the dividend yield for the gas distribution group by 1/2 the expected growth so as to reflect growth over the coming year.

Q. PLEASE DISCUSS THE GROWTH RATE COMPONENT OF THE DCF MODEL.

A. There is much debate as to the proper methodology to employ in estimating the growth

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Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

component of the DCF model. By definition, this component is investors' expectation of the long-term dividend growth rate. Presumably, investors use some combination of historic and/or projected growth rates for earnings and dividends per share and for internal or book value growth to assess long-term potential.

Q. WHAT GROWTH DATA HAVE YOU REVIEWED FOR THE GROUP OF GAS DISTRIBUTION COMPANIES?

A. I have analyzed a number of measures of growth for the gas distribution companies. I calculated historic growth rates in sales, earnings, dividends, and book value per share growth rates for the companies in the group. I have reviewed *Value Line's* historic and projected growth rate estimates for earnings per share (EPS), dividends per share (DPS), and book value per share (BVPS). In addition, I have utilized earnings growth rate forecasts as provided by Zacks, Reuters, and First Call. These services solicit 5-year earning growth rate projections for securities analysts and compile and publish the averages of these forecasts on a monthly basis. They are readily available on the Internet. Finally, I have also assessed prospective growth as measured by prospective earnings retention rates and earned returns on common equity.

Q. PLEASE DISCUSS HISTORIC GROWTH IN EARNINGS AND DIVIDENDS AS WELL AS INTERNAL GROWTH.

A. Historic growth rates for EPS, DPS, and BVPS are readily available to virtually all investors and presumably an important ingredient in forming expectations concerning future growth. However, one must use historic growth numbers as measures of investors' expectations with caution. In some cases, past growth may not reflect future growth potential. Also, employing a single growth rate number (for example, for five or ten years), is unlikely to accurately measure investors' expectations due to the sensitivity of a single growth rate figure to fluctuations in individual firm performance as well as overall economic fluctuations (i.e., business cycles). However, one must appraise the context in which the growth rate is being employed. According to the conventional DCF model, the expected return on a security is equal to the sum of the dividend yield and the expected long-term growth in dividends. Therefore, to best estimate the cost of common equity capital using the conventional DCF model, one must look to long-term growth rate expectations.

Internally generated growth is a function of the percentage of earnings retained within the firm (the earnings retention rate) and the rate of return earned on those earnings (the return on equity). The internal growth rate is computed as the retention rate times the return on equity. Internal growth is significant in determining long-run earnings and, therefore, dividends. Investors recognize the importance of internally generated growth and pay premiums for stocks of companies that retain earnings and earn high returns on internal investments.

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF *VALUE LINE'S* HISTORIC AND PROJECTED GROWTH RATES FOR THE GROUP OF GAS DISTRIBUTION COMPANIES.

A. Historic growth rates for the companies in the group, as published in the *Value Line Investment Survey*, are provided in Panel A, page 3 of Exhibit_(JRW-7). Due to the presence of outliers among the historic growth rate figures, both the mean and medians are used in the analysis. Historic growth in EPS, DPS, and BVPS for the eleven company group, as measured by the means and medians, ranges from 1.5% to 4.0%, with an average of 3.0%.

Projections of EPS, DPS, and BVPS growth for the group are shown in Panel B. As above, due to the presence of outliers, both the mean and medians are used in the analysis. For the group, the average of the means and medians of the projections is 4.3%. Also provided in Panel B is prospective internal growth for the group as measured by *Value Line*'s average projected retention rate and return on shareholders' equity. The average prospective internal growth rate for the group is 4.1%.

Q. PLEASE ASSESS GROWTH FOR THE GROUP AS MEASURED BY ANALYSTS' FORECASTS OF EXPECTED 5-YEAR GROWTH IN EPS.

A. Zacks, First Call, and Reuters collect, summarize, and publish Wall Street analysts' projected 5-year EPS growth rate forecasts for companies. These forecasts are provided for the group of gas distribution companies on page 4 of Exhibit_(JRW-7). Since there is considerable overlap in analyst coverage between the three services, I have averaged the expected 5-year EPS growth rates from the three services for each company to arrive at an expected EPS growth rate for each company. For the eleven company gas distribution group, the average of the projected 5-year EPS growth rates is 4.6%.

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORIC AND PROSPECTIVE GROWTH OF THE GROUP OF GAS DISTRIBUTION COMPANIES.

A. For the company group of gas distribution companies, the average of historic growth rate measures in EPS, DPS, and BVPS is 3.0%. Projected growth is slightly higher. The average of *Value Line* projected growth rates and prospective internal growth rates for the group are 4.3% and 4.1%, and the average of the analysts' projected 5-year EPS growth rate forecasts for these companies is 4.6%. Giving greater weight to the projected growth rate figures, an expected growth rate in the range of 4.0-4.5 percent is reasonable. I will use the midpoint of this range – 4.25% - as the expected growth rate for the gas distribution group.

Q. BASED ON THE ABOVE, ANALYSIS, WHAT ARE YOUR INDICATED COMMON EQUITY COST RATES FROM THE DCF MODEL FOR THE GROUP?

A. My DCF-derived equity cost rate for the group is:

$$\text{DCF Equity Cost Rate (k)} = \frac{D}{P} + g$$

	Dividend Yield	½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Eleven Company Gas Distribution Group	4.35%	1.02125	4.25%	8.7%

These results are summarized on page 1 of Exhibit_(JRW-7).

C. CAPITAL ASSET PRICING MODEL RESULTS

Q. PLEASE DISCUSS THE CAPITAL ASSET PRICING MODEL (CAPM).

A. The CAPM is a more general risk premium approach to gauging a firm's cost of equity capital. According to the risk premium approach, the cost of equity is the sum of the interest rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

$$k = R_f + RP$$

The yield on long-term Treasury securities is normally used as R_f. Risk premiums are measured in different ways. The CAPM is a theory of the risk and expected returns of common stocks. In the CAPM, two types of risk are associated with a stock: firm-specific risk or unsystematic risk; and market or systematic risk, which is measured by a firm's beta. The only risk that investors receive a return for bearing is systematic risk.

According to the CAPM, the expected return on a company's stock, which is also the equity cost rate (K), is equal to:

$$K = (R_f) + \beta_{ibm} * [E(R_m) - (R_f)]$$

Where:

- K represents the estimated rate of return on the stock;
- $E(R_m)$ represents the expected return on the overall stock market. Frequently, the 'market' refers to the S&P 500;
- (R_f) represents the risk-free rate of interest;
- $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the excess return that an investor expects to receive above the risk-free rate for investing in risky stocks; and
- *Beta*—(β_i) is a measure of the systematic risk of an asset.

To estimate the required return or cost of equity using the CAPM requires three inputs: the risk-free rate of interest (R_f), the beta (β_i), and the expected equity or market risk premium, $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is the yield on long-term Treasury bonds. β_i, the measure of systematic risk, is a little more difficult to measure because there are different opinions about what adjustments, if any, should be made to historic betas due to their tendency to regress to 1.0 over time. And finally, an even more difficult input to measure is the expected equity or market risk premium, $[E(R_m) - (R_f)]$. I will discuss each of these inputs, with most of the discussion focusing on the expected equity risk premium.

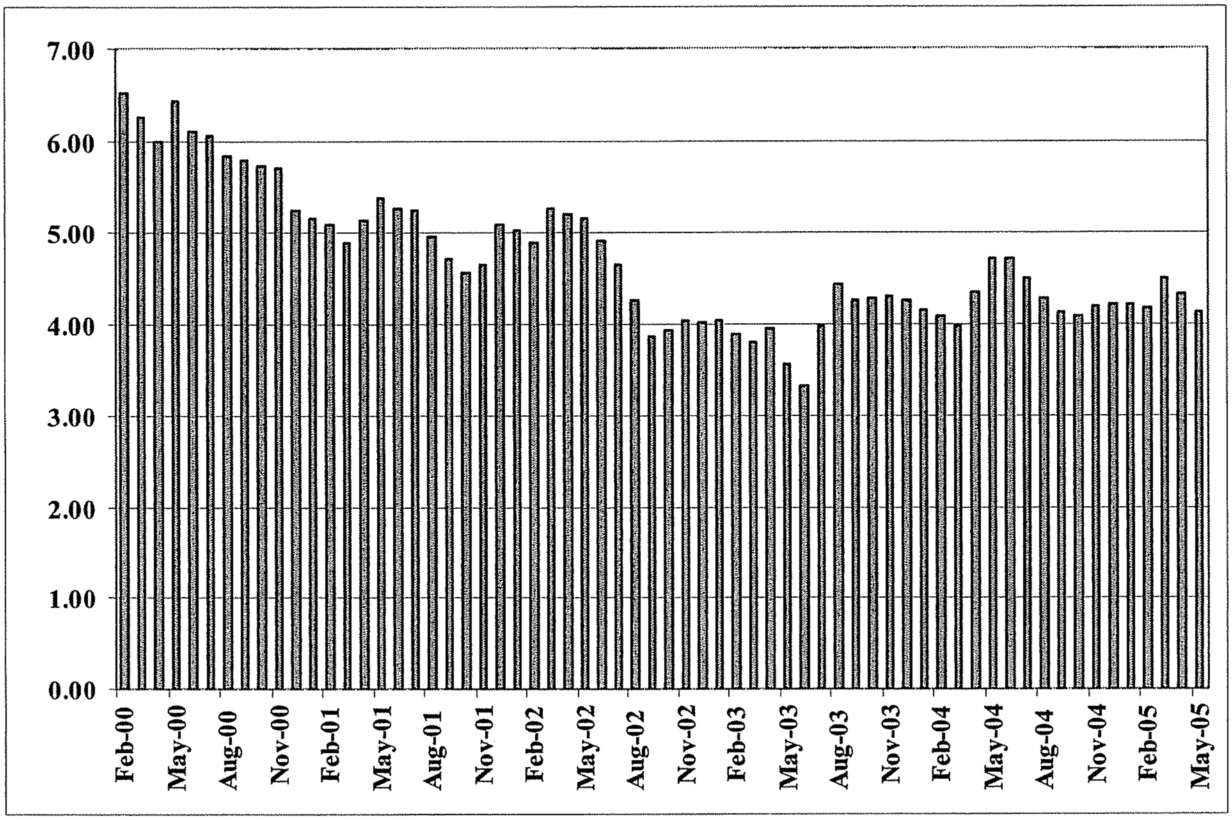
Q. PLEASE DISCUSS EXHIBIT_(JRW-8).

A. Exhibit_(JRW-8) provides the summary results for my CAPM study. Page 1 gives the results, and the following pages contain the supporting data.

Q. PLEASE DISCUSS THE RISK-FREE INTEREST RATE IN YOUR CAPM.

A. The yield on long-term Treasury bonds has usually been viewed as the risk-free rate of interest in the CAPM. The yield on long-term Treasury bonds, in turn, was normally considered to be the yield on Treasury bonds with 30-year maturities. However, in recent years, the yield on 10-year Treasury bonds has replaced the yield on 30-year Treasury bonds as the benchmark long-term Treasury rate. The 10-year Treasury yields over the past five years are shown in the chart below. These rates hit a 60-year low in the summer of 2003 at 3.33%. They increased with the rebounding economy to 4.75% in June of last year, and have since remained in the 4.0-4.50 percent range. As of May 2005, these rates have been near the lower boundry of this range (4.0%). Given this recent range and recent movement, as well as the potential for higher long-term rates, I will use 4.50% as the risk-free rate, or R_f, in my CAPM.

Ten-Year U.S. Treasury Yields
January 2000-May 2005

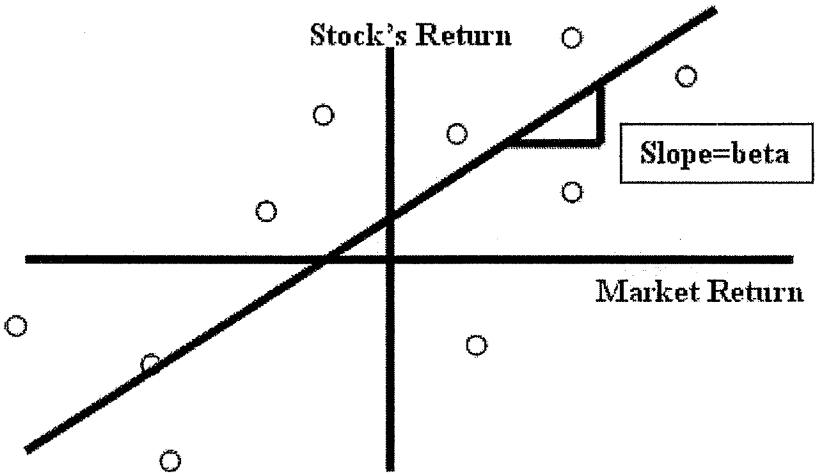


Source: http://www.federalreserve.gov/releases/h15/current/h15.pdf

Q. WHAT BETAS ARE YOU EMPLOYING FOR THE GAS DISTRIBUTION GROUP IN YOUR CAPM?

A. Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to be the S&P 500, has a beta of 1.0. The beta of a stock with the same price movement as the market also has a beta of 1.0. A stock whose price movement is greater than that of the market, such as a technology stock, is riskier than the market and has a beta greater than 1.0. A stock with below average price movement, such as that of a regulated public utility, is less risky than the market and has a beta less than 1.0. Estimating a stock's beta involves running a linear regression of a stock's return on the market return as in the following:

Calculation of Beta



The slope of the regression line is the stock's ß. A steeper line indicates the stock is more sensitive to the return on the overall market. This means that the stock has a higher ß and greater than average market risk. A less steep line indicates a lower ß and less market risk.

Numerous online investment information services, such Yahoo and Reuters, provide estimates of stock betas. Usually these services report different betas for the same stock. The differences are usually due to (1) the time period over which the ß is measured and (2) any adjustments that are made to reflect the fact that betas tend to regress to 1.0 over time. In estimating an equity cost rate for the group of gas distribution companies, I am using the average betas for the companies as provided in the *Value Line Investment Survey*. As shown on page 2 of

Exhibit_(JRW-8), the average for the eleven company group is 0.76.

Q. PLEASE DISCUSS THE OPPOSING VIEWS REGARDING THE EQUITY RISK PREMIUM.

A. The equity or market risk premium—*[$E(R_m) - R_f$]*: is equal to the expected return on the stock market (e.g., the expected return on the S&P 500 ($E(R_m)$) minus the risk-free rate of interest (R_f). The equity premium is the difference in the expected total return between investing in equities and investing in "safe" fixed-income assets, such as long-term government bonds. However, while the equity risk premium is easy to define conceptually, it is difficult to measure because it requires an estimate of the expected return on the market.

Q. PLEASE DISCUSS THE ALTERNATIVE APPROACHES TO ESTIMATING THE EQUITY RISK PREMIUM.

A. The table below highlights the primary approaches to, and issues in, estimating the expected equity risk premium. The traditional way to measure the equity risk premium was to use the difference between historic average stock and bond returns. In this case, historic stock and bond returns, also called ex post returns, were used as the measures of the market's expected return (known as the ex ante or forward-looking expected return). This type of historic evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of using historic financial market returns as measures of expected returns. Most historic assessments of the equity risk premium suggest an equity risk premium of 5-7 percent above the rate on long-term Treasury bonds. However, this can be a problem because (1) ex post returns are not the same as ex ante expectations, (2) market risk premiums can change over time, increasing when investors become more risk-averse, and decreasing when investors become less risk-averse, and (3) market conditions can change such that ex post historic returns are poor estimates of ex ante expectations.

Risk Premium Approaches

	Historical Ex Post Excess Returns	Surveys	Ex Ante Models and Market Data
Means of Assessing the Equity-Bond Risk Premium	Historical average is a popular proxy for the ex ante premium – but likely to be misleading	Investor and expert surveys can provide direct estimates of prevailing expected returns/premiums	Current financial market prices (simple valuation ratios or DCF-based measures) can give most objective estimates of feasible ex ante equity-bond risk premium
Problems/Debated Issues	Time variation in required returns and systematic selection and other biases have boosted valuations over time, and have exaggerated realized excess equity returns compared with ex ante expected premiums	Limited survey histories and questions of survey representativeness. Surveys may tell more about hoped-for expected returns than about objective required premiums due to irrational biases such as extrapolation.	Assumptions needed for DCF inputs, notably the trend earnings growth rate, make even these models' outputs subjective. The range of views on the growth rate, as well as the debate on the relevant stock and bond yields, leads to a range of premium estimates.

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

The use of historic returns as market expectations has been criticized in numerous academic studies.[6] The general theme of these studies is that the large equity risk premium discovered in historic stock and bond returns cannot be justified by the fundamental data. These studies, which fall under the category "Ex Ante Models and Market Data," compute ex ante expected returns using market data to arrive at an expected equity risk premium. These studies have also been called

[6] The problems with using ex post historic returns as measure of ex ante expectation will be discussed at length later in my testimony.

"Puzzle Research" after the famous study by Mehra and Prescott in which the authors first questioned the magnitude of historic equity risk premiums relative to fundamentals.[7]

Q. PLEASE BRIEFLY SUMMARIZE SOME OF THE NEW ACADEMIC STUDIES THAT DEVELOP EX ANTE EQUITY RISK PREMIUMS.

A. Two of the most prominent studies of ex ante expected equity risk premiums were by Eugene Fama and Ken French (2002) and James Claus and Jacob Thomas (2001). The primary debate in these studies revolves around two related issues: (1) the size of expected equity risk premium, which is the return equity investors require above the yield on bonds; and (2) the fact that estimates of the ex ante expected equity risk premium using fundamental firm data (earnings and dividends) are much lower than estimates using historic stock and bond return data. Fama and French (2002), two of the most preeminent scholars in finance, use dividend and earnings growth models to estimate expected stock returns and ex ante expected equity risk premiums.[8] They compare these results to actual stock returns over the period 1951-2000. Fama and French estimate that the expected equity risk premium from DCF models using dividend and earnings growth to be between 2.55% and 4.32%. These figures are much lower than the ex post historic equity risk premium produced from the average stock and bond return over the same period, which is 7.40%.

Fama and French conclude that the ex ante equity risk premium estimates using DCF models and fundamental data are superior to those using ex post historic stock returns for three

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[7] Rahnish Mehra and Edward Prescott, "The Equity Premium: A Puzzle," *Journal of Monetary Economic* (1985).
[8] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, April 2002. This paper may be downloaded from the Internet at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=236590.

reasons: (1) the estimates are more precise (a lower standard error); (2) the Sharpe ratio, which is measured as the [(expected stock return – risk-free rate)/standard deviation], is constant over time for the DCF models but more than doubles for the average stock-bond return model; and (3) valuation theory specifies relationships between the market-to-book ratio, return on investment, and cost of equity capital that favor estimates from fundamentals. They also conclude that the high average stock returns over the past 50 years were the result of low expected returns and that the average equity risk premium has been in the 3-4 percent range.

The study by Claus and Thomas of Columbia University provides direct support for the findings of Fama and French.[9] These authors compute ex ante expected equity risk premiums over the 1985-1998 period by (1) computing the discount rate that equates market values with the present value of expected future cash flows, and (2) then subtracting the risk-free interest rate. The expected cash flows are developed using analysts' earnings forecasts. The authors conclude that over this period the ex ante expected equity risk premium is in the range of 3.0%. Claus and Thomas note that, over this period, ex post historic stock returns overstate the ex ante expected equity risk premium because as the expected equity risk premium has declined, stock prices have risen. In other words, from a valuation perspective, the present value of expected future returns increase when the required rate of return decreases. The higher stock prices have produced stock returns that have exceeded investors' expectations and therefore ex post historic equity risk premium estimates are biased upwards as measures of ex ante expected equity risk premiums.

[9] James Claus and Jacob Thomas, "Equity Risk Premia as Low as Three Percent? Empirical Evidence from Analysts'

Q. PLEASE PROVIDE A SUMMARY OF THE EX ANTE EQUITY RISK PREMIUM STUDIES.

A. Richard Derrig and Elisha Orr (2003) recently completed the most comprehensive paper to date which summarizes and assesses the many risk premium studies.[10] Appendix B of their study, which provides summary statistics for the different studies, is included as page 3 of Exhibit_(JRW-8). The risk premium studies listed under the 'Social Security' and 'Puzzle Research' sections are primarily ex ante expected equity risk premium studies. Most of these studies are performed by leading academic scholars in finance and economics. A review of the 'ERP Estimate' column in Appendix B of the Derrig and Orr study suggests that the average ex ante equity risk premium estimate is in the 4.0% range.

Q. GIVEN THIS BACKGROUND INFORMATION, HOW WILL YOU ESTIMATE AN EQUITY RISK PREMIUM FOR YOUR CAPM?

A. My equity risk premium is the average of: (1) the 4.0% average ex ante expected equity risk premiums from the studies covered in the Derrig and Orr (2003) study, and (2) an ex ante expected equity risk premium developed using Ibbotson and Chen's "building blocks methodology."

Q. PLEASE DISCUSS THE EX ANTE EXPECTED EQUITY RISK PREMIUM COMPUTED USING THE "BUILDING BLOCKS METHODOLOGY."

Earnings Forecasts for Domestic and International Stock Market," *Journal of Finance*. (October 2001).

[10] Richard Derrig and Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, August 28, 2003.

A. Ibbotson and Chen (2002) evaluate the ex post historic mean stock and bond returns in what is called a "building blocks methodology."[11] They use 75 years of data and relate the compounded historic 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 P/E ratios. By relating the fundamental factors to the ex post historic 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). [12] This is shown in the graph below. The first column breaks the 1926-2000 geometric mean stock return of 10.7% into the different return components demanded by investors: the historic 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%).

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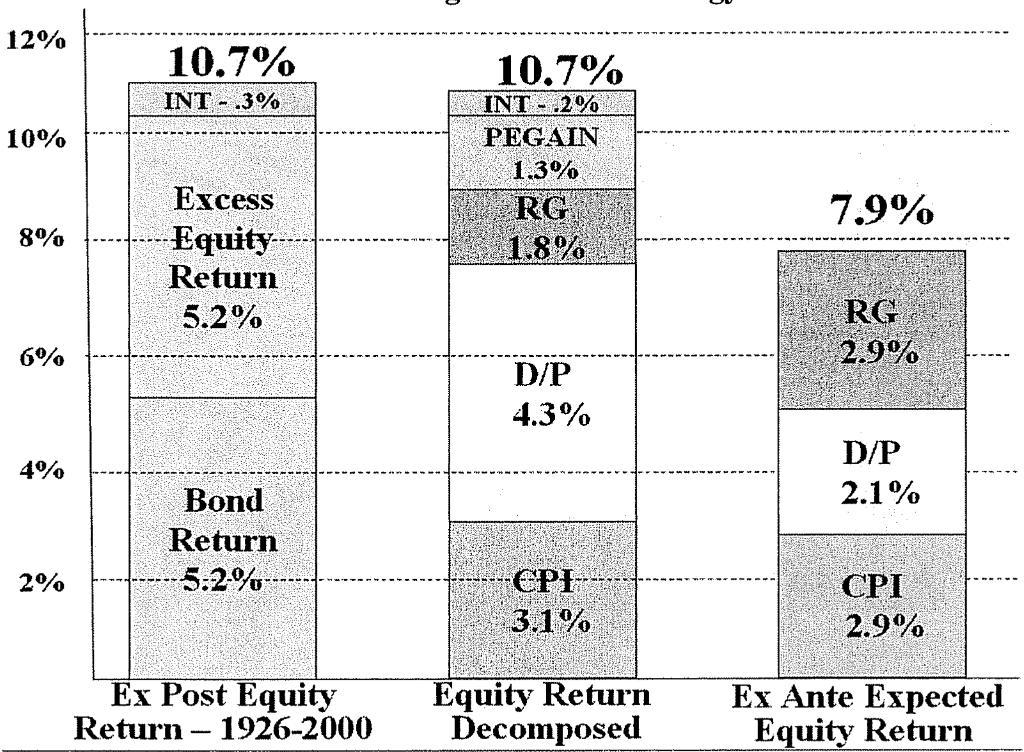
[11] Roger Ibbotson and Peng Chen, "Long Run Returns: Participating in the Real Economy," *Financial Analysts Journal*, January 2003.

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

Decomposing Equity Market Returns
The Building Blocks Methodology

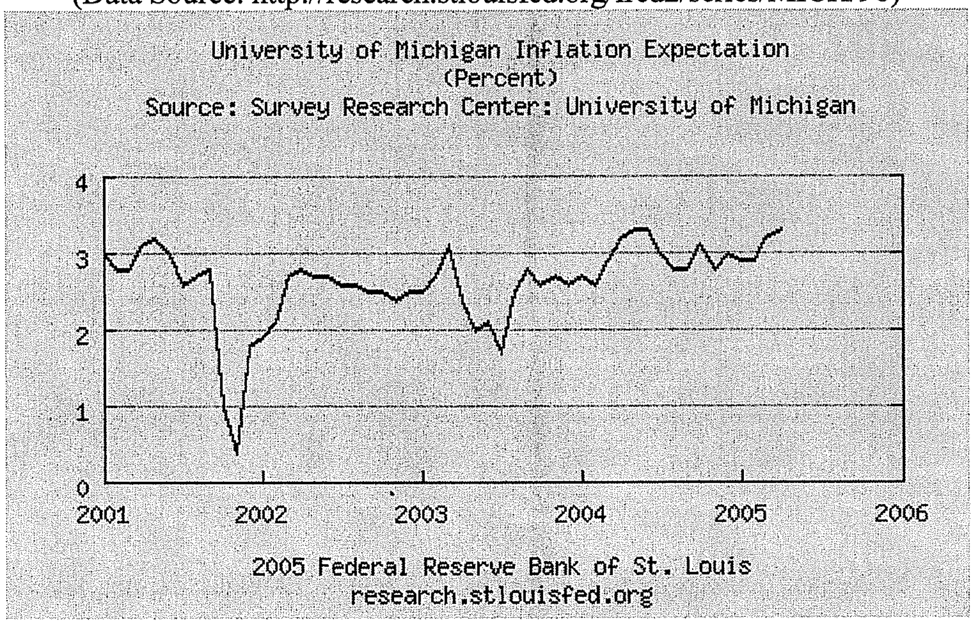


Q. HOW ARE YOU USING THIS METHODOLOGY TO DERIVE AN EX ANTE EXPECTED EQUITY RISK PREMIUM?

A. The third column in the graph above 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. The graph below shows the expected annual inflation rate according to consumers, as measured by the CPI, over the coming year. This survey is published monthly by the University of Michigan Survey Research Center. In the most recent report, expected one-year ahead inflation rate was 3.3%.

Expected Inflation Rate
University of Michigan Consumer Research
(Data Source: http://research.stlouisfed.org/fred2/series/MICH/98)



Longer term inflation forecasts are available in the Federal Reserve Bank of Philadelphia's publication entitled *Survey of Professional Forecasters.*[13] This survey of professional economists has been published for almost 50 years. While this survey is published quarterly,

[13]Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters,* February 14, 2005. The *Survey of Professional Forecasters* was formerly conducted by the American Statistical Association (ASA) and the National Bureau of Economic Research (NBER) and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

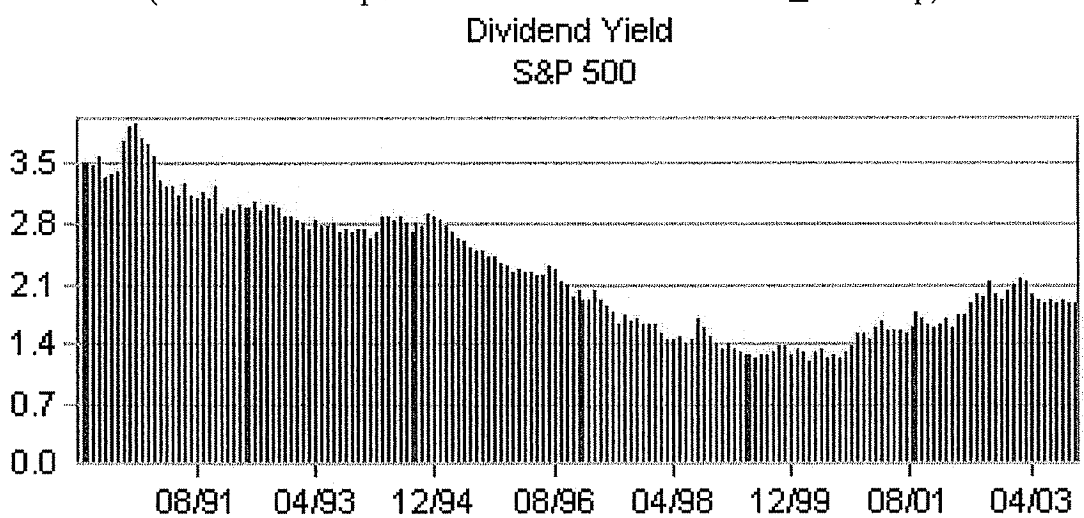
only the first quarter survey includes long-term forecasts of GDP growth, inflation, and market returns. In the first quarter, 2005 survey, published on February 14, 2005, the median long-term (10-term) expected inflation rate as measured by the CPI was 2.45% (see page 4 of Exhibit_(JRW-8)).

Given these results, I will use the average of the University of Michigan and Philadelphia Federal Reserve's surveys (3.30% and 2.45%), or 2.90%.

D/P – As shown in the graph below, the dividend yield on the S&P 500 has decreased gradually over the past decade. Today, it is far below its norm of 4.3% over the 1926-2000 time period. Whereas the S&P dividend yield bottomed out at less than 1.4% in 2000, it is currently at 2.2% which I use in the ex ante risk premium analysis.

S&P 500 Dividend Yield

(Data Source: http://www.barra.com/Research/fund_charts.asp)



RG – To measure expected real growth in earnings, I use (1) the historic real earnings growth rate for the S&P 500, and (2) expected real GDP growth. The S&P 500 was created in 1960. It includes 500 companies which come from ten different sectors of the economy. Over the 1960-2003 period, nominal growth in EPS for the S&P 500 was 6.88%. On page 5 of Exhibit_(JRW-8), real EPS growth is computed using the CPI as a measure of inflation. As indicated by Ibbotson and Chen, real earnings growth over the 1926-2000 period was 1.8%. The real growth figure over 1960-2003 period for the S&P 500 is 2.5%.

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 a relatively consistent 5.50% of US GDP.[14] Real GDP growth, according to McKinsey, has averaged 3.5% over the past 80 years. Expected GDP growth, according to the Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters,* is 3.3% (see page 4 of Exhibit_(JRW-8)).

Given these results, I will use the average of the historic S&P EPS real growth and the historic real GDP growth (and as supported by the Philadelphia Federal Reserve survey of expected GDP growth) (2.5% and 3.3%), or 2.9%, for real earnings growth.

PEGAIN – the repricing gains associated with increases in the P/E ratio 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 graph below shows the P/E ratios for the S&P 500 over the past 25 years. The run-up and eventual peak in P/Es is most notable in the chart. The relatively low P/E ratios (in the range of 10)

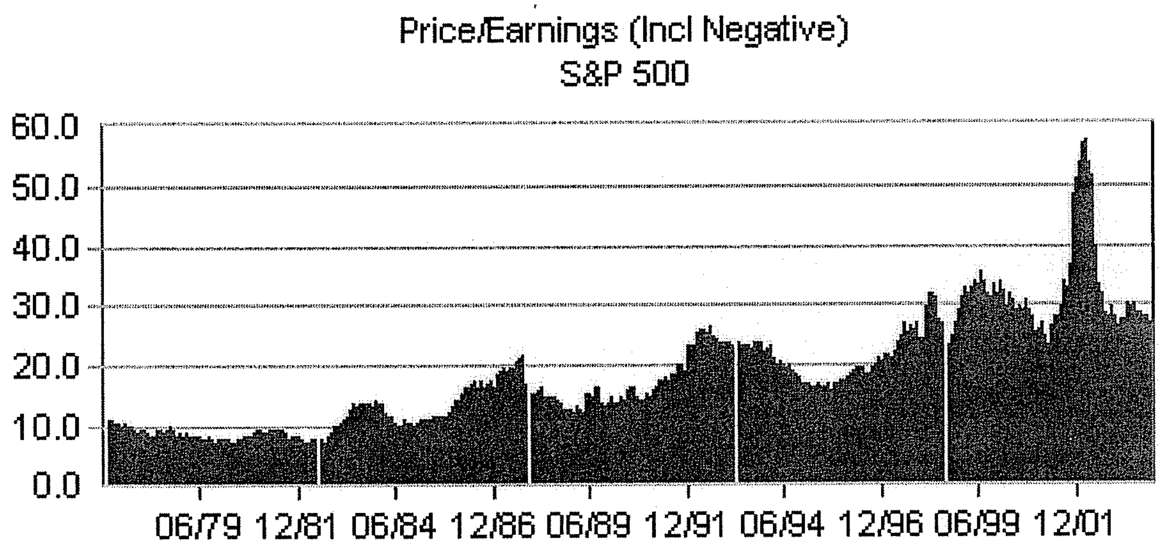
[14]Marc H. Goedhart, Timothy M. Koller, and Zane D. Williams, "The Real Cost of Equity," *McKinsey on Finance*

over two decades ago are also quite notable. As of May, 2005 the P/E for the S&P 500, using the trailing 12 months EPS, is in the range of 21.0 to 22.0 according to www.investor.reuters.com.

Given the current economic and capital markets environment, I do not believe that investors expect even higher P/E ratios. Therefore, a PEGAIN would not be appropriate in estimating an ex ante expected stock market return. There are two primary reasons for this. First, the average historic S&P 500 P/E ratio is 15 – thus the current P/E exceeds this figure by nearly 50%. Second, as previously noted, interest rates are at a cyclical low not seen in almost 50 years. This is a primary reason for the high current P/Es. Given the current market environment with relatively high P/E ratios and low relative interest rate, investors are not likely to expect to get stock market gains from lower interest rates and higher P/E ratios.

S&P 500 P/E Ratios

(Data Source: http://www.barra.com/Research/fund_charts.asp)



(Autumn 2002), p.14. Available at http://www.corporatefinance.mckinsey.com/.

Q. GIVEN THIS DISCUSSION, WHAT IS YOUR EX ANTE EXPECTED MARKET RETURN AND EQUITY RISK PREMIUM USING THE "BUILDING BLOCKS METHODOLOGY"?

A. My expected market return is represented by the last column on the right in the graph entitled "Decomposing Equity Market Returns: The Building Blocks Methodology" found earlier in my testimony. As shown on page 36, my expected market return is 7.90% which is composed of 2.90% expected inflation, 2.10% dividend yield, and 2.90% real earnings growth rate.

Expected Inflation	Dividend Yield	Real Earnings Growth Rate	Expected Market Return
2.90%	2.10%	2.90%	7.9%

Q. GIVEN THAT THE HISTORIC COMPOUNDED ANNUAL MARKET RETURN IS IN EXCESS OF 10%, WHY DO YOU BELIEVE THAT YOUR EXPECTED MARKET RETURN OF 7.90% IS REASONABLE?

A. As discussed above in the development of the expected market return, stock prices are relatively high at the present time in relation to earnings and dividends and interest rates are relatively low. Hence, it is unlikely that investors are going to experience high stock market returns due to higher P/E ratios and/or lower interest rates. In addition, as shown in the decomposition of equity market returns, whereas the dividend portion of the return was historically 4.3%, the current dividend yield is only 2.1%. Due to these reasons, lower market returns are expected for the future.

Q. IS YOUR EXPECTED MARKET RETURN OF 7.90% CONSISTENT WITH THE FORECASTS OF MARKET PROFESSIONALS?

A. Yes. The only survey of market professionals dealing with forecasts of stock market returns is published by the previously-referenced Federal Reserve Bank of Philadelphia. In the first quarter, 2005 survey, published on February 14, 2005, the median long-term expected return on the S&P 500 was 7.00 (see page 4 of Exhibit_(JRW-8)). This is clearly consistent with my expected market return of 7.90%.

Q. GIVEN THIS EXPECTED MARKET RETURN, WHAT IS YOUR EX ANTE EQUITY RISK PREMIUM USING THE "BUILDING BLOCKS METHODOLOGY"?

A. Previously I noted that I am using a risk-free interest rate of 4.50%. My 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 = 7.90% - 4.50% = 3.40%

Q. WHAT EQUITY RISK PREMIUM ARE YOU USING IN YOUR CAPM?

A. I am employing the average of the Derrig-Orr mean (4.00%) and my building blocks approach (3.40%), or 3.70%.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS OF LEADING INVESTMENT FIRMS?

A. Yes. One of the first studies in this area was by Stephen Einhorn, one of Wall Street's leading investment strategists.[15] His study showed that the market or equity risk premium had declined to the 2.0 to 3.0 percent range by the early 1990s. Among the evidence he provided in support of a lower equity risk premium is the inverse relationship between real interest rates (observed interest rates minus inflation) and stock prices. He noted that the decline in the market risk premium has led to a significant change in the relationship between interest rates and stock prices. One implication of this development was that stock prices had increased higher than would be suggested by the historic relationship between valuation levels and interest rates.

The equity risk premiums of some of the other leading investment firms today support the result of the academic studies. An article in *The Economist* indicated that some other firms like J.P. Morgan are estimating an equity risk premium for an average risk stock in the 2.0 to 3.0 percent range above the interest rate on U.S. Treasury Bonds.[16]

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS USED BY CORPORATE CHIEF FINANCIAL OFFICERS (CFOs)?

A. Yes. John Graham and Campbell Harvey of Duke University surveyed CFOs to ascertain their ex ante equity risk premium. In Graham and Harvey's 2003 survey, the average ex ante 10-

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[15] Steven G. Einhorn, "The Perplexing Issue of Valuation: Will the Real Value Please Stand Up?" *Financial Analysts Journal* (July-August 1990), pp. 11-16.

[16] For example, see "Welcome to Bull Country," *The Economist* (July 18, 1998), pp. 21-3, and "Choosing the Right Mixture," *The Economist* (February 27, 1999), pp. 71-2.

year equity risk premium of the CFOs was 3.8%.[17]

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EX ANTE EQUITY RISK PREMIUMS OF PROFESSIONAL FORECASTERS?

A. Yes. The financial forecasters in the previously-referenced Federal Reserve Bank of Philadelphia survey project both stock and bond returns. As shown on page 4 of Exhibit_(JRW-8)), the median long-term expected stock and bond returns were 7.00% and 5.00%, respectively. This provides an ex ante equity risk premium of 2.00%.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS USED BY THE LEADING CONSULTING FIRMS?

A. Yes. McKinsey & Co. is widely recognized as the leading management consulting firm in the world. They recently published a study entitled "The Real Cost of Equity" in which they developed an ex ante equity risk premium for the US. In reference to the decline in the equity risk premium, as well as what is the appropriate equity risk premium to employ for corporate valuation purposes, the McKinsey authors concluded the following:

> We attribute this decline not to equities becoming less risky (the inflation-adjusted cost of equity has not changed) but to investors demanding higher returns in real terms on government bonds after the inflation shocks of the late 1970s and early 1980s. We believe that using an equity risk premium of 3.5 to 4 percent in the current environment better reflects the true long-term opportunity cost of equity capital and hence will yield more accurate valuations for

[17]John R. Graham and Campbell Harvey, "Expectations of Equity Risk Premia, Volatility, and Asymmetry," Duke University Working Paper, 2003.

companies.[18]

Q. WHAT EQUITY COST RATE IS INDICATED BY YOUR CAPM ANALYSIS?

A. This is summarized on page 1 of Exhibit_(JRW-8). Using a risk-free rate of 4.50% and a beta of 0.76 for the five company group and a beta of 0.74 for the thirteen company group, my CAPM estimated equity cost rates are:

$$K = (R_f) + \beta_{ibm} * [E(R_m) - (R_f)]$$

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Eleven Company Gas Distribution Group	4.50%	0.76	3.70%	7.31%

D. EQUITY COST RATE SUMMARY

Q. PLEASE SUMMARIZE YOUR EQUITY COST RATE STUDY.

A. The results for my DCF and CAPM analyses for the group of gas distribution companies are indicated below:

Group	DCF	CAPM
Eleven Company Gas Distribution Group	8.7%	7.31%

Q. GIVEN THESE RESULTS, WHAT EQUITY COST RATE RECOMMENDATION

[18]Marc H. Goedhart, Timothy M. Koller, and Zane D. Williams, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.15. Available at http://www.corporatefinance.mckinsey.com/.

ARE YOU MAKING FOR ULHP?

A. Giving primary weight to the DCF results, these results indicate that a fair equity cost rate for ULHP is 8.7%. I will use this figure as the equity cost rate for the Company.

Q. ISN'T YOUR RECOMMENDED RETURN LOW BY HISTORIC STANDARDS?

A. Yes it is, and appropriately so. My recommended rate of return is low by historic standards for three reasons. First, as discussed above, current capital costs are very low by historic standards, with interest rates at a cyclical low not seen since the 1960s. Second, the 2003 tax law, which reduces the tax rates on dividend income and capital gains, lowers the pre-tax return required by investors. And third, as discussed below, the equity or market risk premium has declined.

Q. FINALLY, PLEASE DISCUSS THIS RECOMMENDATION IN LIGHT OF RECENT YIELDS ON 'A' RATED PUBLIC UTILITY BONDS.

A. In recent months the yields on long-term 'A' rated public utility bonds have been in the 6.0 percent range. My equity return recommendation of 8.7% may appear to be too low given these yields. However, as previously noted, my recommendation must be viewed in the context of the significant decline in the market or equity risk premium. As a result, the return premium that equity investors require over bond yields is much lower than today. This decline was previously reviewed in my discussion of capital costs in today's markets. In addition, it will be examined in more depth in my critique of Dr. Morin's testimony.

Q. HOW DO YOU TEST THE REASONABLENESS OF YOUR 8.7% RECOMMENDATION?

A. To test the reasonableness of my 8.7% recommendation, I examine the relationship between the return on common equity and the market-to-book ratios for the group of gas distribution companies.

Q. WHAT DO THE RETURNS ON COMMON EQUITY AND MARKET-TO-BOOK RATIOS FOR THE GROUP INDICATE ABOUT THE REASONABLENESS OF YOUR 8.7% RECOMMENDATION?

A. Exhibit_(JRW-3) provides financial performance and market valuation statistics for the group of gas distribution companies. The average current returns on equity and market-to-book ratios for the group are 11.1% and 1.75, respectively. These results clearly indicate that, on average, these companies are earning returns on equity significantly above their equity cost rates. As such, this observation provides evidence that my recommended equity cost rate of 8.7% is reasonable and fully consistent with the financial performance and market valuation of the gas companies.

V. CRITIQUE OF ULHP'S RATE OF RETURN TESTIMONY

Q. PLEASE SUMMARIZE ULHP'S OVERALL RATE OF RETURN RECOMMENDATION.

A. ULHP's rate of return recommendation is provided by ULHP witnesses Aumiiller and Morin. Ms. Aumiller develops the company's proposed capital structure and senior capital cost rates, and Dr. Morin has recommended the equity cost rate. ULHP's proposed rate of return is:

Capital Source	Ratio	Cost Rate	Weighted Cost Rate
Short-Term Debt	7.389	3.875%	0.286%
Long-Term Debt	38.196%	6.302%	2.407%
Common Equity	54.415%	11.200%	6.094%
Total	100.00%		8.787%

Q. PLEASE EVALUATE THE COMPANY'S RATE OF RETURN POSITION.

A. The Company's proposed rate of return is excessive due primarily to an overstated equity cost rate. Dr. Morin's estimated equity cost rate of 11.20% is unreasonably high due to (1) the use of an inflated forecasted risk-free rate of interest; (2) excessive risk premium estimates in his CAPM and risk premium approaches, (3) upwardly-biased growth rates in his DCF equity cost rate approach; and (4) an unnecessary flotation cost adjustment. In addition, it should be noted the Attorney General's office is being very fair in not proposing a more economical capital structure since Ms. Aumiller's proposed`capital structure contains significantly more equity than is typically employed by companies in the gas distribution industry.

Q. WHAT ISSUES ARE YOU ADDRESSING IN YOUR REBUTTAL TESTIMONY?

A. I am addressing the following issues: (1) ULHP's proposed capital structure and ULHP's financial and investment risks; (2) the proxy groups employed by Dr. Morin; and (3) Dr. Morin's equity cost rate approaches and results.

Capital Structure and ULHP's Financial and Investment Risks

Q. PLEASE DISCUSS ULHP'S PROPOSED CAPITAL STRUCTURE RELATIVE TO THE CAPITALIZATIONS EMPLOYED BY THE GAS DISTRIBUTION INDUSTRY.

A. As noted in my direct testimony, the company's proposed capital structure has significantly more common equity than the capital structures of my proxy group of gas companies. On page 58 his testimony, and in Exhibit RAM-9, Dr. Morin compares the common equity ratios of his natural gas distribution group to ULHP's proposed common equity ratio. He erroneously concludes that the median common equity ratio of the group, 50%, is slightly higher than ULHP's proposed common equity ratio of 54%. Furthermore, his study is flawed in that it uses stale data (2003) and it is incomplete. On page 1 of Exhibit_(JRW-9), I have provided a much more complete analysis of the capital structure ratios of Dr. Morin's group. Even when excluding AmeriGas Partners, the most heavily levered of the gas companies, the average common equity ratio of the group is only 46% as of the first quarter of 2005.

Q. WHAT DO YOU CONCLUDE FROM THE DATA ON PAGE 1 OF EXHIBIT_(JRW-9)?

A. It is clear that, contrary to Dr. Morin's observation, the average capital structure of his proxy group has a significantly lower, and not a higher, common equity ratio than that proposed by ULHP. Therefore, by adopting ULHP's proposed capital structure, the Attorney General office is being very fair in not proposing a more economical capital structure for rate making purposes.

Q. WHAT CONCLUSION HAS DR. MORIN MADE CONCERNING THE OVERALL INVESTMENT RISK OF ULHP?

A. On page 57 of his testimony, Dr. Morin concludes that ULHP's investment risk is comparable to that of other gas distribution companies.

Q. HAS DR. MORIN PERFORMED ANY STUDIES SUPPORTING THAT CONCLUSION?

A. No. Between pages 53 and 56 of his testimony Dr. Morin discusses various risks faced by ULHP and the gas distribution industry, but he does not perform any empirical studies that assess ULHP's business risks relative to the industry.

Q. HAS DR. MORIN RECOGNIZED THE DIFFERENCES IN FINANCIAL RISK AS INDICATED BY THE DIFFERENCE IN THE COMPANY'S PROPOSED CAPITAL STRUCTURE AND THAT OF THE GAS DISTRIBUTION INDUSTRY?

A. No.

Q. MS. AUMILLER HIGHLIGHTS THE COMPANY'S BOND RATING IN HER DISCUSSION OF ULHP'S RISKINESS. PLEASE COMMENT.

A. Whereas Ms. Aumiller places much emphasis on the Company's bond rating in her discussion of the Company's riskiness, it is readily apparent from reading the credit reports provided in response to data request AG-DR-01-079 that the primary driver of ULHP's credit rating is the fact that its is a wholly-owned subsidiary of CG&E. As such, relying on credit ratings is not likely to provide much insight into the riskiness of the operations of the Company.

Proxy Groups

Q. PLEASE DISCUSS THE PROXY GROUPS EMPLOYED BY DR. MORIN IN ESTIMATING ULHP'S COST OF COMMON EQUITY.

A. In different stages of his analysis, Dr. Morin employs a group of 16 gas distribution companies, a group of 34 combination gas and electric utility companies, a group of 64 electric utilities, as well Moody's Natural Gas Distribution as well as Electric Utility common stocks. There are a number of problems with using his groups to estimate ULHP's cost of common equity. For each group, the problems are:

Proxy Group of 16 Gas Distribution Companies - This group is derived from the Value Line Investment Analyzer. The group is not entirely appropriate for UHLP in that it includes a limited partnership (AmeriGas Partners), an integrated gas company (Energen), companies with a very low percent of revenues from gas distribution (New Jersey Resources, UGI), and companies with below investment grade S&P bond ratings (Southern Union, Southwest Gas).

Proxy Group of 34 Combination Gas and Electric UtilityCcompanies and the Proxy Group of 64 Electric Utility Companies - The obvious issue with these two groups are that the companies have electric utility operations, and Dr. Morin has not performed any studies that assesses the similarities of the risk characteristics of these companies with UHLP.

Moody's Natural Gas Distribution Index and Electric Utility Index - Dr. Morin uses these groups in his historic risk premium study. Once again, Dr. Morin has not performed any studies that demonstrate the similarities of the risk characteristics of the companies in these groups with UHLP. In addition, as indicated in his responses to AG-DR-01-096 and AG-DR-01-096, he considers the composition and construction of these indexes to be immaterial.

Equity Cost Rate Approaches and Results

Q. PLEASE REVIEW DR. MORIN'S EQUITY COST RATE APPROACHES.

A. The primary errors in Dr. Morin's equity cost rate studies are (1) the use of a forecasted risk-free rate of interest (RF) that is well in excess of the current long-term interest rates, (2) excessive risk premium estimates in his risk premium approaches, (3) upwardly-biased expected growth rates in his DCF equity cost rate; and (4) an unnecessary flotation cost adjustment applied to all equity cost rate estimates.

Dr. Morin estimates an equity cost rate for ULHP of 11.2% by applying risk premium and DCF methodologies. His equity cost rate approaches and resulting estimates for ULHP are summarized below:

<u>Summary of Equity Cost Rate Approaches and Results</u>

Approach	**Group**	**Result**
CAPM		
RF = 5.2%	Proxy Gas Co.	11.7%
RF = 5.9%	Proxy Gas Co	12.4%
ECAPM		
RF = 5.2%	Proxy Gas Co	12.5%
RF = 5.9%	Proxy Gas Co	12.8%
Historic Risk Premium		
RF = 5.2%	Moody's Gas	11.2%
RF = 5.9%	Moody's Gas	11.9%
RF = 5.2%	Moody's Electric	11.1%
RF = 5.9%	Moody's Electric	11.8%
Allowed Risk Premium		
RF = 5.2%	Natural Gas Co.	10.9%
RF = 5.9%	Natural Gas Co.	11.1%
DCF		
Value Line Growth	Proxy Gas Co	10.3%
Zacks Growth	Proxy Gas Co	9.1%
Value Line Growth	Gas & Electric	9.4%
Zacks Growth	Gas & Electric	10.2%

Q. PLEASE REVIEW DR. MORIN'S EQUITY COST RATE APPROACHES.

A. Dr. Morin employs a DCF approach as well as several variants of the risk premium approach. The various risk premium approaches include the CAPM, the empirical CAPM (ECAPM), two applications of a historical risk premium, and an allowed risk premium.

Q. PLEASE PROVIDE A SUMMARY OF DR. MORIN'S VARIOUS RISK PREMIUM APPROACHES, INCLUDING HIS CAPM.

A. The tables below provide the results of Dr. Morin's various risk premium approaches, including his CAPM. These tables provide the group of companies employed, the individual inputs, and the overall results.

CAPM Results
Gas Distribution Proxy Group

		Sixteen Company Gas Distribution Group RF = 5.2%	Sixteen Company Gas Distribution Group RF = 5.9%
Risk-Free Rate		5.2%	5.9%
Average Beta		.80	.80
Historic Return Premium	7.2%		
VL DCF Risk Premium	8.2%		
Equity Risk Premium		7.70%	7.70%
Equity Cost Rate		11.40%	12.0%
Flotation Cost Adjustment		.30	.40
CAPM Equity Cost Rate		**11.7%**	**12.4%**

ECAPM Results
Gas Distribution Proxy Group

		Sixteen Company Gas Distribution Group RF = 5.2%	Sixteen Company Gas Distribution Group RF = 5.9%
Risk-Free Rate		5.2%	5.9%
Average Beta		.80	.80
Historic Return Premium	7.2%		
VL DCF Risk Premium	8.2%		
Equity Risk Premium		7.70%	7.70%
Equity Cost Rate		11.80%	12.5%
Flotation Cost Adjustment		.30	.30
ECAPM Equity Cost Rate		**12.1%**	**12.8%**

Historic Risk Premium Results
Moody's Gas Distribution Index

	Moody's Gas Distribution Index RF = 5.2%	Moody's Gas Distribution Index RF = 5.9%
Risk-Free Rate	5.2%	5.9%
Historic Return Premium	5.7%	5.7%
Equity Cost Rate	10.9%	11.6%
Flotation Cost Adjustment	.30	.30
Hist. RP Equity Cost Rate	**11.2%**	**11.9%**

Historic Risk Premium Results
Moody's Electric Utility Index

	Moody's Electric Utility Index RF = 5.2%	Moody's Electric Utility Index RF = 5.9%
Risk-Free Rate	5.2%	5.9%
Historic Return Premium	5.6%	5.6%
Equity Cost Rate	10.8%	11.5%
Flotation Cost Adjustment	.30	.30
Hist. RP Equity Cost Rate	**11.1%**	**11.8%**

Allowed Risk Premium Results
Gas Distribution Companies

	Gas Distribution Companies RF = 5.2%	Gas Distribution Companies RF = 5.9%
Risk-Free Rate	5.2%	5.9%
Allowed Return Premium	5.7 %	5.2%
Allowed RP Equity Cost Rate	**10.9%**	**11.1%**

Q. HOW ARE YOU EVALUATING THESE APPROACHES?

A. There are certain common elements to these approaches that I am initially discussing. Then I provide additional commentary on the individual approaches. The common elements include flotation costs, the risk-free interest rate, and the historic risk premium.

Q. PLEASE ADDRESS THE FLOTATION COST ADJUSTMENT ISSUE. IS A FLOTATION COST ADJUSTMENT NECESSARY IN THIS PROCEEDING?

A. No. In response to AG-DR-01-103, the company has indicated that CG&E has made no equity infusions in ULHP over the past five years. There is a planned $150M equity infusion by CG&E associated with the transfer of generating assets, but no costs were identified and obviously this involves a transaction on the electric side of the business. Therefore, since no flotation or equity issuance costs have been identified, there is no reason to provide ULHP with additional revenues through a flotation cost adjustment to the allowed rate of return. A flotation cost adjustment in this case would simply provide additional revenues for an expense that the Company has not incurred in the recent past or does not expect to incur in the foreseeable future.

Q. PLEASE DISCUSS THE RISK-FREE INTEREST RATE IN DR. MORIN'S RISK PREMIUM APPROACHES.

A. The risk-free rate of interest is the base yield in Dr. Morin's risk premium approaches. He has utilized a risk-free interest rate range of 5.2% to 5.9%. The 5.2% is the rate on the U.S. Treasury 30-year zero-coupon yield as of December 2004. The 5.9% rate represents Dr. Morin's interpolation of a 30-year rate from the forecasted December 2005 yield on 10-year Treasuries as published by Consensus Economics.

Q. IS THIS RANGE APPROPRIATE FOR THE RISK-FREE RATE OF INTEREST

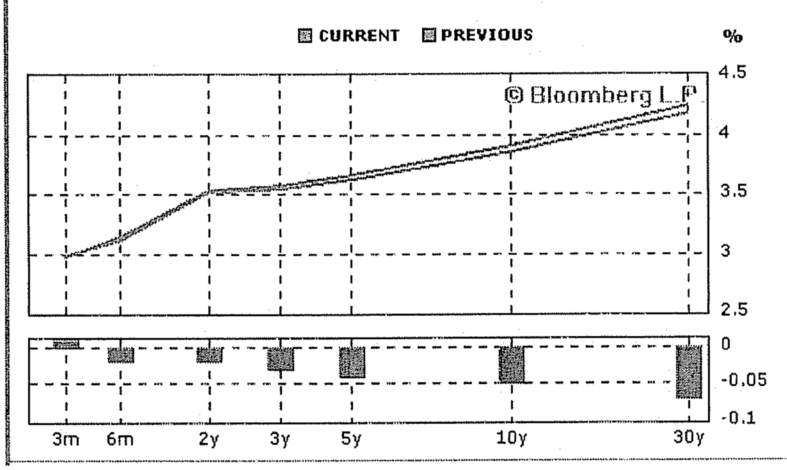
AT THIS TIME?

A. No. It is well in excess of the current rates on U.S. Treasury bonds. It seems that services like Consensus Economics are always forecasting interest rates to go up. Contrary to these forecasts, concerns over the direction of the economy have led to a further decline in interest rates in recent months. The table below shows the current yields on U.S. Treasury securities as well as the current Yield Curve.

U.S. Treasury Yields
June 3, 2005

Notes/Bonds

	COUPON	MATURITY DATE	CURRENT PRICE/YIELD	PRICE/YIELD CHANGE	TIME
2-Year	3.500	05/31/2007	99-31/3.51	0-00/-.012	10:23
3-Year	3.750	05/15/2008	100-18/3.54	0-01/-.020	10:23
5-Year	3.875	05/15/2010	101-04/3.62	0-04/-.032	10:23
10-Year	4.125	05/15/2015	102-07/3.85	0-11/-.044	10:23
30-Year	5.375	02/15/2031	118-27/4.17	1-03/-.064	10:23



Source: Www.bloomberg.com

It shows that the current yield on 10- and 30- year Treasury bonds are 3.85% and 4.17%

respectively. This is well below the risk-free rates employed by Dr. Morin in his risk premium approaches.

Q. PLEASE ADDRESS THE THIRD COMMON ISSUE INVOVLING THE USE OF HISTORIC STOCK AND BOND RETURNS TO COMPUTE A FORWARD-LOOKING OR EX ANTE RISK PREMIUM.

A. In his CAPM and historic risk premium approaches, Dr. Morin has used historic stock and bond returns to compute an expected risk premium. His historic evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of assessing historic financial market returns. Dr. Morin evaluates the historic stock-bond return relationship for the overall market and for gas and electric utility stocks for different periods over the 1926-2003 period.

Using the historic relationship between stock and bond returns to measure an ex ante equity risk premium is erroneous and, especially in this case, overstates the true market equity risk premium. The equity risk premium is based on expectations of the future and when past market conditions vary significantly from the present, historic data does not provide a realistic or accurate barometer of expectations of the future. At the present time, using historic returns to measure the ex ante equity risk premium ignores current market conditions and masks the dramatic change in the risk and return relationship between stocks and bonds. This change suggests that the equity risk premium has declined.

Q. PLEASE DISCUSS THE ERRORS IN USING HISTORIC STOCK AND BOND

RETURNS TO ESTIMATE AN EQUITY RISK PREMIUM.

A. There are a number of flaws in using historic returns over long time periods to estimate expected equity risk premiums. These issues include:

(A) Biased historic bond returns;

(B) The arithmetic versus the geometric mean return;

(C) Unattainable and biased historic stock returns;

(D) Survivorship bias;

(E) The "Peso Problem;"

(F) Market conditions today are significantly different than the past; and

(G) Changes in risk and return in the markets.

These issues will be addressed in order.

<u>Biased Historic Bond Returns</u>

Q. HOW ARE HISTORIC BOND RETURNS BIASED?

A. An essential assumption of these studies is that over long periods of time investors' expectations are realized. However, the experienced returns of bondholders in the past violate this critical assumption. Historic bond returns are biased downward as a measure of expectancy because of capital losses suffered by bondholders in the past. As such, risk premiums derived from this data are biased upwards.

<u>The Arithmetic versus the Geometric Mean Return</u>

Q. PLEASE DISCUSS THE ISSUE RELATING TO THE USE OF THE

ARITHMETIC VERSUS THE GEOMETRIC MEAN RETURNS IN THE IBBOTSON METHODOLOGY.

A. The measure of investment return has a significant effect on the interpretation of the risk premium results. When analyzing a single security price series over time (i.e., a time series), the best measure of investment performance is the geometric mean return. Using the arithmetic mean overstates the return experienced by investors. In a study entitled "Risk and Return on Equity: The Use and Misuse of Historical Estimates," Carleton and Lakonishok make the following observation: "The geometric mean measures the changes in wealth over more than one period on a buy and hold (with dividends invested) strategy."[19] Since Dr. Morin's study covers more than one period (and he assumes that dividends are reinvested), he should be employing the geometric mean and not the arithmetic mean.

Q. PLEASE PROVIDE AN EXAMPLE DEMONSTRATING THE PROBLEM WITH USING THE ARITHMETIC MEAN RETURN.

A. To demonstrate the upward bias of the arithmetic mean, consider the following example. Assume that you have a stock (that pays no dividend) that is selling for $100 today, increases to $200 in one year, and then falls back to $100 in two years. The table below shows the prices and returns.

[19] Willard T. Carleton and Josef Lakonishok, "Risk and Return on Equity: The Use and Misuse of Historical Estimates," *Financial Analysts Journal* (January-February, 1985), pp. 38-47.

Time Period	Stock Price	Annual Return
0	$100	
1	$200	100%
2	$100	-50%

The arithmetic mean return is simply (100% + (-50%))/2 = 25% per year. The geometric mean return is $((2 * .50)^{(1/2)}) - 1 = 0\%$ per year. Therefore, the arithmetic mean return suggests that your stock has appreciated at an annual rate of 25%, while the geometric mean return indicates an annual return of 0%. Since after two years, your stock is still only worth $100, the geometric mean return is the appropriate return measure. For this reason, when stock returns and earnings growth rates are reported in the financial press, they are generally reported using the geometric mean. This is because of the upward bias of the arithmetic mean. Therefore, Dr. Morin's arithmetic mean return measures are biased and should be disregarded.

Unattainable and Biased Historic Stock Returns

Q. YOU NOTE THAT HISTORIC STOCK RETURNS ARE BIASED USING THE IBBOTSON METHODOLOGY. PLEASE ELABORATE.

A. Returns developed using Ibbotson's methodology are computed on stock indexes and therefore (1) cannot be reflective of expectations because these returns are unattainable to investors, and (2) produce biased results. This methodology assumes (a) monthly portfolio rebalancing and (b) reinvestment of interest and dividends. Monthly portfolio rebalancing presumes that investors rebalance their portfolios at the end of each month in order to have an equal dollar amount invested in each security at the beginning of each month. The assumption would obviously generate extremely high transaction costs and, as such, these returns are unattainable to investors. In addition, an academic study demonstrates that the monthly portfolio rebalancing assumption produces biased estimates of stock returns.[20]

Transaction costs themselves provide another bias in historic versus expected returns. The observed stock returns of the past were not the realized returns of investors due to the much higher transaction costs of previous decades. These higher transaction costs are reflected through the higher commissions on stock trades, and the lack of low cost mutual funds like index funds.

Survivorship Bias

Q. HOW DOES SURVIVORSHIP BIAS AFFECT DR. MORIN'S HISTORIC EQUITY RISK PREMIUM?

A. Using historic data to estimate an equity risk premium suffers from survivorship bias. Survivorship bias results when using returns from indexes like the S&P 500. The S&P 500 includes only companies that have survived. The fact that returns of firms that did not perform so well were dropped from these indexes is not reflected. Therefore these stock returns are upwardly biased because they only reflect the returns from more successful companies.

The "Peso Problem"

Q. WHAT IS THE "PESO PROBLEM" AND HOW DOES IT AFFECT HISTORIC

[20] See Richard Roll, "On Computing Mean Returns and the Small Firm Premium," *Journal of Financial Economics* (1983), pp. 371-86.

RETURNS AND EQUITY RISK PREMIUMS?

A. Dr. Morin's use of historic return data also suffers from the so-called "peso problem." The 'peso problem' issue was first highlighted by the Nobel laureate, Milton Friedman, and gets its name from conditions related to the Mexican peso market in the early 1970s. This issue involves the fact that past stock market returns were higher than were expected at the time because despite war, depression, and other social, political, and economic events, the US economy survived and did not suffer hyperinflation, invasion, and the calamities of other countries. As such, highly improbable events, which may or may not occur in the future, are factored into stock prices, leading to seemingly low valuations. Higher than expected stock returns are then earned when these events do not subsequently occur. Therefore, the 'peso problem' indicates that historic stock returns are overstated as measures of expected returns.

Market Conditions Today are Significantly Different than in the Past

Q. FROM AN EQUITY RISK PREMIUM PERSPECTIVE, PLEASE DISCUSS HOW MARKET CONDITIONS ARE DIFFERENT TODAY.

A. The equity risk premium is based on expectations of the future. When past market conditions vary significantly from the present, historic data does not provide a realistic or accurate barometer of expectations of the future. As noted previously, stock valuations (as measured by P/E) are relatively high and interest rates are relatively low, on a historic basis. Therefore, given the high stock prices and low interest rates, expected returns are likely to be lower on a going forward basis.

Changes in Risk and Return in the Markets

Q. PLEASE DISCUSS THE NOTION THAT HISTORIC EQUITY RISK PREMIUM STUDIES DO NOT REFLECT THE CHANGE IN RISK AND RETURN IN TODAY'S FINANCIAL MARKETS.

A. The historic equity risk premium methodology is unrealistic in that it makes the explicit assumption that risk premiums do not change over time based on market conditions such as inflation, interest rates, and expected economic growth. Furthermore, using historic returns to measure the equity risk premium masks the dramatic change in the risk and return relationship between stocks and bonds. The nature of the change, as I will discuss below, is that bonds have increased in risk relative to stocks. This change suggests that the equity risk premium has declined in recent years.

Page 1 of Exhibit_(JRW-10) provides the yields on long-term U.S. Treasury bonds from 1926 to 2004. One very obvious observation from this graph is that interest rates increase dramatically from the mid-1960s until the early 1980s, and since have returned to their 1960 levels. The annual market risk premiums for the 1926 to 2004 period are provided on page 2 of Exhibit_(JRW-10). The annual market risk premium is defined as the return on common stock minus the return on long-term Treasury Bonds. There is considerable variability in this series and a clear decline in recent decades. The high was 54% in 1933 and the low was -38% in 1931. Evidence of a change in the relative riskiness of bonds and stocks is provided on page 3 of

Exhibit_(JRW-10) which plots the standard deviation of monthly stock and bond returns since 1930. The plot shows that, whereas stock returns were much more volatile than bond returns from the 1930s to the 1970s, bond returns became more variable than stock returns during the 1980s. In recent years stocks and bonds have become much more similar in terms of volatility, but stocks are still a little more volatile. The decrease in the volatility of stocks relative to bonds over time has been attributed to several stock related factors: the impact of technology on productivity and the new economy; the role of information (see Federal Reserve Chairman Greenspan's comments referred to earlier in this testimony) on the economy and markets; better cost and risk management by businesses; and several bond related factors; deregulation of the financial system; inflation fears and interest rates; and the increase in the use of debt financing. Further evidence of the greater relative riskiness of bonds is shown on page 4 of Exhibit_(JRW-10), which plots real interest rates (the nominal interest rate minus inflation) from 1926 to 2004. Real rates have been well above historic norms during the past 10-15 years. These high real interest rates reflect the fact that investors view bonds as riskier investments.

The net effect of the change in risk and return has been a significant decrease in the return premium that stock investors require over bond yields. In short, the equity or market risk premium has declined in recent years. This decline has been discovered in studies by leading academic scholars and investment firms, and has been acknowledged by government regulators. As such, using a historic equity risk premium analysis is simply outdated and not reflective of current Investor expectations and investment fundamentals.

Q. NOW TURN TO YOUR SPECIFIC COMMENTS ON DR. MORIN'S VARIOUS RISK PREMIUM APPROACHES. PLEASE INITIALLY ASSESS DR. MORIN'S USE OF THE CAPITAL ASSET PRICING MODEL.

A. On pages 21 to 31 of his testimony, and in Exhibit RAM-2, Dr. Morin applies the CAPM and a variant, the Empirical CAPM (ECAPM), to his proxy group of 16 gas distribution companies. I have three concerns with Dr. Morin's CAPM/ECAPM analyses: (1) his risk-free interest rates of 5.2% and 5.9%, (2) the weights of the so-called ECAPM, and (3) most significantly, his equity or market risk premium. The risk-free interest rate issue was discussed above. The others are discussed below.

Q. WHAT SPECIFIC ISSUES DO YOU HAVE WITH DR. MORIN'S CAPM AND ECAPM?

A. Dr. Morin has employed not only a traditional CAPM, but also the so-called ECAPM. In his testimony, Dr. Morin cites a chapter from his book, but does not provide support for his weights of 0.25 and 0.75 in his CAPM. To my knowledge, there are no studies published in refereed academic journals that support these weights and/or recommends their use in applying the CAPM. This is especially relevant here because weighting the CAPM to get to the ECAPM in this manner is also consistent with a declining equity risk premium over time.

Q. YOUR THIRD ISSUE WITH DR. MORIN'S CAPM/ECAPM INVOLVES THE EQUITY RISK PREMIUM. WHAT IS YOUR CONCERN ON THIS MATTER?

A. The primary problem with both Dr. Morin's CAPM and ECAPM is the magnitude of the equity risk premium. Dr. Morin has employed a 7.70% equity or market risk premium. He computes this equity or market risk premium as the average of the results of historic and projected equity risk studies. He computes a historic risk premium as the difference between the historic stock and bond returns over the 1926 and 2003 period. The problems and errors with this methodology were discussed above. He calculates the forecasted equity risk premium of 8.2% as the difference between a prospective DCF-derived overall market return of 13.4% (using dividend yield and growth rates from *Value Line*) and a risk-free rate of 5.2%.

Q. PLEASE SUMMARIZE DR. MORIN'S PROSPECTIVE MARKET RETURN OF 13.4%.

A. Dr. Morin computes an expected return of 13.4% on the stock market using a dividend yield of 1.1% and expected DPS and EPS growth rates of 10.7% and 13.2%, respectively. The growth rate data represent *Value Line's* 5-year growth rates for all stocks for which projections are made

Q. PLEASE EVALUATE THIS EXPECTED MARKET RETURN.

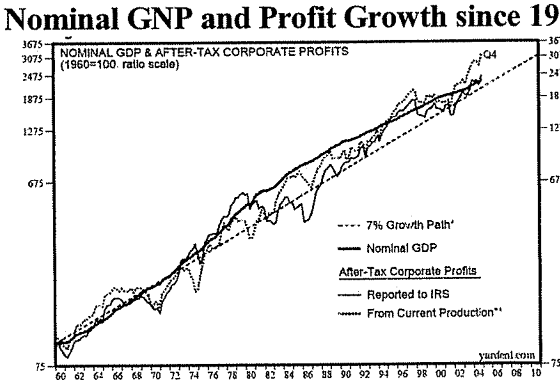
A. An expected market return of 13.4% is out of line with historic norms and is inconsistent with current market conditions. The primary reason is that the expected growth rates of 10.2% and 13.23% are clearly excessive and inconsistent with economic and earnings growth in the U.S.

The average historic compounded return on large company stocks in the U.S. has been 10.4% according to the 2005 SBBI Yearbook. To suggest that investors are going to expect a return that is 300 basis points above this is not logical. This is especially so given current market conditions. As discussed above, at the present time stock prices (relative to earnings) are high and interest rates are low. Major stock market upswings which produce above average returns tend to occur when stock prices are low and interest rates are high. Thus, historic norms and current market conditions do not suggest above average stock returns. Consistent with this observation, the financial forecasters in the Federal Reserve Bank of Philadelphia survey expect a market return of 7.00% over the next ten years.

Q. WHAT EVIDENCE CAN YOU PROVIDE THAT INDICATES DR. MORIN'S GROWTH RATES ARE EXCESSIVE?

A. Dr. Morin's expected DPS and EPS growth rates of 10.7% and 13.2% are inconsistent with economic and earnings growth in the U.S. This is especially true when you consider that in a DCF framework, the growth rate is for a long period of time. The long-term economic and earnings growth rate in the U.S. has only been about 7%. Edward Yardeni, a well-known Wall Street economist, calls this the "7% Solution" to growth in the U.S. The graph below comes from his analysis of GNP and profit growth since 1960.

The 7% Solution
Nominal GNP and Profit Growth since 1960



* Compounded monthly to yield 7% annually.
** Includes Inventory Valuation Adjustment and Capital Consumption Adjustment.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Source: Edward Yardeni, Strategists Handbook, Oak Associates, April 2005

As further evidence of the long-term growth rate in the U.S., I have performed a study of the growth in nominal GNP, S&P 500 stock price appreciation, and S&P 500 EPS and DPS growth since 1960. The results are provided on page 2 of Exhibit_(JRW-9) and a summary is given in the table below.

GNP, S&P 500 Stock Price, EPS, and DPS Growth
1960-Present

Nominal GNP	7.22%
S&P 500 Stock Price Appreciation	7.15%
S&P 500 EPS	7.23%
S&P 500 DPS	5.32%
Average	6.73%

The results offer compelling evidence that a long-run growth rate of about 7% is appropriate for companies in the U.S. Dr. Morin's long-run growth rate projections are clearly not realistic. His estimates suggest that companies in the U.S. would be expected to (1) nearly double their growth rates in EPS and DPS in the future, and (2) maintain that growth indefinitely in an economy that is expected to growth at about one half his projected growth rates. Such a scenario lacks rational economic reasoning.

Q. ON PAGE 30 OF HIS TESTIMONY DR. MORIN REFERS TO A STUDY BY HARRIS, MARSTON, MISHRA, AND O'BRIEN (HMMO) TO SUPPORT HIS OVERALL EQUITY RISK PREMIUM. PLEASE COMMENT.

A. The HMMO study develops a, expected market return in a DCF framework using analysts' expected EPS forecasts as measures of expected growth. This methodology is fundamentally flawed since it is well known that analysts' EPS growth rate forecasts are upwardly biased and therefore using these estimates in a market DCF model produces inflated expected market returns and equity risk premiums. This issue is addressed later in my testimony.

Q. PLEASE REVIEW DR. MORIN'S HISTORIC RISK PREMIUM ANALYSIS.

A. On pages 33 to 35 of his testimony and in Exhibits RAM-3 and RAM-4, Dr. Morin performs a historic risk premium analysis using Moody's Natural Gas Distribution Index and Moody's Electric Utility Index. There are four problems with his analysis: (1) his risk-free interest rates of 5.2% and 5.9%, (2) the historic risk premium methodology, (3) the flotation cost adjustment, and (4) the absence of any studies that demonstrate these groups are appropriate for assessing the equity cost rate of ULHP. The first three issues were addressed above as common issues in his risk premium studies. The final issue is that Dr. Morin provides no evidence that the companies in the Indexes are similar to ULHP. In fact, as indicated in his responses to AG-DR-01-096 and AG-DR-01-096, he considers the composition and construction of these indexes to be immaterial.

Q. WHAT ISSUES DO YOU HAVE WITH DR. MORIN'S ALLOWED RISK PREMIUM?

A. Dr. Morin provides his evaluation of allowed risk premiums on pages 35-38 of his testimony. There are two major issues with this analysis: (1) his risk-free interest rates of 5.2% and 5.9% and (2) his conclusion regarding the appropriate risk premium from the study. The risk-free rate was addressed above as a common issue in his risk premium studies. On the second issue, Dr.

Morin's approach involves circular reasoning since the results of other gas rate cases are employed to derive a risk premium in this proceeding. If such an approach is used in this and other jurisdictions, then no one will be testing to evaluate whether the ROE recommendation is above or below investors' required rate of return. Furthermore, Dr. Morin has not performed any analysis to examine whether the annual allowed ROEs are above, equal to, or below investors' required return. As discussed above, if a firm's return on equity is above (below) the return that investor's require, the market price of its stock will be above (below) the book value of the stock. Since Dr. Morin has not evaluated the market-to-book ratios for electric utilities involved in the annual rate cases, he cannot indicate whether these allowed ROEs are above or below investors' requirements. As a general notion, however, since the market-to-book ratios for gas companies have been in excess of 1.0 for some time, it would indicate that the allowed ROE's are above equity cost rates.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF DR. MORIN'S RISK PREMIUM ANALYSES.

A. Dr. Morin's risk premium studies are flawed and exaggerate the required return and equity cost rate for ULHP. In general, he uses an inflated risk-fress rate of interest and his equity risk premium estimates are flawed and excessive. Hence, Dr. Morin's risk premium analyses are erroneous and should be disregarded in estimating ULHP's equity cost rate.

Q. PLEASE SUMMARIZE DR. MORIN'S RISK PREMIUM STUDIES IN LIGHT OF THE EVIDENCE ON RISK PREMIUMS IN TODAY'S MARKETS.

A. The primary issue in both his risk premium and CAPM analyses is the magnitude of the equity or market risk premium. Dr. Morin's risk premium estimates should be ignored because they are totally out of line with the equity risk premium estimates (1) discovered in recent academic studies by leading finance scholars and (2) employed by leading investment banks, management consulting firms, financial forecasters and corporate CFOs. In both his risk premium and CAPM studies, a more realistic market risk premium is in the 2-4 percent range above Treasury yields.

Q. PLEASE SUMMARIZE DR. MORIN'S DCF ESTIMATES.

A. On pages 38 to 51 of his testimony and in Exhibits RAM-5, RAM-6, RAM-7, and RAM-8, Dr. Morin performs a DCF analysis using his gas distribution proxy group as well as a group of combination gas and electric utility companies. His results are summarized below.

.

DCF Results
Gas Distribution Proxy Group

	Analysts' EPS Growth Forecasts	VL EPS Growth Forecasts
Dividend Yield	3.8%	3.7%
Growth Adjustment	0.1%	0.2%
Adjusted Dividend Yield	3.9%	3.9%
DCF Growth Rate	5.0%	6.2%
Equity Cost Rate	8.9%	10.1%
Flotation Cost Adjustment	.20	.20
DCF Equity Cost Rate	**9.1%**	**10.3%**

DCF Results
Combination Gas and Electric Utilities
Value Line EPS Growth Rate Forecasts

	VL EPS Growth Forecasts	VL EPS Growth Forecasts (Subjective)
Dividend Yield	3.9%	3.9%
Growth Adjustment	0.2%	0.2%
Adjusted Dividend Yield	4.1%	4.1%
DCF Growth Rate	6.2%	5.9%
Equity Cost Rate	10.3%	10.0%
Flotation Cost Adjustment	.20	.20
DCF Equity Cost Rate	**10.5%**	**10.2%**

DCF Results
Combination Gas and Electric Utilities
Analysts' EPS Growth Rate Forecasts

	Analysts' EPS Growth Forecasts	Analysts' EPS Growth Forecasts (Subjective)
Dividend Yield	4.0%	4.0%
Growth Adjustment	0.2%	0.2%
Adjusted Dividend Yield	4.2%	4.2%
DCF Growth Rate	4.8%	5.1%
Equity Cost Rate	8.9%	9.2%
Flotation Cost Adjustment	.20	.20
DCF Equity Cost Rate	**9.1%**	**9.4%**

The errors in his DCF analyses include: (1) adjusting the dividend by a full year of growth, (2) adjusting for flotation costs, (3) selectively omitting the results for companies with negative expected EPS growth, and (4) relying solely on forecasts of EPS growth. The first issue was addressed in my discussion of the appropriate DCF dividend yield adjustment factor and the second was a common issue discussed above. Issue (3) results in an overstatement of expected growth because the results for companies with negative expected growth rates are eliminated. The primary issue with Dr. Morin's DCF analysis, however, is his sole reliance on EPS forecasts as measures of growth.

Q. PLEASE REVIEW DR. MORIN'S DCF GROWTH RATE.

A. Dr. Morin computes DCF equity cost rates using EPS growth rate forecasts of (1) *Value Line* and (2) securities analysts as provided by Zacks Investment research.

Q. WHAT ARE YOUR CONCERNS WITH DR. MORIN'S DCF GROWTH RATE?

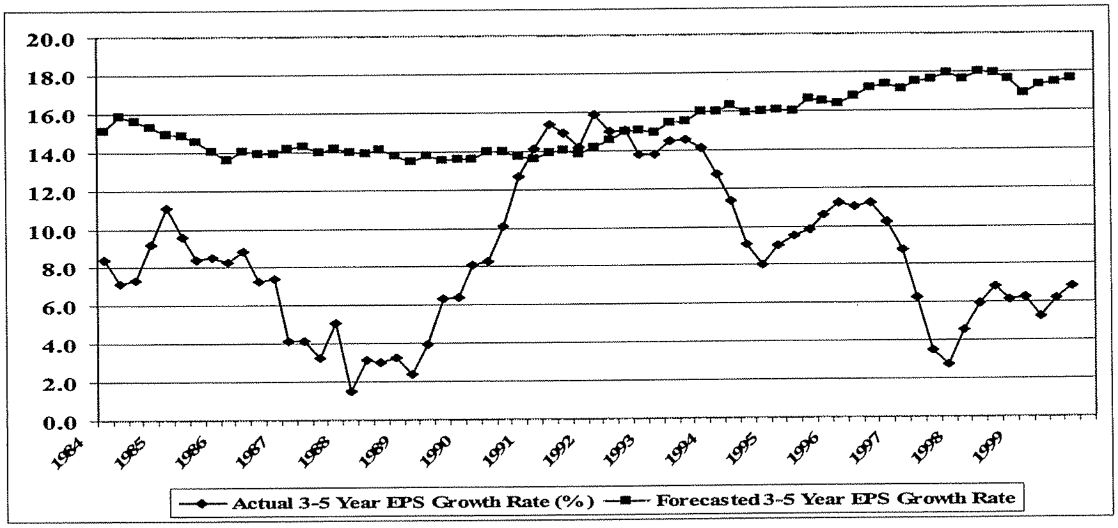
A. Dr. Morin's DCF growth rate estimates are biased because he has employed only one indicator of expected growth - forecasts of EPS growth. He has ignored all other indicators of expected growth, especially historic growth. Furthermore, it seems highly unlikely that investors today would rely exclusively on the forecasts of securities firms and analysts, and ignore historic growth, in arriving at expected growth. In the academic world, the fact that the EPS forecasts of securities' analysts are overly optimistic and biased upwards has been known for years.

Q. PLEASE REVIEW THE BIAS IN ANALYSTS' GROWTH RATE FORECASTS.

A. Analysts' growth rate forecasts are collected and published by Zacks, First Call, I/B/E/S, and Reuters. These services retrieve and compile EPS forecasts from Wall Street Analysts. These analysts come from both the sell side (Merrill Lynch, Paine Webber) and the buy side (Prudential Insurance, Fidelity).

The problem with using these forecasts to estimate a DCF growth rate is that the objectivity of Wall Street research has been challenged, and many have argued that analysts' EPS forecasts are overly optimistic and biased upwards. 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 the graph below, I show the average analysts' forecasted 3-5 year EPS growth rate with the average actual 3-5 year EPS growth rate. Because of the necessary 3-5 year follow-up period to measure actual growth, the analysis in this graph only (1) covers forecasted and actual EPS growth rates through 1999, and (2) includes only companies that have 3-5 years of actual EPS data following the forecast period. The following example shows how the results can be interpreted. As of the first quarter of 1995, analysts were projecting an average 3-5-year annual EPS growth rate of 15.98%, but companies only generated an average annual EPS growth rate over the next 3-5 years of 8.14%. This 15.98% figure represented the average projected growth rate for 1,115 companies, with an average of 4.70 analysts' forecasts per company. The only periods when firms met or exceeded analysts' EPS growth rate expectations were for six consecutive quarters in 1991-92 following the one-year economic downturn at the turn of the decade. Over the entire time period, Wall Street analysts have continually forecasted 3-5-year EPS growth rates in the 14-18 percent range (mean = 15.32%), but these firms have only delivered an average EPS growth rate of 8.75%.

Analysts' Forecasted 3-5-Year Forecasted Versus Actual EPS Growth Rates 1984-1999

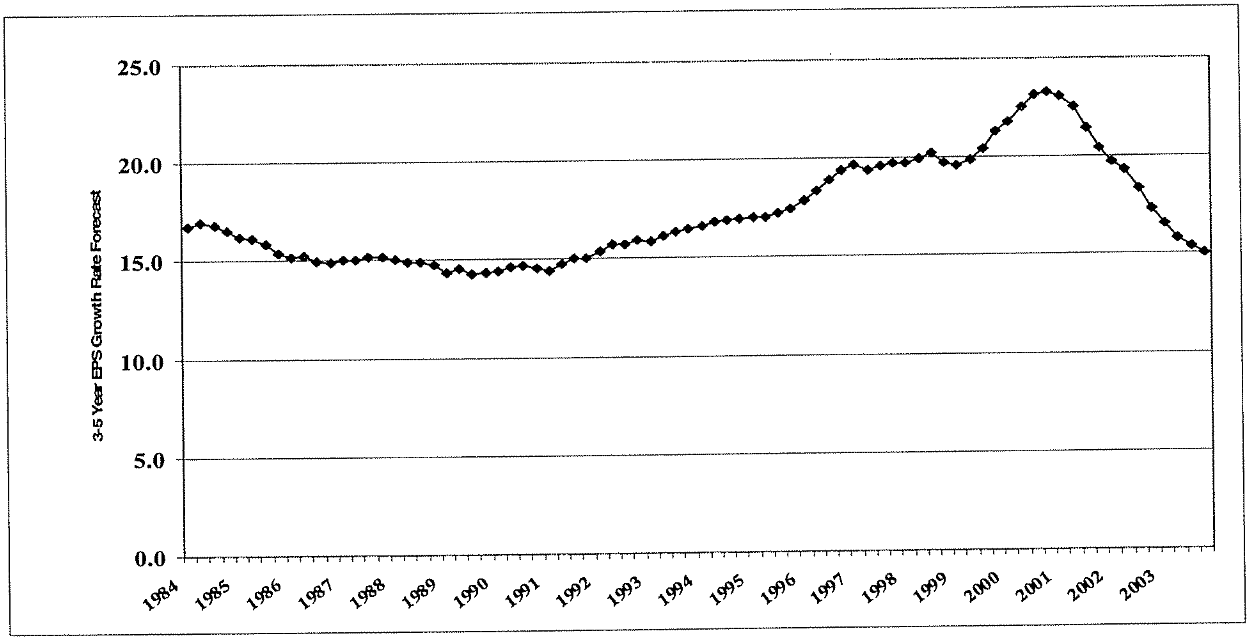


Source: J. Randall Woolridge.

The post-1999 period has seen the boom and then the bust in the stock market, an economic recession, 9/11, and the Iraq war. Furthermore, and highly significant in the context of this study, we have also had the Elliott Spitzer investigation of Wall Street firms and the subsequent Global Securities Settlement in which nine major brokerage firms paid a fine of $1.5B for their biased investment research.

To evaluate the impact of these events on analysts' forecasts, the graph below provides 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 1985 to 2004. In this graph, no comparison to actual EPS growth rates is made and hence there is no follow-up period. Therefore, 3-5 year growth rate forecasts are shown until 2004 and, since companies are not lost due to a lack of follow-up EPS data, these results are for a larger sample of firms.[21] Analysts' forecasts for EPS growth were higher for this larger sample of firms, with a more pronounced run-up and then decline around the stock market peak in 2000. The average projected growth rate hovered in the 14.5%-17.5% range until 1995, and then increased dramatically over the next five years to 23.3% in the fourth quarter of the year 2000. Forecasted growth has since declined to the 15.0% range.

Mean Analysts' 3-5-Year Forecasted EPS Growth Rates
1985-2004



Source: J. Randall Woolridge.

While analysts' EPS growth rates forecasts have subsided since 2000, these results suggest that, despite the Elliot Spitzer investigation and the Global Securities Settlement, analysts' EPS

[21] The number of companies in the sample grows from 2,220 in 1984, peaks at 4,610 in 1998, and then declines to 3,351 in 2004. The number of analysts' forecasts per company averages between 3.75 to 5.10, with an overall mean of 4.37.

forecasts are still upwardly biased. The actual 3-5 year EPS growth rate over time has been about one half the projected 3-5 year growth rate forecast of 15.0%. Furthermore, as discussed above, historic growth in GNP and corporate earnings has been in the 7% range. As such, an EPS growth rate forecast of 15% does not reflect economic reality. This observation is support 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.[22]

Q. ARE *VALUE LINE*'S EPS GROWTH RATE FORECASTS SIMILARILY UPWARDLY BIASED?

A. I am not aware of any studies that test for a bias in *Value Line*'s EPS forecasts. However, Dr. Morin's expected market return study in this testimony certainly suggests that, on average, the projected EPS growth rate forecast is unrealistic. As discussed above, projecting an average long-

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[22] 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*, (January 27, 2003), p. C1.

term EPS growth rate of 13.2% when historic economic and earnings growth is only 7% is not realistic.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF DR. MORIN'S DCF GROWTH RATE.

A. The growth rate estimates for the gas distribution companies are upwardly biased because Dr. Morin has relied solely on forecasts of EPS growth to measure a DCF growth rate. He has ignored all other indicators of growth to measure investors' expectations. As demonstrated and discussed above, it is well known that analysts' EPS growth rate forecasts are upwardly biased measures of actual growth. Hence, it is highly unlikely that investors would simply look to these biased forecasts as the only measures of expected growth.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

In the Matter of:

AN ADJUSTMENT OF THE RATES	)	
OF UNION LIGHT, HEAT, AND	)	**CASE NO. 2005-00042**
POWER COMPANY	)	

AFFIDAVIT

Comes the affiant, J. Randall Woolridge, and being duly sworn states that the foregoing testimony and attached Exhibits were prepared by him and are, to the best of his information and belief, true and correct.

J. Randall Woolridge

Commonwealth of Pennsylvania
County of Centre

Subscribed and sworn to me by the Affiant J. Randall Woolridge this 6th day of June, 2005.

NOTARIAL SEAL
MARY L. HART, NOTARY PUBLIC
STATE COLLEGE BOROUGH, COUNTY OF CENTRE
MY COMMISSION EXPIRES SEPTEMBER 19, 2005

Mary L. Hart
Notary Public
June 6, 2005

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. He is also a Vice President of the Columbia Group, a public utility consulting firm based in Georgetown, CT, and serves on the Investment Committee of ARIS Corporation, an asset management firm based in State College, PA.

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. At Iowa he received a Graduate Fellowship and was awarded membership in Beta Gamma Sigma, a national business honorary society. He has taught Finance courses at the University of Iowa, Cornell College, and the University of Pittsburgh, as well as the Pennsylvania State University. These courses include corporation finance, commercial and investment banking, and investments at the undergraduate, graduate, and executive MBA levels.

Professor Woolridge's research has centered on the theoretical and empirical foundations of corporation finance and financial markets and institutions. He has published over 25 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*, *Financial World*, *Barron's*, *Wall Street Journal*, *Business Week*, *Washington Post*, *Investors' Business Daily*, *Worth Magazine*, *USA Today*, and other publications. In addition, Dr. Woolridge has appeared as a guest on CNN's *Money Line* and CNBC's *Morning Call* and *Business Today*.

The second edition of Professor Woolridge's popular stock valuation book, *The StreetSmart Guide to Valuing a Stock* (McGraw-Hill, 2003), was recently released. 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 new textbook entitled *Modern Corporate Finance, Capital Markets, and Valuation* (Kendall Hunt, 2003). Dr. Woolridge is a founder and a managing director of www.valuepro.net - a stock valuation website.

Professor Woolridge has also consulted with and prepared research reports for major corporations, financial institutions, and investment banking firms, and government agencies. In addition, he has directed and participated in over 500 university- and company- sponsored professional development programs for executives in 25 countries in North and South America, Europe, Asia, and Africa.

Dr. Woolridge has prepared testimony and/or provided consultation services in the following cases:

Pennsylvania: Dr. Woolridge has prepared testimony on behalf of the Pennsylvania Office of Consumer Advocate in the following cases before the Pennsylvania Public Utility Commission:
Bell Telephone Company (R-811819), Peoples Natural Gas Company (R-832315), Pennsylvania Power Company (R-832409), Western Pennsylvania Water Company (R-832381), Pennsylvania Power Company (R-842740), Pennsylvania Gas and Water Company (R-850178), Metropolitan Edison Company (R-860384), Pennsylvania Electric Company (R-860413), North Penn Gas Company (R-860535), Philadelphia Electric Company (R-870629), Western

Pennsylvania Water Company (R-870825), York Water Company (R-870749), Pennsylvania-American Water Company (R-880916), Equitable Gas Company (R-880971), the Bloomsburg Water Co. (R-891494), Columbia Gas of Pennsylvania, Inc. (R-891468), Pennsylvania-American Water Company (R-90562), Breezewood Telephone Company (R-901666), York Water Company (R-901813), Columbia Gas of Pennsylvania, Inc. (R-901873), National Fuel Gas Distribution Company (R-911912), Pennsylvania-American Water Company (R-911909), Borough of Media Water Fund (R-912150), UGI Utilities, Inc. - Electric Utility Division (R-922195), Dauphin Consolidated Water Supply Company - General Waterworks of Pennsylvania, Inc, (R-932604), National Fuel Gas Distribution Company (R-932548), Commonwealth Telephone Company (I-920020), Conestoga Telephone and Telegraph Company (I-920015), Peoples Natural Gas Company (R-932866), Blue Mountain Consolidated Water Company (R-932873), National Fuel Gas Company (R-942991), UGI - Gas Division (R-953297), UGI - Electric Division (R-953534), Pennsylvania-American Water Company (R-973944), Pennsylvania-American Water Company (R-994638), Philadelphia Suburban Water Company (R-994868;R-994877;R-994878; R-9948790), Philadelphia Suburban Water Company (R-994868), Wellsboro Electric Company (R-00016356), Philadelphia Suburban Water Company (R-00016750), National Fuel Gas Distribution Company (R-00038168), Pennsylvania-American Water Company (R-00038304), York Water Company (R-00049165), Valley Energy Company (R-00049345), Wellsboro Electric Company (R-00049313), and National Fuel Gas Distribution Corporation (R-00049656).

New Jersey: Dr. Woolridge prepared testimony for the New Jersey Department of the Public Advocate, Division of Rate Counsel: New Jersey-American Water Company (R-91081399J), New Jersey-American Water Company (R-92090908J), and Environmental Disposal Corp (R-94070319).

Hawaii: Dr. Woolridge prepared testimony for the Hawaii Office of the Consumer Advocate: East Honolulu Community Services, Inc. (Docket No. 7718).

Delaware: Dr. Woolridge prepared testimony for the Delaware Division of Public Advocate: Artesian Water Company (R-00-649).

Ohio: Dr. Woolridge prepared testimony for the Ohio Office of Consumers' Council: SBC Ohio (Case No. 02-1280-TP-UNC R-00-649).

New York: Dr. Woolridge prepared testimony for the County of Nassau in New York State: Long Island Lighting Company (PSC Case No. 942354).

Connecticut: Dr. Woolridge prepared testimony for the Office of Consumer Counsel in Connecticut: United Illuminating (Docket No. 96-03-29) and Yankee Gas Company (Docket No. 04-06-01).

Kentucky: Dr. Woolridge prepared testimony for the Office of Attorney General in Kentucky: Kentucky-American Water Company (Case No. 2004-00103).

Washington, D.C.: Dr. Woolridge prepared testimony for the Office of the People's Counsel in the District of Columbia: Potomac Electric Power Company (Formal Case No. 939).

Washington: Dr. Woolridge consulted with trial staff of the Washington Utilities and Transportation Commission on the following cases: Puget Energy Corp. (Docket Nos. UE-011570 and UG-011571); and Avista Corporation (Docket No. UE-011514).

Kansas: Dr. Woolridge prepared testimony on behalf of the Kansas Citizens' Utility Ratepayer Board Utilities in the following cases: Western Resources Inc. (Docket No. 01-WSRE-949-GIE) and UtiliCorp (Docket No. 02-UTCG701-CIG).

FERC: Dr. Woolridge has prepared testimony on behalf of the Pennsylvania Office of Consumer Advocate in the following cases before the Federal Energy Regulatory Commission: National Fuel Gas Supply Corporation (RP-92-73-000) and Columbia Gulf Transmission Company (RP97-52-000).

Vermont: Dr. Woolridge prepared testimony for the Department of Public Service in the Central Vermont Public Service Case (Docket No. 6988).

Exhibit_(JRW-1)

Union Light, Heat, and Power Company

Cost of Capital and Fair Rate of Return

Estimated as of September 30, 2006

Capital Source	Capitalization Ratio (1)	Cost Rate (1)	Weighted Cost Rate
Short-Term Debt	7.382%	3.875%	0.29%
Long-Term Debt	38.164%	5.926%	2.26%
Common Equity	54.454%	8.70%	4.74%
Total	100.00%		7.29%

EXHIBITS OF
DR. J. RANDALL WOOLRIDGE

Exhibit_(JRW-1)

Union Light, Heat, and Power Company

Cost of Capital and Fair Rate of Return

Estimated as of September 30, 2006

Capital Source	Capitalization Ratio (1)	Cost Rate (1)	Weighted Cost Rate
Short-Term Debt	7.382%	3.875%	0.29%
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Common Equity	54.454%	8.70%	4.74%
Total	100.00%		7.29%

**The Impact of the 2003 Tax Legislation
On the Cost of Equity Capital**

On May 28, 2003, President Bush signed the *Jobs and Growth Tax Relief Reconciliation Act of 2003.* The primary purpose of this legislation was to reduce taxes to enhance economic growth. A primary component of the new tax law was a significant reduction in the taxation of corporate dividends for individuals. Dividends have been described as "double-taxed." First, corporations pay taxes on the income they earn before they pay dividends to investors, then investors pay taxes on the dividends that they receive from corporations. One of the implications of the double taxation of dividends is that, all else equal, it results in a high cost of raising capital for corporations.

The new tax legislation reduces the double taxation of dividends by lowering the tax rate on dividends from the 30 percent range (the average tax bracket for individuals) to 15 percent. This reduction in the taxation of dividends for individuals enhances their after-tax returns and thereby reduces their pre-tax required returns. This reduction in pre-tax required returns (due to the lower tax on dividends) effectively reduces the cost of equity capital for companies. The new tax law also reduced the tax rate on long-term capital gains from 20% to 15%.

To demonstrate the effect of the new legislation, assume that a utility has a 10% expected return – 5.0% in dividends and 5.0% in capital gains. The new tax law reduces the double-taxation by reducing the tax rate on dividends from the 30 percent range (the marginal tax bracket for the average individual taxpayer) to 15 percent. The table below illustrates the effect of the new tax law. Panel A shows that under the old tax law a 10.0% pre-tax return provided for a 7.5% after tax return. Panel B shows that under the new tax law, with tax rates of 15% on both dividends and capital gains, the 10% pre-tax return is worth 8.5% on an after-tax basis. In Panel C, I have held the after-tax return constant (at 7.5%) to illustrate the effect of the new tax law on required pre-tax returns. Assuming that the entire after-tax 1% return difference (7.5% to 8.5%) is attributed to the lower taxation of dividends, the 10.0% pre-tax return under the new law is now only 8.82%. In other words, to generate an after-tax return of 7.5%, the new tax law reduced the required pre-tax return from 10.0% to 8.82%.

The Impact of the New Tax Law on Pre- and After- Tax Returns

Panel A
Old Tax Law
10% Pre-Tax Return - 5% Dividend Yield & 5% Capital Gain
Tax Rates - Dividends 30% & Capital Gains 20%

	Pre-Tax Return	Tax Rate	After-Tax Return
Dividends	5.00%	30.00%	3.50%
Capital Gain	5.00%	20.00%	4.00%
Total	10.00%		7.50%

Panel B
New Tax Law
10% Pre-Tax Return - 5% Dividend Yield & 5% Capital Gain
Tax Rates - Dividends 15% & Capital Gains 15%

	Pre-Tax Return	Tax Rate	After-Tax Return
Dividends	5.00%	15.00%	4.25%
Capital Gain	5.00%	15.00%	4.25%
Total	10.00%		8.50%

Panel C
The Effect of the New Tax Law on Pre-Tax Returns
7.50% After-Tax Return - 3.25% Dividend Yield & 4.25% Capital Gain
Tax Rates - Dividends 15% & Capital Gains 15%

	Pre-Tax Return	Tax Rate	After-Tax Return
Dividends	3.82%	15.00%	3.25%
Capital Gain	5.00%	15.00%	4.25%
Total	8.82%		7.50%

Exhibit_(JRW-3)

Summary Financial Statistics

Eleven Company Gas Distribution Group

Company	S&P Bond Rating	Operating Revenue ($mil)	Percent Gas Revenue	Net Plant ($mil)	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio*	Return on Equity	Price/ Earnings Ratio	Market to Book Ratio
AGL Resources	A-	1832.0	51%	3178.0	2.9	GA, VA, TN	41%	13.1%	15.0	191
Atmos Energy Corp.	BBB	3552.0	59%	3223.1	3.0	LA, TX MS	41%	9.5%	15.0	135
Cascade Natural Gas Corp.	BBB+	317.8	100%	337.7	2.7	WA, OR	40%	9.5%	19.1	181
Keyspan Corp.	A+	6898.3	64%	7067.9	3.3	NY	42%	13.9%	11.8	157
Laclede Group, Inc.	A	1360.2	66%	653.3	2.0	MO, IL	40%	10.6%	15.9	165
NICOR, Inc.	AA	2583.8	87%	2504.6	4.8	IL	55%	9.9%	21.8	214
Northwest Natural Gas Co.	A	649.2	99%	1226.0	2.8	OR, WA	53%	8.8%	17.4	151
Peoples Energy Corp.	A-	2397.8	66%	1903.2	4.7	IL	45%	8.8%	19.8	173
Piedmont Natural Gas, Inc.	A	1495.4	77%	1834.0	3.9	NC, SC, TN	56%	13.4%	15.2	190
South Jersey Industries, Inc	A	819.1	61%	799.9	3.8	NJ	31%	13.4%	17.4	220
WGL Holdings, Inc	AA-	2128.3	63%	1922.2	5.1	DC, VA, MD	52%	11.5%	14.8	166
Mean	**A**	**2,184.9**	**72%**	**2240.9**	**3.5**		**45%**	**11.1%**	**16.7**	**177**

*Based on total permanent capital

Data Source: *C.A. Turner Utility Reports*, May, 2005, *Value Line Investment Survey*, 2005.

Omitted From Value Line List	Reason	
New Jersey Resources	% of gas	36%
SEMCO Energy	Bond Rating	BB-
Southern Union	Bond Rating	BB
	NO DIV	
Southwest Gas Corporation	Bond Rating	BB
UGI	% of gas	17%

Exhibit_(JRW-4)
Union Light, Heat, and Power Company
Capital Structure Ratios and Senior Capital Cost Rates

ULHP PROPOSED RATE OF RETURN	Ratios	Cost Rates	Weighted Cost Rates
	(1)	(1)	(1)
Short-Term Debt	7.389%	3.875%	0.286%
Long-Term Debt	38.196%	6.302%	2.407%
Common Equity	54.415%		
Total	100.000%		

AG's RECOMMENDED RATE OF RETURN	Ratios	Cost Rates	Weighted Cost Rates
	(2)	(2)	(2)
Short-Term Debt	7.382%	3.875%	0.286%
Long-Term Debt	38.164%	5.926%	2.262%
Common Equity	54.454%		
Total	100.000%		

(1) Filing Schedule J-1, page 2.
(2) Response to PSC-2-21, p. 39 of 40.

Exhibit_(JRW-4)

Union Light, Heat, and Power Company

Capital Structure Ratios for the Eleven Company Gas Distribution Groups

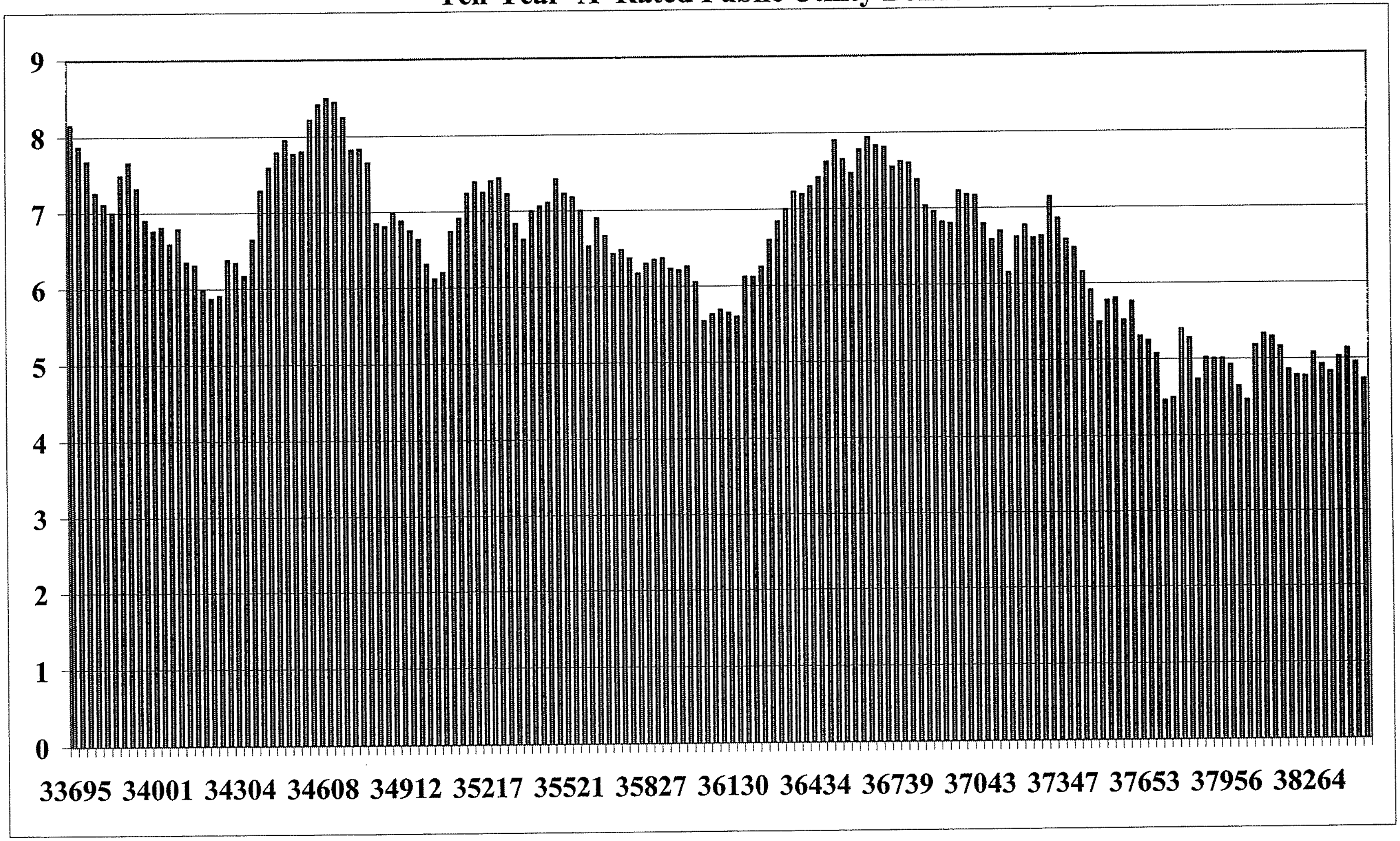
Average Totals	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter
Short-term debt	105,015	119,210	66,499	133,355	185,125	133,647	177,550
Current portion of long-term debt	8,455	15,271	14,015	10,237	7,388	40,865	27,417
Long-term debt	1,035,186	899,665	982,625	1,017,653	862,506	789,665	774,188
Common shareholder's equity	1,054,084	950,396	970,945	939,548	871,749	798,305	781,593
Total Average Capital	2,202,740	1,984,542	2,034,083	2,100,793	1,926,768	1,762,482	1,760,749

Ratios	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter
Short-term debt	4.8%	6.0%	3.3%	6.3%	9.6%	7.6%	10.1%
Current portion of long-term debt	0.4%	0.8%	0.7%	0.5%	0.4%	2.3%	1.6%
Long-term debt	47.0%	45.3%	48.3%	48.4%	44.8%	44.8%	44.0%
Common shareholder's equity	47.9%	47.9%	47.7%	44.7%	45.2%	45.3%	44.4%
Average Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Average Ratios	
Short-term debt	6.8%
Current portion of long-term debt	0.9%
Long-term debt	46.1%
Common shareholder's equity	46.2%
Average Totals	100.0%

Exhibit_(JRW-5)

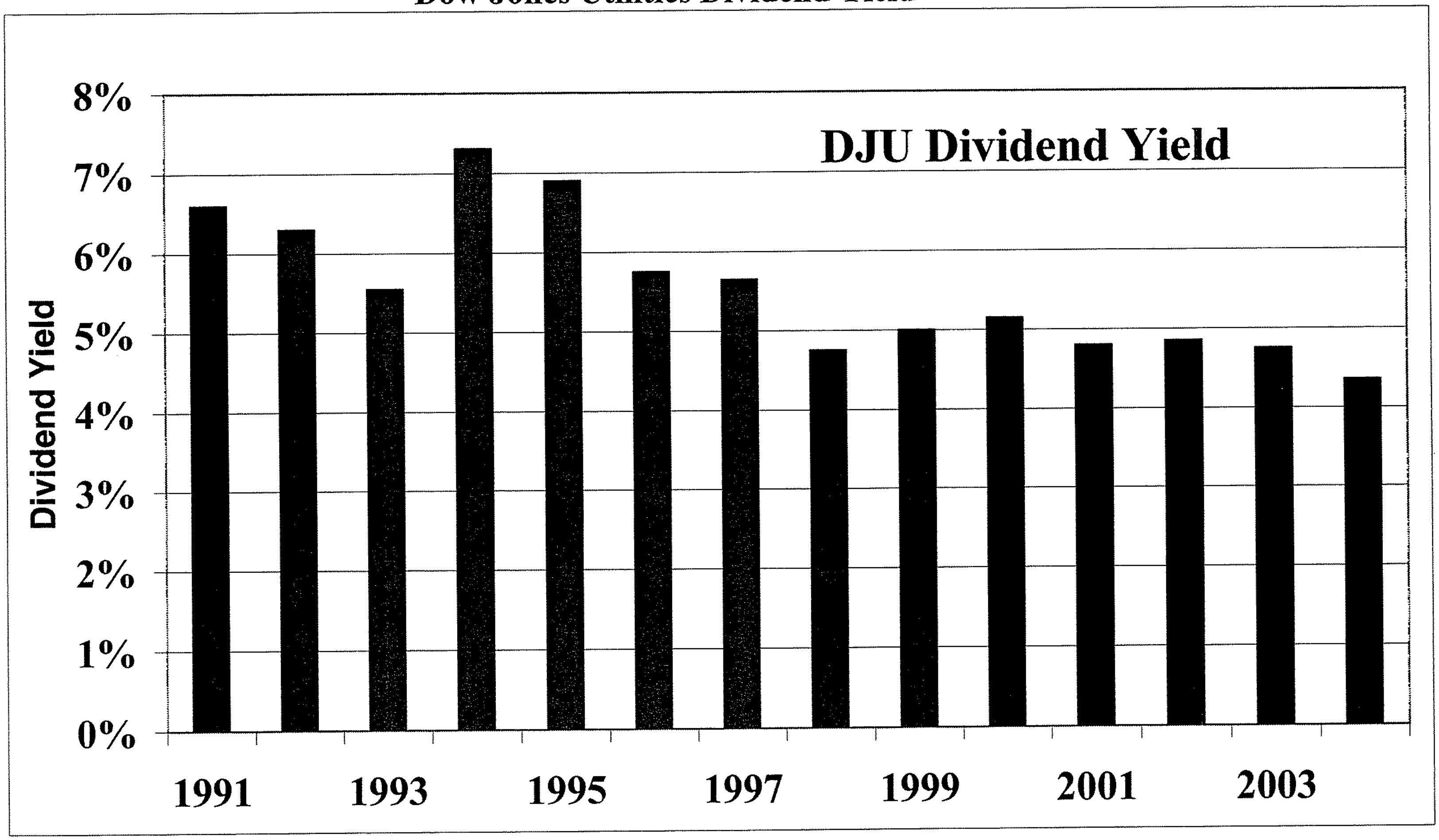
Ten-Year 'A' Rated Public Utility Bonds



Data Source: Bloomberg (FMCI Function).

Exhibit_(JRW-5)

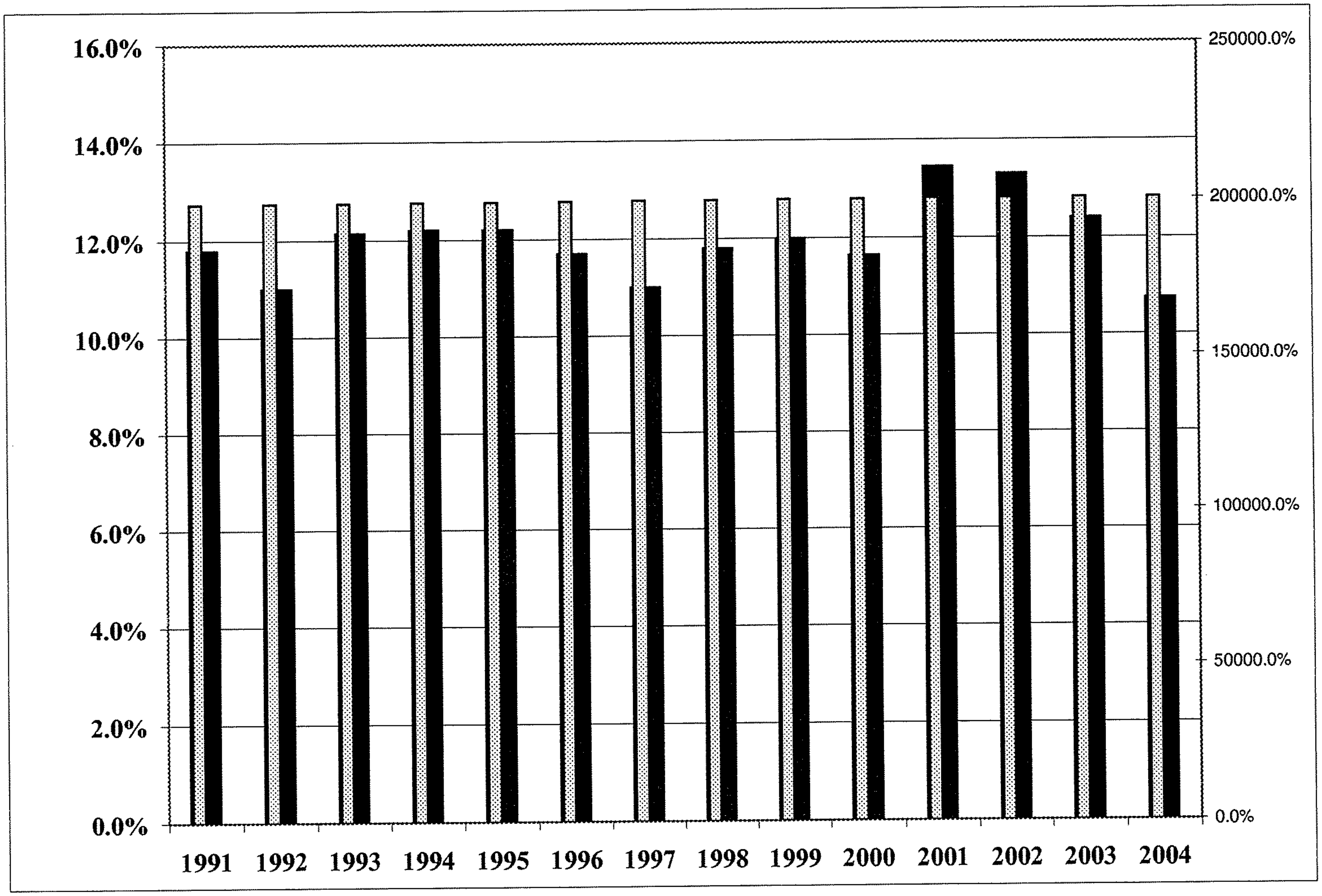
Dow Jones Utilities Dividend Yield



Data Source: Value Line Investment Survey

Exhibit_(JRW-5)

Dow Jones Utilities - Market to Book and ROE



Data Source: Value Line Investment Survey

Exhibit_(JRW-6)

Industry Average Betas

Industry Name	Number of Firms	Beta	Industry Name	Number of Firms	Beta	Industry Name	Number of Firms	Beta
E-Commerce	52	3.07	Manuf. Housing/RV	19	1.00	Machinery	133	0.77
Semiconductor	124	2.64	Metals & Mining (Div.)	76	0.99	Bank (Canadian)	7	0.77
Internet	297	2.63	Oilfield Svcs/Equip.	93	0.98	Home Appliance	16	0.76
Semiconductor Equip	16	2.51	Shoe	24	0.98	Apparel	65	0.76
Wireless Networking	66	2.38	Retail Store	49	0.97	Electric Util. (Central)	25	0.76
Telecom. Equipment	120	2.26	Office Equip/Supplies	28	0.94	Coal	11	0.76
Computers/Peripherals	143	2.06	Information Services	33	0.94	Diversified Co.	117	0.75
Computer Software/Svcs	389	1.90	Recreation	78	0.93	Insurance (Life)	43	0.75
Entertainment Tech	31	1.87	Chemical (Basic)	16	0.91	Publishing	43	0.74
Foreign Telecom.	21	1.76	Retail Automotive	14	0.90	Hotel/Gaming	77	0.74
Cable TV	21	1.75	Retail Building Supply	9	0.88	Household Products	30	0.74
Power	24	1.56	Paper/Forest Products	39	0.86	Building Materials	49	0.74
Precision Instrument	104	1.52	Medical Supplies	262	0.85	Toiletries/Cosmetics	23	0.72
Electronics	179	1.45	Homebuilding	34	0.85	Electric Utility (East)	31	0.72
Electrical Equipment	93	1.40	Utility (Foreign)	6	0.85	Bank (Midwest)	38	0.71
Entertainment	88	1.40	Petroleum (Integrated)	34	0.85	Environmental	85	0.69
Bank (Foreign)	5	1.36	Industrial Services	200	0.85	Restaurant	84	0.69
Air Transport	46	1.34	Natural Gas (Div.)	38	0.84	Maritime	28	0.67
Securities Brokerage	26	1.32	Newspaper	20	0.84	Railroad	18	0.67
Telecom. Services	137	1.32	Medical Services	195	0.82	Insurance (Prop/Cas.)	78	0.67
Biotechnology	90	1.30	Furn/Home Furnishings	38	0.82	Natural Gas (Distrib.)	30	0.65
Drug	305	1.30	Steel (General)	24	0.81	Investment Co.	21	0.64
Steel (Integrated)	14	1.26	Metal Fabricating	38	0.80	R.E.I.T.	135	0.63
Advertising	35	1.23	Packaging & Container	35	0.80	Food Wholesalers	20	0.63
Human Resources	28	1.14	Aerospace/Defense	67	0.80	Petroleum (Producing)	145	0.62
Foreign Electronics	12	1.12	Electric Utility (West)	16	0.79	Canadian Energy	11	0.62
Educational Services	38	1.10	Chemical (Specialty)	92	0.79	Water Utility	17	0.60
Investment Co.(Foreign)	17	1.08	Chemical (Diversified)	31	0.79	Tobacco	13	0.59
Auto & Truck	25	1.08	Cement & Aggregates	13	0.78	Food Processing	104	0.58
Auto Parts	60	1.06	Trucking	36	0.78	Beverage (Alcoholic)	22	0.58
Healthcare Information	32	1.06	Grocery	23	0.78	Bank	499	0.53
Tire & Rubber	14	1.02	Financial Svcs. (Div.)	233	0.78	Thrift	222	0.48
Retail (Special Lines)	175	1.01	Pharmacy Services	14	0.78	Beverage (Soft Drink)	17	0.41
						Precious Metals	61	0.41
						Market	**7091**	1.00

Data Source: http://www.stern.nyu.edu/~adamodar/

Exhibit_(JRW-7)

DCF Equity Cost Rate
Union Light, Heat, and Power Company

Eleven Company Gas Distribution Group

Dividend Yield*	4.35%
Adjustment Factor	1.02125
Adjusted Dividend Yield	4.44%
Growth Rate	4.25%
Equity Cost Rate	8.7%

* Page 2 of Exhibit_(JRW-7)

** Based on data provided on pages 3-4, Exhibit_(JRW-7)

Exhibit_(JRW-7)

Union Light, Heat, and Power Company
Monthly Dividend Yields
January-May, 2005

Eleven Company Gas Distribution Group

Company	Jan	Feb	Mar	Apr	May	Mean
AGL Resources	3.5%	3.5%	3.6%	3.6%	3.6%	3.6%
Atmos Energy Corp.	4.6%	4.6%	4.5%	4.5%	4.6%	4.6%
Cascade Natural Gas Corp.	4.6%	4.7%	4.7%	4.7%	4.9%	4.7%
Keyspan Corp.	4.6%	4.7%	4.6%	4.6%	4.8%	4.7%
Laclede Group, Inc.	4.3%	4.6%	4.4%	4.4%	4.8%	4.5%
NICOR, Inc.	4.9%	5.1%	5.0%	5.0%	5.2%	5.0%
Northwest Natural Gas Co.	3.9%	3.9%	3.6%	3.6%	3.7%	3.7%
Peoples Energy Corp.	4.8%	5.0%	5.1%	5.1%	5.4%	5.1%
Piedmont Natural Gas, Inc.	3.6%	3.8%	3.7%	3.9%	4.1%	3.8%
South Jersey Industries, Inc	3.3%	3.4%	3.0%	3.0%	3.1%	3.2%
WGL Holdings, Inc	4.2%	4.4%	4.2%	4.3%	4.4%	4.3%
Mean	**4.2%**	**4.3%**	**4.2%**	**4.2%**	**4.4%**	4.3%

Data Source: C.A. Turner Utility Reports, monthly issues.

Exhibit_(JRW-7)

Union Light, Heat, and Power Company

DCF Equity Cost Growth Rate Measures
***Value Line* Historic and Projected Rates**

Panel A

Eleven Company Gas Distribution Group

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
AGL Resources	6.0%	0.5%	4.5%	11.0%	0.5%	6.0%
Atmos Energy Corp.	4.0%	3.5%	5.5%	3.5%	2.5%	6.5%
Cascade Natural Gas Corp.	3.5%	0.0%	0.1%	1.0%	0.0%	0.0%
Keyspan Corp.	4.5%	3.0%	4.0%	21.0%	4.0%	1.5%
Laclede Group, Inc.	1.5%	1.0%	2.5%	-0.5%	0.5%	1.5%
NICOR, Inc.	2.0%	4.5%	2.5%	-0.5%	4.5%	1.0%
Northwest Natural Gas Co.	5.0%	1.0%	4.0%	2.0%	1.0%	3.5%
Peoples Energy Corp.	3.5%	1.5%	2.5%	2.0%	2.0%	2.5%
Piedmont Natural Gas, Inc.	4.5%	5.5%	6.0%	3.0%	5.0%	5.5%
South Jersey Industries, Inc	5.5%	0.5%	3.0%	9.5%	1.0%	7.0%
WGL Holdings, Inc	3.0%	1.5%	4.0%	2.0%	1.5%	3.0%
Mean	**3.9%**	**2.0%**	**3.5%**	**4.9%**	**2.0%**	**3.5%**
Median	**4.0%**	**1.5%**	**4.0%**	**2.0%**	**1.5%**	**3.0%**
	Average of Mean and Median Figures =			**3.0%**		

Panel B

Eleven Company Gas Distribution Group

Company	*Value Line* Projected Growth Est'd. '02-'04 to '08-'10			*Value Line* Internal Growth		
	Earnings	Dividends	Book Value	Return on Equity	Retention Rate	Internal Growth
AGL Resources	5.0%	2.5%	8.0%	11.5%	52.0%	6.0%
Atmos Energy Corp.	6.5%	2.0%	8.5%	9.0%	42.0%	3.8%
Cascade Natural Gas Corp.	7.0%	0.5%	6.0%	11.5%	41.0%	4.7%
Keyspan Corp.	4.5%	2.0%	5.0%	10.5%	36.0%	3.8%
Laclede Group, Inc.	6.0%	1.0%	11.0%	8.0%	39.0%	3.1%
NICOR, Inc.	1.5%	2.0%	2.0%	14.5%	22.0%	3.2%
Northwest Natural Gas Co.	5.0%	2.5%	4.0%	10.0%	40.0%	4.0%
Peoples Energy Corp.	1.0%	1.5%	4.5%	10.5%	23.0%	2.4%
Piedmont Natural Gas, Inc.	7.5%	4.0%	7.5%	12.0%	33.0%	4.0%
South Jersey Industries, Inc	5.5%	4.5%	5.0%	13.0%	47.0%	6.1%
WGL Holdings, Inc	6.5%	1.5%	4.5%	12.0%	47.0%	5.6%
Mean	**5.1%**	**2.2%**	**6.0%**	**11.1%**	**38.4%**	**4.2%**
Median	**5.5%**	**2.0%**	**5.0%**	**11.5%**	**40.0%**	**4.0%**
Average of Mean and Median Figures =		**4.3%**	**Average of Mean and Median Figures =**			**4.1%**

Data Source: *Value Line Investment Survey*, March 18, 2005.

Exhibit_(JRW-7)

Union Light, Heat, and Power Company

DCF Equity Cost Growth Rate Measures
Analysts Projected EPS Growth Rate Estimates

Eleven Company Gas Distribution Group

Company	Yahoo First Call	Reuters	Zack's	Average
AGL Resources	4.0%	4.5%	4.7%	4.4%
Atmos Energy Corp.	6.5%	5.4%	5.0%	5.6%
Cascade Natural Gas Corp.	4.5%	7.0%	6.0%	5.8%
Keyspan Corp.	3.5%	3.9%	3.8%	3.7%
Laclede Group, Inc.	4.2%	4.5%	5.0%	4.6%
NICOR, Inc.	2.0%	2.4%	3.2%	2.5%
Northwest Natural Gas Co.	5.8%	4.9%	5.1%	5.3%
Peoples Energy Corp.	4.0%	4.2%	4.5%	4.2%
Piedmont Natural Gas, Inc.	5.0%	4.8%	4.9%	4.9%
South Jersey Industries, Inc	5.5%	5.5%	6.0%	5.7%
WGL Holdings, Inc	4.0%	3.9%	3.9%	3.9%
Mean	**4.5%**	**4.6%**	**4.7%**	**4.6%**

Data Sources: www.zacks.com, www.investor.reuters.com, http://quote.yahoo.com, May, 2005.

Union Light, Heat, and Power Company
CAPM Equity Cost Rate

Eleven Company Gas Distribution Group

Risk-Free Interest Rate*	**4.50%**
Beta**	**0.76**
Ex Ante Equity Risk Premium***	**3.70%**
CAPM Cost of Equity	**7.31%**

* As of May, 2005.
** See page 2 of Exhibit_(JRW-8)
*** Ex Ante Equity Risk Premiums

Average Ex Ante Equity Risk Premiums from Derrig and Orr Study (2003)	**4.00%**
Ex Ante Equity Risk Premium from Building Blocks Approach"	**3.40%**
Average	**3.70%**

Exhibit_(JRW-8)

Union Light, Heat, and Power Company

CAPM

Beta

Eleven Company Gas Distribution Group

Company	Beta
AGL Resources	0.8
Atmos Energy Corp.	0.7
Cascade Natural Gas Corp.	0.75
Keyspan Corp.	0.80
Laclede Group, Inc.	0.75
NICOR, Inc.	1.05
Northwest Natural Gas Co.	0.65
Peoples Energy Corp.	0.80
Piedmont Natural Gas, Inc.	0.75
South Jersey Industries, Inc	0.55
WGL Holdings, Inc	0.75
Mean	0.76

Data Source: *Value Line Investment Survey*, March 18, 2005.

Derrig-Orr (2003) Ex Ante Equity Risk Premium Studies
Appendix B

Appendix B

Source	Risk-free-Rate	ERP Estimate	Real risk-free rate	Nominal risk-free rate	Geometric	Arithmetic	Long-horizon	Short-horizon	Short-run expectation	Long-run expectation	Conditional	Unconditional
Historical												
Ibbotson Associates	3.8% [7]	8.4% [31]		X		X		X		X		X
Social Security												
Office of the Chief Actuary [1]	2.3%,3.0% [8]	4.7%,4.0% [32]	X		X		X			X		X
John Campbell [2]	3% to 3.5% [9]	1.5-2.5%, 3-4% [33]	X		X	X	X	X		X	X	
Peter Diamond	2.2% [10]	<4.8% [34]	X		X		X			X	X	
Peter Diamond [3]	3.0% [11]	3.0% to 3.5% [35]	X		X		X			X	X	
John Shoven [4]	3.0%,3.5% [12]	3.0% to 3.5% [36]	X		X		X			X	X	
Puzzle Research												
Robert Arnott and Peter Bernstein	3.7% [13]	2.4% [37]	X		X		X			X	X	
Robert Arnott and Ronald Ryan	4.1% [14]	-0.9% [38]	X		X		X			X	X	
John Campbell and Robert Shiller	N/A	Negative [39]	X		?		?		X		X	
James Claus and Jacob Thomas	7.64% [15]	3.39% or less [40]		X		X	X			X	X	
George Constantinides	2.0% [16]	6.9% [41]	X			X		X		X		X
Bradford Cornell	5.6%, 3.6% [17]	3.5-5.5%, 5-7% [42]		X		X	X	X		X	X	
Dimson, Marsh, & Staunton	1.0% [18]	5.4% [43]	X			X		X		X	X	
Eugene Fama and Kenneth French	3.24% [19]	3.83% & 4.76% [44]	X			X		X		X		X
Robert Harris and Felicia Marston	6.53% [20]	7.14% [45]		X		X	X		X		X	
Roger Ibbotson and Peng Chen	2.05% [21]	4% and 6% [46]	X		X	X	X			X		X
Jeremy Siegel	4.0% [22]	-0.9% to -0.3% [47]	X		X		X			X	X	
Jeremy Siegel	3.5% [23]	2-3% [48]	X		X		X			?	X	
Surveys												
John Graham and Campbell Harvey	? by survey [24]	3-4.7% [49]		X		?	X		X		X	
Ivo Welch	N/A [25]	7% [50]		X		X		X		X	X	
Ivo Welch [5]	5% [26]	5.0% to 5.5% [51]		X		X		X		X	X	
Misc.												
Barclays Global Investors	5% [27]	2.5%, 3.25% [52]		X	X		X		X		X	
Richard Brealey and Stewart Myers	N/A [28]	6 to 8.5% [53]		X		X		X		X		X
Burton Malkiel	5.25% [29]	2.75% [54]		X	X		X			X	X	
Richard Wendt [6]	5.5% [30]	3.3% [55]		X		X	X			X	X	

Long-run expectation considered to be a forecast of more than 10 years.
Short-run expectation considered to be a forecast of 10 years or less.

Richard Derrig and Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, August 28, 2003.

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

LONG-TERM (10 YEAR) FORECASTS

SERIES: CPI INFLATION RATE

STATISTIC	
MINIMUM	1.700
LOWER QUARTILE	2.300
MEDIAN	2.450
UPPER QUARTILE	2.550
MAXIMUM	4.500
MEAN	2.485
STD. DEV.	0.435
N	33
MISSING	3

SERIES: REAL GDP GROWTH RATE

STATISTIC	
MINIMUM	2.100
LOWER QUARTILE	3.000
MEDIAN	3.300
UPPER QUARTILE	3.500
MAXIMUM	4.400
MEAN	3.255
STD. DEV.	0.448
N	33
MISSING	3

SERIES: PRODUCTIVITY GROWTH

STATISTIC	
MINIMUM	1.000
LOWER QUARTILE	2.100
MEDIAN	2.300
UPPER QUARTILE	2.600
MAXIMUM	5.000
MEAN	2.451
STD. DEV.	0.641
N	32
MISSING	4

SERIES: STOCK RETURNS (S&P 500)

STATISTIC	
MINIMUM	5.000
LOWER QUARTILE	6.400
MEDIAN	7.000
UPPER QUARTILE	8.250
MAXIMUM	12.500
MEAN	7.552
STD. DEV.	1.675
N	26
MISSING	10

SERIES: BOND RETURNS (10-YEAR)

STATISTIC	
MINIMUM	4.000
LOWER QUARTILE	4.500
MEDIAN	5.000
UPPER QUARTILE	5.700
MAXIMUM	6.700
MEAN	5.192
STD. DEV.	0.685
N	31
MISSING	5

SERIES: BILL RETURNS (3-MONTH)

STATISTIC	
MINIMUM	2.500
LOWER QUARTILE	3.300
MEDIAN	3.700
UPPER QUARTILE	4.100
MAXIMUM	5.000
MEAN	3.684
STD. DEV.	0.624
N	31
MISSING	5

Source: Philadelphia Federal Researve Bank, Survey of Professional Forecasters, February 14, 2005.
http://www.phil.frb.org/files/spf/spfq105.pdf

Union Light, Heat, and Power Company
CAPM
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	1.4		3.10	
1961	3.37	0.7	1.0070	3.35	
1962	3.67	1.3	1.0201	3.59	
1963	4.13	1.6	1.0364	3.99	
1964	4.76	1	1.0468	4.55	
1965	5.30	1.9	1.0667	4.97	
1966	5.41	3.5	1.1040	4.90	
1967	5.46	3	1.1371	4.80	
1968	5.72	4.7	1.1906	4.81	
1969	6.10	6.2	1.2644	4.83	10-Year
1970	5.51	5.6	1.3352	4.13	2.9%
1971	5.57	3.3	1.3792	4.04	
1972	6.17	3.4	1.4261	4.33	
1973	7.96	8.7	1.5502	5.13	
1974	9.35	12.3	1.7409	5.37	
1975	7.71	6.9	1.8610	4.14	
1976	9.75	4.9	1.9522	4.99	
1977	10.87	6.7	2.0830	5.22	
1978	11.64	9	2.2705	5.13	
1979	14.55	13.3	2.5724	5.66	10-Year
1980	14.99	12.5	2.8940	5.18	2.3%
1981	15.18	8.9	3.1516	4.82	
1982	13.82	3.8	3.2713	4.23	
1983	13.29	3.8	3.3956	3.91	
1984	16.84	3.9	3.5281	4.77	
1985	15.68	3.8	3.6621	4.28	
1986	14.43	1.1	3.7024	3.90	
1987	16.04	4.4	3.8653	4.15	
1988	22.77	4.4	4.0354	5.64	
1989	24.03	4.6	4.2210	5.69	10-Year
1990	21.73	6.1	4.4785	4.85	-0.7%
1991	19.10	3.1	4.6173	4.14	
1992	18.13	2.9	4.7512	3.81	
1993	19.82	2.7	4.8795	4.06	
1994	27.05	2.7	5.0113	5.40	
1995	35.35	2.5	5.1365	6.88	
1996	35.78	3.3	5.3061	6.74	
1997	39.56	1.7	5.3963	7.33	
1998	38.23	1.6	5.4826	6.97	
1999	45.17	2.7	5.6306	8.02	10-Year
2000	52.00	3.4	5.8221	8.93	6.3%
2001	44.23	1.6	5.9152	7.48	
2002	47.24	2.4	6.0572	7.80	3-Year
2003	54.15	1.9	6.1723	8.77	-0.6%
Data Source: http://pages.stern.nyu.edu/~adamodar/				Real EPS Growth	2.45%

Exhibit_(JRW-9)
Rebuttal Exhibits
Capital Structure
Dr. Morin's Natural Gas Proxy Group
Average Capitalization Ratios for 15 Companies (Excluding AmeriGas Partners)

	2005	2004	2004	2004	2003	2003	2003
Average Totals	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter
Short-term debt	109240.8	131875.6	107669.7	188244.7	166395.6	140707.0	178057.5
Current portion of long-term debt	7835.1	14159.4	11801.6	9131.5	5670.3	28744.1	19534.1
Long-term debt	979117.2	979072.6	1024744.6	1044354.9	843605.9	796179.1	791557.1
Common shareholder's equity	936131.9	906529.0	916400.6	876419.8	791878.1	734569.8	719822.3
Total Average Capital	2032325.1	2031636.6	2060616.4	2118150.9	1807549.9	1700200.0	1708970.9

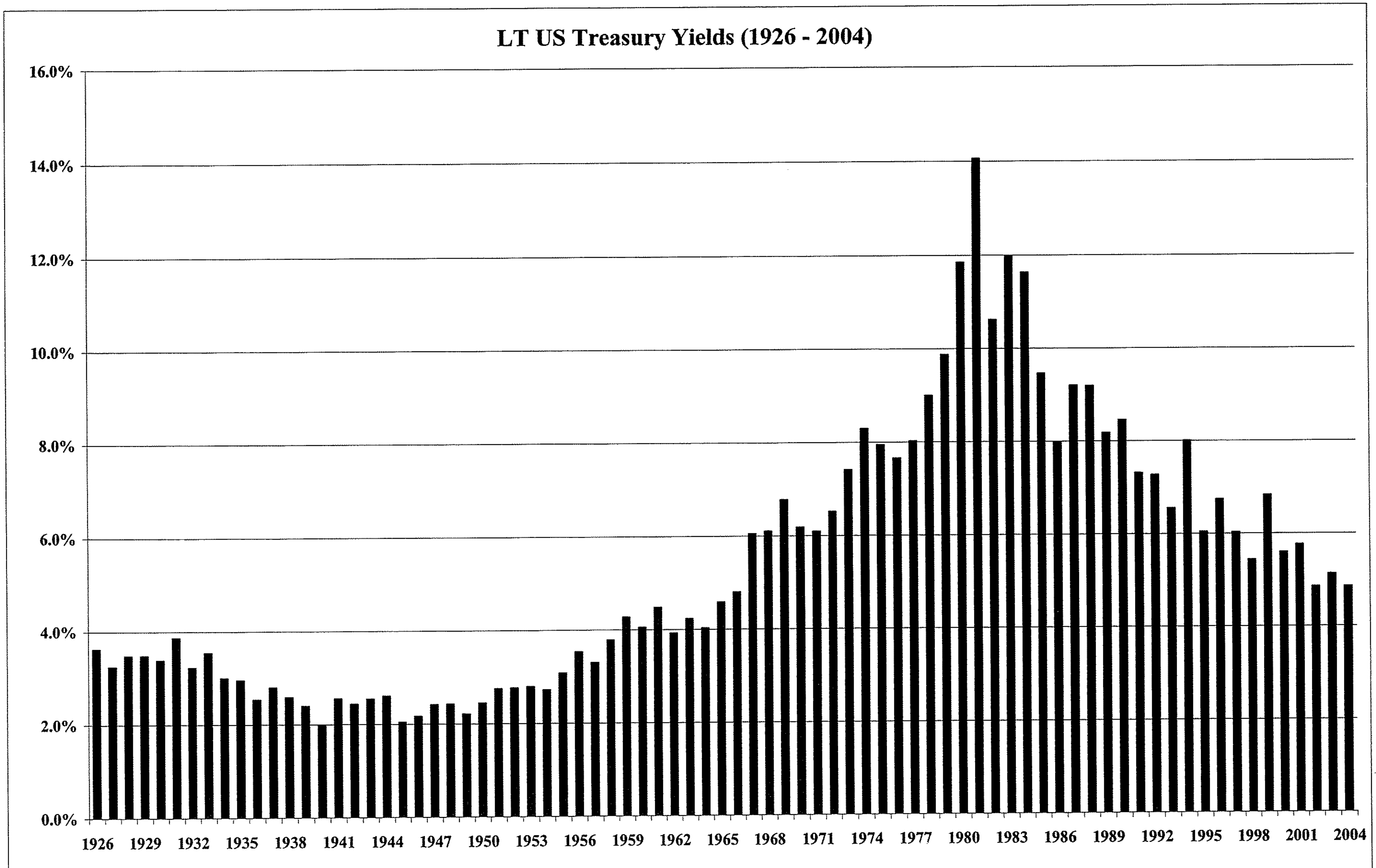
	2005	2004	2004	2004	2003	2003	2003
Ratios	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter	3rd Quarter	2nd Quarter	1st Quarter
Short-term debt	5.38%	6.49%	5.23%	8.89%	9.21%	8.28%	10.42%
Current portion of long-term debt	0.39%	0.70%	0.57%	0.43%	0.31%	1.69%	1.14%
Long-term debt	48.18%	48.19%	49.73%	49.31%	46.67%	46.83%	46.32%
Common shareholder's equity	46.06%	44.62%	44.47%	41.38%	43.81%	43.20%	42.12%
Total Capital	100%	100%	100%	100%	100%	100%	100%

Data Source: Mergent Online

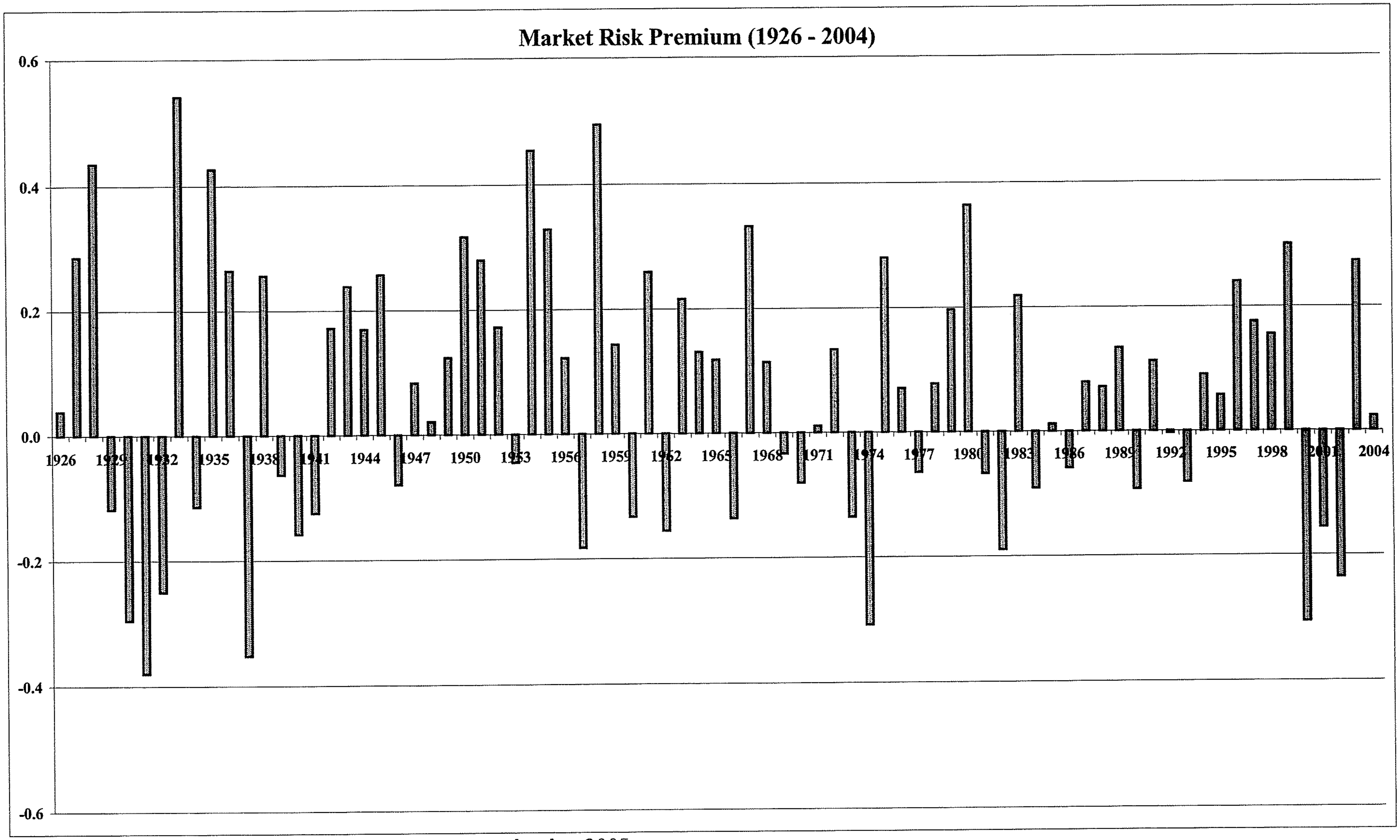
Exhibit_(JRW-9)
Rebuttal Exhibits
Growth rates
GNP, S&P 500 Price, EPS, and DPS

	GNP	*S&P 500*	Earnings	Dividends	
1960	529.8	58.11	3.10	1.98	
1961	531.5	71.55	3.37	2.04	
1962	579.6	63.1	3.67	2.15	
1963	606.9	75.02	4.13	2.35	
1964	654.6	84.75	4.76	2.58	
1965	701.1	92.43	5.30	2.83	
1966	775.8	80.33	5.41	2.88	
1967	823.2	96.47	5.46	2.98	
1968	885.7	103.86	5.72	3.04	
1969	967.3	92.06	6.10	3.24	
1970	1023.6	92.15	5.51	3.19	
1971	1105.8	102.09	5.57	3.16	
1972	1198.7	118.05	6.17	3.19	
1973	1346.2	97.55	7.96	3.61	
1974	1464.0	68.56	9.35	3.72	
1975	1581.4	90.19	7.71	3.73	
1976	1788.3	107.46	9.75	4.22	
1977	1960.1	95.1	10.87	4.86	
1978	2172.1	96.11	11.64	5.18	
1979	2490.1	107.94	14.55	5.97	
1980	2763.2	135.76	14.99	6.44	
1981	3084.1	122.55	15.18	6.83	
1982	3222.8	140.64	13.82	6.93	
1983	3416.9	164.93	13.29	7.12	
1984	3846.6	167.24	16.84	7.83	
1985	4145.8	211.28	15.68	8.20	
1986	4409.4	242.17	14.43	8.19	
1987	4628.2	247.08	16.04	9.17	
1988	4977.6	277.72	22.77	10.22	
1989	5390.9	353.4	24.03	11.73	
1990	5746.9	330.22	21.73	12.35	
1991	5926.3	417.09	19.10	12.97	
1992	6227.2	435.71	18.13	12.64	
1993	6580.0	466.45	19.82	12.69	
1994	6940.2	459.27	27.05	13.36	
1995	7335.8	615.93	35.35	14.17	
1996	7666.2	740.74	35.78	14.89	
1997	8142.6	970.43	39.56	15.52	
1998	8615.1	1229.23	38.23	16.20	
1999	9097.2	1469.25	45.17	16.71	
2000	9661.9	1320.28	52.00	16.27	
2001	10060.2	1148.09	44.23	15.74	
2002	10361.7	879.82	47.24	16.08	
2003	10781.3	1111.91	54.15	17.88	
2004	11546.1	1211.92	67.01	19.41	
2005	**12225.0**				**Average**
Growth	**7.22%**	**7.15%**	**7.23%**	**5.32%**	**6.73%**

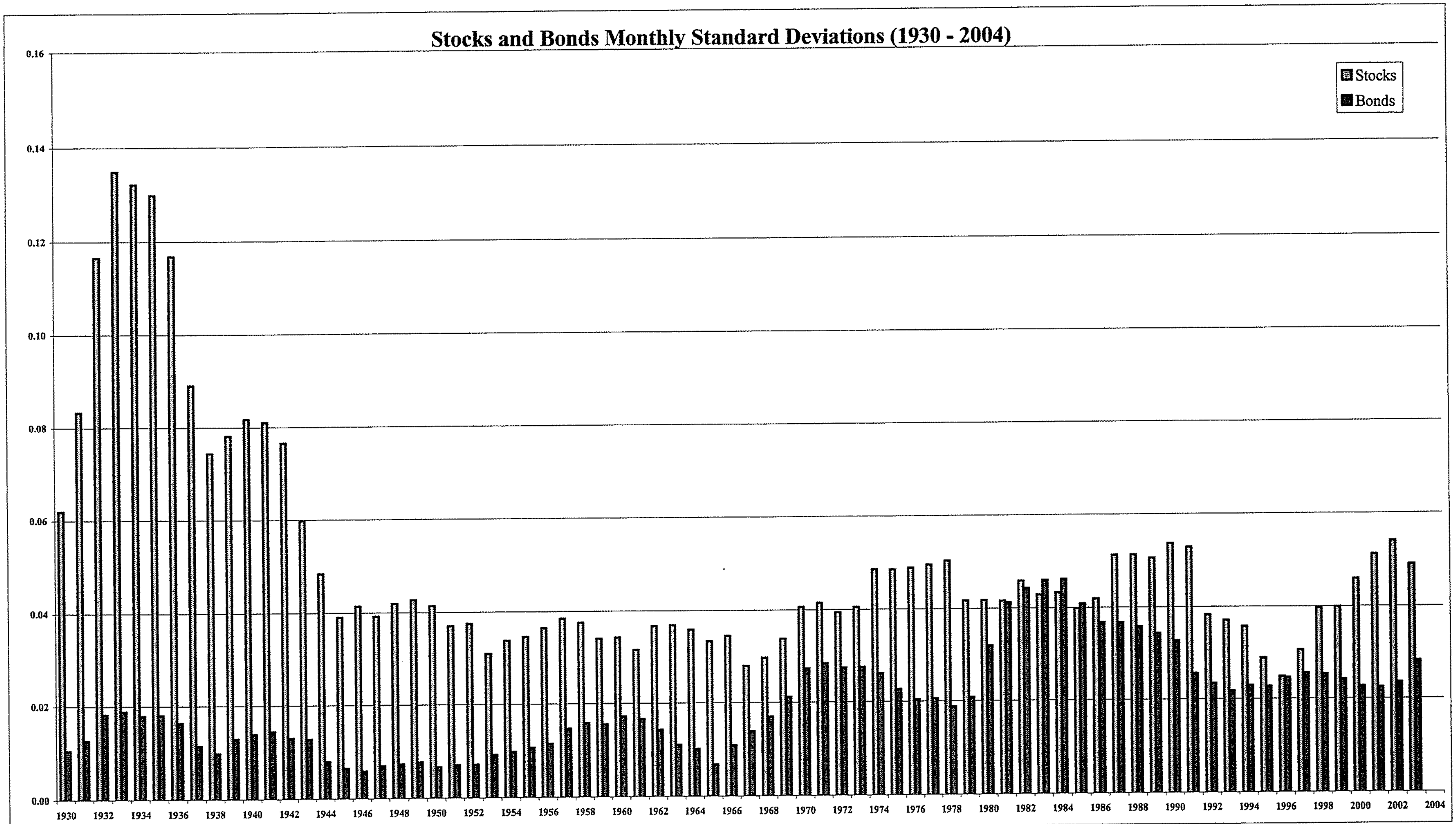
Data Sources: GNP - http://research.stlouisfed.org/fred2/categories/106
S&P 500, EPS and DPS - http://pages.stern.nyu.edu/~adamodar/



Data Source: Ibbotson Associates, SBBI Yearbook, 2005.

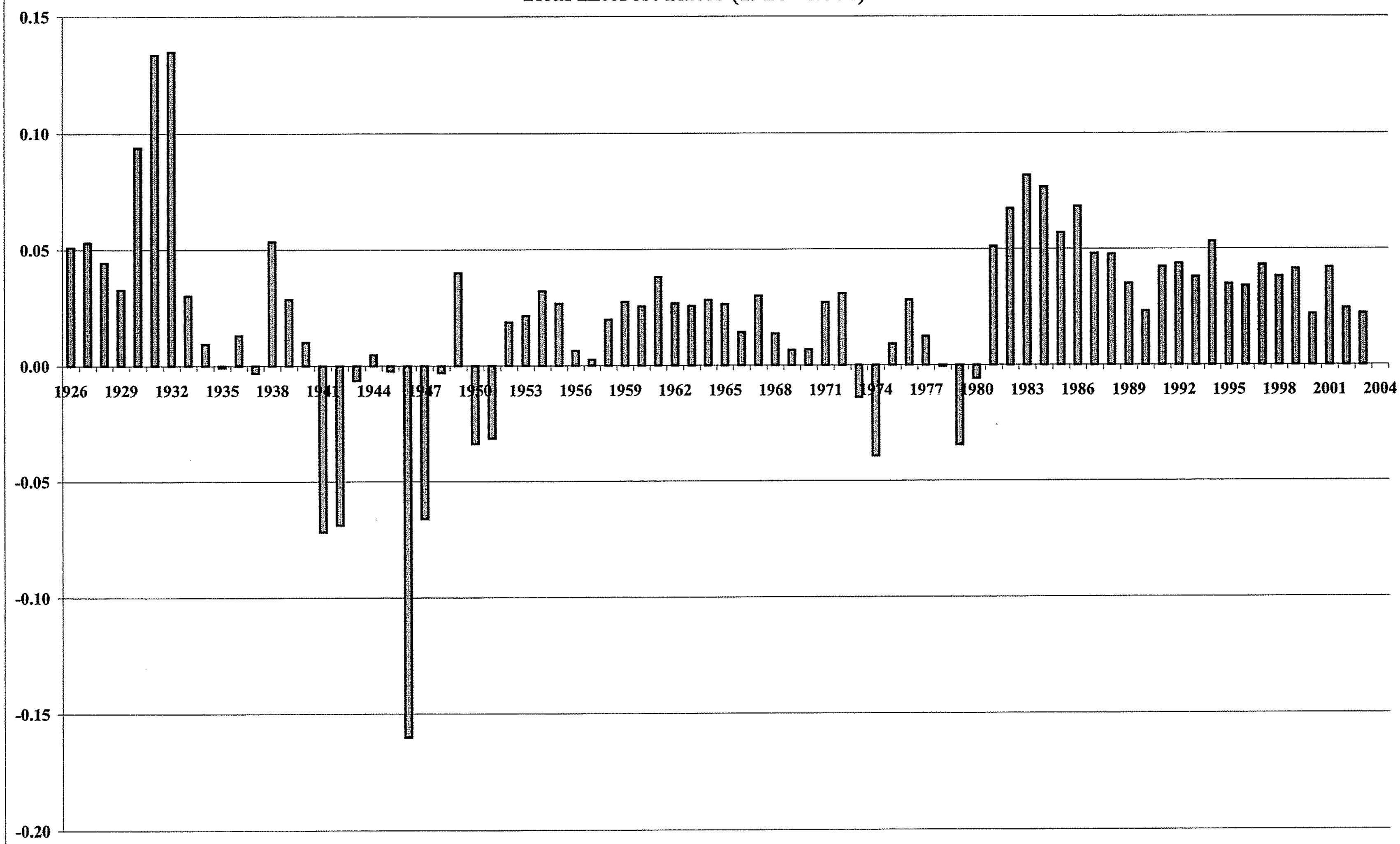


Data Source: Ibbotson Associates, SBBI Yearbook, 2005.



Data Source: Ibbotson Associates, SBBI Yearbook, 2005.

Real Interest Rates (1926 - 2004)



Data Source: Ibbotson Associates, SBBI Yearbook, 2005.