COMMONWEALTH OF KENTUCKY

BEFORE THE

PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**
ADJUSTMENT OF THE RATES OF	**) CASE NO. 2005-000341**
KENTUCKY POWER COMPANY	**)**

DIRECT TESTIMONY

OF

DR. J. RANDALL WOOLRIDGE

JANUARY 2006

KENTUCKY POWER COMPANY

Case No. 2005-000341

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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 cost of common equity capital for Kentucky Power Company ("KPC" or "Company") and to evaluate KPC's rate of return testimony in this proceeding.

Q. PLEASE REVIEW YOUR COST OF CAPITAL RETURN FINDINGS.

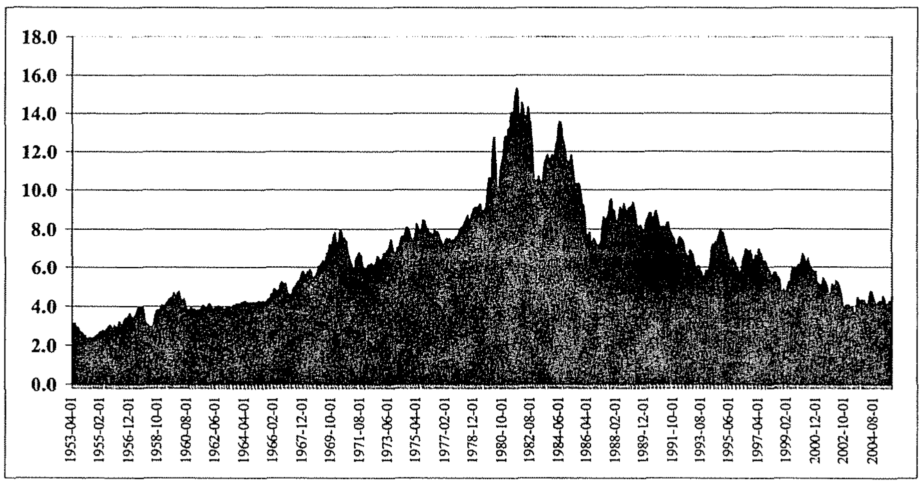
A. I have arrived at a cost of equity capital of 8.75% for the Company by applying the Discounted Cash Flow ("DCF") and Capital Asset Pricing Model ("CAPM") approaches to two groups of electric utility companies. Mr. Robert Henkes is testifying as to the appropriate capitalization and senior equity cost rates for the Company. Using my equity cost rate of 8.75% and Mr. Henkes' capitalization ratios and senior capital cost rates, an overall fair rate of return of 6.81% is indicated for the Company. This is summarized in Exhibit_(JRW-1).

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 ten-year U.S. 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 in 2002, the 10-year Treasury had not been in the 4-5 percent range since the 1960s.

Yields on Ten-Year Treasury Bonds

1953-Present

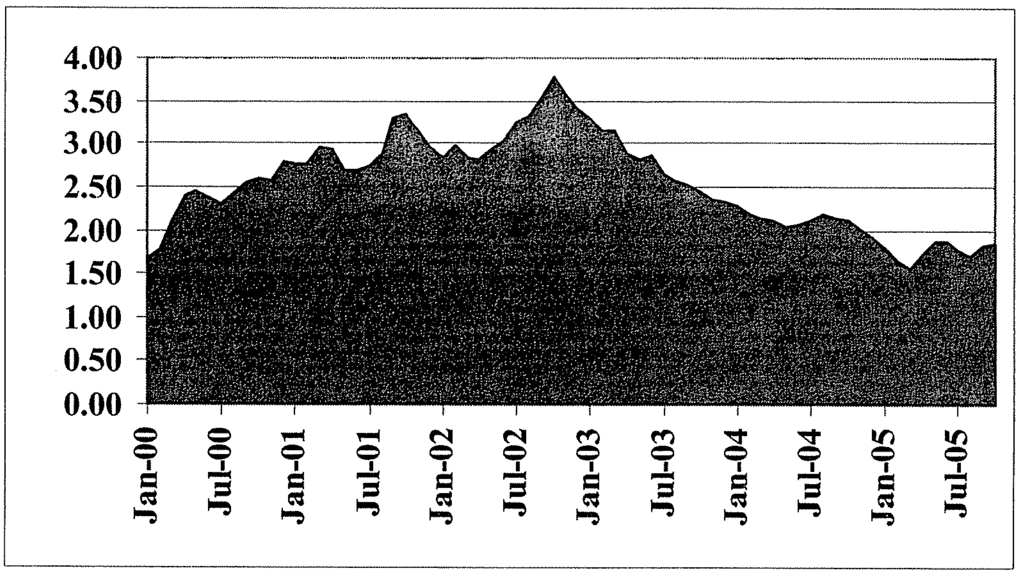


Source: http://research.stlouisfed.org/fred2/data/GS10.txt

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

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

> 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 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*

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

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 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 KPC.

A. To develop a fair rate of return recommendation for KPC, I evaluated the return requirements of investors on the common stock of two groups of publicly-held electric utility companies.

Q. PLEASE DESCRIBE YOUR TWO GROUPS OF ELECTRIC UTILITY COMPANIES.

A. For my primary group, which I refer to as Group A, I started with the 64 Electric Utilities and Combination Electric and Gas Companies whose financial results are published monthly by *AUS Utility Reports*. I screened these companies on six criteria to get a proxy group of electric companies to estimate the cost of equity capital for KPC. These screening criteria included: (1) regulated electric revenues of at least 80%, (2) have continuously paid a quarterly cash dividend over the past five years, (3) an investment grade bond rating (S&P rating above BB), (4) revenues of less than $10B, (5) coverage by the *Value Line Investment Survey – Standard Edition,* and (6) operate primarily in the eighteen states that have not enacted some form of deregulation for electric utility service (as reported by Moody's Investor Service).[3] Applying these screens to the 64 companies provides a group of seven electric utilities. These companies are Ameren Corp, Cleco

[3] Moody's Rating Methodology: Global Regulated Electric Utilities, March 2005, page 20.

Corp., Empire District Electric Co., Green Mountain Power Co., Hawaiian Electric Industries, IDACORP, and Westar Energy. The median operating revenues for the group is $849M, with 97% coming from regulated electric utility services. The average S&P bond rating for the group is BBB+, and the median return on common equity is 9.2%.

The second group, which I refer to as Group B, is Mr. Moul's proxy group of eight electric utilities. This group is much larger than Group A (median operating revenues of $6,254M versus $849M), and receives a much lower percentage of revenues from regulated electric utility service (median of 63% versus 97%).

III. 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:[4]

> 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 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

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

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 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 ELECTRIC UTILITY 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 relatively low. The average beta for electric utilities is in the bottom third of the 100 industries in terms of beta. As such, the cost of equity for the electric utility 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:

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

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.[5]

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.

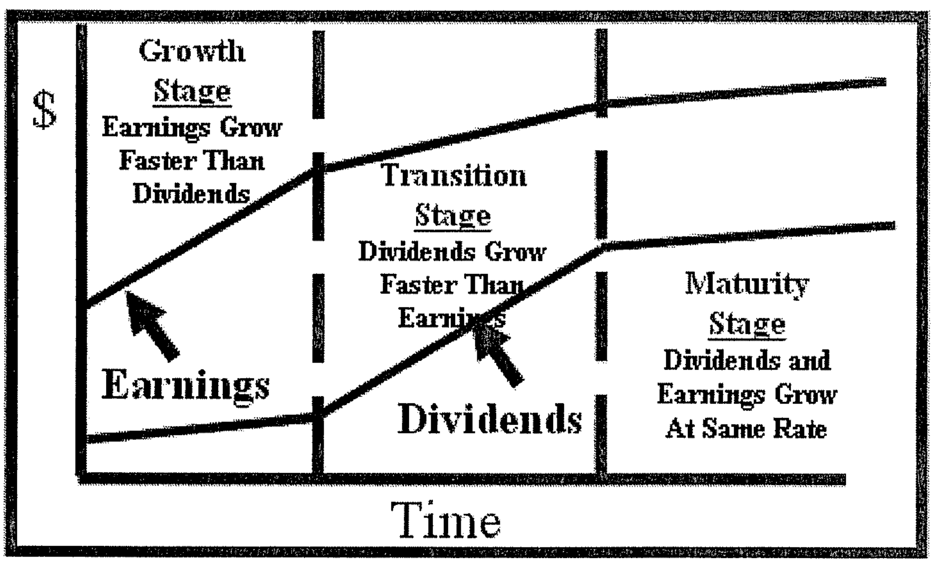
[5] This description comes from William F. Sharp, Gordon J. Alexander, and Jeffrey V. Bailey, *Investments* (Prentice-Hall, 1995), pp. 590-91.

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 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 YIELDS ARE YOU EMPLOYING IN YOUR DCF ANALYSIS FOR YOUR TWO GROUPS OF ELECTRIC UTILITY COMPANIES?

A. The dividend yields on the common stock for the companies in the two groups are provided on page 2 of Exhibit_(JRW-7) for the six -month period ending December, 2005. Over this period, the average monthly dividend yields for Groups A and B were 4.4% and 3.8%, respectively. As of December, 2005, the mean dividend yields for the two groups were 4.6% and 3.9%, respectively. For the DCF dividend yields for the two groups, I use the average of the six month and December, 2005 dividend yields. Hence, the DCF dividends yields for Groups A and B are 4.50% and 3.85%, respectively.

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.[6]

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

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

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 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 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 TWO GROUPS OF ELECTRIC COMPANIES?

A. I have analyzed a number of measures of growth for the electric utility companies. I considered historic growth rates in earnings per share (EPS), dividends per share (DPS), and book value per share (BVPS). I have reviewed *Value Line's* historic and projected growth rate estimates

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

for EPS, DPS, and BVPS. In addition, I have utilized the average EPS growth rate forecasts of Wall Street analysts 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 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 DISCUSS THE HISTORIC GROWTH OF THE COMPANIES IN THE TWO GROUPS AS PROVIDED IN THE *VALUE LINE INVESTMENT SURVEY.*

A. Historic growth rates for the companies in the two groups, as published in the *Value Line Investment Survey*, are provided on 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 measures in EPS, DPS, and BVPS for the Group A, as measured by the means and medians, ranges from -3.2.% to 4.5%, with an average of 0.5%. Historic growth in EPS, DPS, and BVPS for the Group B using the same metrics ranges from -0.7% to 4.6%, with an average of 2.1%.

Q. PLEASE SUMMARIZE *VALUE LINE'S* PROJECTED GROWTH RATES FOR THE TWO GROUPS OF ELECTRIC UTILITY COMPANIES.

A. *Value Line's* projections of EPS, DPS, and BVPS growth for the two groups are shown on page 4 of Exhibit_(JRW-7). As above, due to the presence of outliers, both the mean and medians are used in the analysis. For Group A and B, the averages of the means and medians of the projections are 2.5% and 4.7%, respectively.

Also provided on page 4 of Exhibit_(JRW-7) is prospective internal growth for the groups as measured by *Value Line*'s average projected retention rate and return on shareholders' equity. The average prospective internal growth rate for Groups A and B are 2.8% and 5.1%, respectively.

Q. PLEASE ASSESS GROWTH FOR THE GROUPS 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. Due to the presence of outliers, both the mean and medians are once again used in the analysis. These forecasts are provided for the companies in Groups A and B on page 5 of Exhibit_(JRW-7). For the companies in Groups A and B, the median of analysts' EPS rate growth forecasts are 4.0% and .5.3%, respectively.[7]

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORIC AND PROSPECTIVE GROWTH OF THE TWO ELECTRIC UTILITY GROUPS.

A. The table below shows the summary DCF growth rate indicators for the two groups of electric utility companies. For the Group A, the average of the means and medians of *Value Line's* historic growth rate measures in EPS, DPS, and BVPS is 0.6%. The average of the mean and median projected *Value Line* growth rates in EPS, DPS, and BVPS is 2.5%, and the average internal growth rate is 2.8%. The mean and median projected EPS growth rates for the companies in Group A are 4.0%. Given a historic and projected growth rate range of 0.6% to 4.0% for the Group A, and giving greater weight to the projected growth rate figures, an average expected growth rate of 4.0% is reasonable for the companies in Group A. This is clearly at the top end of the prospective

[7] Since there is considerable overlap in analyst coverage between the three services, and not all of the companies have forecasts from the different 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 by company.

expected growth rate range for Group A.

DCF Growth Rate Indicators

Growth Rate Indicator	Group A	Group B
Historic *Value Line* Growth in EPS, DPS, and BVPS	0.6%	2.1%
Projected *Value Line* Growth in EPS, DPS, and BVPS	2.5%	4.7%
Internal Growth ROE * Retention rate	2.8%	5.1%
Projected EPS Growth from First Call, Reuters, and Zacks	4.0%	5.3%

For Group B, the average of the mean and median historic growth rate measures is 2.1%. The average of the mean and median projected *Value Line* growth rates in EPS, DPS, and BVPS is 4.7%, Prospective internal growth is 5.1%, and the average of the mean and median projected EPS growth rate for the group is 5.3%. Group B has a historic and projected growth rate range of 2.1% to 5.3%. With more indicators near the top end of the range, and again giving greater weight to the projected growth rate figures, an average expected growth rate of 5.0% is reasonable for the companies in Group B.

Q. BASED ON THE ABOVE ANALYSIS, WHAT ARE YOUR INDICATED COMMON EQUITY COST RATES FROM THE DCF MODEL FOR TWO GROUPS OF ELECTRIC UTILITY COMPANIES?

A. My DCF-derived equity cost rate for the two groups are:

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

	Dividend Yield	½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Group A	4.50%	1.020	4.00%	8.60%
Group B	3.85%	1.025	5.00%	8.90%

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.

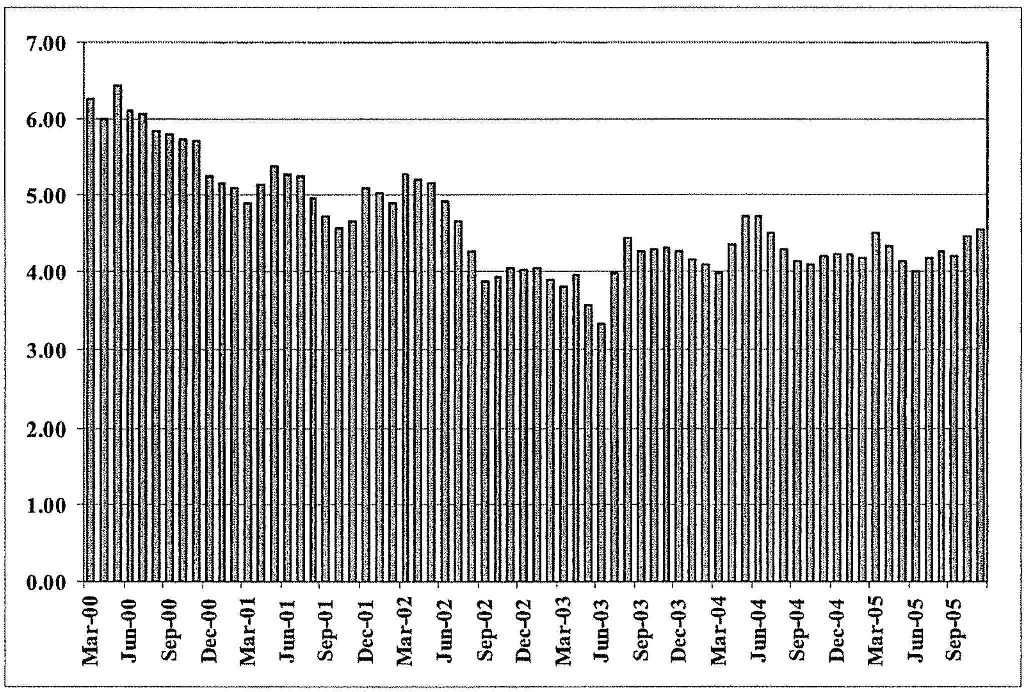
Q. PLEASE DISCUSS EXHIBIT_(JRW-8).

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.

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, has been 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. In recent months, the ten-year Treasury rate has been trading at the top end of this range.

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



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

Q. WHAT RISK-FREE INTEREST RATE ARE YOU USING IN YOUR CAPM?

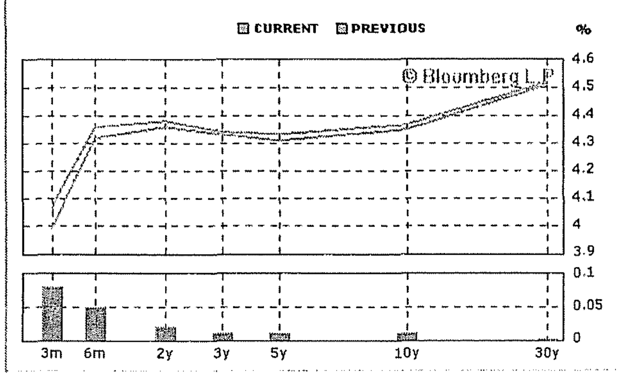
A. With the growing budget deficit, the U.S. Treasury has decided to again begin issuing a 30-year bond. As such, the market may again begin to focus on its yield as the benchmark for long-term capital costs in the U.S.

The table below shows Treasury yields as of December 30, 2005. The yields on the 10- and 30- year Treasuries were 4.37% and 4.52%, respectively. Given this recent range and movement, the generally higher yields on 30-year Treasuries, as well as potential for higher interest rates, I will use 4.75% as the risk-free rate, or R_f, in my CAPM.

U.S. Treasury Yields
December 30, 2005

Notes/Bonds

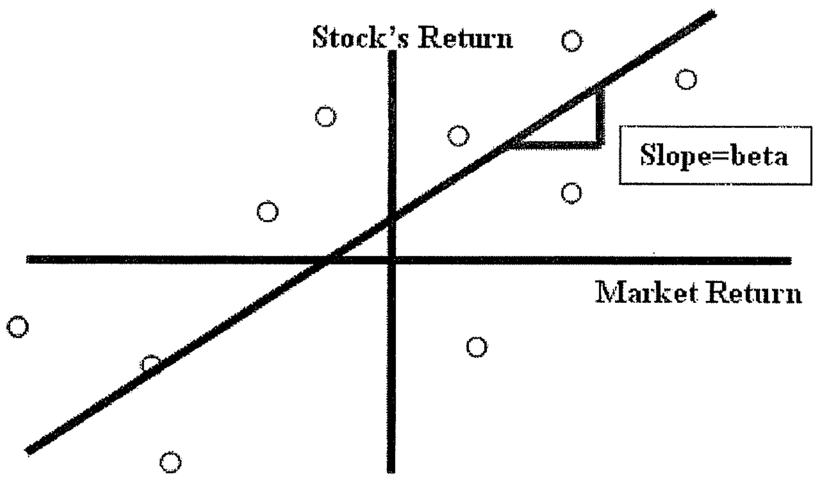
	COUPON	MATURITY DATE	CURRENT PRICE/YIELD	PRICE/YIELD CHANGE	TIME
2-Year	4.375	12/31/2007	99-31+/4.38	-0-00+/.012	11:08
3-Year	4.375	11/15/2008	100-02+/4.34	-0-00½/.009	11:08
5-Year	4.375	12/15/2010	100-06+/4.33	-0-00½/.005	11:07
10-Year	4.500	11/15/2015	101-01+/4.37	-0-01/.004	11:07
30-Year	5.375	02/15/2031	112-25+/4.52	-0-01½/.003	11:08



Q. WHAT BETAS ARE YOU EMPLOYING 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 two groups of electric utility 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 median betas for Groups A and B are 0.70 and 0.75.

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.[8] 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 "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.[9]

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.[10] They

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

[9] Rahnish Mehra and Edward Prescott, "The Equity Premium: A Puzzle," *Journal of Monetary Economic* (1985).

[10] 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.

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 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.[11] 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.

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.[12] These authors reviewed the various approaches to estimating the equity risk premium, and the overall results. Page 3 of Exhibit_(JRW-8) provides a summary of the results of the primary risk premium studies reviewed by Derrig and Orr. In developing page 3 of Exhibit_(JRW-8), I have (1) updated the results of studies that have been updated by the various authors, (2) included the results several additional studies and surveys, (3) included the results of the "Building Blocks" approach to estimating the equity risk premium, including a study I performed which is presented below, and (4) omitted the results of several studies with very high or low results.

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[11] James Claus and Jacob Thomas, "Equity Risk Premia as Low as Three Percent? Empirical Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Market," *Journal of Finance*. (October 2001).
[12] 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.

On page 3, the risk premium studies listed under the "Social Security" and "Puzzle Research" sections are primarily ex ante expected equity risk premium studies (as discussed above). Most of these studies are performed by leading academic scholars in finance and economics. Also provided are the results of studies by Ibbotson and Chen and myself which use the Building Blocks approach.

Q. PLEASE DISCUSS YOUR DEVELOPMENT OF AN EX ANTE EXPECTED EQUITY RISK PREMIUM COMPUTED USING THE BUILDING BLOCKS METHODOLOGY.

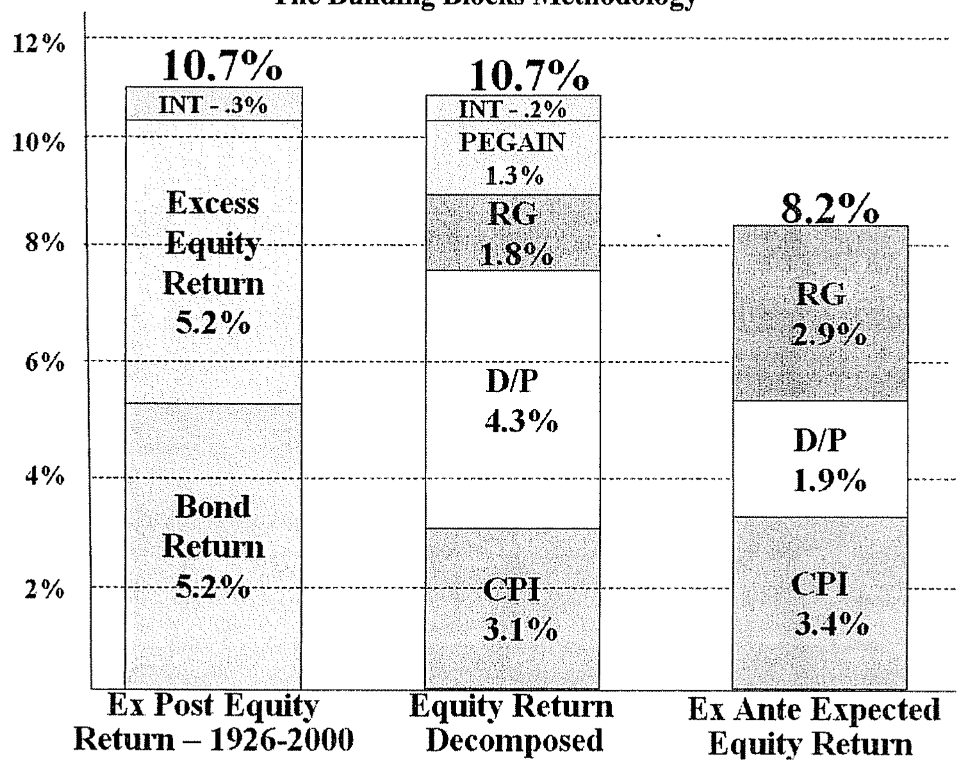
A. Ibbotson and Chen (2002) evaluate the ex post historic mean stock and bond returns in what is called the Building Blocks approach.[13] They use 75 years of data and relate the compounded historic returns to the different fundamental variables employed by different researchers in building ex ante expected 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).[14] This is shown in the graph below. The first column breaks the 1926-2000 geometric

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

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

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%).

Decomposing Equity Market Returns
The Building Blocks Methodology

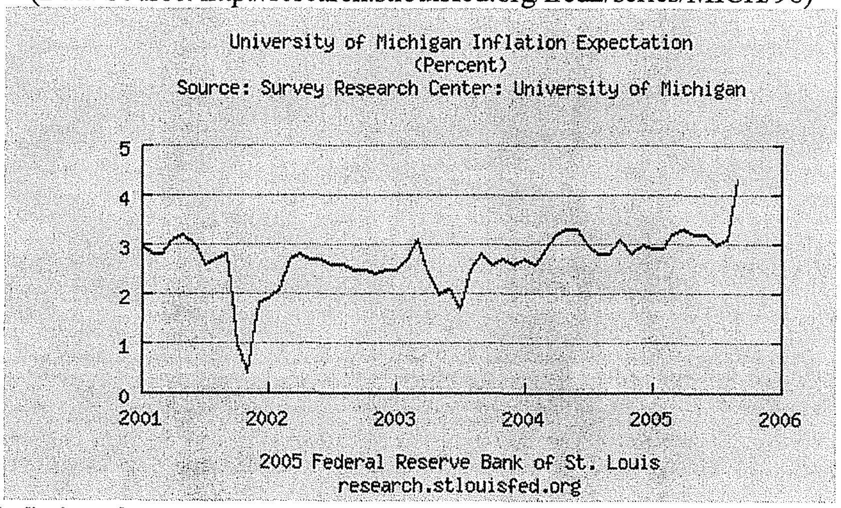


Q. HOW ARE YOU USING THIS METHODOLOGY TO DERIVE AN EX ANTE EXPECTED EQUITY RISK PREMIUM?

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 4.3%.

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*.[15] This survey of professional economists has been published for almost 50 years. While this survey is published quarterly, 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)).

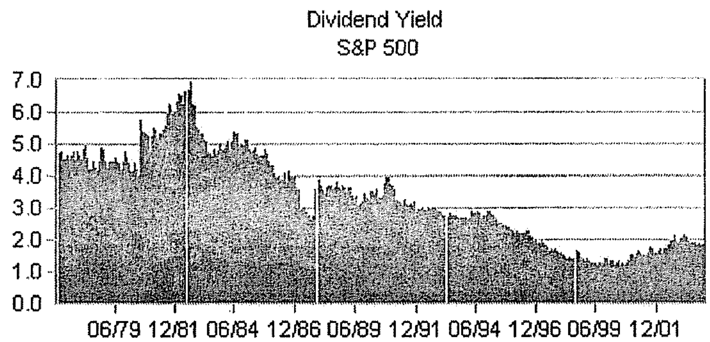
Given these results, I will use the average of the University of Michigan and Philadelphia Federal Reserve's surveys (4.30% and 2.45%), or 3.40%.

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 1.9% 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)

[15]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.



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.[16] 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

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

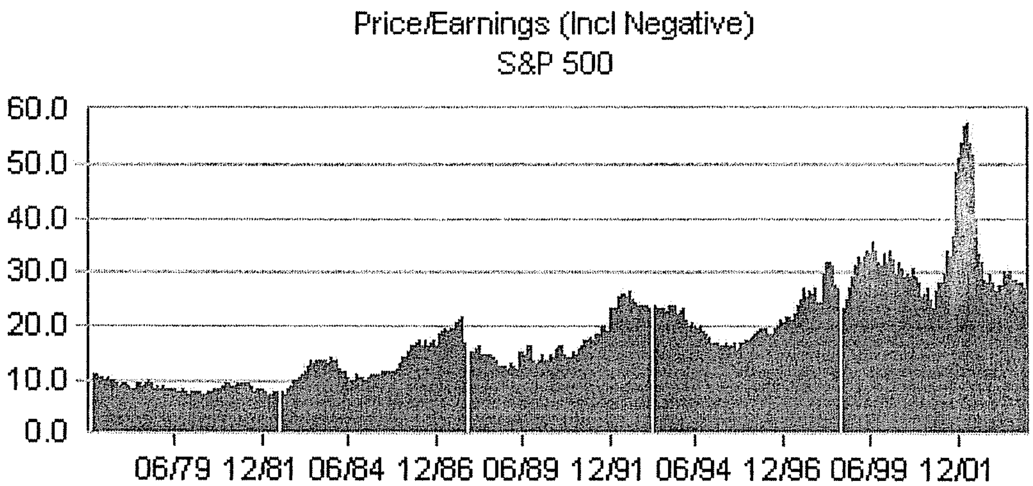
GDP growth) (2.5% and 3.3%), or 2.9%, for real earnings growth.

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) 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 almost 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 8.20% which is composed of 3.40% expected inflation, 1.90% dividend yield, and 2.90% real earnings growth rate.

Expected Inflation	Dividend Yield	Real Earnings Growth Rate	Expected Market Return
3.40%	1.90%	2.90%	8.2%

Q. GIVEN THAT THE HISTORIC COMPOUNDED ANNUAL MARKET RETURN

IS IN EXCESS OF 10%, WHY DO YOU BELIEVE THAT YOUR EXPECTED MARKET RETURN OF 8.20% 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 1.9%. Due to these reasons, lower market returns are expected for the future.

Q. IS YOUR EXPECTED MARKET RETURN OF 8.20% 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 8.20%.

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

A. As shown above, the current 30-year treasury yield is 4.52%. My ex ante equity risk premium is simply the expected market return from the Building Blocks methodology minus this risk-free rate:

$$\text{Ex Ante Equity Risk Premium} = 8.20\% - 4.52\% = 3.68\%$$

Q. GIVEN THIS DISCUSSION, HOW ARE YOU MEASURING AN EXPECTED EQUITY RISK PREMIUM IN THIS PROCEEDING?

A. As discussed above, page 3 of Exhibit_(JRW-8) provides a summary of the results of a variety of the equity risk premium studies. These include the results of (1) the study of historic risk premiums as provided by Ibbotson, (2) ex ante equity risk premium studies (studies commissioned by the Social Security Administration as well as those labeled "Puzzle Research"), (3) equity risk premium surveys of CFOs, Financial Forecasters, as well as academics, (4) Building Block approaches to the equity risk premium, and (5) other miscellaneous studies. The overall average equity risk premium of these studies is 4.2%, which I will use as the equity risk premium in my CAPM study.

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.[17] 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

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

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.[18]

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-year equity risk premium of the CFOs was 3.8%.[19]

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

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[18] 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.

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

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 companies.[20]

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

A. The results of my CAPM study for the two groups of electric utility companies as well as KPC are provided below:

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

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

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Group A	4.75%	0.70	4.20%	7.70%
Group B	4.75%	0.75	4.20%	7.90%

D. EQUITY COST RATE SUMMARY

Q. PLEASE SUMMARIZE YOUR EQUITY COST RATE STUDY.

A. The results for my DCF and CAPM analyses for the two groups of electric utility companies are indicated below:

	DCF	CAPM
Group A	8.6%	7.7%
Group B	8.9%	7.9%

Q. GIVEN THESE RESULTS, WHAT EQUITY COST RATE RECOMMENDATION ARE YOU MAKING FOR KPC?

A. Giving these results, I conclude that the equity cost rate for the two groups of electric utilities is in the 8.0-9.0 percent range. Relying primarily on the DCF results, I will use an equity cost rate of 8.75% for KPC. This figure represents the average of the DCF equity cost rate estimates for the two groups of electric utility companies.

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

(Autumn 2002), p.15. Available at http://www.corporatefinance.mckinsey.com/.

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 public utility bonds have been in the 5.5 percent range. My equity return recommendation of 8.75% 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 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 Mr. Moul's testimony.

Q. HOW DO YOU TEST THE REASONABLENESS OF YOUR 8.75% RECOMMENDATION?

A. To test the reasonableness of my 8.75% recommendation, I examine the relationship between the return on common equity and the market-to-book ratios for the two groups of electric utility companies.

Q. WHAT DO THE RETURNS ON COMMON EQUITY AND MARKET-TO-BOOK

RATIOS FOR THE GROUPS OF ELECTRIC UTILITIES INDICATE ABOUT THE REASONABLENESS OF YOUR 8.75% RECOMMENDATION?

A. Page 1 of Exhibit_(JRW-3) and page 4 of Exhibit_(JRW-7) provide financial performance and market valuation statistics for the two groups of electric utility companies. The current and projected returns on equity and market-to-book ratios for the two groups are summarized below:

	Current ROE	Projected ROE	Market-to-Book Ratio
Group A	9.2%	9.0%	134
Group B	11.3%	11.3%	175

Source: Exhibit_(JRW-3) and page 3 of Exhibit_(JRW-7)

These results clearly indicate that, on average, these companies are earning and are expected to earn returns on equity above their equity cost rates. As such, this observation provides evidence that my recommended equity cost rate of 8.75% is reasonable and fully consistent with the financial performance and market valuation of the groups of electric utility companies.

IV. CRITIQUE OF KPC'S RATE OF RETURN TESTIMONY

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

A. My rebuttal testimony focuses on the two issues: (1) Mr. Moul's proxy group of electric utility companies and (2) Mr. Moul's equity cost rate approaches and results.

Mr. Moul's Proxy Group of Electric Utility Companies

Q. PLEASE DISCUSS MR. MOUL'S PROXY GROUP OF ELECTRIC UTILITY

COMPANIES.

A Mr. Moul's group includes eight electric utilities located in the Great Lakes region of the U.S. My primary concern is that the companies in the group, on average, have significant revenues from unregulated businesses and gas operations. As shown in Exhibit_(JRW-3), the median percentage of revenues from regulated electric utility operations is only 63%, including WPS Resources and Vectren which have receive 17% and 23%, respectively, of revenues from regulated electric utility operations.

Equity Cost Rate Approaches and Results

Q. PLEASE REVIEW MR. MOUL'S EQUITY COST RATE APPROACHES.

A. Mr. Moul uses his proxy group of eight electric utilities and employs a traditional as well an 'alternative' DCF approach, a Risk Premium (RP) analysis, a CAPM, and a Comparable Earnings (CE) approach.

Q. PLEASE SUMMARIZE MR. MOUL'S EQUITY COST RATE RESULTS.

A. Mr. Moul's equity cost rate estimates for KPC are summarized in the table below. Based on these figures, he concludes that the appropriate equity cost rate for KPC to be 11.50%.

Summary of Equity Cost Rate Approaches and Results

Approach	Excluding Flotation Costs	Including Flotation Costs
DCF	11.12%	11.33%
Risk Premium	11.25%	11.46%
CAPM	11.31%	11.52%
Comparable Earnings	13.55%	13.55%

Q. PLEASE DISCUSS THE ISSUES WITH MR. MOUL'S RECOMMENDED EQUITY COST RATE.

A. In addition to his use of an inappropriate proxy group, Mr. Moul's proposed return on common equity is too high primarily due to (1) an upwardly-biased expected growth rate in his two DCF applications; (2) an incorrect leverage adjustment for the difference between market values and book values, (3) the use of a forecasted interest rates (in his RP and CAPM approaches) that are well above current long-term market yields, (4) excessive risk premium estimates in his RP and CAPM approaches, (5) a flawed Comparable Earnings (CE) study, and (6) an inappropriate adjustment for flotation costs.

Q. PLEASE SUMMARIZE MR. MOUL'S DCF ESTIMATES.

A. On pages 14-34 of his testimony, in Appendix E, and in Schedules 5-9, Mr. Moul develops an equity cost rate by applying a traditional and an 'alternative' DCF model to his electric utility proxy group. The traditional DCF approach is the normal DCF model in which the equity cost rate is the sum of the dividend yield and expected growth. He adjusts this figure for (1) a leverage adjustment to reflect the difference between the market value and book value capital structures of the companies in the group, and (2) an estimate of flotation costs. Mr. Moul's traditional DCF results are summarized below.

Traditional DCF Equity Cost Rate
Electric Utility Proxy Group

	Traditional
Dividend Yield	4.08%
Growth	5.50%
Leverage Adjustment	0.74%
DCF Result	10.32%
Flotation Cost Adjustment	0.21%
DCF Equity Cost Rate	**10.53%**

Mr. Moul's 'alternative' DCF is really a traditional DCF model applied to his proxy group electric utilities where (1) a high and low dividend yield is calculated for each company based on the previous six months of data, (2) two measures of growth are estimated – analysts' projected 5-year EPS growth and an estimate of retention and external growth (b * r' + 's * v), (3) and then an array of DCF estimates are computed using the high and low dividend yields and two growth rate measures. The array has a range from 8.08% to 13.75% and he uses the midpoint of this range – 10.92% - as his DCF result using the 'alternative' DCF approach. He then makes his leverage (0.99%) and flotation cost (0.21%) adjustments and for a DCF equity cost rate of 12.12% using his 'alternative' DCF approach.

Q. PLEASE EXPRESS YOUR CONCERNS WITH MR. MOUL'S DCF STUDY.

A. Beyond my previously-discussed concerns on the composition of his proxy group, I have several major concerns with Mr. Moul's traditional and 'alternative' DCF equity cost rates. These are discussed below:

(1) Adjusted Dividend Yield

In Appendix E Mr. Moul discusses the adjustments he makes to his dividend yields. This includes an adjustment to reflect the time value of money. This necessity for such an adjustment is refuted in a study by Richard Bower of Dartmouth College. Bower acknowledges the timing issue but he demonstrates that this does not result in a biased required rate of return. He provides the following assessment: [21]

> "... authors are correct when they say that the conventional cost of equity calculation is a downward-biased estimate of the market discount rate. They are not correct, however, in concluding that it has a bias as a measure of required return. As a measure of required return, the conventional cost of equity calculation (K*), ignoring quarterly compounding and even without adjustment for fractional periods, serves very well."

(2) Mr. Moul's Growth Rate of 5.5% in his Traditional DCF Model

In Schedules 6 and 7 Mr. Moul's provides fifteen alternative measures of growth he reviewed. The average of these figures is only 3.76%. Clearly, Mr. Moul has ignored most of his historic and projected growth rate measures in arriving at his 5.5% DCF growth rate. Mr. Moul appears to believe that the appropriate growth rate is 5.5% based primarily on (1) analysts EPS growth rate estimates, and (2) a projected growth rate of corporate profits of 6.0%. On the latter issue, Mr. Moul provides no evidence whatsoever that the 6.0% projected growth rate in corporate profits is appropriate for his proxy group of electric utilities (see response to AG-DR-01-216).

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[21] See Richard Bower, The N-Stage Discount Model and Required Return: A Comment," Financial Review

Hence, this observation does not support Mr. Moul's 5.5%. The Table below shows analysts' EPS growth rate estimates for Mr. Moul's proxy group (see response to Staff-DR-03-20).

	I/B/E/S First Call	Zacks	Reuters Market Guide	Value Line
Ameren	3.36%	4.90%	4.36%	0.50%
DTE Energy	4.20%	4.60%	4.50%	7.00%
Exelton	5.29%	6.10%	6.35%	6.50%
FirstEnergy	4.20%	4.10%	4.43%	10.00%
MGE Energy	-	N/A	-	6.00%
Vectren	4.00%	5.00%	6.67%	4.50%
WPS Resources	4.33%	4.70%	4.33%	6.50%
Wisconsin Energy	6.20%	6.10%	6.25%	4.00%
Mean	4.51%	5.07%	5.27%	5.63%

These results indicate that the consensus growth rate forecasts of analysts – as provided by I/B/E/S – First Call (4.51%), Zacks (5.07%), and Reuters Market Guide (5.27%) do not support Mr. Moul's 5.5% DCF growth rate. Only *Value Line*'s EPS growth rate estimate is as large as 5.5%, and that is because of the outlier estimate of 10.0% for FirstEnergy. In addition, in relying on these EPS growth rate estimates, Mr. Moul is ignoring the well-known upward bias in analysts' growth rate forecasts. This issue is discussed at length below.

(3) Mr. Moul's 'Alternative DCF Result

As discussed above, prior to leverage and flotation cost adjustments, Mr. Moul's 'alternative' DCF estimate of 10.29% is based on an array of DCF results of dividend yields and growth rates for his proxy group. This array is provided in the table below

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(February 1992), pp 141-149.

Mr. Moul's 'Alternative' DCF Results

Company	"b times r" + "s times v" Low Cost of Equity (K)	High Cost of Equity (K)
Ameren Corp.	7.08%	7.37%
DTE Energy	9.35%	9.60%
Exelon Corp.	13.44%	13.75%
FirstEnergy	9.35%	9.62%
MGE Energy Inc.	7.51%	7.91%
Vectren Corp.	8.31%	8.58%
Wisconsin Energy	10.78%	11.04%
WPS Resources	8.90%	9.04%
Mean	9.34%	9.61%
	IBES/ First Call	
Company	Low Cost of Equity (K)	High Cost of Equity (K)
Ameren Corp.	8.26%	8.55%
DTE Energy	8.73%	8.98%
Exelon Corp.	8.71%	9.01%
FirstEnergy	8.08%	8.35%
MGE Energy Inc.		
Vectren Corp.	8.32%	8.59%
Wisconsin Energy	8.49%	8.75%
WPS Resources	8.70%	8.84%
Mean	8.47%	8.72%
Overall Mean		9.04%

Data Source: Exhibit PRM-1, Schedule 9.

The 10.92% is the midpoint of the lowest result of the 'Low Cost of Equity' outcomes (8.08% for FirstEnergy), and the highest result of the 'High Cost of Equity' outcomes (13.75% for Exelton). Initially, it must be noted that Mr. Moul has removed values of less than 8.0% because, in his opinion, they are too low. More importantly, however, is that his metric of central tendency -- the midpoint -- clearly misstates the central tendency of the outcomes since the 13.75% is an outlier on the high side. This is highlighted by the fact that the average of all the results is only 9.04%.

(4) Mr. Moul's Flotation Cost Adjustment

Mr. Moul's DCF results include a 21 basis point flotation cost adjustment. Such an adjustment is totally unwarranted. Flotation costs are one-time expenses which are incurred when a Company sells additional stock. They are not a recurring annual item. If KPC were to sell stock, the flotation costs associated with the issue should be accounted for and added to the Company's rate request just like other expenses. However, Mr. Moul has not indicated that KPC intends to sell additional shares to investors.

<u>(5) Mr. Moul's Leverage Adjustment</u>

Mr. Moul's DCF results include a so-called leverage adjustment. Mr. Moul claims that this is needed since (1) market values are greater than book values for utilities, and (2) the overall rate of return is applied to a book value capitalization in the ratemaking process. This adjustment is erroneous and unwarranted for the following reasons:

(a) As noted above, the market value of a firm's equity exceeds the book value of equity when the firm is expected to earn more on the book value of investment than investors require. As such, the reason that market values exceed book values is that the company is earning a return on equity in excess of its cost of equity;

(b) Financial publications and investment firms report capitalizations on a book value and not a market value basis.

(c) Mr. Moul makes the claim that the market value – book value adjustment was based on the research of Nobel prize winners Modigliani and Miller. Mr. Moul was asked in Interrogatory AG-DR-I-219 to identify exactly where one could find his proposed adjustment in the research of Modigliani and Miller. He was unable to do so.

(d) In AG-DR-I-218, Mr. Moul was asked to provide what other regulatory commissions have adopted his leverage adjustment. Despite having proposed the adjustment in many cases, only the Pennsylvania Public Utility Commission has made any adjustment based on Mr. Moul's market-value-book value divergence argument.

(6) Mr. Moul's Use of Upwardly Biased Analysts' EPS Forecasts

Mr. Moul has placed heavy reliance on upwardly biased analysis' forecasts of EPS growth in both his traditional and 'alternative' DCF approaches. 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. This issue is evaluated in depth below.

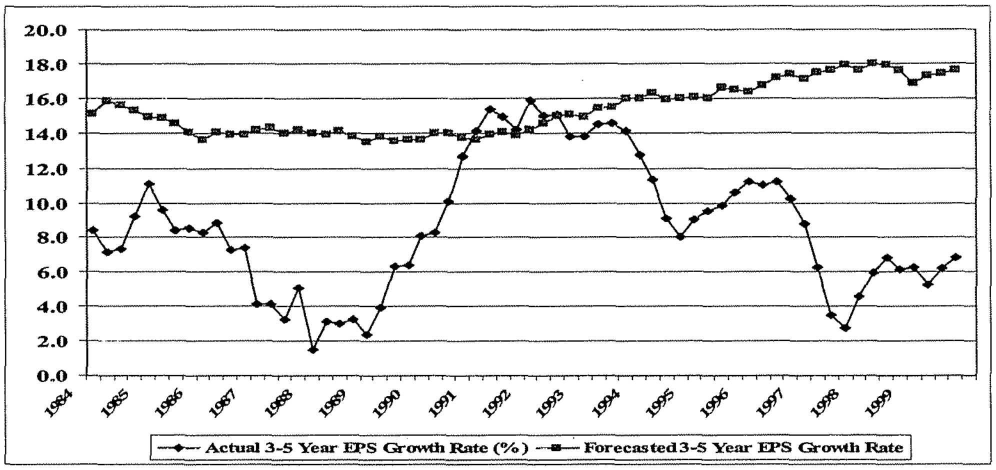
Q. PLEASE REVIEW THE BIAS IN ANALYSTS' GROWTH RATE FORECASTS.

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 over the 20 year period covered by the study. 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.

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



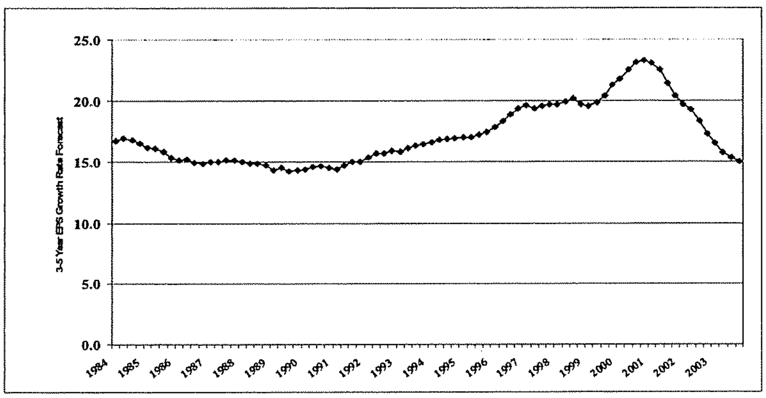
Source: J. Randall Woolridge.

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%.

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.[22] 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 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,

[22] 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.

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 supported by a *Wall Street Journal* article entitled "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation." The following quote provides insight into the continuing bias in analysts' forecasts:

> Hope springs eternal, says Mark Donovan, who manages Boston Partners Large Cap Value Fund. 'You would have thought that, given what happened in the last three years, people would have given up the ghost. But in large measure they have not.'
>
> These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed: Research remains rosy and many believe it always will.[23]

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

A. I am not aware of any studies that test for a bias in *Value Line*'s forecasts. However, it is my experience that *Value Line*'s projected EPS and overall market return forecasts are inflated and unrealistic. I believe that it is because *Value Line* rarely projects a decline in EPS and/or the market, despite the fact that the economy and stock market go through cycles over time.

Q. FINALLY, PLEASE ADDRESS MR. MOUL'S CRITICISMS OF THE DCF MODEL.

[23] Ken Brown, "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates

A. Between pages 14 and 16 of his testimony and in Appendix E, Mr. Moul criticizes the use of the DCF model to estimate equity cost rates in today's market conditions and makes an adjustment for one of these factors. His criticisms can be summarized as follows: there are problems in using the DCF model in this case because (1) the share prices of utility stocks have risen due to takeover speculation; (2) the assumptions used in the theoretical derivation of the DCF model; (3) in conjunction with the DCF assumptions, which include the assumption of a constant P/E ratio and the fact that P/E ratios are not constant but change over time, and (4) the DCF model produces insufficient earnings when market-to-book ratios are above 1.0. I will address these issues in order.

(1) <u>Problems with the DCF model due to rising prices attributed to takeover speculation</u>

The share prices of utilities have increased in recent years for a number of reasons, part of which may be the possibility of being acquired. The fact that prices rise simply means that either expected returns have changed or that there has been a reassessment of risk. This may also mean that equity cost rates have changed as well. Nonetheless, these conditions by themselves do not mean that the DCF model does not provide an accurate indicator of equity cost rates.

(2) <u>The assumptions used in the derivation of the DCF model</u>

First, it must be noted that all economic models are derived using fairly restrictive assumptions. In the DCF model, assumptions such as constant P/E and dividend payout ratios make the model internally consistent. Criticisms of the assumptions of the model are valid if it can be demonstrated that the model is not robust with respect to obvious real world conditions that deviate

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Help to Buoy the Market's Valuation." *Wall Street Journal*, (January 27, 2003), p. C1.

from these assumptions. No such evidence has been provided in this proceeding. The fact that the DCF model is used almost universally in the investment community and in utility ratemaking is indicative of the robustness of the methodology. The model does not require that investors have an infinite investment horizon. Simply put, the DCF model only presumes that stocks are priced on the basis of current and prospective dividends. Especially in the case of public utility stocks, I believe that this is a reasonable assumption.

(3) The assumption of a constant P/E ratio, given that P/E ratios are not constant but change over time

P/E ratios change constantly as new information comes to the market that causes investors to revalue a company's shares (the numerator of the P/E ratio) relative to current earnings (the denominator of the P/E ratio). This new information may be associated with changes in the economic landscape that result in changes in equity cost rates (such as changes in interest rates or investors' risk/return tradeoff). In the context of the DCF model, the fact that P/E ratios change only provides an indication of changes in a firm's share price relative to past earnings. Share prices look forward and are determined by a firm's prospective cash returns discounted to the present by investors' required return. Earnings look backwards and are a function of firm performance and generally accepted accounting conventions.

Thus, in the context of the DCF model, the fact that P/E ratios change is simply an indication that new information relating to the economic environment is available and this has caused investors to revalue shares. The DCF is based on expectations, and thus it is also likely that the new information actually results in a change in equity cost rates.

(4) <u>The DCF model produces insufficient earnings when market-to-book ratios are above 1.0.</u>

The market value of a firm's equity exceeds the book value of equity when the firm is expected to earn more on the book value of investment than investors require. In other words, the expected return on equity capital is greater than the cost of equity capital (the return that investors require). Given the almost universal application of the DCF model in regulatory and investment circles, it is rather obvious that public utilities would not be selling in excess of 1.00 times book value if the DCF model produced insufficient earnings. As such, Mr. Moul's hypothesis is incorrect.

Q. PLEASE REVIEW MR. MOUL'S RISK PREMIUM ANALYSIS.

A. Mr. Moul arrives at a risk premium derived equity cost rate of 11.46% for the proxy group of electric utilities. These figures include a base yield of 6.50 % an equity risk premiums of 4.75%, and a flotation cost adjustment of 0.21%. This result is summarized below.

Risk Premium Equity Cost Rate
Electric Utility Proxy Group

	Traditional
Base Yield	6.50%
Risk Premium	4.75%
RP Result	11.25%
Flotation Cost Adjustment	0.21%
RP Equity Cost Rate	**11.46%**

Q. PLEASE DISCUSS THE BASE YIELD OF MR. MOUL'S RISK PREMIUM

ANALYSIS.

A. The base yield in Mr. Moul's RP analysis is the prospective yield on long-term, 'A' rated public utility bonds. Using the yield on these securities inflates the required return on equity for KPC in three ways: (1) the base yield of 6.50% is well above the current yield on A-rated public utility bonds, which is in the 5.50% range. It is my opinion that long-term interest rate forecasts are not reliable, credible, or accurate, and I am not aware of any studies that indicate forecasted interest rates are better measures of future interest rates than today's interest rates; (2) long-term bonds are subject to interest rate risk, a risk which does not affect common stockholders since dividend payments (unlike bond interest payments) are not fixed but tend to increase over time; and (3) the base yield in Mr. Moul's risk premium study is subject to credit risk since it is not default risk-free like an obligation of the U.S. Treasury. As a result, its yield-to-maturity includes a premium for default risk and therefore is above its expected return. Hence using a bond's yield-to-maturity as a base yield results in an overstatement of investors' return expectations.

Q. PLEASE REVIEW MR. MOUL'S RISK PREMIUM STUDY.

A. Mr. Moul performs a historic risk premium study that appears in Schedule 11 and Appendix H. This study involves an assessment of the historic difference between S&P Public Utility Index stock returns and public utility bond returns over various time periods between the years 1928-2004. This type of historic evaluation of stock returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of assessing historic financial market returns. Mr. Moul evaluates the stock-bond return differentials using different measures of central tendency (the geometric and arithmetic means and the median) over four alternative time intervals (1928-2004, 1952-2004, 1974-2004, and 1979-2004). From the results of his study, he concludes that an appropriate risk premium for the S&P Public Utilities is 4.95%. To recognize the lower risk of electric utilities, he arbitrarily adjusts this figure downwards to 4.75%.

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

A. 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."[24] Since Mr. Moul'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.

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

[24] 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.

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, Mr. Moul's arithmetic mean return measures are biased and should be disregarded.

<u>Unattainable and Biased Historic Stock Returns</u>

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 thereby render these returns unattainable to investors. In addition, an academic study demonstrates that the monthly portfolio rebalancing assumption produces biased estimates of stock returns.[25]

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

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 MR. MOUL'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 RETURNS AND EQUITY RISK PREMIUMS?

A. Mr. Moul'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-9) 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-9). 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-9) 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-9), 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. PLEASE DISCUSS MR. MOUL'S USE OF THE CAPM.

A. On pages 41 to 44 of his testimony and in Appendix I, Mr. Moul applies the CAPM to his proxy group of electric utility companies. There are four flaws with Mr. Moul's CAPM analysis: (1) his risk-free interest rate of 5.50%, (2) the use of leverage-adjusted betas, (3) his market risk premium of 6.75%, and (4) the flotation cost adjustment (0.21%). The first issue was addressed above and the second is discussed below. This result is summarized below:

CAPM Equity Cost Rate
Electric Utility Proxy Group

	Traditional
Risk-Free Rate	5.50%
Beta	0.86
Market Risk Premium	6.75%
CAPM Result	11.31%
Flotation Cost Adjustment	0.21%
CAPM Equity Cost Rate	**11.52%**

Q. PLEASE DISCUSS THE RISK-FREE INTEREST RATE IN MR. MOUL'S CAPM APPROACH.

A. Mr. Moul uses the projected rate on 20-year Treasury securities as the risk-free interest rate in his CAPM approach. This yield is well in excess of today's interest rates. Contrary to many forecasts, long-term interest rates have not increased significantly due to concerns over the direction of the economy. The current yield on 20-year Treasury Bonds is only in the 4.50% range. Buyers of Treasury bonds are primarily sophisticated institutional investors such as banks and insurance companies and these investors would not be buying Treasury Bonds at their current yields with the expectation of absorbing large capital losses due to an increase in interest rates. Current yields reflect current market conditions as well as expectations of the future. Given the uncertainty over the economy and interest rates, Mr. Moul should be employing the current Treasury yields as the risk-free rate in his CAPM. His use of inflated interest rate forecasts simply results in an overstatement of his CAPM equity cost rate.

Q. PLEASE DISCUSS MR. MOUL'S USE OF LEVERAGE-ADJUSTED BETAS IN HIS

CAPM APPROACH.

A. Whereas the average beta for the electric utility group is 0.72, Mr. Moul employs a beta of 0.86. He has adjusted the beta upwards for the book value/market value capitalization difference. As such, he has effectively made the same leverage adjustment to his betas that he made to his DCF results to reflect the difference between the market values and the book values of the companies in his electric utility proxy group. The errors in this approach were discussed above.

Q. PLEASE REVIEW THE ERRORS IN MR. MOUL'S EQUITY OR MARKET RISK PREMIUM IN HIS CAPM APPROACH.

A. The primary problem with Mr. Moul's CAPM analysis is the size of the market or equity risk premium. Mr. Moul develops a market risk premium of 6.75% in Appendix I. It is computed as the average risk premium of the 1926-2004 results from the Ibbotson study (6.6%) and *Value Line's* 3-5 year annual return projections (6.89%). The primary problem with this approach is that both the Ibbotson study and *Value Line* projected return overstate the market or equity risk premium.

The Ibbotson historic risk premium simply represents the difference in the arithmetic mean stock and bond returns over the 1926-2004 period. The errors in using the relationship between long-term historic stock and bond returns to estimate an expected market or equity risk premium were discussed above. In short, the procedure is erroneous and overstates the true market or equity risk premium.

Q. PLEASE CRITIQUE MR. MOUL'S PROSPECTIVE EQUITY OR MARKET RISK PREMIUM WHICH HE CALCULATES USING *VALUE LINE'S* PROJECTED RETURNS.

A. The primary error in using *Value Line's* 3-5 year annual return projections is that these projections are consistently high relative to actual experienced returns and, as such, provide upwardly biased equity or market risk premiums. This bias is highlighted in a study shown in Exhibit_(JRW-10). Over the 1984-2004 time period, this study demonstrates that *Value Line's* projected 3-5 year annual return has been, on average, 3.24 percent above the actual 3-5 year annual return. As such, *Value Line's* 3-5 year annual returns produce upwardly-biased equity or market risk premiums.

Additional evidence regarding the bias in *Value Line's* expected market return and risk premium is evident from current market data. The current 3-5 year median annual return is 12.27%. It is not logical that investors would expect a market return that is almost 200 basis points above the average historic compounded market return (as reported the 2005 SBBI Yearbook) of 10.4%. This is especially true given current market conditions. As discussed above, at the present time stock prices (relative to earnings and dividends) are high while 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. TO CONCLUDE THIS DISCUSSION, PLEASE SUMMARIZE MR. MOUL'S RISK PREMIUM AND CAPM RESULTS IN LIGHT OF THE EVIDENCE ON RISK PREMIUMS IN TODAY'S MARKETS.

A. Both Mr. Moul's risk premium and CAPM methods are effectively risk premium approaches to estimating equity cost rates. In both approaches, Mr. Moul employs (1) forecasted interest rates that are well above current market rates and (2) risk premiums that are well in excess of the equity risk premium estimates (a) discovered in recent academic studies by leading finance scholars and (b) employed by leading investment banks, management consulting firms, financial forecasters and corporate CFOs.

Q. PLEASE DISCUSS MR. MOUL'S COMPARABLE EARNINGS ANALYSIS.

A. Between pages 44 and 48 of his testimony and in Appendix J, Mr. Moul estimates an equity cost rate for KPC employing the CE approach. His methodology involves averaging historic and prospective returns on common equity for a proxy group of non-utility companies "comparable" in risk to his barometer group as determined from screening *Value Line's* Value Screen database. Mr. Moul screens the database on six risk measures and arrives at a group of 31 unregulated "comparable" companies. The average of the historic and projected median returns on common equity for the group is 13.55%.

This approach is fundamentally flawed for several reasons. He has not performed any analysis to examine whether his return on equity figures are likely measures of long-term earnings expectations. More importantly, however, since Mr. Moul has not evaluated the market-to-book ratios for these companies, he cannot indicate whether the past and projected returns on common equity are above or below investors' requirements. These returns on common equity are excessive if the market-to-book ratios for these companies are above 1.0. For example, Avon and Clorox are two of the companies "comparable" to KPC. The average historic and projected returns on equity for Avon are 134.0% and 41.0%, and for Clorox are 29.0% and 54.5%, respectively. But, I doubt if any financial analyst, including Mr. Moul, would suggest that these are the equity cost rates for these two companies. Indeed, the market-to-book ratios for Avon and Clorox are in excess of 10.0. This indicates that their return on equity are well above their cost of equity.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

In the Matter of:

AN ADJUSTMENT OF THE RATES	)	
OF KENTUCKY POWER	)	**CASE NO. 2005-00341**
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.

Commonwealth of Pennsylvania
County of Centre

Subscribed and sworn to me by the Affiant J. Randall Woolridge this 5th day of January, 2006.

Notary Public

NOTARIAL SEAL
Ronald E. Flebotte, Notary Public
State College, Centre County
My commission expires November 10, 2007

APPENDIX A

EDUCATIONAL BACKGROUND, RESEARCH, AND RELATED BUSINESS EXPERIENCE

J. RANDALL WOOLRIDGE

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

Kentucky Power Company

Cost of Capital and Fair Rate of Return

Capital Source	Capitalization Amount*	Capitalization Ratio*	Cost Rate**	Weighted Cost Rate
Short-Term Debt	1,293,426	0.15%	3.34%	0.01%
Account Receivable Financing	30,054,116	3.55%	2.99%	0.11%
Long-Term Debt	479,249,392	56.66%	5.70%	3.23%
Common Equity	335,163,238	39.63%	8.75%	3.47%
Total	845,760,172	100.00%		6.81%

Exhibit_(JRW-1)

Kentucky Power Company

Cost of Capital and Fair Rate of Return

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Total	845,760,172	100.00%		6.81%

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

Group A

Company	S&P Bond Rating	Operating Revenue ($mil)	Percent Elec Revenue	Net Plant ($mil)	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio*	Return on Equity	Price/ Earnings Ratio	Market to Book Ratio
Ameren Corp.	A-	6,559.0	82%	13,402.0	4.6	MO,IL	53%	10.9%	15.5	164
Cleco Corporation	BBB+	796.6	99%	1,099.6	3.7	LA	53%	15.7%	13.6	193
Empire District Electric Co.	A-	366.6	93%	889.2	2.1	MO,KS,OK,AK	49%	6.2%	21.5	132
Green Mountain Power Company	BBB	233.6	100%	235.2	3.3	VT	55%	9.0%	15.7	133
Hawaiian Electric Industries, Inc.	BBB+	2,109.2	82%	2,246.1	4.0	HI	58%	9.5%	18.5	197
IDACORP, Inc.	A-	848.5	97%	2,283.0	1.9	ID	48%	7.4%	17.0	120
Westar Energy	BBB	1,533.5	100%	3,917.4	2.2	KS	47%	9.2%	13.5	134
Mean	**BBB+**	**1,778.1**	**93%**	**3,438.9**	**3.1**		**52%**	**9.7%**	**16.5**	**153**
Median		**848.5**	**97%**	**2,246.1**	**3.3**		**53%**	**9.2%**	**15.7**	**134**

Data Source: AUS *Utility Reports*, December, 2005, *Value Line Investment Survey*, 2005.

Exhibit_(JRW-3)

Proxy Group Selection

ELECTRIC COMPANIES	Regulated Electric revenue	Paid a Quarterly Dividend for 5 Years	S&P Investment Grade Bond Rating	Revenues of < $10B	Coverage by Value Line Standard Edition	Operate Primarily in Non-Deregulated States
ALLETE	59					
American Electric Power				13,008		
Central Vermont	78					
Cleco						
DPL, Inc.		X				
Duquense Light						X
Edison International		X				
El Paso Electric		X				
Empire District Electric Co.						
FirstEnergy Corporation				11,742		
FPL Group, Inc.				10,750		
Great Plains Energy	43					
Green Mountain Power Corp.						
Hawaiian Electric Industries, Inc.						
IDACORP, Inc.						
Maine & Maritimes Corporation			X			
OGE Energy Corp.	29					
Otter Trail Corporation	29					
Pinnacle West Capital Corp.	70					
Progress Energy Inc.	76					
Southern Company				12,170		
TXU Corp.	24					
UIL Holdings Corporation	64					
Westar Enerty, Inc.						

Exhibit_(JRW-3)

Proxy Group Selection

COMBINATION ELECTRIC & GAS COMPANIES	Regulated Electric revenue	Paid a Quarterly Dividend for 5 Years	S&P Investment Grade Bond Rating	Revenues of < $10B	Coverage by Value Line Standard Edition	Operate Primarily in Non-Deregulated States
AES Corporation	45					
Allegheny Enerty, Inc.		X				
Alliant Energy Corporation	74					
Ameren Corporation						
Aquila Inc.	42					
Avista Corporation	53					
Black Hills Corporation	23					
CenterPoint Energy	18					
CH Energy Group, Inc.	53					
Cinergy Corp.	77					
MCS Energy Corporation	46					
Consolidated Edison, Inc.	67					
Constellation Energy Group, Inc.	14					
Dominion	34					
DTE Energy Company	26					
Duke Energy Corporation	22					
Energy East Corporation	58					
Entergy Corporation	78					
Exelon Corporation	73					
Florida Public Utilities Company	38					
MDU Resources Group, Inc.	6					
MGE Energy, Inc.	60					
NiSource Inc.	16					
Northeast Utilites	60					
Northwestern Corporation	52					
NSTAR						X
Pepco Holdings, Inc.	60					
PG&E Corporation	65					
PNM Resources, Inc.	70					
PPL Corporation	68					
Public Serviece Enterprise Group	62					
Puget Energy, Inc.	58					
SCANA Corporation	42					
SEMPRA Energy	47					
Sierra Pacific Resources			X			
TECO Energy. Inc.	60					
UniSource Energy Corporation						X
Unitil Corporation					X	
Vectren Corporation	22					
Wisconsin Energy Corporation	62					
WPS Resources Corporation	17					
Xcel Energy, Inc.	75					

Exhibit_(JRW-4)
Kentucky Power Company
Capital Structure Ratios and Senior Capital Cost Rates

KPC PROPOSED:

	Capitalization	Ratios	Cost Rates	Weighted Cost Rates
	(1)	(1)	(1)	(1)
Long Term Debt	$ 482,392,123	56.55%	5.70%	3.22%
Short Term Debt	3,340,763	0.39%	3.34%	0.01%
A/R Financing	30,052,250	3.52%	2.99%	0.11%
Common Equity	337,297,815	39.54%	11.50%	4.55%
Total	$ 853,082,951	100.00%		7.89%

AG RECOMMENDED:

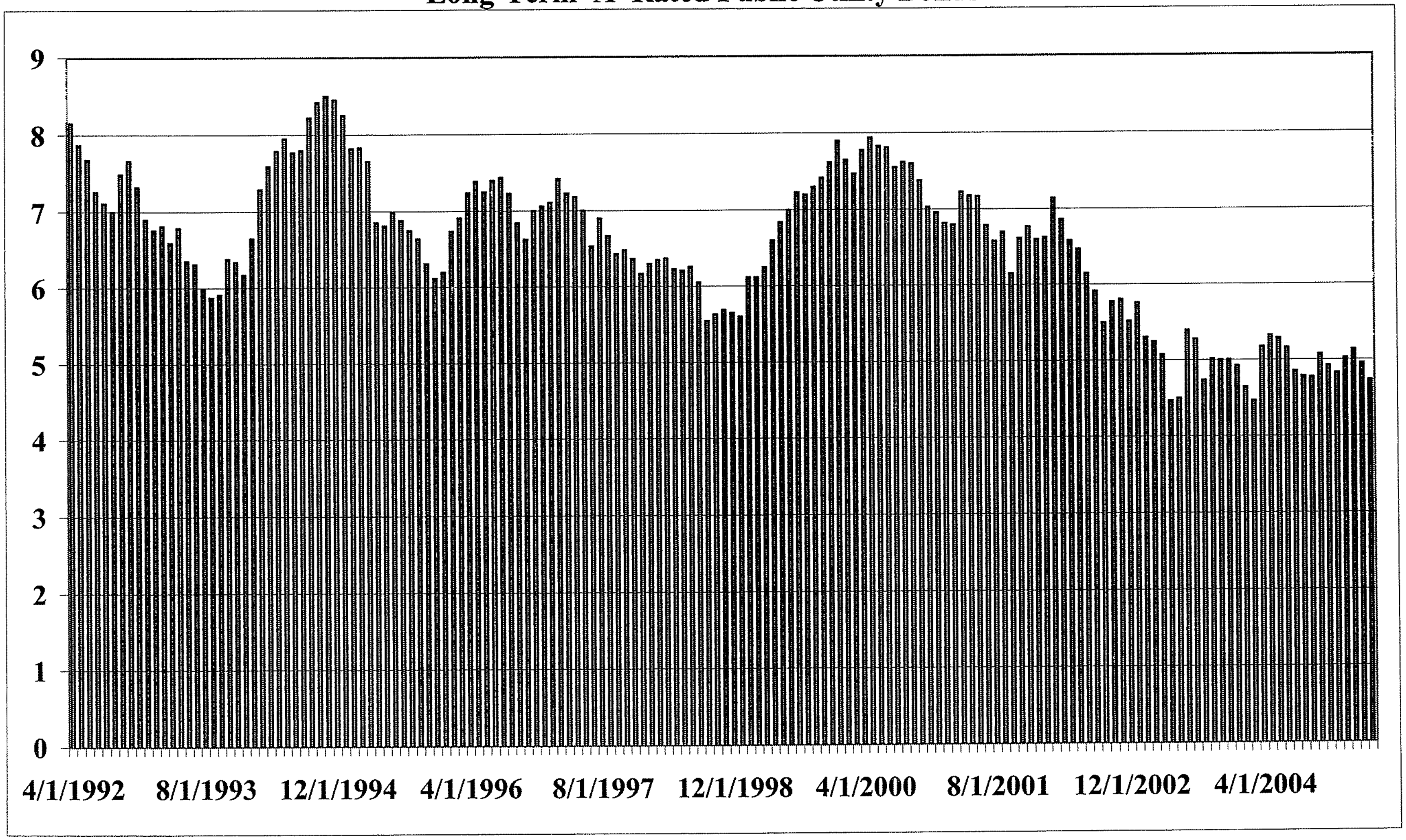
	Capitalization	Ratios	Cost Rates	Weighted Cost Rates
	[Sch. RJH-3]		(2)	
Long Term Debt	479,249,392	56.66%	5.70%	3.23%
Short Term Debt	1,293,426	0.15%	3.34%	0.01%
A/R Financing	30,054,116	3.55%	2.99%	0.11%
Common Equity	335,163,238	39.63%	9.00%	3.57%
Total	$ 845,760,172	100.00%		6.91%

(1) Section V, WP S-2, page 1

(2) Testimony of Dr. J. Randall Woolridge

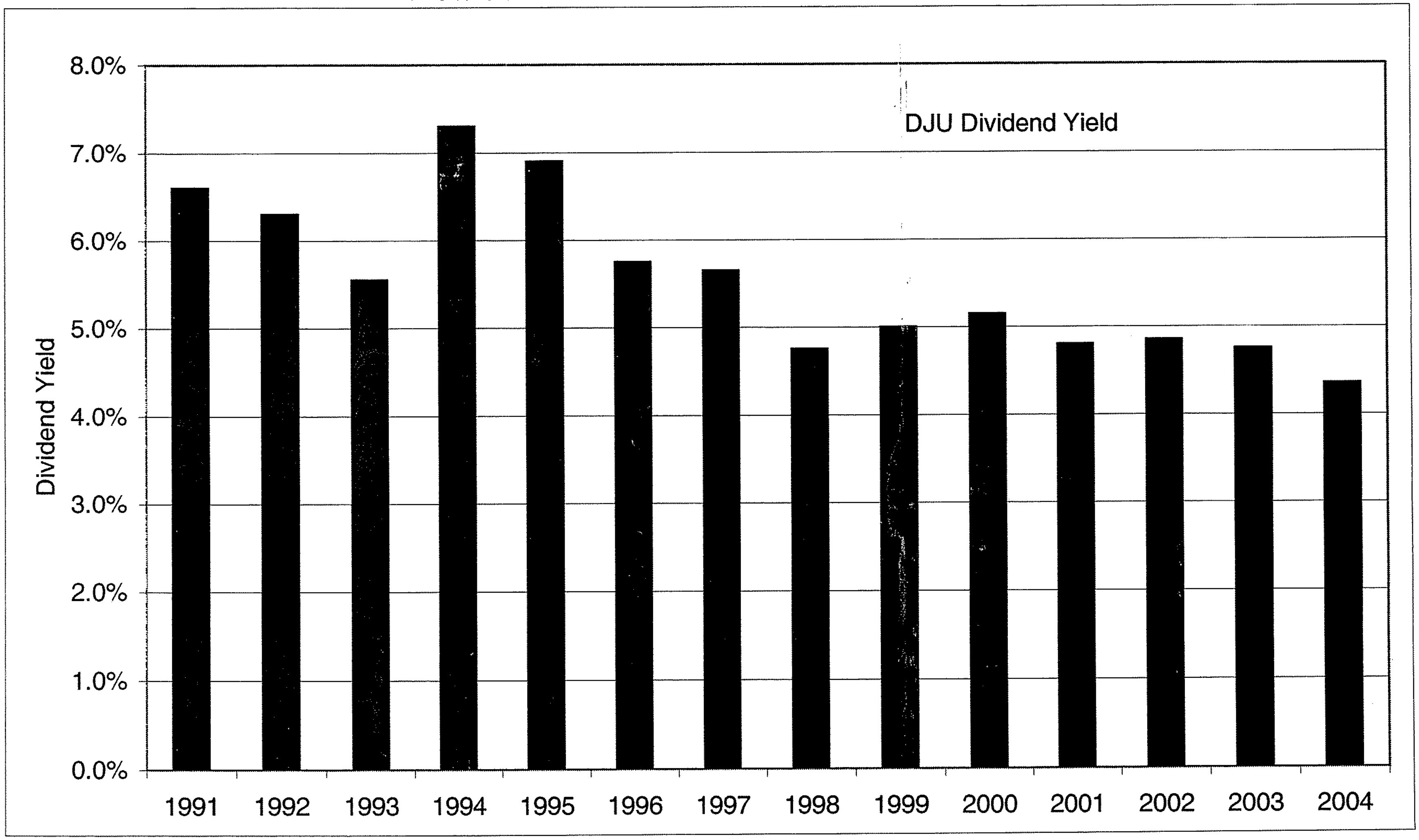
Exhibit_(JRW-5)

Long-Term 'A' Rated Public Utility Bonds



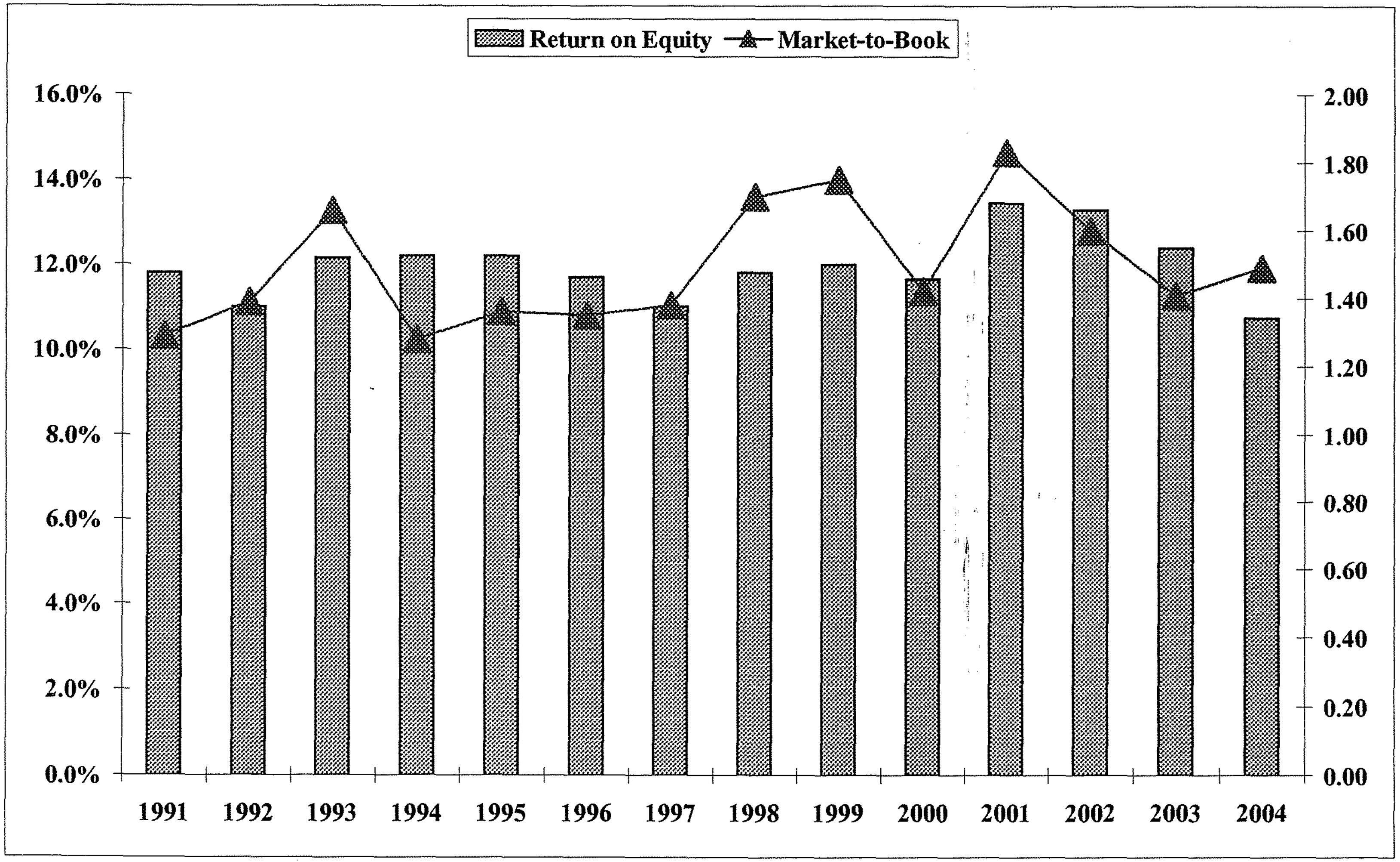
Data Source: Bloomberg (FMCI Function).

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
Data Source: http://www.stern.nyu.edu/~adamodar/						**Market**	**7091**	1.00

Exhibit_(JRW-7)

Kentucky Power Company
DCF Equity Cost Rate

Group A

Dividend Yield*	4.50%
Adjustment Factor	1.02
Adjusted Dividend Yield	4.59%
Growth Rate**	4.00%
Equity Cost Rate	8.6%

Group B

Dividend Yield*	3.85%
Adjustment Factor	1.025
Adjusted Dividend Yield	3.95%
Growth Rate**	5.00%
Equity Cost Rate	8.9%

* Page 2 of Exhibit_(JRW-7)
** Based on data provided on pages 3-4, Exhibit_(JRW-7)

Exhibit_(JRW-7)

Kentucky Power Company
Monthly Dividend Yields
July-December, 2005

Group A

Company	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Ameren Corp.	4.7%	4.6%	4.7%	4.8%	5.1%	4.9%	4.8%
Cleco Corporation	4.2%	4.1%	4.0%	4.0%	4.3%	4.3%	4.2%
Empire District Electric Co.	5.3%	5.3%	5.6%	5.6%	6.3%	6.3%	5.7%
Green Mountain Power Company	3.4%	3.3%	3.4%	3.1%	3.1%	3.1%	3.2%
Hawaiian Electric Industries, Inc.	4.6%	4.5%	4.7%	4.5%	4.8%	4.8%	4.7%
IDACORP, Inc.	4.0%	3.8%	4.1%	4.0%	4.3%	4.3%	4.1%
Westar Energy	3.9%	3.9%	3.9%	3.9%	4.3%	4.3%	4.0%
Mean	**4.3%**	**4.2%**	**4.3%**	**4.3%**	**4.6%**	**4.6%**	**4.4%**

Group B

Company	Jul	Aug	Sep	Oct	Nov	Dec	Mean
Ameren Corp.	4.7%	4.6%	4.7%	4.8%	5.1%	4.9%	4.8%
DTE Energy	4.4%	4.3%	4.6%	4.6%	4.9%	4.7%	4.6%
Exelon Corp.	3.3%	3.0%	3.1%	3.0%	3.2%	3.1%	3.1%
FirstEnergy	3.5%	3.3%	3.4%	3.4%	3.7%	3.7%	3.5%
MGE Energy Inc.	3.8%	3.7%	4.0%	3.8%	4.1%	3.8%	3.9%
Vectren Corp.	4.1%	4.1%	4.4%	4.2%	4.6%	4.5%	4.3%
WPS Resources	3.9%	3.9%	2.3%	2.3%	2.4%	2.3%	2.9%
Wisconsin Energy	2.4%	2.2%	4.0%	3.9%	4.3%	4.2%	3.5%
Mean	**3.8%**	**3.6%**	**3.8%**	**3.8%**	**4.0%**	**3.9%**	**3.8%**

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

Exhibit_(JRW-7)

Kentucky Power Company
DCF Equity Cost Growth Rate Measures
Value Line Historic Growth Rates

Group A

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
Ameren Corp.	0.0%	1.0%	2.5%	1.5%	0.0%	4.0%
Cleco Corporation	4.0%	2.5%	4.0%	4.0%	2.0%	4.0%
Empire District Electric Co.	-1.0%	0.0%	2.0%	-3.5%	0.0%	2.0%
Green Mountain Power Company	-1.5%	-10.0%	-0.5%	37.5%	-6.5%	-0.5%
Hawaiian Electric Industries, Inc.	2.0%	1.0%	2.5%	1.0%	0.0%	2.5%
IDACORP, Inc.	-1.5%	-1.5%	2.5%	-9.0%	-3.0%	3.5%
Westar Energy	-7.0%	-7.0%	-4.5%	3.0%	-15.0%	-13.0%
Mean	**-0.7%**	**-2.0%**	**1.2%**	**4.9%**	**-3.2%**	**0.4%**
Median	**-1.0%**	**0.0%**	**2.5%**	**1.5%**	**0.0%**	**2.5%**
	Average of Mean and Median Figures =			**0.5%**		

Group B

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
Ameren Corp.	0.0%	1.0%	2.5%	1.5%	0.0%	4.0%
DTE Energy	-0.5%	0.0%	3.0%	0.0%	0.0%	3.5%
Exelon Corp.				6.5%		
FirstEnergy	2.0%	1.0%	5.0%	1.0%	2.0%	6.0%
MGE Energy Inc.	1.5%	1.0%	2.5%	4.0%	1.0%	5.0%
Vectren Corp.				1.0%	2.0%	3.5%
WPS Resources	3.0%	2.0%	4.0%	9.6%	2.0%	6.5%
Wisconsin Energy	2.0%	-5.0%	2.5%	6.5%	-12.0%	3.5%
Mean	**1.3%**	**0.0%**	**3.3%**	**3.8%**	**-0.7%**	**4.6%**
Median	**1.8%**	**1.0%**	**2.8%**	**2.8%**	**1.0%**	**4.0%**
	Average of Mean and Median Figures =			**2.1%**		

Data Source: ***Value Line Investment Survey, September 30, 2005.***

Exhibit_(JRW-7)

Kentucky Power Company
DCF Equity Cost Growth Rate Measures
***Value Line* Projected Growth Rates**

Group A

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
Ameren Corp.	2.5%	0.0%	4.5%	9.5%	24.0%	2.3%
Cleco Corporation	0.5%	0.0%	8.0%	8.0%	35.0%	2.8%
Empire District Electric Co.	5.0%	0.0%	1.5%	9.0%	12.0%	1.1%
Green Mountain Power Company	3.5%	12.0%	3.0%	10.0%	39.0%	3.9%
Hawaiian Electric Industries, Inc.	2.5%	0.0%	3.0%	10.5%	32.0%	3.4%
IDACORP, Inc.	4.5%	-5.0%	3.0%	7.0%	38.0%	2.7%
Westar Energy	5.5%	2.0%	5.0%	8.5%	36.0%	3.1%
Mean	**3.4%**	**1.3%**	**4.0%**	**8.9%**	**30.9%**	**2.7%**
Median	**3.5%**	**0.0%**	**3.0%**	**9.0%**	**35.0%**	**2.8%**
Average of Mean and Median Figures =		**2.5%**	**Average of Mean and Median Figures =**			**2.8%**

Group B

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
Ameren Corp.	2.5%	0.0%	4.5%	9.5%	24.0%	2.3%
DTE Energy	8.5%	0.5%	5.5%	12.5%	59.0%	7.4%
Exelon Corp.	7.0%	11.0%	8.0%	18.5%	49.0%	9.1%
FirstEnergy	10.0%	4.0%	5.5%	11.5%	47.0%	5.4%
MGE Energy Inc.	6.0%	0.5%	7.0%	12.0%	37.0%	4.4%
Vectren Corp.	4.0%	3.5%	4.0%	11.0%	31.0%	3.4%
WPS Resources	4.5%	2.0%	6.5%	10.5%	41.0%	4.3%
Wisconsin Energy	4.0%	4.5%	5.5%	10.0%	61.0%	6.1%
Mean	**5.8%**	**3.3%**	**5.8%**	**11.9%**	**43.6%**	**5.3%**
Median	**5.3%**	**2.8%**	**5.5%**	**11.3%**	**44.0%**	**4.9%**
Average of Mean and Median Figures =		**4.7%**	**Average of Mean and Median Figures =**			**5.1%**

Data Source: ***Value Line Investment Survey, September 30, 2005.***

Exhibit_(JRW-7)

Kentucky Power Company

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

Group A

Company	Yahoo First Call	Reuters	Zack's	Average
Ameren Corp.	3.0%	4.8%	6.0%	4.6%
Cleco Corporation	4.9%	4.6%	4.0%	4.5%
Empire District Electric Co.	2.0%	2.5%	5.0%	3.2%
Green Mountain Power Company				
Hawaiian Electric Industries, Inc.	4.0%	2.8%	3.5%	3.4%
IDACORP, Inc.	5.0%	4.5%	4.3%	4.6%
Westar Energy	3.0%	3.5%	4.0%	3.5%
Mean	**3.7%**	**3.8%**	**4.5%**	**4.0%**
Median	**3.5%**	**4.0%**	**4.2%**	**4.0%**
Average of Mean and Median Figures =				**4.0%**

Group B

Company	Yahoo First Call	Reuters	Zack's	Average
Ameren Corp.	3.0%	4.8%	6.0%	4.6%
DTE Energy	4.0%	5.5%	5.3%	4.9%
Exelon Corp.	6.0%	7.3%	7.6%	7.0%
FirstEnergy	5.0%	4.6%	4.7%	4.8%
MGE Energy Inc.				
Vectren Corp.	4.0%	5.4%	4.6%	4.7%
WPS Resources	10.3%	4.3%	4.5%	6.4%
Wisconsin Energy	8.0%	8.0%	8.0%	8.0%
Mean	**5.8%**	**5.7%**	**5.8%**	**5.8%**
Median	**5.0%**	**5.4%**	**5.3%**	**4.9%**
Average of Mean and Median Figures =				**5.3%**

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

Kentucky Power Company
CAPM Equity Cost Rate

Group A

Risk-Free Interest Rate	4.75%
Beta**	0.70
Ex Ante Equity Risk Premium***	4.2%
CAPM Cost of Equity	7.7%

Group B

Risk-Free Interest Rate	4.75%
Beta**	0.75
Ex Ante Equity Risk Premium***	4.2%
CAPM Cost of Equity	7.9%

** See page 2 of Exhibit_(JRW-8)
*** See page 3 of Exhibit_(JRW-8)

Exhibit_(JRW-8)

Kentucky Power Company
CAPM
Beta

Group A

Company	Beta
Ameren Corp.	0.75
Cleco Corporation	1.15
Empire District Electric Co.	0.70
Green Mountain Power Company	0.60
Hawaiian Electric Industries, Inc.	0.70
IDACORP, Inc.	0.95
Westar Energy	0.65
Median	**0.70**

Group B

Company	Beta
Ameren Corp.	0.75
DTE Energy	0.70
Exelon Corp.	0.75
FirstEnergy	0.75
MGE Energy Inc.	0.65
Vectren Corp.	0.80
WPS Resources	0.75
Wisconsin Energy	0.70
Median	**0.75**

Data Source: ***Value Line Investment Survey, September 30, 2005.***

Kentucky Power Company
Capital Asset Pricing Model
Equity Risk Premium

Historic							
	Ibbotson						
		Arithmetic			6.60%	5.80%	
		Geometric			5.00%		
	AVERAGE						5.80%
Puzzle Research							
	Fama French		2.55%	4.32%		3.44%	
	Claus Thomas					3.00%	
	Dimson, Marsh, and Staunton						
		Arithmetic	2.50%	4.00%	3.81%	4.35%	
		Geometric	3.50%	5.25%			
	Jeremy Siegel	Geometric				2.50%	
	Arnott and Bernstein					2.40%	
	George Constaninides					6.90%	
	Brad Cornell		3.50%	7.00%		5.25%	
	AVERAGE						3.98%
Surveys							
	Survey of Financial Forecasters					2.00%	
	Graham and Harvey - CFOs					3.80%	
	Welch - Academics		5.00%	5.50%		5.25%	
	AVERAGE						3.68%
Social Security							
	Office of Chief Actuary		4.00%	4.70%			
	John Campbell		2.00%	3.50%			
	Peter Diamond		3.00%	4.80%			
	John Shoven		3.00%	3.50%			
	AVERAGE						3.56%
Building Block							
	Ibbotson and Peng						
		Arithmetic			6.00%	5.00%	
		Geometric			4.00%		
	Woolridge					3.68%	
	AVERAGE						4.34%
Other Studies							
	McKinsey		3.50%	4.00%		3.75%	
	AVERAGE						3.75%
OVERALL AVERAGE							**4.2%**

Sources:

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Marc H. Goedhart, Timothy M. Koller, and Zane D. Williams, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.14.

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

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

TABLE FIVE
LONG-TERM (10 YEAR) FORECASTS

SERIES: CPI INFLATION RATE		SERIES: REAL GDP GROWTH RATE	
STATISTIC		STATISTIC	
MINIMUM	1.750	MINIMUM	2.100
LOWER QUARTILE	2.300	LOWER QUARTILE	3.000
MEDIAN	2.450	MEDIAN	3.300
UPPER QUARTILE	2.550	UPPER QUARTILE	3.500
MAXIMUM	4.500	MAXIMUM	4.400
MEAN	2.495	MEAN	3.255
STD. DEV.	0.435	STD. DEV.	0.448
N	33	N	33
MISSING	3	MISSING	3

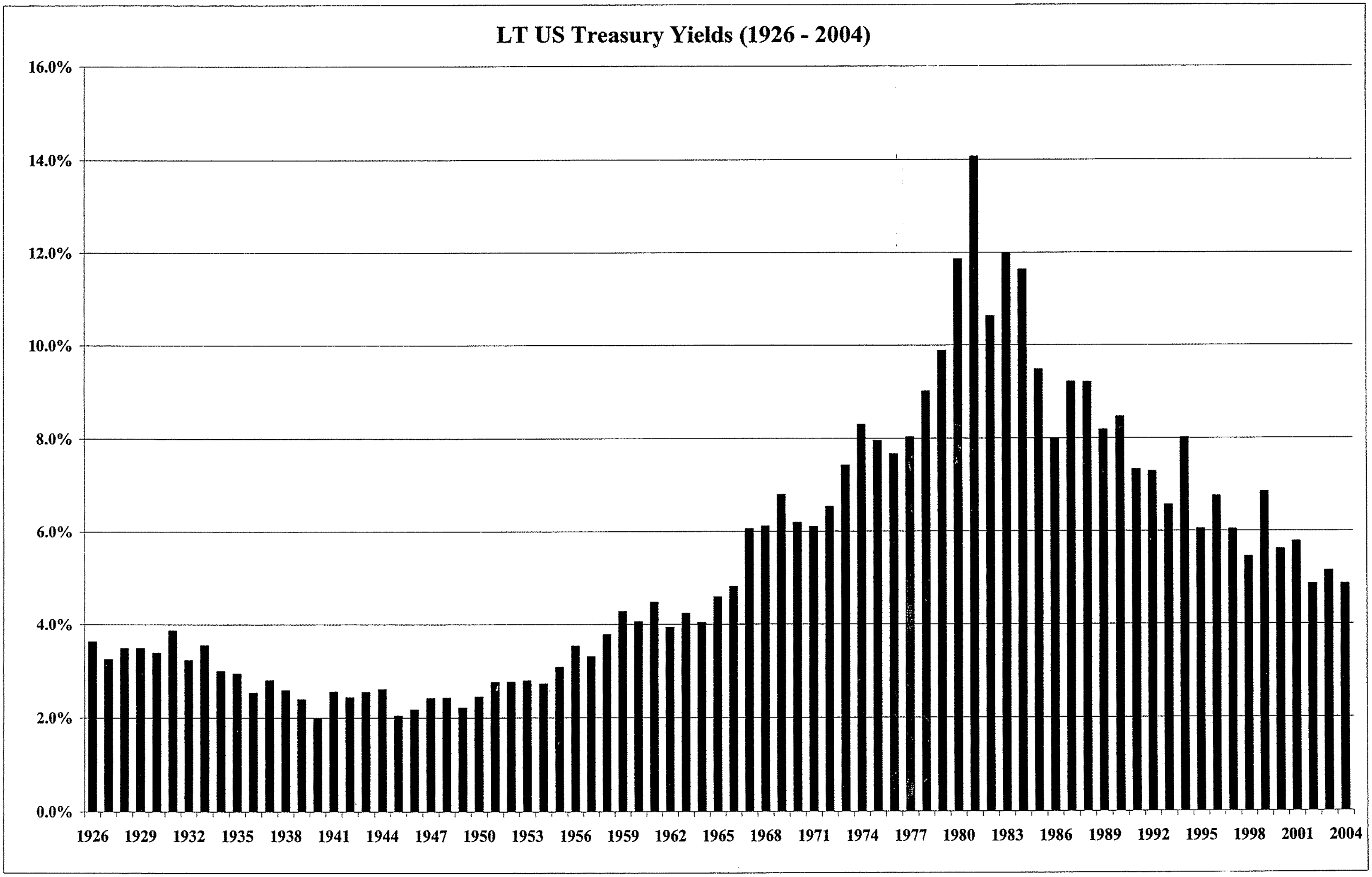
SERIES: PRODUCTIVITY GROWTH		SERIES: STOCK RETURNS (S&P 500)	
STATISTIC		STATISTIC	
MINIMUM	1.000	MINIMUM	5.000
LOWER QUARTILE	2.100	LOWER QUARTILE	6.400
MEDIAN	2.500	MEDIAN	7.000
UPPER QUARTILE	2.600	UPPER QUARTILE	8.250
MAXIMUM	5.000	MAXIMUM	12.500
MEAN	2.451	MEAN	7.552
STD. DEV.	0.643	STD. DEV.	1.675
N	32	N	26
MISSING	4	MISSING	10

SERIES: BOND RETURNS (10-YEAR)		SERIES: BILL RETURNS (3-MONTH)	
STATISTIC		STATISTIC	
MINIMUM	4.000	MINIMUM	2.500
LOWER QUARTILE	4.900	LOWER QUARTILE	3.300
MEDIAN	5.000	MEDIAN	3.700
UPPER QUARTILE	5.700	UPPER QUARTILE	4.100
MAXIMUM	6.700	MAXIMUM	5.000
MEAN	5.190	MEAN	3.684
STD. DEV.	0.685	STD. DEV.	0.624
N	31	N	31
MISSING	5	MISSING	5

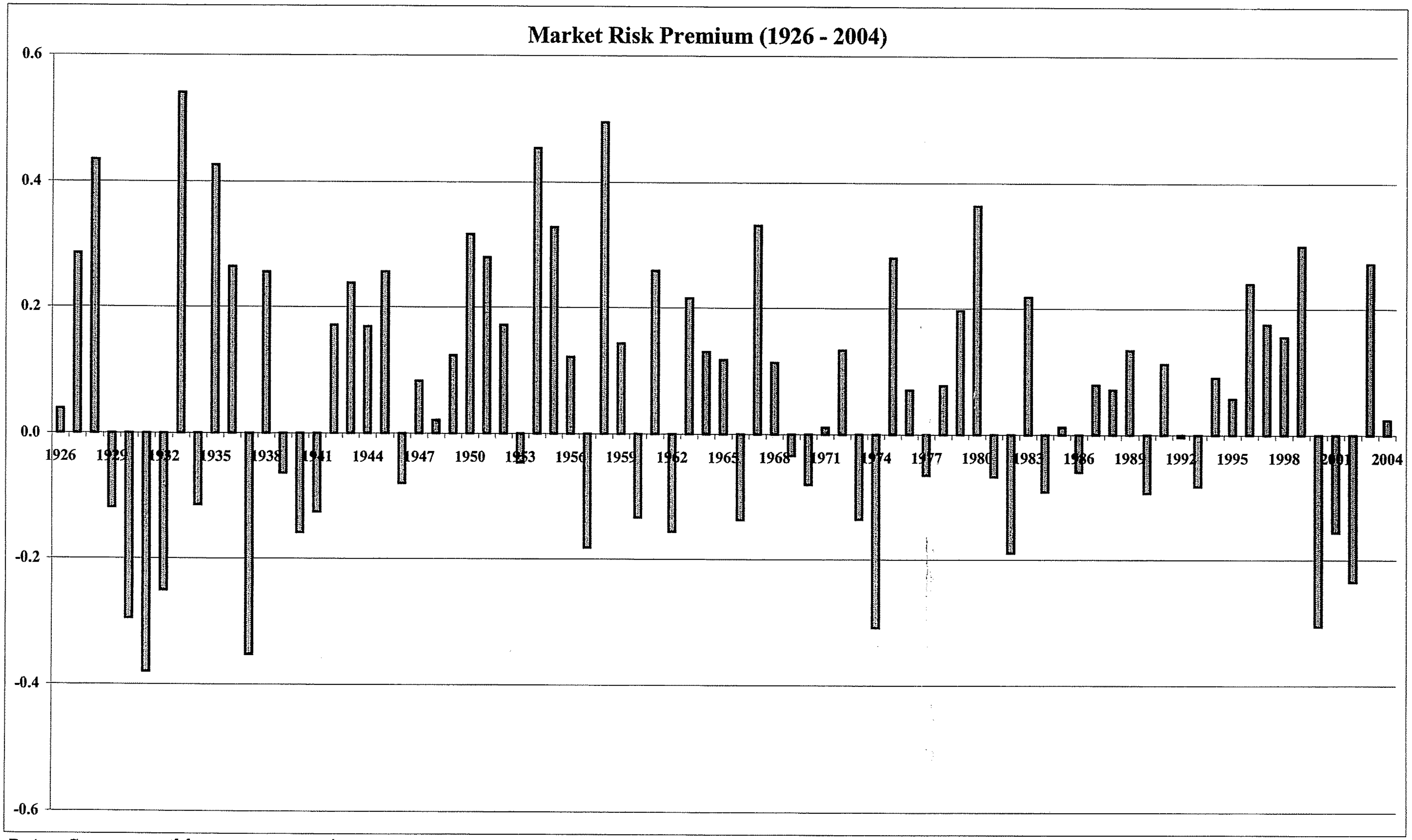
Source: Philadelphia Federal Researve Bank, Survey of Professional Forecasters, February 14, 2005.
http://www.phil.frb.org/files/spf/spfq105.pdf

Kentucky Power Company
CAPM
Real S&P 500 EPS Growth Rate

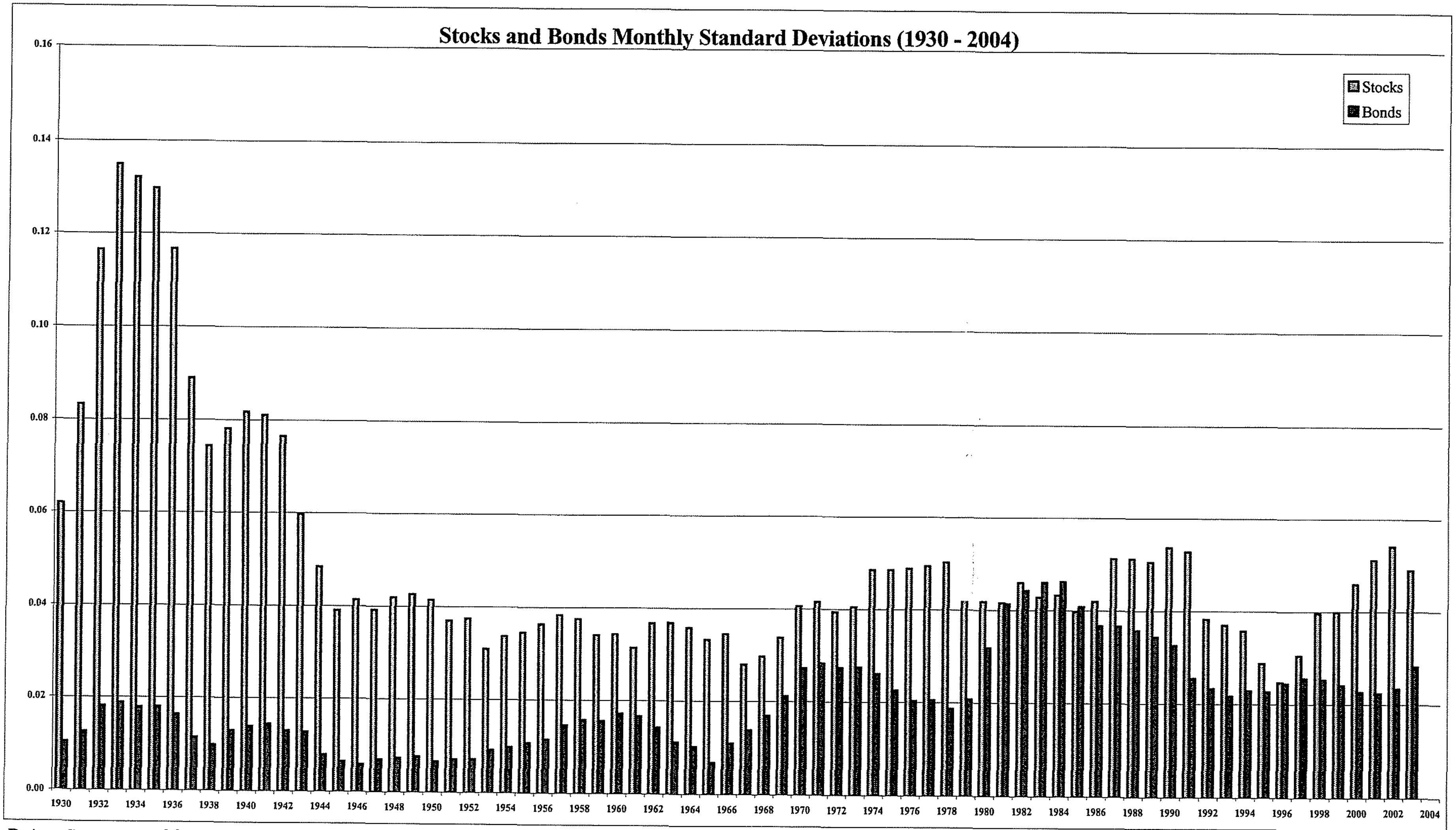
Year	S&P 500 EPS	Annual Inflation CPI	Inflation Adjustment Factor	Real S&P 500 EPS	
1960	3.10	1.4		3.10	
1961	3.37	0.7	1.0070	3.35	
1962	3.67	1.3	1.0201	3.59	
1963	4.13	1.6	1.0364	3.99	
1964	4.76	1	1.0468	4.55	
1965	5.30	1.9	1.0667	4.97	
1966	5.41	3.5	1.1040	4.90	
1967	5.46	3	1.1371	4.80	
1968	5.72	4.7	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	
2003	54.15	1.9	6.1723	8.77	
Data Source: http://pages.stern.nyu.edu/~adamodar/				Real EPS Growth	2.45%



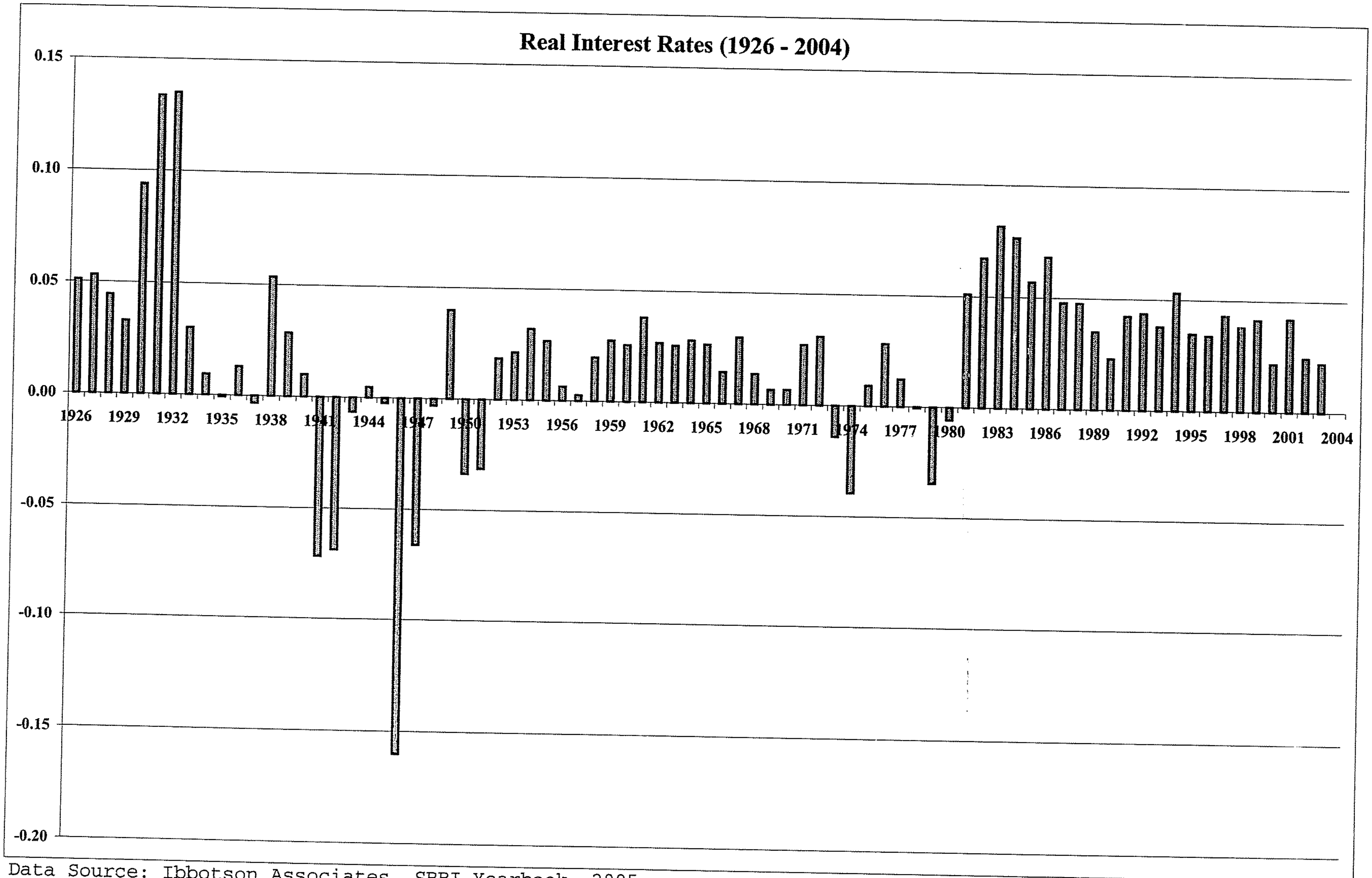
Data Source: Ibbotson Associates, SBBI Yearbook, 2005.



Data Source: Ibbotson Associates, SBBI Yearbook, 2005.



Data Source: Ibbotson Associates, SBBI Yearbook, 2005.



Data Source: Ibbotson Associates, SBBI Yearbook, 2005.

Exhibit_(JRW-10)

Kentucky Power Company
Value Line Projected Return Study

	Value Line Projected Four-Year Return	S&P 500 Actual One-Year Return	S&P 500 Actual Four-Year Return	*Value Line* - S&P 500 Four-Year Return
1984	23.30%	6.27%	14.99%	8.31%
1985	20.03%	31.73%	17.69%	2.34%
1986	14.38%	18.67%	17.68%	-3.30%
1987	14.68%	5.25%	11.87%	2.82%
1988	18.67%	16.61%	18.04%	0.63%
1989	16.80%	31.69%	15.69%	1.11%
1990	20.88%	-3.11%	10.62%	10.26%
1991	19.00%	30.47%	11.87%	7.13%
1992	17.70%	7.62%	13.36%	4.34%
1993	14.96%	10.08%	17.20%	-2.24%
1994	15.61%	1.32%	22.96%	-7.35%
1995	15.14%	37.58%	30.51%	-15.37%
1996	13.19%	22.96%	26.39%	-13.20%
1997	13.20%	33.36%	17.20%	-4.00%
1998	9.91%	28.58%	5.66%	4.24%
1999	14.23%	21.04%	-6.78%	21.01%
2000	18.57%	-9.11%	-5.34%	23.91%
2001	17.20%	-11.88%	-0.52%	17.72%
2002		-22.10%		
2003		28.70%		
2004		10.87%		
Average Projected - Actual Return				3.24%

Data Source: *Value Line Investment Survey*, various issues.