Exhibit No.:
Issues: Cost of Capital
Witness: Dr. J. Randall Woolridge
Type of Exhibit: Direct Testimony
Sponsoring party: DOE-NSSA
Case No.: ER-2006-314
Direct Testimony Date: August 8, 2006

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2006-0314

DIRECT TESTIMONY

OF

J. RANDALL WOOLRIDGE

ON BEHALF OF

THE DEPARTMENT OF ENERGY – NATIONAL NUCLEAR SECURITY ADMINISTRATION

Jefferson City, Missouri
August 2006

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 President of the Nittany Lion Fund, LLC. A summary of my educational background, research, and related business experience is provided in Appendix A.

I. SUBJECT OF TESTIMONY

Q. ON WHOSE BEHALF ARE YOU APPEARING?

A. Keres Consulting, Inc. holds a contract with the United States Department of Energy to provide a number of services, including assistance with utility procurement, contracts and rates administration, as well as intervention in utility rate proceedings that significantly impact large DOE facilities. Keres Consulting, Inc. has been retained by the United States Department of Energy to review Kansas City Power and Light Company's application to the Missouri Public Service Commission ("MPSC" or "Commission") to increase Missouri electric retail rates. I am acting as a consultant in this case to Keres Consultant, Inc. Thus, the testimony I am presenting is offered on behalf of the United States Department of Energy that is representing the interest of the National Nuclear Security Administration ("DOE-NNSA") and other affected Federal Executive Agencies.

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

A. I have been asked by DOE-NNSA to provide an opinion as to the overall fair rate of return or cost of capital for Kansas City Power & Light Company ("KCP&L" or "Company"). I have also been asked to evaluate the rate of return testimony of KCP&L witness Samuel C. Hadaway.

Q. HAVE YOU ALSO REVIEWED OTHER KCP&L TESTIMONY?

A. Yes. I also reviewed the testimonies of KCP&L witnesses Camfield and Giles. However, their discussion regarding cost of capital issues are non-technical and unsupported by empirical analysis and hence I will not be addressing their testimonies.

Q. PLEASE REVIEW YOUR COST OF CAPITAL RETURN FINDINGS.

A. I have independently arrived at a cost of capital for the electric utility services of KCP&L. I have established an equity cost rate of 9.00% for KCP&L by applying the Discounted Cash Flow ("DCF") and a Capital Asset Pricing Model ("CAPM") approaches to a group of electric utility companies. Utilizing my equity cost rate, capital structure ratios, and senior capital cost rates, I am recommending an overall fair rate of return of 7.66% for KCP&L. This recommendation is summarized in Exhibit_(JRW-1).

II. AN OVERVIEW OF CAPITAL COSTS IN TODAY'S MARKETS

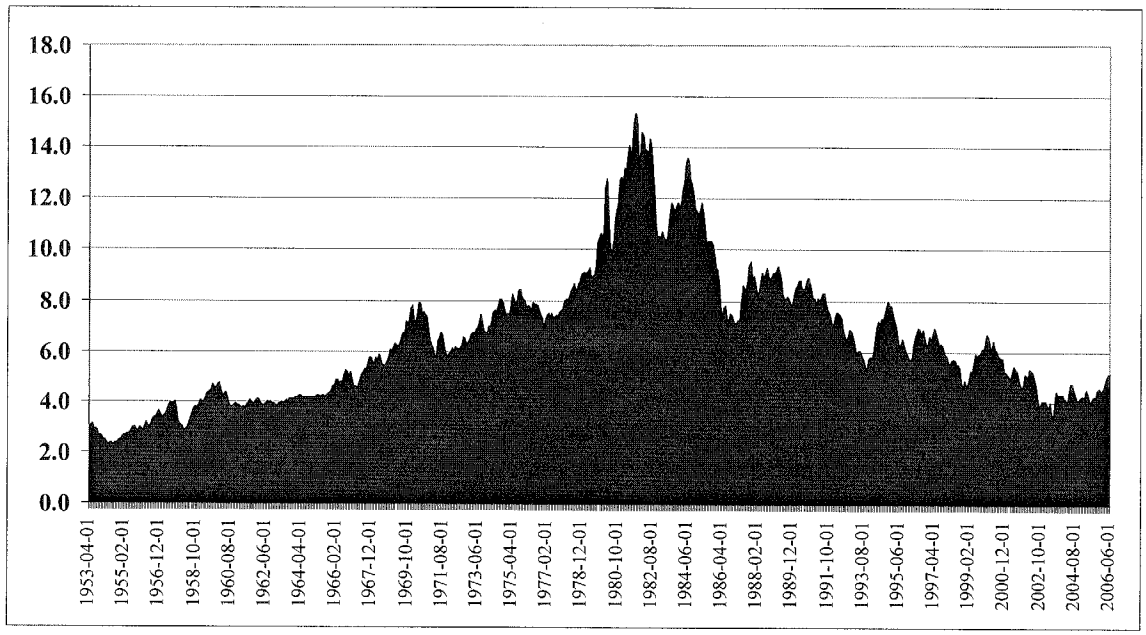
Q. PLEASE DISCUSS CAPITAL COSTS IN TODAY'S MARKETS.

A. Long-term capital cost rates for U.S. corporations are currently at their lowest levels in more than four decades. Long-term 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 decline in rates that began in the year 2000, the 10-year Treasury had not been in the 4-5 percent range since the 1960s.

Yields on Ten-Year Treasury Bonds

1953-Present



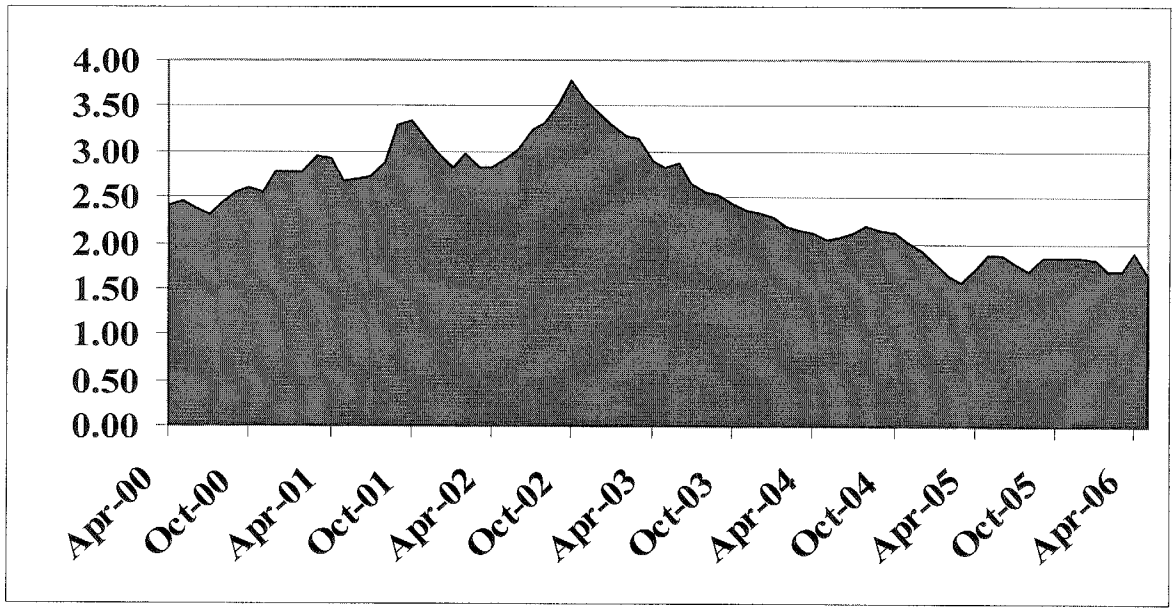
Source: http://research.stlouisfed.org/fred2/data/GS10.txt

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 historical 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 historical equity risk premiums are upwardly biased measures of expected equity risk premiums. Jeremy Siegel, a Wharton finance professor and author of the 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 former Chairman of the Federal Reserve Board, indicated in an October 14, 1999, speech on financial risk that the fact that equity risk premiums have declined during the past decade is "not in dispute." His assessment focused on the relationship between information availability and equity risk premiums.

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

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

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

In sum, the relatively low interest rates in today's markets as well as the lower risk premiums required by investors indicate that capital costs for U.S. companies are the lowest in decades. In addition, the *Jobs and Growth Tax Relief Reconciliation Act of 2003* further lowered capital cost rates for companies.

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

A. On May 28th of 2003, President Bush signed the *Jobs and Growth Tax Relief Reconciliation Act of 2003.* The primary purpose of this legislation was to reduce taxes to enhance economic growth. A primary component of the new tax law was a significant reduction in the taxation of

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

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%. My assessment indicates that the magnitude of the reduction in corporate equity cost rates could be as large as 100 basis points (See Exhibit_(JRW-2)).

III. COMPARISON GROUP SELECTION

Q. PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE OF RETURN RECOMMENDATION FOR KCP&L.

A. To develop a fair rate of return recommendation for KCP&L, I evaluated the return

requirements of investors on the common stock of a group of publicly-held electric utility companies.

Q. PLEASE DESCRIBE YOUR GROUPS OF ELECTRIC SERVICE COMPANIES.

A. I have elected to utilize the proxy group of twenty-four electric utility companies employed by KCP&L witness Hadaway. I believe that these companies represent a reasonable proxy group to estimate an equity cost rate for KCP&L. Summary financial statistics for these companies are provided on page 1 of Exhibit_(JRW-3). On average, the proxy group has average operating revenues and net plant of $5,330.5M and $8,075.0M, respectively. The group has an average common equity ratio of 46.0%, and a current average earned return on common equity of 9.5%.

IV. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES

Q. WHAT CAPITAL STRUCTURE RATIOS AND SENIOR CAPITAL COST RATES ARE YOU USING TO ESTIMATE AN OVERALL RATE OF RETURN FOR KCP&L?

A. Exhibit_(JRW-4) provides an evaluation of KCP&L's proposed capital structure and the average capital structures of the companies in the proxy group. The Company has proposed a capital structure consisting of 44.67% long-term debt, 1.52% preferred stock, and 53.81% common equity. The Company has employed a long-term debt cost rate of 6.16% and a preferred stock cost rate of 4.29%. Also shown in Exhibit_(JRW-4) is the average capitalization of the companies in the proxy group of electric utilities. On average, these companies employ 51.25% long-term debt,

1.17% preferred stock, and 47.59% common equity. At this point in the proceeding, I will adopt the Company's proposed capital structure and senior capital cost rates. It should be noted that this capital structure provides KCP&L with less leverage and financial risk than the proxy group. I will also use the KCP&L's proposed debt cost rate of 6.42% and preferred stock cost rate of 4.29%. This is summarized below.

KCP&L, Inc.
Proposed Capital Structure and Senior Capital Cost Rates

Source of Capital	Capitalization Ratio	Cost Rate
Long-Term Debt	44.67%	6.16%
Preferred Stock	1.52%	4.29%
Common Equity	53.81%	

V. 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 they provide. 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, companies can gain competitive advantage through product differentiation (adding real or perceived value to products) and by achieving economies of scale (decreasing marginal costs of production). Competitive advantage allows firms to price products

above average cost and thereby earn accounting profits greater than those required to cover capital costs. When these profits are in excess of that required by investors, or when a firm earns a return on equity in excess of its cost of equity, investors respond by valuing the firm's equity in excess of its book value.

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

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

---

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

equity below its cost of equity will see its common stock sell at a price below its book value.

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

A. Exhibit_(JRW-5) provides indicators of public utility equity cost rates over the past decade. Page 1 shows the yields on 10-year, 'A' rated public utility bonds. These yields peaked in the 1990s at 10%, and have generally declined since that time. They hovered in the 4.5 to 5.0 percent between 2003 and 2005, and have since increased to the 5.5%. 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 7.2%. Since that time they have declined and were below 4.0% as of 2005.

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 high point was 13.45 % in 2001, and they have decreased since that time. As of 2005, the average was 11.75%. Over the past decade, market-to-book ratios for this group have increased gradually, but with several ups and downs. The market-to-book average was 1.75 as of 2001, declined to 1.45 in 2003, and increased to 1.95 as of 2005.

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 increase in the market-to-book ratios, coupled with a slightly lower average return on equity, suggests a 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. This 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 historical 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. Given the investment valuation process and the nature of the utility business, I believe that the DCF model provides a good measure of equity cost rates for public utilities. I have also estimate an equity cost rate for the Company using the Capital Asset Pricing Model (CAPM) study.

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). This model presumes that a company's dividend payout progresses initially through a growth stage, then proceeds through a transition stage, and finally assumes a steady-state stage. The dividend-payment stage of a firm depends on the profitability of its internal investments, which, in turn, is largely a function of the life cycle of the product or service. These stages are depicted in the graphic below labeled the Three-Stage DCF Model.[4]

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

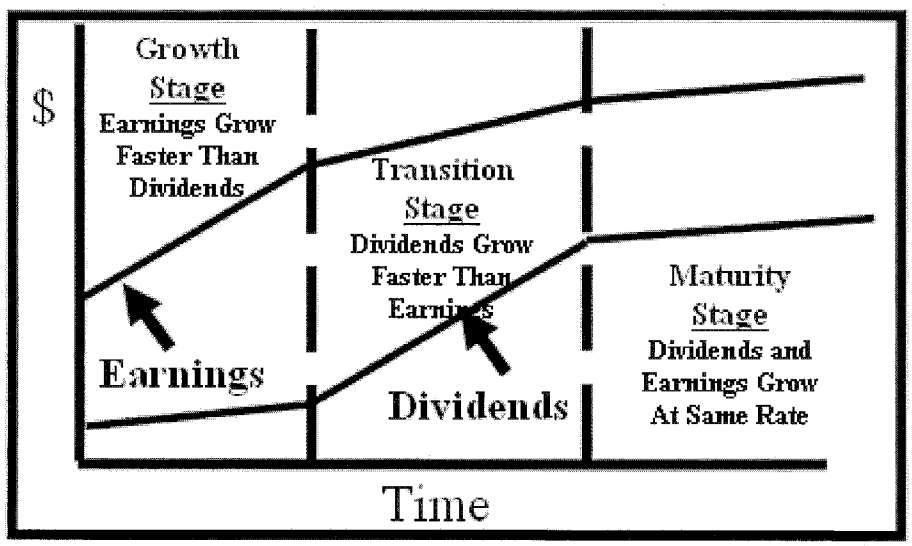
[4] This description comes from William F. Sharp, Gordon J. Alexander, and Jeffrey V. Bailey, *Investments* (Prentice-Hall, 1995), pp. 590-91.

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:

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

The economics of the public utility business indicate that the industry is in the steady-state or constant-growth stage of a three-stage DCF. The economics include the relative stability of the utility business, the maturity of the demand for public utility services, and the regulated status of public utilities (especially the fact that their returns on investment are effectively set through the ratemaking process). 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 GROUP OF ELECTRIC UTILITY COMPANIES?

A. The dividend yields on the common stock for the companies in the group are provided on page 2 of Exhibit_(JRW-7) for the six -month period ending July, 2006. Over this period, the average monthly dividend yield for the companies in the groups was 4.7%. As of July, 2006, the mean dividend yield for the companies in the groups was 4.8%. For the DCF dividend yield, I

use the average of the six month and July, 2006 dividend yields. Hence, the DCF dividends yield for the group is 4.75%.

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

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

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

[5] *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. 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. In other words, an equity cost rate times a future, yet to be achieved rate base, results in an inflated dividend yield and growth rate.

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. In developing growth expectations, investors have access to both historical and projected growth rates for earnings and dividends per share and for internal or book value growth.

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 have reviewed *Value Line's* historical and projected growth rate estimates for EPS, DPS, and BVPS. In

---

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

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 HISTORICAL GROWTH IN EARNINGS AND DIVIDENDS AS WELL AS INTERNAL GROWTH.

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

Internally generated growth is a function of the percentage of earnings retained within the

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

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF *VALUE LINE'S* HISTORICAL AND PROJECTED GROWTH RATES FOR THE PROXY GROUP OF ELECTRIC UTILITY COMPANIES.

A. Page 3 of Exhibit_(JRW-7) provides the historical 5- and 10-year growth rates in EPS, DPS, and BVPS for the electric utility proxy group. Due to the presence of outliers, both means and median measures of central tendency are shown. Historic growth has been highly volatile, especially for earnings and dividends. The range of the means and medians is -1.8% to 2.8%, and the average is 0.4%.

Page 4 of Exhibit_(JRW-7) provides a summary of projected growth rates for the companies in the group as provided in the *Value Line Investment Survey.* As above, due to outliers, both the means and medians are shown. The mean/median projected growth rates for EPS, DPS, and BVPS are 4.9%/4.5%, 3.7%/4.3%, and 3.7%/3.5%. The average of the mean and median figures is 4.1%.

Also shown on page 4 of Exhibit_(JRW-7) is the prospective internal growth. The average of the mean and median figures for internal growth is 3.6% with *Value Line*'s projected retention

and equity return rates of 34.4% and 10.4%.

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

A. Zacks, First Call, and Reuters collect, summarize, and publish Wall Street analysts' projected five-year EPS growth rate forecasts for companies. These forecasts are provided for the companies in the electric utility proxy group on page 5 of Exhibit_(JRW-7). For the Group, the average of the analysts' projected growth forecasts is 4.3%.[6]

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORICAL AND PROSPECTIVE GROWTH OF THE ELECTRIC COMPANY PROXY GROUP.

A. The table below shows the summary DCF growth rate indicators for the two groups of electric utility companies. For the group, *Value Line*'s historical growth rate in EPS, DPS, and BVPS is quite low with a mean of only 0.4%. The average of *Value Line*'s projected growth rates for EPS, DPS, and BVPS is 4.1%. Prospective internal growth is 3.6% using *Value Line*'s average projected earning retention rate of 34.4% and average return on common equity of 10.4%. Giving more weight to the projected growth rate figures, expected DCF growth would appear to be in the 4.25% range for the electric utility proxy group.

[6]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.

DCF Growth Rate Indicators

Growth Rate Indicator	SWC Group
Historic Value Line Growth in EPS, DPS, and BVPS	0.4%
Projected Value Line Growth in EPS, DPS, and BVPS	4.1%
Internal Growth ROE * Retention rate	3.6%
Projected EPS Growth from First Call, Reuters, and Zacks	4.3%

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

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
SWC Group	4.75%	1.02125	4.25%	9.10%

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 ($ß_i$), 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. $ß_i$, 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 historical 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).

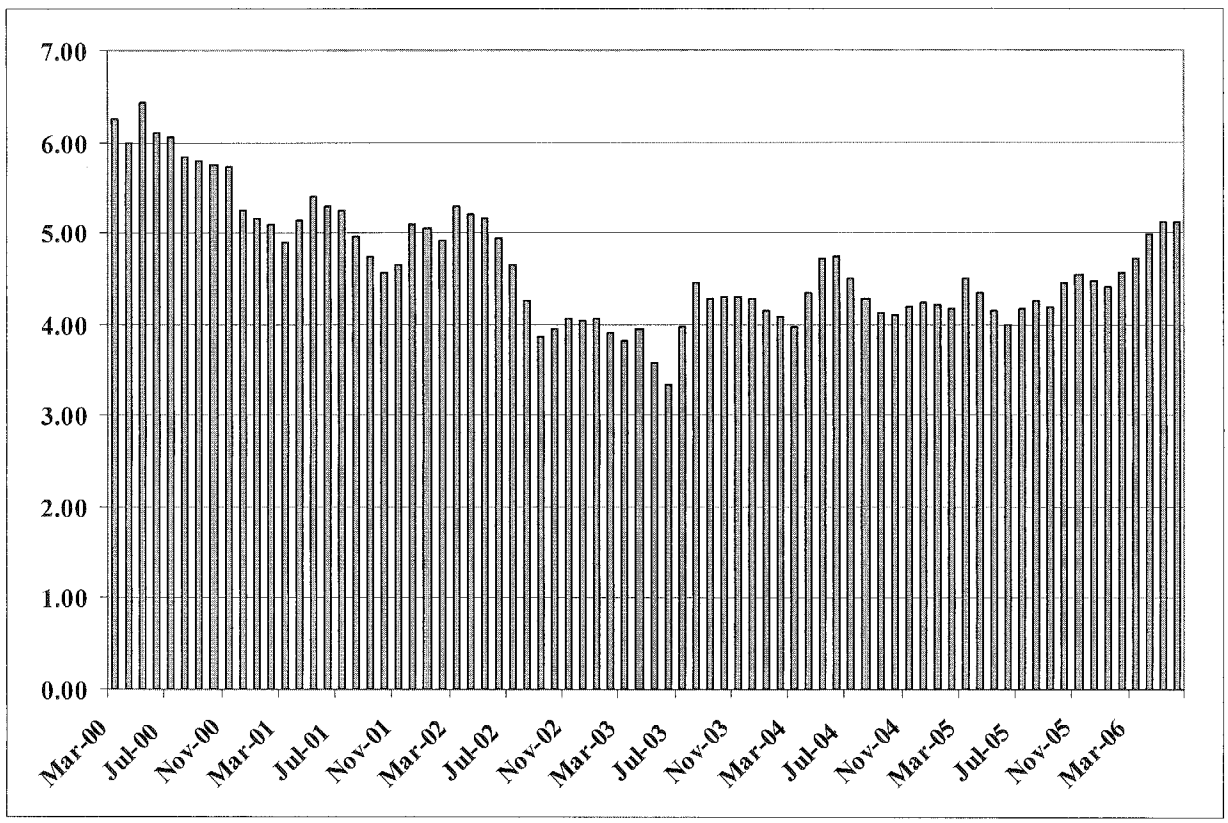
A. Exhibit_(JRW-8) provides the summary results for my CAPM study. Page 1 shows the results, and the pages following it, contain the supporting data.

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, since the Treasury issuance of 30-Year Treasuries was interrupted for a period of time 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 and fluctuated in the 4.0-4.50 percent range over the past three years until

advancing to 5.0% in recent months in response to a strong economy and increases in energy, commodity, and consumer prices.

Ten-Year U.S. Treasury Yields
January 2000-June 2006



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.

In recent months, the yields on the 10- and 30- year Treasuries have increased and have been in the 5.00%-5.25% range. As of July 25, 2006, as shown in the table below, the rates on 10- and 30- Treasuries were 5.04% and 5.10%, respectively. Given this recent range and recent movement, I will use 5.25% as the risk-free rate, or R_f, in my CAPM.

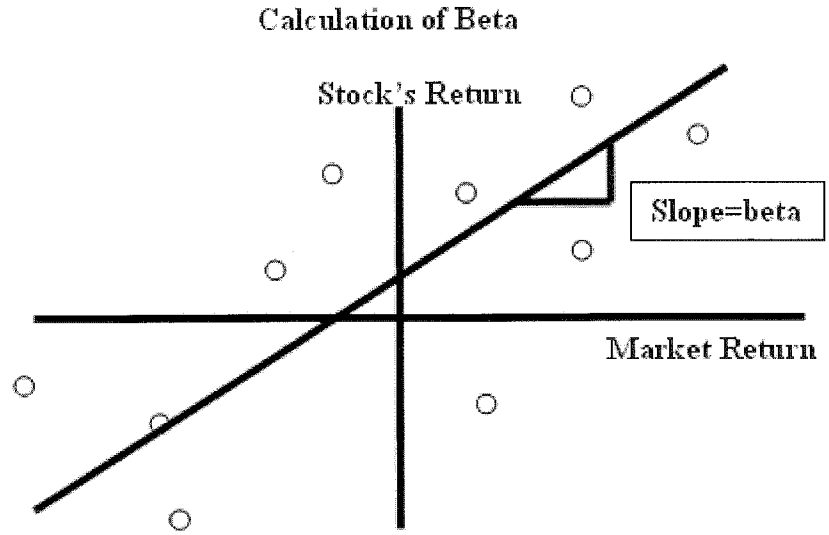
U.S. Treasury Yields
July 25, 2006

NOTES/BONDS	COUPON	MATURITY DATE	CURRENT PRICE/YIELD
2-YEAR	5.125	06/30/2008	100-02¾ / 5.08
3-YEAR	4.875	05/15/2009	99-19+ / 5.02
5-YEAR	5.125	06/30/2011	100-19 / 4.99
10-YEAR	5.125	05/15/2016	100-21½ / 5.04
30-YEAR	4.500	02/15/2036	90-30+ / 5.10

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:



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 average for the proxy group of electric utilities is 0.82.

Q. PLEASE DISCUSS ANY 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 historical average stock and bond returns. In this case, historical 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 historical evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of using historical financial market returns as measures of expected returns. Most historical 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 historical 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 historical returns as market expectations has been criticized in numerous academic studies.[7] The general theme of these studies is that the large equity risk premium discovered in historical 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

[7] The problems with using ex post historical returns as measures of ex ante expectations will be discussed at length

also been called "Puzzle Research" after the famous study by Mehra and Prescott in which the authors first questioned the magnitude of historical equity risk premiums relative to fundamentals.[8]

Q. PLEASE BRIEFLY SUMMARIZE SOME OF THE 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 historical 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.[9] They compare these results to actual stock returns over the period 1951-2000. Fama and French estimate that the expected equity risk premium from DCF models using dividend and earnings growth to be between 2.55% and 4.32%. These figures are much lower than the ex post historical 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 historical stock returns for three

---

later in my testimony.

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

[9] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, (April 2002).

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 varies considerably over time and 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.[10] 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 historical 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 historical 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.[11] 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 the studies that have been updated by the various authors, (2) included the results of several additional studies and surveys, and (3) included the results of the "Building Blocks" approach to estimating the equity risk premium, including a study I performed which is presented below.

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 Peng and myself which use the Building Blocks approach.

Q. PLEASE DISCUSS YOUR DEVELOPMENT OF AN EX ANTE EXPECTED

---

[10] 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).
[11] 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.

EQUITY RISK PREMIUM COMPUTED USING THE BUILDING BLOCKS METHODOLOGY.

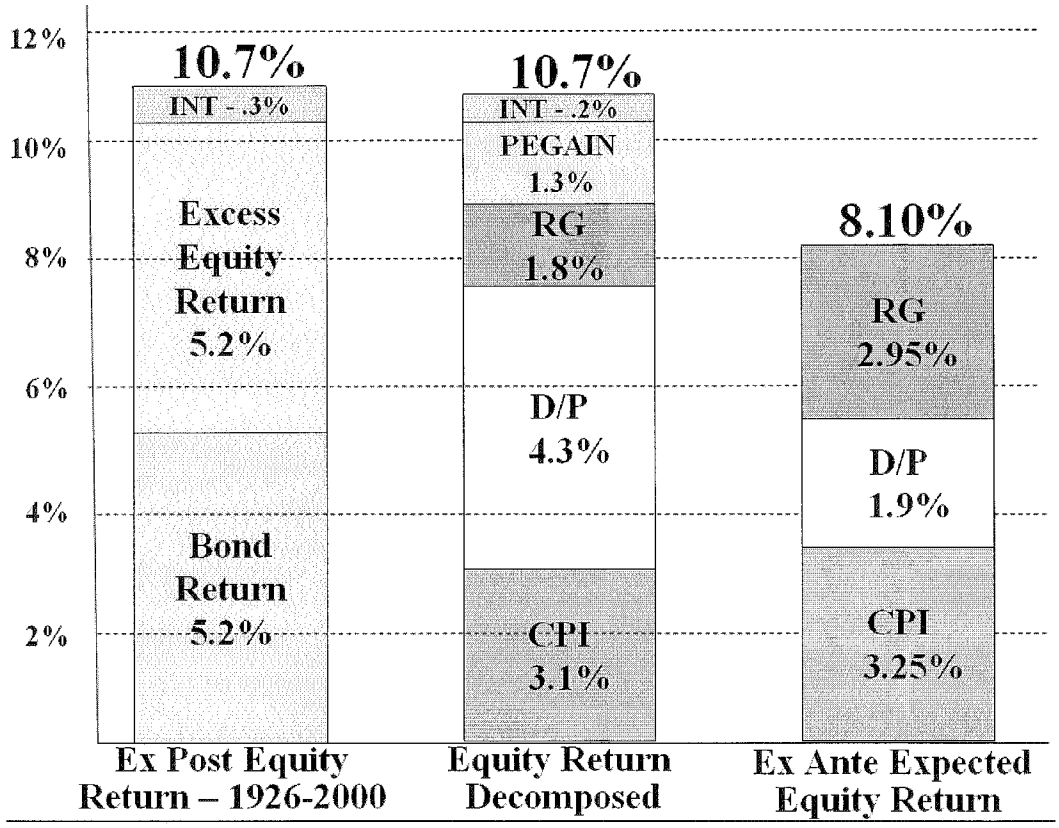
A. Ibbotson and Chen (2002) evaluate the ex post historical mean stock and bond returns in what is called the Building Blocks approach.[12] They use 75 years of data and relate the compounded historical returns to the different fundamental variables employed by different researchers in building ex ante expected equity risk premiums. Among the variables included were inflation, real EPS and DPS growth, ROE and book value growth, and P/E ratios. By relating the fundamental factors to the ex post historical returns, the methodology bridges the gap between the ex post and ex ante equity risk premiums. Ilmanen (2003) illustrates this approach using the geometric returns and five fundamental variables – inflation (CPI), dividend yield (D/P), real earnings growth (RG), repricing gains (PEGAIN) and return interaction/reinvestment (INT). [13] This is shown in the graph below. The first column breaks the 1926-2000 geometric mean stock return of 10.7% into the different return components demanded by investors: the historical 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

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

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

interaction term (0.2%).

Decomposing Equity Market Returns
The Building Blocks Methodology



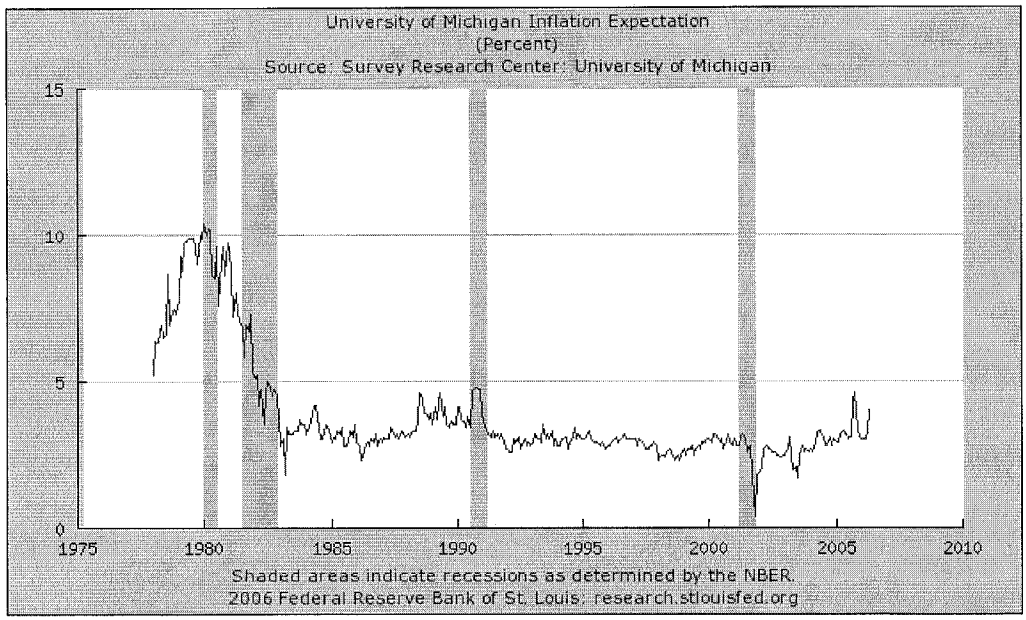
Q. HOW ARE YOU USING THIS METHODOLOGY TO DERIVE AN EX ANTE EXPECTED EQUITY RISK PREMIUM?

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. This survey is published monthly by the University of Michigan Survey Research Center. In the most recent report, the expected one-year expected inflation rate was 4.0%.

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.*[14] This survey of professional

[14]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

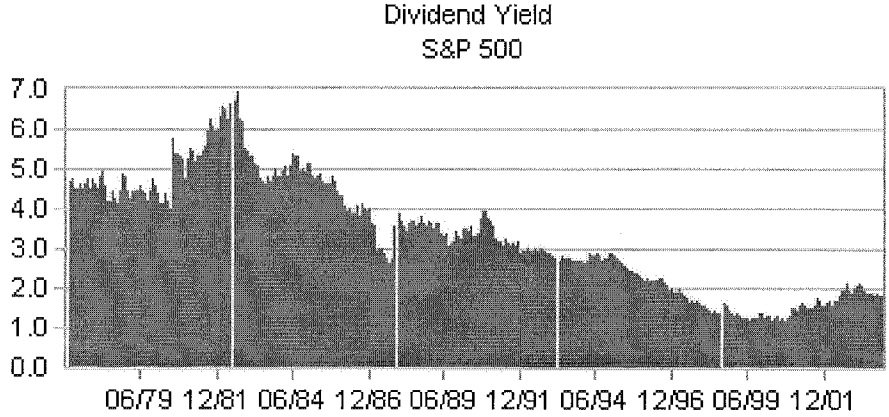
economists has been published for almost 50 years. While this survey is published quarterly, only the first quarter survey includes long-term forecasts of GDP growth, inflation, and market returns. In the first quarter, 2006 survey, published on February 13, 2006, the median long-term (10-term) expected inflation rate as measured by the CPI was 2.50% (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 (4.0% and 2.50%), or 3.25%.

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)



responsibility for the survey in June 1990.

RG – To measure expected real growth in earnings, I use (1) the historical 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 1960-2005 period, nominal growth in EPS for the S&P 500 was 7.11%. 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 1960-2005 period for the S&P 500 is 2.7%.

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.[15] 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 historical S&P EPS real growth and the historical real GDP growth (and as supported by the Philadelphia Federal Reserve survey of expected GDP growth) (2.7% and 3.2%), or 2.95%, 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

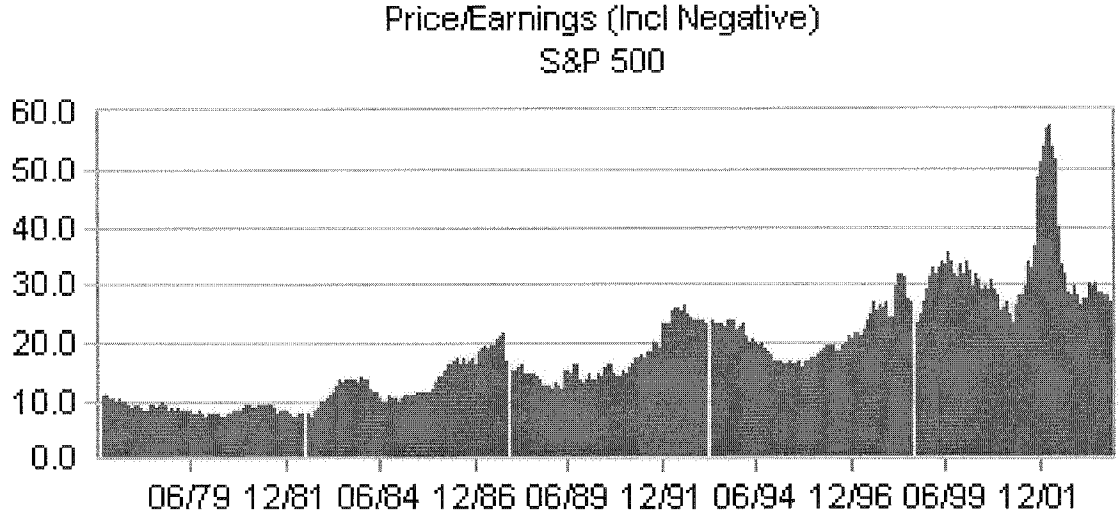
eventual peak in P/Es is most notable in the chart. The relatively low P/E ratios (in the range of 10) over two decades ago are also quite notable. As of July, 2006 the P/E for the S&P 500, using the trailing 12 months EPS, is 20.05 according to www.investor.reuters.com.

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 historical 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.

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

S&P 500 P/E Ratios

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



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 38, my expected market return is 8.10% which is composed of 3.25% expected inflation, 1.90% dividend yield, and 2.95% real earnings growth rate.

Expected Inflation	Dividend Yield	Real Earnings Growth Rate	Expected Market Return
3.25%	1.90%	2.95%	8.10%

Q. GIVEN THAT THE HISTORICAL COMPOUNDED ANNUAL MARKET RETURN IS IN EXCESS OF 10%, WHY DO YOU BELIEVE THAT YOUR EXPECTED MARKET RETURN OF 8.10% 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 8.10% 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, 2006 survey, published on February 13, 2006, 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 8.10%.

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 5.10%. My ex ante equity risk premium is simply the expected market return from the Building Blocks methodology minus this risk-free rate:

Ex Ante Equity Risk Premium = 8.10% - 5.10% = 3.00%

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 historical 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 4.16%, 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.[16] His study showed that the market or equity risk premium had

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

declined to the 2.0 to 3.0 percent range by the early 1990s. Among the evidence he provided in support of a lower equity risk premium is the inverse relationship between real interest rates (observed interest rates minus inflation) and stock prices. He noted that the decline in the market risk premium has led to a significant change in the relationship between interest rates and stock prices. One implication of this development was that stock prices had increased higher than would be suggested by the historical 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.[17]

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%.[18]

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

---

[17] 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.

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.[19]

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

---

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

[19]Marc H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.15. .

KCP&L are provided below:

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

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Proxy Group	5.25%	0.82	4.16%	8.70 %

D. EQUITY COST RATE SUMMARY

Q. PLEASE SUMMARIZE YOUR EQUITY COST RATE STUDY.

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

	DCF	CAPM
Proxy Group	9.10%	8.70%

Q. GIVEN THESE RESULTS, WHAT IS YOUR ESTIMATED EQUITY COST RATE FOR THE GROUP OF ELECTRIC COMPANIES?

A. Giving these results, I conclude that the equity cost rate for the proxy group of electric utilities is in the 8.7-9.10 percent range. For KCP&L, I am recommending an equity cost rate range of 9.00%.

Q. ISN'T THIS RATE OF RETURN LOW BY HISTORICAL STANDARDS?

A. Yes it is, and appropriately so. My rate of return is low by historical standards for three reasons. First, as discussed above, current capital costs are very low by historical 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 YOUR RATE OF RETURN 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 6.00 percent range. My rate of return may appear to be too low given these yields. However, as previously noted, my recommendation must be viewed in the context of the significant decline in the market or equity risk premium. As a result, the return premium that equity investors require over bond yields is much lower than today. This decline was previously reviewed in my discussion of capital costs in today's markets. In addition, it will be examined in more depth in my rebuttal testimony.

Q. HOW DO YOU TEST THE REASONABLENESS OF YOUR COST OF EQUITY AND OVERALL RATE OF RETURN RECOMMENDATION?

A. To test the reasonableness of my 9.00% equity cost rate recommendation, I examine the relationship between the return on common equity and the market-to-book ratios for the group of electric utility companies.

Q. WHAT DO THE RETURNS ON COMMON EQUITY AND MARKET-TO-BOOK RATIOS FOR THE GROUP OF ELECTRIC UTILITIES INDICATE ABOUT THE REASONABLENESS OF YOUR 9.00% RECOMMENDATION?

A. Exhibit_(JRW-3) provides financial performance and market valuation statistics for the

group of electric utility companies. The current return on equity and market-to-book ratios for the group are summarized below:

	Current ROE	Market-to-Book Ratio
Proxy Group	9.5 %	149.5

Source: Exhibit_(JRW-3).

These results clearly indicate that, on average, these companies are earning returns on equity above their equity cost rates. As such, this observation provides evidence that my recommended equity cost rate of 9.00% is reasonable and fully consistent with the financial performance and market valuation of the proxy group of electric utility companies.

VI. CRITIQUE OF KCP&L'S RATE OF RETURN TESTIMONY

Q. PLEASE SUMMARIZE KCP&L'S OVERALL RATE OF RETURN RECOMMENDATION.

A. KCP&L's rate of return recommendation is provided by Samuel C Hadaway. He has proposed a capital structure consisting of 44.67% long-term debt, 1.52% preferred stock, and 53.81% common equity. He has proposed a long-term debt cost rate of 6.16%, a preferred stock cost rate of 4.29%, and a common equity cost rate range of 11.50%. KCP&L's overall recommendation is summarized below:Capital

Source	Cost Ratio	Weighted Rate	Cost Rate
Long-Term Debt	44.67%	6.16%	2.75%
Preferred Stock	1.52%	4.29%	0.07%
Common Equity	53.81%	11.50%	6.19%
Total	100.00%		9.01%

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

A. KCP&L's proposed rate of return is excessive due to an overstated equity cost rate.

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

A. Mr. Hadaway estimates an equity cost rate for KCP&L by applying DCF and risk premium models to the proxy group of electric utility companies. His equity cost rate approaches include two DCF models and three risk premium models. His equity cost rate estimates and recommendation are summarized below:

Summary of Approaches and Results

	Twenty-Four *Value Line* Electric Companies
DCF Analysis	
Constant Growth DCF (GDP Growth)	11.2%-11.3%
Multistage DCF (GDP Growth)	10.6%-10.8%
DCF Range	**10.6%-11.3%**
Risk Premium Analysis	
Utility Debt + Risk Premium	10.94%
Ibbotson Risk Premium	11.15%
Harris-Marston Risk Premium	11.78%
Reference Group Cost of Equity	**11.00%**
KCPL Cost of Equity	**11.50%**

Mr. Hadaway's equity cost rate is too high primarily because of (1) his use of an inappropriate, unjustified, and inflated DCF growth rate, (2) his use of outdated and biased equity risk premium estimates, (3) an unwarranted risk adjustment of 50 basis points.

Q. PLEASE INITIALLY DISCUSS THE PROBLEMS WITH HIS 50 BASIS POINT RISK ADJUSTMENT.

A. Mr. Hadaway's adds 50 basis points to his equity cost rate estimate for the proxy group to reflect the additional business risk of KCP&L. In response to Data Request DOE_20060612-4-2, Mr. Hadaway indicated that the risk adjustment is attributable solely to the Company's higher capital expenditure budget relative to the proxy group.

There are three issues with this adjustment. First, as indicated in his response to Data Request DOE_20060612-4-2, Mr. Hadaway has performed no other studies to assess the business and/or financial risk of KCP&L relative to the proxy group. It is based on one factor – capital expenditures. Obviously, business and financial risk for an electric depends on a multitude of other factors which Mr. Hadaway has obviously ignored. Second, the 50 basis point adjustment is totally arbitrary and without merit. Mr. Hadaway has performed no studies to indicate that 50 basis points is appropriate. Finally, Mr. Hadaway is totally silent on the issue of the financial risk of KCP&L relative to the proxy group. As shown in Exhibit_(JRW-4), the Company's proposed capital structure includes a common equity ratio which is 622 basis points higher than the average of the proxy group. This clearly indicates a lower level of financial risk. However, Mr. Hadaway has failed to even recognize the lower financial risk of KCP&L let alone to make a downward adjustment to reflect KCP&L's lower level of financial risk.

Q. IN ASSESSING THE RISKINESS OF KCP&L, HAS MR. HADAWAY CONSIDERED ELEMENTS OF THE STIPULATION AGREEMENT?

A. No. Mr. Hadaway's makes no mention of the Stipulation Agreement in his testimony. However, there are elements of the Agreement which reduce the riskiness of KCP&L. The Stipulation Agreement clearly reduces the impact of the risk associated with KCP&L's ongoing investment plan. These elements include agreements that: (1) the Resource Plan is reasonable; (2) there will be no objections to pension expense, (3) the Company can increase amortization to maintain S&P financial ratio benchmarks, and (4) these will not be challenges to including specified infrastructure projects, including those for generation, transmission, and distribution, into rate base on the ground that the projects were not necessary or timely, or that alternative technologies or fuels should have been used by KCPL.

Q. HAVE YOU ATTEMPTED TO QUANTIFY THE REDUCTION IN RISK OF KCP&L DUE TO THESE FACTORS?

A. No I have not. I merely point out these reductions in risk to flag them for the Commission's attention. There is no doubt that they reduce risk to some degree but I feel that to speculate on the degree of reduction would be to encroach on the prerogative of the Commission.

Q. PLEASE SUMMARIZE MR. HADAWAY'S DCF APPROACHES AND ESTIMATES.

A. On pages 28-32 of his testimony and in Schedules SCH-4 – SCH-6, Mr. Hadaway develops an equity cost rate by applying three versions of the DCF model to his group of electric utility companies. In the first version, which I will call DCFMOD1, he uses a constant-growth DCF

model in which growth rate is the average of (a) a prospective internal growth rate (B*R), (b) EPS growth rate forecasts from *Value Line* and Zacks, and (c) an expected GDP growth rate of 6.6%. In the second version, which I will call DCFMOD2, he uses a constant-growth DCF model in which growth rate is simply an expected GDP growth rate of 6.6%. In the third version, which I will call DCFMOD3, he uses a two-stage DCF model in which the growth rate in stage 1 (years1-5) is projected dividend growth and the growth in stage 2 (years 6-150) is an expected GDP growth rate of 6.6%. Mr. Hadaway's DCF results are summarized below.

DCF Equity Cost Rate
Twenty-Four *Value Line* Electric Utility Companies

	DCF Model with Analysts Estimates as Growth Rate	Constant-Growth DCF Model with GDP as Growth Rate	Two-Stage DCF Model with GDP as Second-Stage Growth Rate
Adjusted Dividend Yield	4.62%	4.62%	4.62%
Growth	4.78%	6.6%	5.18%
DCF Result	9.4%	11.2%	10.8%

Q. WHAT ISSUES DO YOU HAVE WITH MR. HADAWAY'S DCF APPROACH AND EQUITY COST RATE ESTIMATES?

A. I have two issues with his DCF approach and estimates. These include: (1) he has arbitrarily eliminated the results of DCFMOD1, (2) he has employed an expected GDP growth rate of 6.6% in as a growth rate in DCFMOD2 and DCFMOD3.

Q. WHAT IS YOUR CONCERN REGARDING MR. HADAWAY'S CONCERNS WITH USING THE DCF MODEL AND HIS EXCLUSION OF HIS DCFMOD1 RESULTS?

A. In his testimony, Mr. Hadaway expresses concerns in using the DCF model to estimate an electric utility's equity cost rate in today's environment. His basic premise is that dividend yields and expected growth rates are too low, thereby yielding a low DCF-estimated equity cost rate. As previously discussed, equity cost rates are at long time lows due to relatively low long-term interest rates and a decline in the equity risk premium. This decline in equity cost rates is indicated by the DCF model which, as also discussed earlier in my testimony, is used extensively in the investment and regulatory communities. Mr. Hadaway has even excluded his DCFMOD1results because it indicates a low equity cost rate. He argues that the DCFMOD1 results, which indicate an equity cost rate of 9.3-9.4 percent, are too low given the equity cost rate results from his risk premium model. This reasoning presumes that his estimate of an equity risk premium results is appropriate. As discussed below, his risk premium study is seriously flawed.

Q. WHY IS A LONG-TERM PROJECTION OF GDP GROWTH INAPPROPRIATE AS A LONG-TERM DCF GROWTH RATE EXPECTATION FOR ELECTRIC UTILITY COMPANIES?

A. As noted above, Mr. Hadaway has used his estimate of long-term GDP growth of 6.60% as a growth rate in his DCFMOD2 and DCFMOD3. This is erroneous for two reasons which are discussed below.

First, and foremost, other than a reference to a textbook and a study on page 30 of his testimony, he has provided no theoretical or empirical support that long-term GDP growth is a reasonable proxy for the expected growth rate of his twenty-four electric utility companies.

Furthermore, even the references he cites make no mention that GDP growth is an appropriate proxy for growth in earnings and dividends in the electric utility industry. As such, Mr. Hadaway has provided no empirical evidence to suggest that investors would expect that GDP growth as an appropriate measure of long-term growth for electric utilities. Historic measures of growth for earnings and dividends for the proxy group of twenty-four electric utilities, as shown on page 3 of Exhibit_(JRW-7), suggest growth that is well below Mr. Hadaway' 6.60% GDP growth rate. Mr. Hadaway has provided no evidence as to why investors would suddenly associate his estimate of long-term GDP growth as the appropriate growth rate for electric utilities.

The second error is Mr. Hadaway's long-term GDP growth rate estimate of 6.60%. As developed in Schedule SCH-6, this the average of a number of averages computed by Mr. Hadaway for different time periods over the past 57 years. The numbers in Schedule SCH-6 clearly suggest that GDP growth in more recent decades has slowed and that a figure closer to 5.0% is more appropriate today for the U.S. economy. This is consistent with the long-term GDP forecast as found in the *Survey of Professional Forecasters* which is shown on page 4 of Exhibit_(JRW-8). Long-term expected nominal GDP growth, which is the sum of expected real GDP growth (3.19%) and expected inflation (2.51%) is 5.71%. Likewise, the Energy Information Administration (EIA), in its projections used in preparing *Annual Energy Outlook,* forecasts long-term GDP growth of 5.50%.

Q. PLEASE ASSESS MR. HADAWAY'S DISCUSSION OF THE SLOWING GROWTH OF ELECTRIC UTILITY COMPANIES.

A. On page 31 of his testimony, Mr. Hadaway suggests that long-term GDP growth is appropriate for electric utilities since internal growth rates have been declining in recent years for electric utilities. Whereas his observation that growth is slowing is true, his conclusion that GDP growth is now the appropriate long-term growth proxy is not. A review of analysts' EPS growth rate forecasts, as shown on page 5 of Exhibit_(JRW-7) as well as in Mr. Hadaway's Schedule SCH-6, clearly indicate that five-year expected growth is closer to four percent. Mr. Hadaway has provided no evidence whatsoever that, given the past and projected growth of electric utilities, investors would suddenly believe that an appropriate growth rate is over six percent.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF MR. HADAWAY'S DCF APPROACH.

A. Mr. Hadaway's DCF results should be ignored. He has arbitrarily excluded DCF results which use analysts' EPS growth forecasts since he believes that the results are too low. In his other two DCF models, he has used an inappropriate, unjustified, and inflated proxy (GDP growth) as his DCF growth rate.

Q. PLEASE REVIEW MR. HADAWAY'S RISK PREMIUM ANALYSES.

A. Mr. Hadaway performs three risk premium analyses. These include: (1) he compares the authorized return on equity (ROE) for electric utilities to long-term utility bond rate over the 1980-2005 time period, (b) he uses a historical risk premium as computed by Ibbotson Associates, and (3) he uses a risk premium from a study by Harris and Marston.. His results are summarized below.

Risk Premium Equity Cost Rate

	Authorized ROEs Approach	Ibbotson Approach	Harris and Marston Approach
Long-Term Treasury Rate	5.40%	5.40%	5.40%
BBB-Treasury Yield Diff.	1.25%	1.25%	1.25%
Prospective BBB Bond Yield	6.65%	6.65%	6.65%
Equity Risk Premium	4.29%	4.50%	5.13%
Risk Premium Equity Cost Rate	**10.94%**	**11.15%**	**11.78%**

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

A. The base yield of 6.65% is the sum of the forecasted 30-year Treasury yield of 5.40%) plus 125 basis points to account for the yield differential between 30-year Treasuries and BBB-rated public utility bonds.

Q. PLEASE EVALUATE THE BASE YIELD OF MR. HADAWAY'S RISK PREMIUM ANALYSES.

A. The base yield of 6.65% for is excessive for two reasons. First, the forecasted yield of 5.4% is above the current 30-year Treasury yield. Second, employing the yield on long-term risky bonds overstates the required return on equity in two ways: (a) 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 (b) the base yield 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.

Q. PLEASE INITIALLY ASSESS MR. HADAWAY'S EXAMINATION OF

AUTHORIZED RETURNS ON EQUITY.

A. Mr. Hadaway provides his evaluation of allowed risk premiums in Schedule SCH-7. The major issue involves his conclusion regarding the appropriate risk premium from the study. Mr. Hadaway's approach involves circular reasoning since the results of other electric rate cases are employed to derive a risk premium in this proceeding. If such an approach is used in this and other jurisdictions, then no one will be testing to evaluate whether the ROE recommendation is above or below investors' required rate of return. Furthermore, Mr. Hadaway has not performed any analysis to examine whether the annual allowed ROEs are above, equal to, or below investors' required return. As discussed above, if a firm's return on equity is above (below) the return that investor's require, the market price of its stock will be above (below) the book value of the stock. Since Mr. Hadaway has not evaluated the market-to-book ratios for electric utilities involved in the annual rate cases, he cannot indicate whether these allowed ROEs are above or below investors' requirements. As a general notion, however, since the market-to-book ratios for electric utility companies have been in excess of 1.0 for some time, it would indicate that the allowed ROEs are above equity cost rates.

Q. PLEASE REVIEW MR. HADAWAY'S IBBOTSON RISK PREMIUM STUDY.

A. In Mr. Hadaway's second risk premium study, his risk premium comes from Ibbotson Associates. The Ibbotson approach involves computing a historical risk premium as the difference between the historical stock and bond returns over the 1926 and 2005 period.

Q. PLEASE DISCUSS THE USE OF HISTORICAL RETURNS TO COMPUTE A

FORWARD-LOOKING OR EX ANTE RISK PREMIUM.

A. The historical evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of assessing historical financial market returns. This method was cited on page 34 as one of the three approaches to estimating an equity risk premium. However, as illustrated below, using the historical relationship between stock and bond returns to measure a forward-looking or 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, historical data does not provide a realistic or accurate barometer of expectations of the future. At the present time, using historical 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 HISTORICAL STOCK AND BOND RETURNS TO ESTIMATE AN EQUITY RISK PREMIUM.

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

(A) Biased historical bond returns;

(B) The arithmetic versus the geometric mean return;

(C) Unattainable and biased historical 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.

Biased Historical Bond Returns

Q. HOW ARE HISTORICAL 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. Historical 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.

The Arithmetic versus the Geometric Mean Return

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."[20] Since Mr. Hadaway'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 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

[20] 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.

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. Hadaway's arithmetic mean return measures are biased and should be disregarded.

Unattainable and Biased historical Stock Returns

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

A. Returns developed using Ibbotson's methodology are computed on stock indexes and therefore (1) cannot be reflective of expectations because these returns are unattainable to investors, and (2) produce biased results. This methodology assumes (a) monthly portfolio rebalancing and (b) reinvestment of interest and dividends. Monthly portfolio rebalancing presumes that investors rebalance their portfolios at the end of each month in order to have an equal dollar amount invested in each security at the beginning of each month. The assumption would obviously generate extremely high transaction costs and, as such, these returns are unattainable to investors. In addition, an academic study demonstrates that the monthly portfolio rebalancing assumption produces biased estimates of stock returns.[21]

Transaction costs themselves provide another bias in historical versus expected returns. The observed stock returns of the past were not the realized returns of investors due to the much

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

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 TAINT MR. HADAWAY'S HISTORICAL EQUITY RISK PREMIUM?

A. Using historical 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 HISTORICAL RETURNS AND EQUITY RISK PREMIUMS?

A. Mr. Hadaway's use of historical 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 historical 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, historical 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 historical basis. Therefore, given the high stock prices and low interest rates, expected returns are likely to be lower on a going forward basis. 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.

Changes in Risk and Return in the Markets

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

A. The historical 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 historical 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 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 2005. One very obvious observation from this graph is that interest rates increased 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 2005 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 former 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 2005. Real rates have been well above historical 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 historical equity risk premium analysis is simply outdated and not reflective of current investor expectations and investment fundamentals.

Q. DO YOU HAVE ANY OTHER THOUGHTS ON THE USE OF HISTORICAL RETURN DATA TO ESTIMATE AN EQUITY RISK PREMIUM?

A. Yes. Jay Ritter, a Professor of Finance at the University of Florida, identified the use of historical stock and bond return data to estimate a forward-looking equity risk premium as one of the "Biggest Mistakes" taught by the finance profession.[22] His argument is based on the theory

[22] Jay Ritter, "The Biggest Mistakes We Teach," Journal of Financial Research (Summer 2002).

behind the equity risk premium, the excessive results produced by historical returns, and the previously-discussed errors of such as survivorship bias in historical data.

Q. PLEASE DISCUSS MR. HADAWAY'S RISK PREMIUM ANALYSIS USING THE HARRIS-MARSTON EQUITY RISK PREMIUM.

A. Harris and Marston develop an expected market return in a DCF framework using analysts' expected EPS forecasts as measures of expected growth. This methodology is fundamentally flawed since it is well known that analysts' EPS growth rate forecasts are upwardly biased and therefore using these estimates alone as expected growth in a DCF model produces inflated expected market returns and equity risk premiums.

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

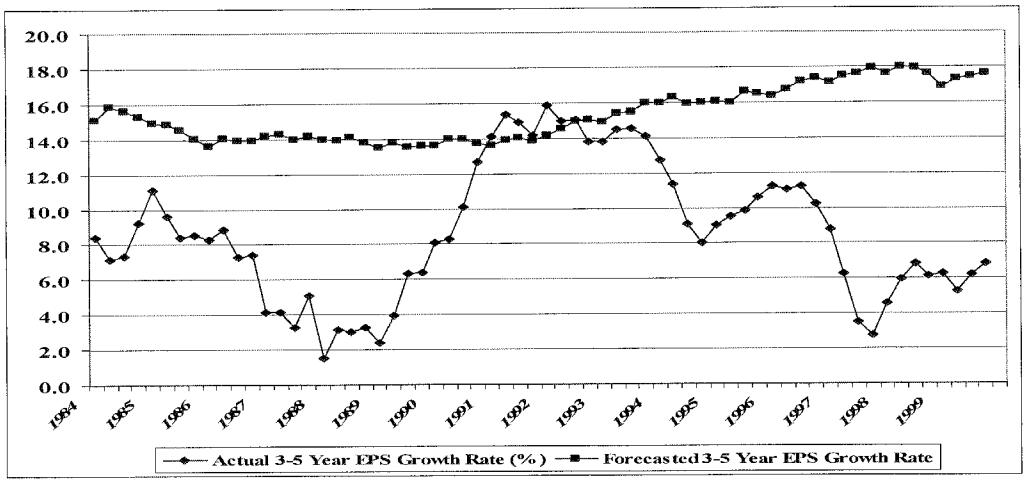
A. Analysts' growth rate forecasts are collected and published by Zacks, First Call, I/B/E/S, and Reuters. These services retrieve and compile EPS forecasts from Wall Street Analysts. These analysts come from both the sell side (Merrill Lynch, Paine Webber) and the buy side (Prudential Insurance, Fidelity).

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 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. Over the entire time period, Wall Street analysts have continually forecasted 3-5-year EPS growth rates in the 14-18 percent range (mean = 15.32%), but these firms have only delivered an average EPS growth rate of 8.75%.

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



Source: J. Randall Woolridge.

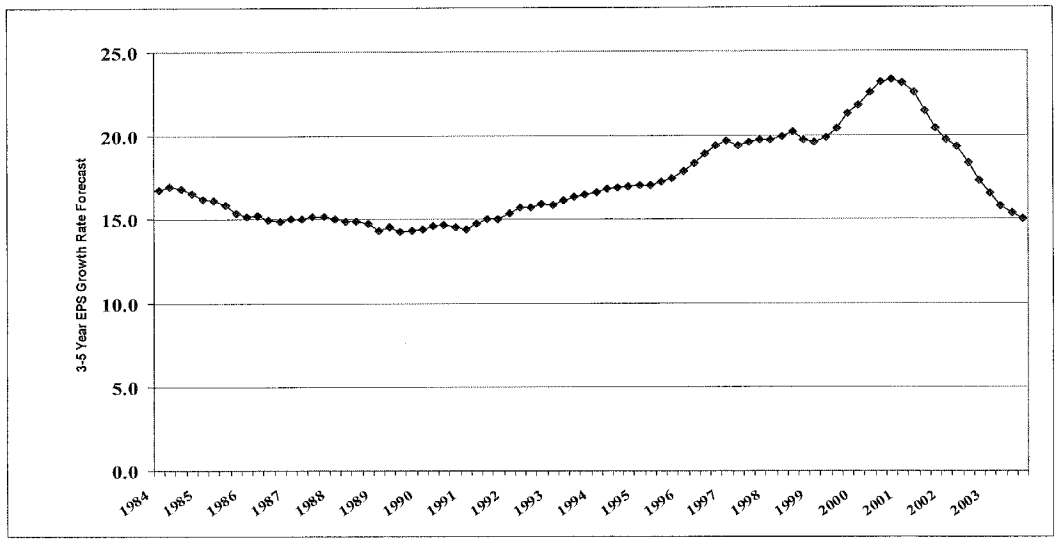
The post-1999 period has seen the boom and then the bust in the stock market, an economic recession, 9/11, and the Iraq war. Furthermore, and highly significant in the context of this study, we have also had the Elliott Spitzer investigation of Wall Street firms and the subsequent Global Securities Settlement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

To evaluate the impact of these events on analysts' forecasts, the graph below provides the average 3-5-year EPS growth rate projections for all companies provided in the I/B/E/S database on a quarterly basis from 1985 to 2004. In this graph, no comparison to actual EPS growth rates is made and hence there is no follow-up period. Therefore, 3-5 year growth rate forecasts are shown until 2004.[23] Analysts' forecasts for EPS growth were higher for this larger

[23] The number of companies in the sample grows from 2,220 in 1984, peaks at 4,610 in 1998, and then declines to

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, historical growth in GNP and corporate earnings has been in the 7% range. As such, an EPS

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.

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.[24]

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF MR. HADAWAY'S RISK PREMIUM ANALYSES.

A. The primary issue with Mr. Hadaway's three risk premium studies is that they are flawed and exaggerate the expected risk premium of investors. The authorized return approach involves circular reasoning since the results of other electric rate cases are employed to derive a risk premium. Furthermore, there is no market test to evaluate whether the ROE authorizations are above or below investors' required rate of return. The Ibbotson approach uses historical returns to estimate an expected equity risk premium which is subject to a myriad of empirical biases that

---

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

prevents such risk premiums from being reasonable expectations of the expected risk premium. Finally, the Harris-Marston risk premium study overstates the equity risk premium since it is based purely on analysts' EPS growth rate forecasts which are upwardly biased.

I have one final assessment of Mr. Hadaway's risk premiums. The Spring 2006 Duke/*CFO Magazine* Survey was just published in June.[25] The CFOs who respond to this survey expect an equity risk premium of 3.05% over the 10-year Treasury yield.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

[25] See www.cfosurvey.org.

1

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 Gas 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), and Cincinnati Gas & Electric Company (Case No. 05-0059-EL-AIR).

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

Florida: Dr. Woolridge prepared testimony for the Office of Peoples Counsel in Florida: Florida Power & Light Co. (Docket No. 050045-EL).

Connecticut: Dr. Woolridge prepared testimony for the Office of Consumer Counsel in Connecticut: KCP&L Illuminating (Docket No. 96-03-29), Yankee Gas Company (Docket No. 04-06-01), Southern Connecticut Gas Company (Docket No. 03-03-17), the KCP&L Illuminating Company (Docket No. 05-06-04).

California: Dr. Woolridge prepared testimony for the Office of Ratepayer Advocate in California: San Gabriel Valley Water Company (Docket No. 05-08-021).

South Carolina: Dr. Woolridge prepared testimony for the Office of Regulatory Staff in South Carolina: South Carolina Electric and Gas Company (Docket No. 2005-113-G).

Kentucky: Dr. Woolridge prepared testimony for the Office of Attorney General in Kentucky: Kentucky-American Water Company (Case No. 2004-00103), Union Heat, Light, and Power Company (Case No. 2004-00042), and Kentucky Power Company (Case No. 2005-00341).

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), UtiliCorp (Docket No. 02-UTCG701-CIG), and westar Energy, Inc. (Docket No. 05-WSEE-981-RTS).

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).

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Kansas City Power & Light Company to Modify Its Tariff to Begin the Implementation of Its Regulatory Plan	)))	Case No. ER-2006-0314

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA)
) **SS.**
COUNTY OF CENTRE)

BEFORE ME, the undersigned notary public, this day personally appeared J. RANDALL WOOLRIDGE, to me known, who being duly sworn according to law, deposes and says:

"My name is J. Randall Woolridge. I am of legal age and a resident of the State of Missouri. I certify that the foregoing testimony and exhibits, offered by me on behalf of the Department of Energy – National Nuclear Security Administration, are true and correct to the best of my knowledge and belief."

J. Randall Woolridge

SUBSCRIBED AND SWORN to before me, a notary public, on this 4 day of August, 2006.

Mary L Hart
Notary Public in the Commonwealth of Pennsylvania

My Commission Expires:

NOTARIAL SEAL
Mary L. Hart, Notary Public
State College Boro., Centre County
My commission expires August 25, 2009

Exhibit_(JRW-1)

Kansas City Power & Light Company
Cost of Capital

As of September 30, 2006

Capital Source	Capitalization Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	44.67%	6.16%	2.75%
Preferred Stock	1.52%	4.29%	0.07%
Common Equity	53.81%	9.00%	4.84%
Total	100.00%		7.66%

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)

Kansas City Power & Light Company

Electric Utility Proxy Group

Summary Financial Statistics

Company		S&P Bond Rating	Operating Revenue ($mil)	Percent Electric Revenue	Net Plant ($mil)	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio*	Return on Equity	Price/ Earnings Ratio	Market to Book Ratio
Alliant Energy Co.	LNT	A-	3,411.8	70%	4466.5	4.2	WI	54.0%	2.3%	68.2	158
Ameren	AEE	A-	6,959.0	79%	13854.0	5.0	MO, IL	50.0%	9.5%	18.3	163
American Elec. Pwr.	AEP	BBB	12,236.0	95%	24808.0	3.5	TX, OH,WV	45.0%	12.1%	12.2	143
CH Energy Group	CHG	A	1,002.7	53%	785.7	5.7	NY	57.0%	8.2%	17.2	139
Cent. Vermont P.S.	CV	BBB	318.0	100%	300.5	1.6	VT	63.0%	4.5%	21.0	93
Con. Edison	ED	A	12,206.0	64%	16481.0	3.4	NY	47.0%	10.1%	14.7	147
DTE Energy Co.	DTE	BBB+	9,352.0	55%	10917.0	2.7	MI	43.0%	10.4%	12.7	122
Duquesne Light	DQE	BBB+	927.4	79%	1577.9	3.2	PA	35.0%	14.4%	23.2	191
Empire District	EDE	BBB+	394.6	93%	916.2	2.3	MO, KS	46.0%	6.7%	20.9	141
Energy East Copr.	EAS	BBB+	5,357.8	56%	5757.1	2.7	NY	42.0%	8.3%	14.7	121
FirstEnergy	FE	BBB	12,253.1	79%	14285.0	3.8	OH,PA, NJ	45.0%	10.6%	18.1	184
Green Mtn. Power	GMP	BBB	248.0	100%	237.2	3.7	VT	56.0%	10.0%	124.0	124
Hawaiian Electric	HE	NR	2,317.9	82%	2558.8	3.6	HI	37.0%	11.3%	16.1	179
MGE Energy, Inc.	MGEE	AA-	533.0	60%	677.3	4.3	WI	55.0%	10.3%	16.9	172
NiSource Inc.	NI	BBB	8,184.6	16%	9497.2	0.6	US, Can	45.0%	5.0%	23.7	120
NSTAR	NST	A+	3,397.8	79%	3892.8	2.8	MA	33.0%	13.0%	15.4	196
Pinnacle West	PNW	BBB-	3,073.3	74%	7645.3	3.0	AZ	48.0%	6.6%	18.6	121
Progress Energy	PGN	BBB	10,441.0	78%	14570.0	2.1	NC,SC,FL	42.0%	8.4%	16.0	134
Puget Energy, Inc.	PSD	BBB	2,709.3	61%	4667.9	2.3	WA	44.0%	7.8%	14.1	117
SCANA Corp.	SCG	A-	4,899.0	39%	6826.0	2.7	NC,SC,GA	43.0%	11.7%	13.5	157
Southern Co.	SO	A+	13,873.7	98%	27968.3	4.0	GA, FL,AL,MS	42.0%	14.4%	15.8	226
Vectren Corp.	VVC	A	2,125.3	20%	2267.7	3.3	IN	42.0%	12.0%	14.3	168
Westar Energy	WR	BB+	1,586.8	91%	3959.9	3.0	KS	48.0%	10.4%	13.1	131
Xcel Energy Inc.	XEL	A-	10,123.5	75%	14882.8	2.5	MN,WI,MD,SD	43.0%	9.7%	15.2	141
Mean			**5,330.5**	**70.7%**	**8,075.0**	**3.2**		**46.0%**	**9.5%**	**23.2**	**149.5**
Median			**3,404.8**	**76.5%**	**5,212.5**	**3.1**		**45.0%**	**10.1%**	**16.1**	**142.0**

Data Source: AUS *Utility Reports*, July, 2006, *Value Line Investment Survey*, 2006.

Exhibit_(JRW-4)

Kansas City Power & Light Company

Capital Structure Ratios

KCP&L Proposed Capital Structure

Type of Capital	Ratios	Cost Rate
Long-Term Debt	44.67%	6.16%
Preferred Stock	1.52%	4.29%
Common Equity	53.81%	
Total	100.00%	

Capital Structure - Electric Utility Proxy Group

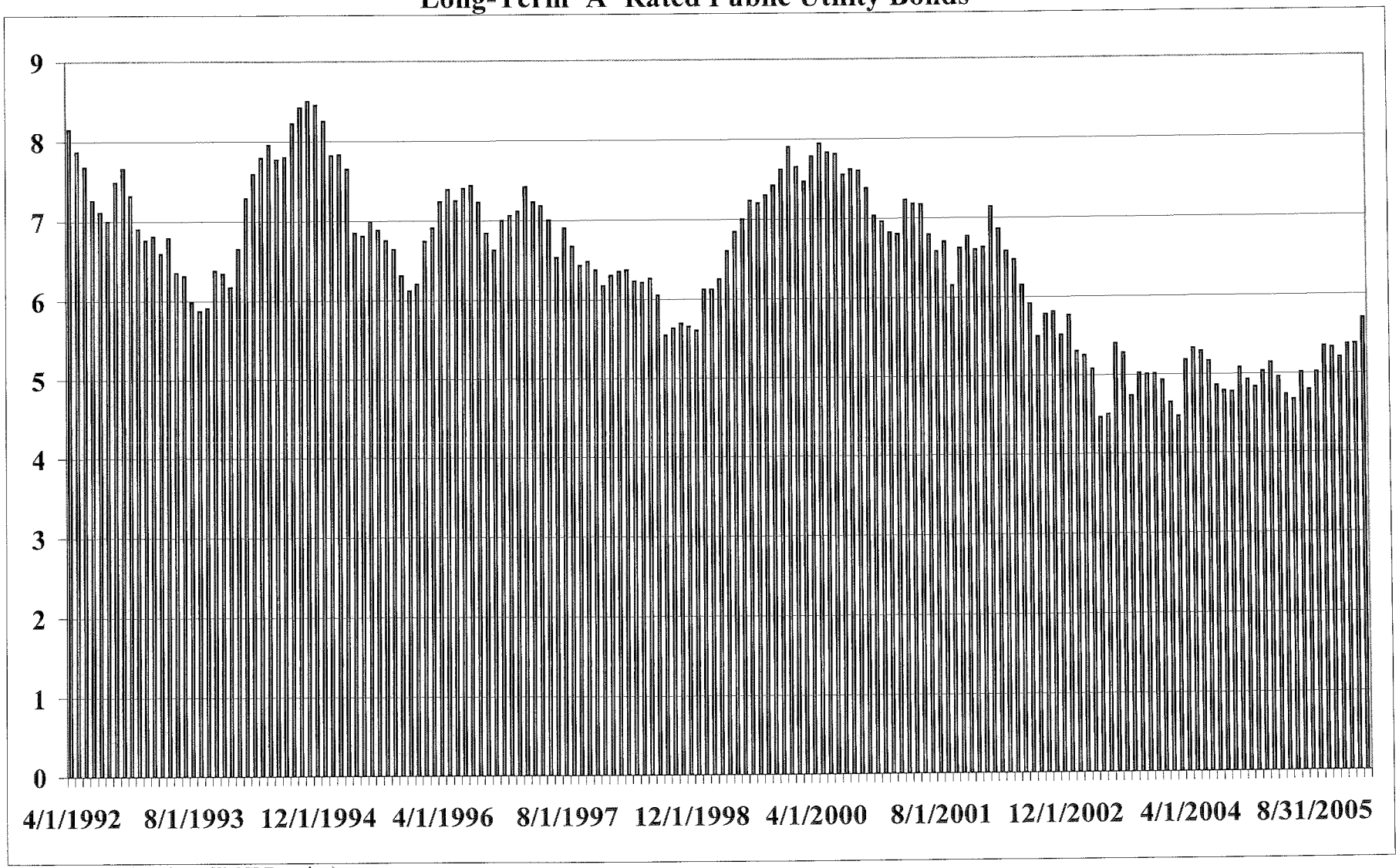
Average Of All Companies Ratios	2006 1st Quarter	2005 4th Quarter	2005 3rd Quarter	2005 2nd Quarter
Long-Term Debt	51.17%	51.30%	50.23%	52.29%
Preferred Stock	1.14%	1.16%	1.19%	1.18%
Common Equity	47.69%	47.54%	48.58%	46.53%
Totals	100.00%	100.00%	100.00%	100.00%

Data Source: Bloomberg

Average Ratios - Last Four Quarters	
Long-Term Debt	51.25%
Preferred Stock	1.17%
Common Equity	47.59%
Totals	100.00%

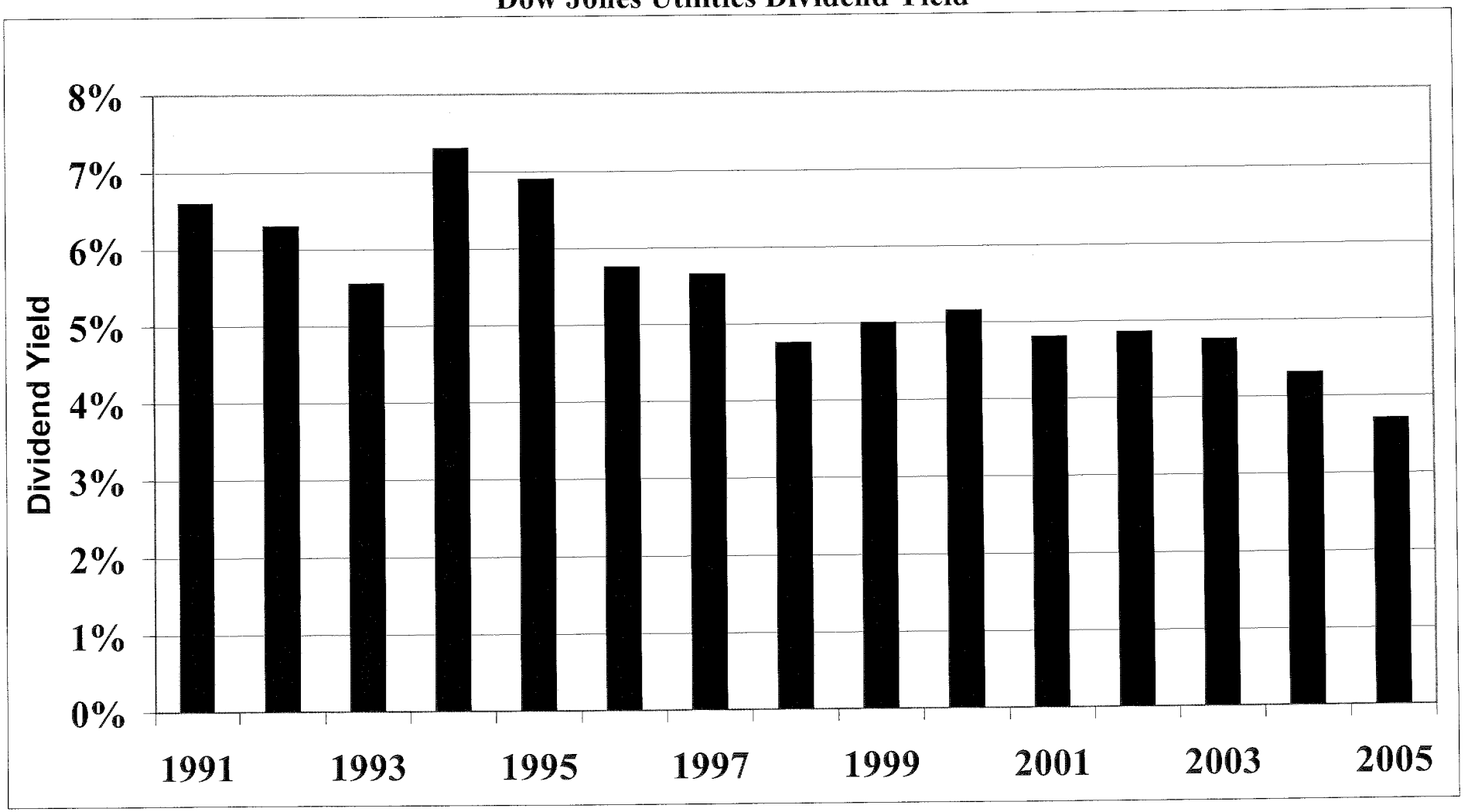
Exhibit_(JRW-5)

Long-Term 'A' Rated Public Utility Bonds



Data Source: Bloomberg (FMCI Function).

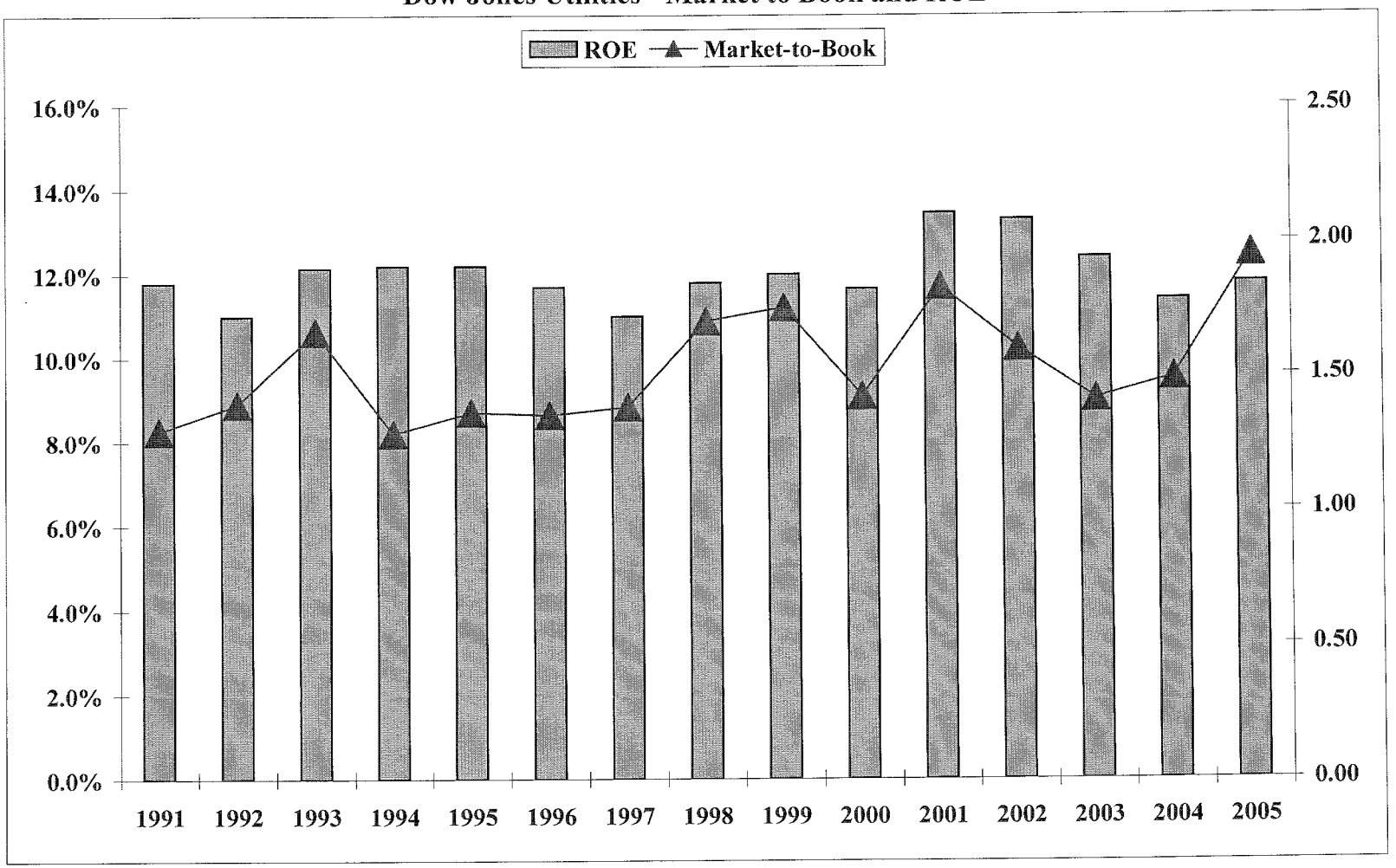
Exhibit_(JRW-5)
Dow Jones Utilities Dividend Yield



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	59	3.04	Manuf. Housing/RV	16	1.08	Paper/Forest Products	40	0.82
Semiconductor	121	2.97	Retail (Special Lines)	177	1.08	Hotel/Gaming	76	0.82
Semiconductor Equip	14	2.91	Medical Supplies	261	1.04	Diversified Co.	118	0.82
Internet	306	2.78	Foreign Electronics	11	1.03	Toiletries/Cosmetics	20	0.82
Telecom. Equipment	122	2.61	Metals & Mining (Div.)	77	1.03	Packaging & Container	37	0.82
Wireless Networking	66	2.60	Chemical (Basic)	18	1.03	Electric Util. (Central)	25	0.81
Entertainment Tech	32	2.47	Oilfield Svcs/Equip.	98	1.02	Pharmacy Services	15	0.81
Power	25	2.23	Shoe	22	1.02	Electric Utility (East)	29	0.80
Computers/Peripherals	138	2.23	Retail Store	46	0.99	Household Products	26	0.79
Computer Software/Svcs	395	2.06	Retail Automotive	14	0.98	Bank (Canadian)	7	0.76
Foreign Telecom.	20	1.88	Industrial Services	207	0.97	Environmental	91	0.76
Cable TV	22	1.82	Medical Services	184	0.96	Financial Svcs. (Div.)	244	0.75
Precision Instrument	104	1.81	Building Materials	45	0.96	Bank (Midwest)	39	0.75
Telecom. Services	146	1.69	Natural Gas (Div.)	36	0.96	Publishing	47	0.74
Electronics	175	1.65	Utility (Foreign)	5	0.95	Insurance (Life)	43	0.73
Biotechnology	87	1.63	Steel (General)	26	0.94	Investment Co.	21	0.73
Electrical Equipment	91	1.59	Homebuilding	34	0.92	Railroad	18	0.73
Drug	306	1.59	Coal	12	0.92	Maritime	39	0.72
Advertising	34	1.56	Furn/Home Furnishings	36	0.92	Canadian Energy	11	0.72
Bank (Foreign)	4	1.51	Electric Utility (West)	15	0.90	Cement & Aggregates	12	0.71
Entertainment	86	1.47	Chemical (Specialty)	92	0.90	Natural Gas (Distrib.)	29	0.70
Air Transport	45	1.40	Apparel	60	0.90	Insurance (Prop/Cas.)	84	0.70
Healthcare Information	35	1.38	Petroleum (Integrated)	30	0.90	Restaurant	82	0.68
Securities Brokerage	31	1.36	Retail Building Supply	10	0.89	R.E.I.T.	122	0.67
Human Resources	30	1.26	Metal Fabricating	41	0.88	Petroleum (Producing)	148	0.67
Investment Co.(Foreign)	15	1.26	Trucking	37	0.88	Precious Metals	62	0.67
Auto & Truck	29	1.23	Information Services	36	0.86	Tobacco	11	0.66
Auto Parts	58	1.22	Home Appliance	15	0.86	Water Utility	16	0.64
Tire & Rubber	13	1.19	Grocery	23	0.86	Food Processing	110	0.61
Steel (Integrated)	14	1.14	Newspaper	19	0.86	Beverage (Soft Drink)	19	0.61
Office Equip/Supplies	27	1.10	Aerospace/Defense	70	0.84	Food Wholesalers	21	0.60
Educational Services	38	1.09	Chemical (Diversified)	33	0.84	Beverage (Alcoholic)	22	0.56
Recreation	74	1.08	Machinery	134	0.83	Bank	487	0.55
						Thrift	221	0.49
						Market	**7113**	**1.15**

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

Exhibit_(JRW-7)

Kansas City Power & Light Company
Discounted Cash Flow Analysis

Electric Utility Proxy Group

Dividend Yield*	4.75%
Adjustment Factor	1.02125
Adjusted Dividend Yield	4.85%
Growth Rate**	4.25%
Equity Cost Rate	9.10%

* Page 2 of Exhibit_(JRW-7)

** Based on data provided on pages 3-5, Exhibit_(JRW-7)

Exhibit_(JRW-7)

Kansas City Power & Light Company

Exhibit_(JRW-7)

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

Electric Utility Proxy Group

Company	Sym	*Value Line* Historic Growth					
		Past 10 Years			Past 5 Years		
		Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
Alliant Energy Co.	LNT	-1.50%	-6.00%	1.00%	-1.00%	-12.50%	-2.50%
Ameren	AEE	-0.50%	0.50%	3.00%	0.50%	NA	5.00%
American Elec. Pwr.	AEP	-0.50%	-4.50%	-0.50%	3.50%	-9.00%	-3.50%
CH Energy Group	CHG	NA	0.50%	2.00%	-1.50%	NA	2.00%
Cent. Vermont P.S.	CV	-4.50%	-3.00%	2.00%	1.00%	0.50%	2.50%
Con. Edison	ED	-0.50%	1.50%	2.50%	-2.00%	1.00%	2.50%
DTE Energy Co.	DTE	-0.50%	NA	3.50%	-2.00%	NA	3.50%
Duquesne Light	DQE	-5.50%	-1.50%	-7.00%	-12.00%	-8.50%	-14.50%
Empire District	EDE	-1.50%	NA	2.00%	-5.00%	NA	2.00%
Energy East Copr.	EAS	3.50%	1.50%	4.50%	-2.50%	5.00%	6.00%
FirstEnergy	FE	2.00%	1.50%	5.50%	NA	2.50%	6.00%
Green Mtn. Power	GMP	-1.00%	-8.50%	NA	NA	5.00%	3.00%
Hawaiian Electric	HE	1.50%	0.50%	2.00%	1.00%	NA	3.00%
MGE Energy, Inc.	MGEE	1.50%	1.00%	2.50%	4.00%	1.00%	5.00%
NiSource Inc.	NI	1.50%	3.00%	7.50%	NA	1.00%	7.00%
NSTAR	NST	4.50%	1.50%	3.00%	4.00%	1.00%	2.00%
Pinnacle West	PNW	2.00%	11.00%	5.00%	-4.50%	6.54%	4.00%
Progress Energy	PGN	3.50%	3.00%	6.50%	4.50%	3.00%	6.50%
Puget Energy, Inc.	PSD	-3.50%	-6.00%	-1.00%	-7.50%	-11.50%	0.50%
SCANA Corp.	SCG	4.00%	0.50%	4.00%	7.00%	2.00%	3.00%
Southern Co.	SO	2.5%	2.0%	1.0%	2.0%	1.0%	-1.0%
Vectren Corp.	VVC	NA	NA	NA	4.0%	3.5%	4.5%
Westar Energy	WR	-6.0%	-8.0%	-4.0%	-1.5%	-14.5%	-11.0%
Xcel Energy Inc.	XEL	-3.5%	-5.0%	-1.0%	-5.5%	-11.0%	-4.5%
Mean		**-0.1%**	**-0.7%**	**2.0%**	**-0.6%**	**-1.8%**	**1.3%**
Median		**-0.5%**	**0.5%**	**2.3%**	**-1.0%**	**1.0%**	**2.8%**
		Average of Mean and Median Figures =			**0.4%**		

Data Source: *Value Line Investment Survey, June, 2006.*

Exhibit_(JRW-7)

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

Electric Utility Proxy Group

Company	Sym	*Value Line* Projected Growth Est'd. '03-'05 to '09-'11			*Value Line* Internal Growth		
		Earnings	Dividends	Book Value	Return on Equity	Retention Rate	Internal Growth
Alliant Energy Co.	LNT	4.50%	7.00%	3.50%	9.00%	35.00%	3.15%
Ameren	AEE	1.50%	NA	3.00%	9.50%	23.00%	2.19%
American Elec. Pwr.	AEP	4.00%	4.00%	5.50%	11.00%	41.00%	4.51%
CH Energy Group	CHG	3.00%	0.50%	2.00%	9.00%	31.00%	2.79%
Cent. Vermont P.S.	CV	11.50%	-1.00%	1.00%	10.50%	47.00%	4.94%
Con. Edison	ED	3.00%	1.00%	3.00%	9.50%	25.00%	2.38%
DTE Energy Co.	DTE	4.50%	0.50%	2.00%	10.50%	44.00%	4.62%
Duquesne Light	DQE	5.00%	Nil	5.00%	14.00%	32.00%	4.48%
Empire District	EDE	6.50%	Nil	2.00%	9.50%	21.00%	2.00%
Energy East Copr.	EAS	4.00%	4.50%	2.50%	9.50%	39.00%	3.71%
FirstEnergy	FE	11.50%	5.00%	6.50%	11.50%	48.00%	5.52%
Green Mtn. Power	GMP	3.50%	10.00%	2.50%	10.50%	39.00%	4.10%
Hawaiian Electric	HE	3.00%	Nil	2.50%	10.00%	28.00%	2.80%
MGE Energy, Inc.	MGEE	6.00%	0.50%	7.00%	12.00%	37.00%	4.44%
NiSource Inc.	NI	3.50%	0.50%	3.50%	8.50%	43.00%	3.66%
NSTAR	NST	6.00%	6.50%	5.50%	13.50%	41.00%	5.54%
Pinnacle West	PNW	6.00%	5.00%	3.50%	9.00%	32.00%	2.88%
Progress Energy	PGN	1.50%	2.00%	3.00%	9.00%	23.00%	2.07%
Puget Energy, Inc.	PSD	5.00%	1.50%	4.00%	8.50%	40.00%	3.40%
SCANA Corp.	SCG	4.00%	6.00%	5.50%	11.50%	39.00%	4.49%
Southern Co.	SO	5.00%	4.50%	5.00%	14.50%	31.00%	4.50%
Vectren Corp.	VVC	4.00%	3.00%	4.00%	11.00%	32.00%	3.52%
Westar Energy	WR	4.50%	6.50%	3.50%	9.00%	31.00%	2.79%
Xcel Energy Inc.	XEL	6.00%	5.50%	3.00%	10.50%	33.00%	3.47%
Mean		**4.9%**	**3.7%**	**3.7%**	**10.5%**	**34.8%**	**3.7%**
Median		**4.5%**	**4.3%**	**3.5%**	**10.3%**	**34.0%**	**3.6%**
Average of Mean and Median Figures =			**4.1%**		**10.4%**	**34.4%**	**3.6%**

Data Source: *Value Line Investment Survey, June, 2006*

Exhibit_(JRW-7)

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

Electric Utility Proxy Group

Company	Sym	Yahoo First Call	Reuters	Zack's	Average
Alliant Energy Co.	LNT	4.5%	3.7%	4.0%	4.1%
Ameren	AEE	4.0%	5.8%	6.0%	5.3%
American Elec. Pwr.	AEP	3.0%	3.6%	3.3%	3.3%
CH Energy Group	CHG	N/A	N/A	N/A	N/A
Cent. Vermont P.S.	CV	N/A	N/A	N/A	N/A
Con. Edison	ED	3.3%	3.6%	3.9%	3.6%
DTE Energy Co.	DTE	4.5%	4.5%	5.5%	4.8%
Duquesne Light	DQE	3.0%	3.0%	N/A	3.0%
Empire District	EDE	2.5%	4.5%	N/A	3.5%
Energy East Copr.	EAS	4.0%	4.3%	4.5%	4.3%
FirstEnergy	FE	5.0%	4.7%	4.9%	4.9%
Green Mtn. Power	GMP	N/A	N/A	N/A	N/A
Hawaiian Electric	HE	3.0%	3.4%	5.2%	3.9%
MGE Energy, Inc.	MGEE	N/A	N/A	N/A	N/A
NiSource Inc.	NI	3.5%	3.7%	3.3%	3.5%
NSTAR	NST	5.0%	5.0%	5.0%	5.0%
Pinnacle West	PNW	6.0%	7.6%	6.8%	6.8%
Progress Energy	PGN	3.5%	3.0%	3.6%	3.4%
Puget Energy, Inc.	PSD	4.0%	5.1%	7.0%	5.4%
SCANA Corp.	SCG	5.0%	4.5%	4.7%	4.7%
Southern Co.	SO	5.0%	4.5%	4.8%	4.8%
Vectren Corp.	VVC	4.0%	3.5%	5.0%	4.2%
Westar Energy	WR	3.0%	2.9%	3.7%	3.2%
Xcel Energy Inc.	XEL	5.0%	4.8%	4.6%	4.8%
Mean		**4.0%**	**4.3%**	**4.8%**	**4.3%**
Median		**4.0%**	**4.4%**	**4.8%**	**4.2%**

Data Sources: www.zacks.com, www.investor.reuters.com, http://quote.yahoo.com. *July 26th*

Exhibit_(JRW-8)

Kansas City Power & Light Company
Capital Asset Pricing Model

Electric Utility Proxy Group

Risk-Free Interest Rate	**5.25%**
Beta*	**0.82**
Ex Ante Equity Risk Premium**	**4.16%**
CAPM Cost of Equity	**8.7%**

* See page 2 of Exhibit_(JRW-8)

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

Exhibit_(JRW-8)

Kansas City Power & Light Company
Beta

Electric Utility Proxy Group

Company		Beta
Alliant Energy Co.	LNT	0.90
Ameren	AEE	0.75
American Elec. Pwr.	AEP	1.25
CH Energy Group	CHG	0.85
Cent. Vermont P.S.	CV	0.60
Con. Edison	ED	0.70
DTE Energy Co.	DTE	0.75
Duquesne Light	DQE	0.90
Empire District	EDE	0.80
Energy East Copr.	EAS	0.90
FirstEnergy	FE	0.80
Green Mtn. Power	GMP	0.60
Hawaiian Electric	HE	0.70
MGE Energy, Inc.	MGEE	0.70
NiSource Inc.	NI	0.90
NSTAR	NST	0.80
Pinnacle West	PNW	0.95
Progress Energy	PGN	0.85
Puget Energy, Inc.	PSD	0.80
SCANA Corp.	SCG	0.80
Southern Co.	SO	0.65
Vectren Corp.	VVC	0.85
Westar Energy	WR	0.95
Xcel Energy Inc.	XEL	0.85
Mean		0.82

Data Source: *Value Line Investment Survey, July, 2006.*

Exhibit_(JRW-8)

Kansas City Power & Light Company
Capital Asset Pricing Model
Equity Risk Premium

Category	Study Authors		Range Low	Range High	Mean of Range	Mean	Category Average
Historic							
	Ibbotson	Arithmetic			6.50%	5.70%	
		Geometric			4.90%		
	AVERAGE						5.70%
Puzzle Research							
	Claus Thomas					3.00%	
	Arnott and Bernstein					2.40%	
	Constantinides					6.90%	
	Cornell		3.50%	7.00%	5.25%		
	Dimson, Marsh, and Staunton	Arithmetic	2.50%	4.00%	3.81%	4.35%	
		Geometric	3.50%	5.25%			
	Fama French		2.55%	4.32%		3.44%	
	Harris & Marston					7.14%	
	Siegel	Geometric				2.50%	
	AVERAGE						4.25%
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%		3.56%	
	AVERAGE						3.56%
Building Block							
	Ibbotson and Peng						
		Arithmetic			6.00%	5.00%	
		Geometric			4.00%		
	Woolridge					3.00%	
	AVERAGE						4.00%
Other Studies							
	McKinsey		3.50%	4.00%		3.75%	
	AVERAGE						3.75%
OVERALL AVERAGE							**4.16%**

Sources:

Ibbotson Associates, SBBI Yearbook, 2006.

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).

Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, April 2002.

Elroy Dimson, Paul Marsh, and Mike Staunton, "New Evidence puts Risk Premium in Context," *Corporate Finance* (March 2003)

Ivo Welch, "The Equity Risk Premium Consensus Forecast Revisited," (September 2001). Cowles Foundation Discussion Paper No. 1325.

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

Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters*, February 14, 2005.

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

Exhibit_(JRW-8)

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

TABLE FIVE
LONG-TERM (10 YEAR) FORECASTS

SERIES: CPI INFLATION RATE	
STATISTIC	
MINIMUM	1.750
LOWER QUARTILE	2.300
MEDIAN	2.500
UPPER QUARTILE	2.725
MAXIMUM	3.700
MEAN	2.512
STD. DEV.	0.354
N	49
MISSING	4

SERIES: REAL GDP GROWTH RATE	
STATISTIC	
MINIMUM	2.500
LOWER QUARTILE	3.000
MEDIAN	3.200
UPPER QUARTILE	3.400
MAXIMUM	4.250
MEAN	3.189
STD. DEV.	0.301
N	49
MISSING	4

SERIES: PRODUCTIVITY GROWTH	
STATISTIC	
MINIMUM	1.600
LOWER QUARTILE	2.170
MEDIAN	2.437
UPPER QUARTILE	2.600
MAXIMUM	3.500
MEAN	2.404
STD. DEV.	0.355
N	46
MISSING	7

SERIES: STOCK RETURNS (S&P 500)	
STATISTIC	
MINIMUM	5.000
LOWER QUARTILE	6.000
MEDIAN	7.000
UPPER QUARTILE	8.000
MAXIMUM	15.000
MEAN	7.340
STD. DEV.	1.800
N	41
MISSING	12

SERIES: BOND RETURNS (10-YEAR)	
STATISTIC	
MINIMUM	4.000
LOWER QUARTILE	4.842
MEDIAN	5.000
UPPER QUARTILE	5.500
MAXIMUM	7.200
MEAN	5.146
STD. DEV.	0.579
N	44
MISSING	9

SERIES: BILL RETURNS (3-MONTH)	
STATISTIC	
MINIMUM	2.800
LOWER QUARTILE	3.985
MEDIAN	4.250
UPPER QUARTILE	4.575
MAXIMUM	5.500
MEAN	4.200
STD. DEV.	0.631
N	44
MISSING	9

Source: Philadelphia Federal Researve Bank, Survey of Professional Forecasters, February 13, 2006.
http://www.phil.frb.org/files/spf/spfq106.pdf

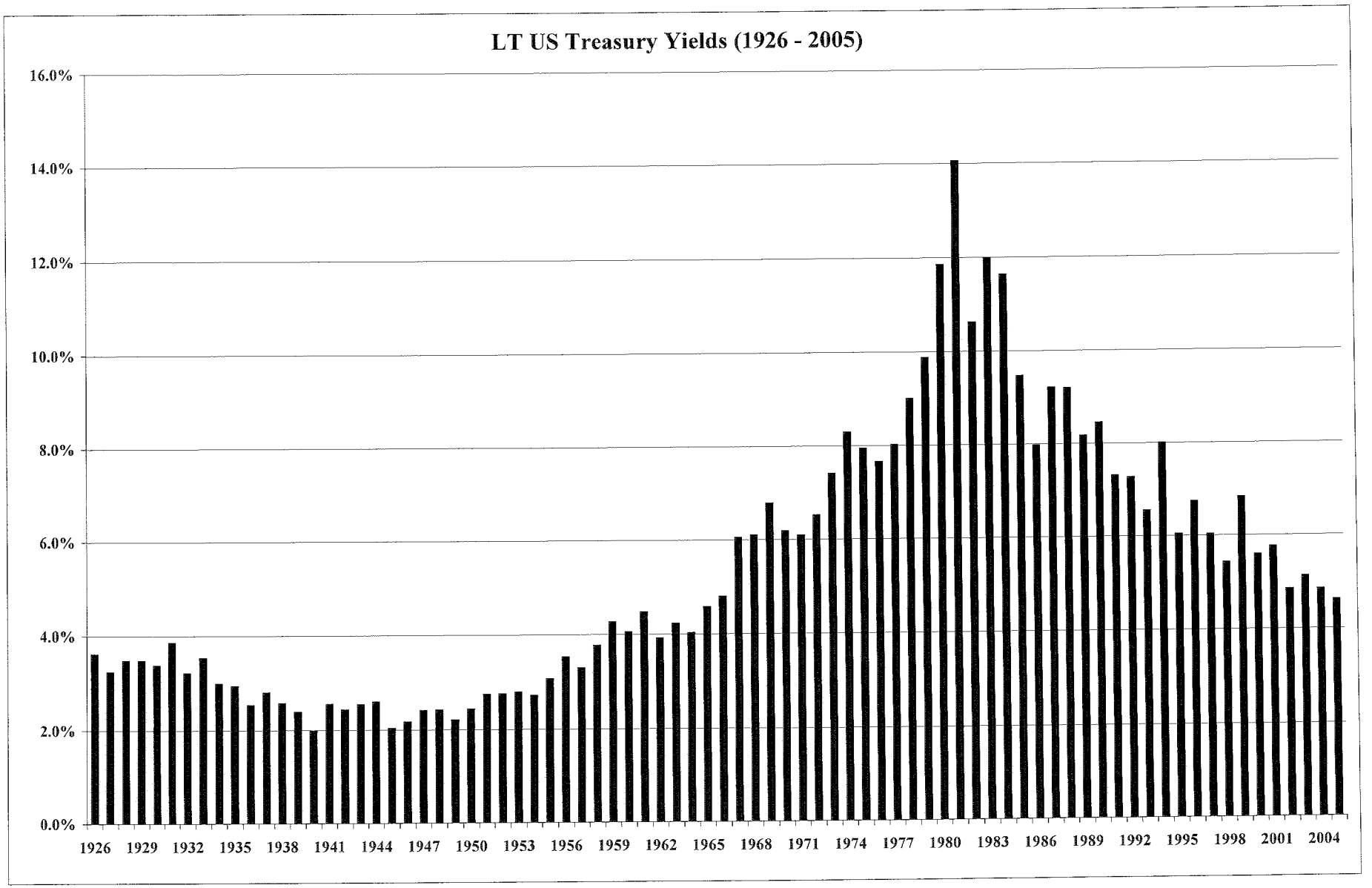
Exhibit_(JRW-8)

Kansas City Power & Light Company

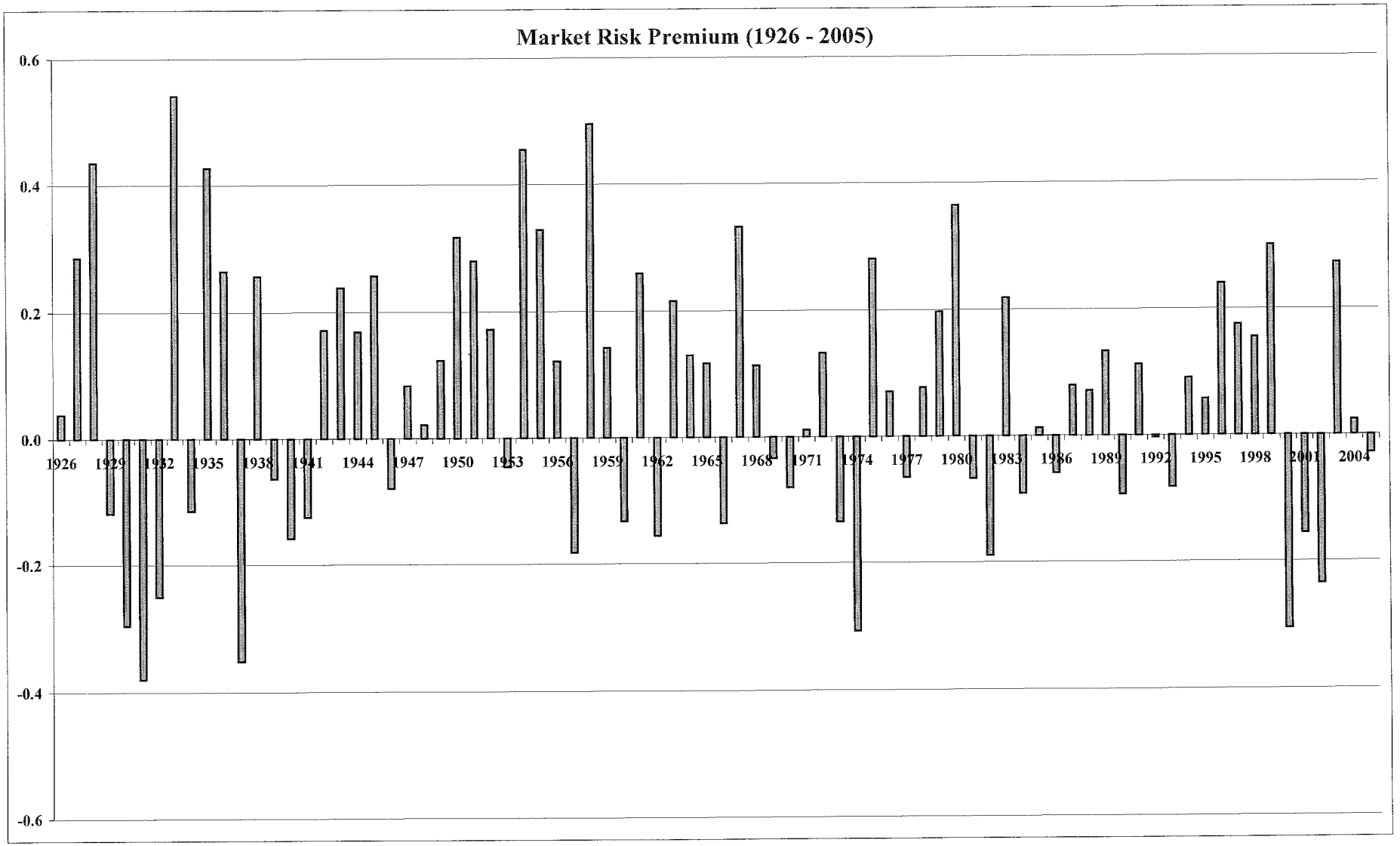
CAPM

Real S&P 500 EPS Growth Rate

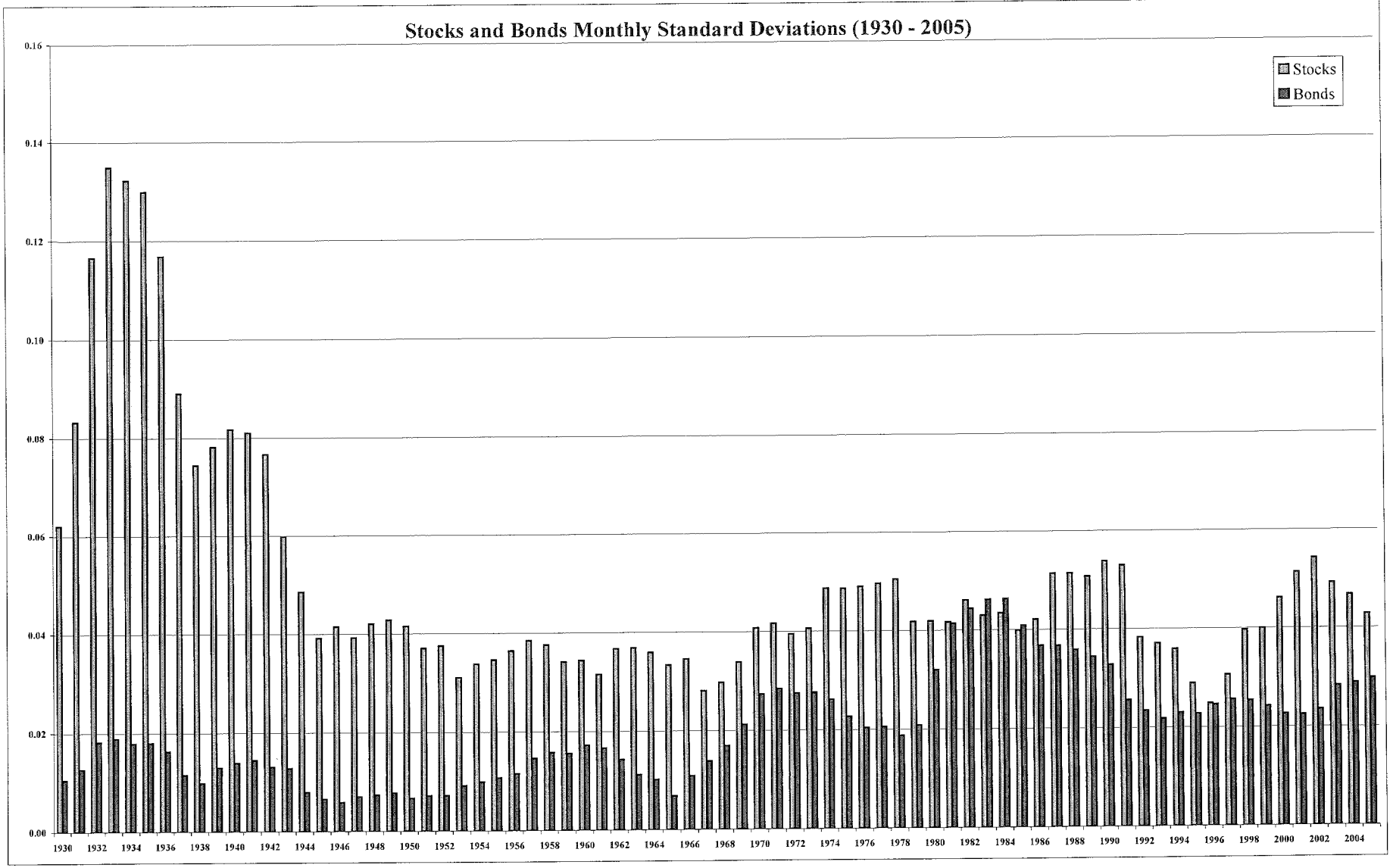
Year	S&P 500 EPS	Annual Inflation CPI	Inflation Adjustment Factor	Real S&P 500 EPS	
1960	3.10	1.4		3.10	
1961	3.37	0.7	1.0070	3.35	
1962	3.67	1.3	1.0201	3.59	
1963	4.13	1.6	1.0364	3.99	
1964	4.76	1	1.0468	4.55	
1965	5.30	1.9	1.0667	4.97	
1966	5.41	3.5	1.1040	4.90	
1967	5.46	3	1.1371	4.80	
1968	5.72	4.7	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	
2004	67.01	3.3	6.3735	10.51	
2005	68.32	3.5	6.5978	10.35	
Data Source: http://pages.stern.nyu.edu/~adamodar/				Real EPS Growth	2.71%



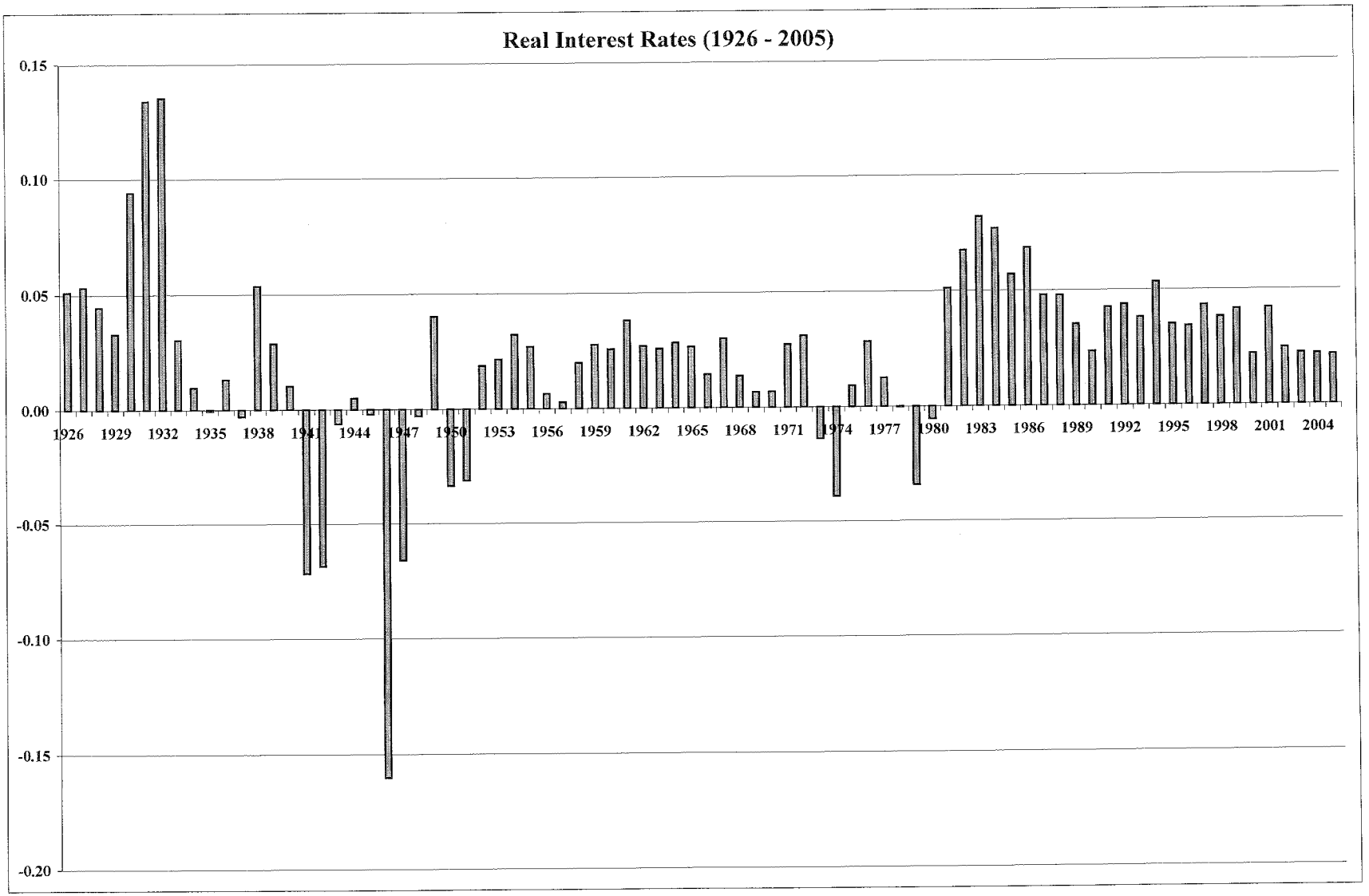
Data Source: Ibbotson Associates, *SBBI Yearbook*, 2006.



Data Source: Ibbotson Associates, *SBBI Yearbook*, 2006.



Data Source: Ibbotson Associates, *SBBI Yearbook*, 2006.



Data Source: Ibbotson Associates, *SBBI Yearbook*, 2006.