KgPCo Exhibit No. ___
Witness: PRD

DIRECT TESTIMONY OF
DR. PHILLIP R. DAVES
ON BEHALF OF KINGSPORT POWER COMPANY
D/B/A AEP APPALACHIAN POWER
BEFORE THE TENNESSEE REGULATORY AUTHORITY
DOCKET NO. 15-~~00093~~

I. INTRODUCTION

Q. PLEASE STATE YOUR FULL NAME, ADDRESS AND OCCUPATION

A. My name is Phillip R. Daves, and my address is 1204 Shadyland Dr., Knoxville, TN 37919. I am an Associate Professor of Finance at The University of Tennessee, in Knoxville. A summary of my educational background, research and related experience is provided in Exhibit No. 1 (PRD).

II. OVERVIEW

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. I have been asked by Kingsport Power Company (KGPCo) to provide an opinion as to the fair, or required, rate of return on the common equity of Kingsport Power Company. This is also called the equity cost rate.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. I am sponsoring the following exhibits:

- Exhibit No. 1 (PRD) - Vita of Phillip Daves
- Exhibit No. 2 (PRD) - Electric Utilities as Listed by Value Line

- Exhibit No. 3 (PRD) - Value Line Electric Utility Industry: Subset that generates less than 50% of the electricity they sell.
- Exhibit No. 4 (PRD) - Beta Estimates
- Exhibit No. 5 (PRD) - Interest Rates 4/30/2015
- Exhibit No. 6 (PRD) - Market Risk Premium Calculation Data
- Exhibit No. 7 (PRD) - 8 Company and AEP Levered CAPM Required Returns
- Exhibit No. 8 (PRD) - 8 Company and AEP Dividend Information 4/30/2015
- Exhibit No. 9 (PRD) – 8 Company and AEP Levered and Unlevered Cost of Equity 4/30/2015
- Exhibit No. 10 (PRD) - Unlevered and Levered Costs of Equity for the 8 Companies, AEP, and Kingsport Power Company

Q. WHAT INFORMATION AND MATERIALS DID YOU USE TO SUPPORT THE OPINIONS AND CONCLUSIONS CONTAINED IN YOUR TESTIMONY?

A. I examined Kingsport Power Company's annual financial statements as well as those of its parent, American Electric Power. I also reviewed current information on market-determined required returns to companies engaged in activities similar to those of Kingsport Power Company. I also made use of publicly available analysts' forecasts for these companies. This information, in addition to my experience in finance, corporate valuation, and cost of capital estimation provide the basis for my analysis and for my conclusions.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First, I discuss return on equity as it applies to Kingsport Power Company. Then I identify a proxy group of electric utility companies that are primarily engaged in

distribution rather than generation of electric power. I then use the Capital Asset Pricing Model (CAPM) and the Discounted Cash Flow (DCF) model to estimate these companies' levered costs of equity capital. Next, I unlever these companies' required returns to calculate their unlevered costs of equity capital using the Compressed Adjusted Present Value model (APV). I then re-lever these costs of equity using Kingsport Power's capital structure, also using the APV model, to calculate Kingsport Power's levered cost of equity.

Q. WHAT IS YOUR RECOMMENDATION REGARDING KINGSPORT'S REQUIRED RETURN TO EQUITY?

A. I find that Kingsport Power's required return to equity, or equity cost rate, should be between 10.02% and 11.06% with a point estimate of 10.66%.

III. RETURN ON EQUITY OVERVIEW

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. This section summarizes the analysis that I conducted and presents my conclusions regarding KGPCo's required return on equity.

Q. WHAT IS A REQUIRED RETURN ON EQUITY?

A. The required return on equity, also known as the equity cost rate or the fair rate of return on equity, is the rate of return that equity holders demand to compensate them for committing capital and bearing risk. If equity holders expect to earn a rate of return less than this required rate, then they will not invest in the company. For a regulated utility like KGPCo, this means that the regulated return on equity must be as least as high as the required rate to induce equity holders to invest incremental capital or to maintain their

current investment. If the regulated return to equity holders is less than the required return, the company will face a capital shortfall when incremental capital investment is required as investors will choose to invest elsewhere. Such a shortfall will adversely affect the long-term viability of the company.

Q. WHAT FACTORS AFFECT THE REQUIRED RETURN ON KINGSPORT POWER COMPANY'S EQUITY?

A. Like all companies, KGPCo operates and raises capital in the greater economic environment of a well-functioning and competitive capital market. Even though KGPCo's operations are regulated, the market that supplies capital to KGPCo is for the most part unregulated and so KGPCo must compete with other regulated and non-regulated companies for equity capital. The main factor that affects KGPCo's required return is the return investors could earn on investments of similar risk, also known as the opportunity cost rate of capital. This opportunity cost, in turn, depends on the level and type of risk that equity investments in KGPCo face, the underlying level of interest rates and inflation in the economy, and investor's aggregate risk tolerance. In the Discounted Cash Flow model, discussed below, all of these factors are subsumed in the calculated expected return to equity to publicly traded firms in lines of business similar to KGPCo's. In the Capital Asset Pricing Model, discussed below, KGPCo's risk is subsumed in the calculated beta coefficient. The underlying level of interest rates and inflation is subsumed in the observed long-term risk-free rate in U.S. Treasury securities, and the market's aggregate risk tolerance is subsumed in the calculated market risk premium.

Q. WHAT TECHNIQUES DID YOU USE TO ESTIMATE KGPCO'S REQUIRED RETURN ON EQUITY?

A. The Capital Asset Pricing Model (CAPM) and the Discounted Cash Flow (DCF) models were used to determine estimates of the required return on equity.

Q. WHAT IS THE CAPM AND WHAT ARE ITS ADVANTAGES AND DISADVANTAGES?

A. The CAPM shows that a firm's required rate of return to equity (r_S) depends on that firm's systematic risk, as measured by the firm's beta coefficient (β_S), the underlying required return on the market as a whole (ER_M) and the underlying risk-free rate (r_f) . Its primary advantage and the reason it is the mainstay model for determining the cost of equity capital for most financial analyses is that an estimate of the risk coefficient, beta, is easily calculated and it can be applied to companies that don't pay dividends or whose dividend growth rate is not stable. It calculates the required return on stock S as the sum of the risk-free rate and a premium for risk. The premium for risk is calculated as the beta sensitivity multiplied by the expected return on the market less the risk-free rate (see Brigham and Daves (2016) Chapter 2).[1] The expected return on the market less the risk-free rate is called the market risk premium (RP_M)

$$r_S = r_f + \beta_S(ER_M - r_f)$$

$$= r_f + \beta_s(RP_M)$$

There are three primary disadvantages of the CAPM. First, the common method of estimating the beta coefficient by regressing the stock's return on a proxy for the market

[1] Brigham, Eugene, and Phillip Daves, 2016, *Intermediate Financial Management 12e*, 2016, Cengage Publishing. Chapter 2.

return such as the S&P 500 return varies depending on the selection of both the return interval (daily, weekly or monthly returns) and the length of the estimation period (1 year, 2 years or 3 years). Different choices will result in different estimates and the various providers of these estimates, such as finance.yahoo.com, Value Line Investment Survey, reuters.com, and others, provide different beta estimates based on their different methodologies. See Daves, Ehrhardt and Kunkle (2000) for a discussion of the tradeoffs between beta stability and estimation precision due to the choice of return interval and length of estimation period.[2] Second, capital market theory says that the beta coefficient should be a forward-looking measure of the stock's expected sensitivity to the market return, not a historical measure as is commonly calculated. However, no reliable method of determining this forward-looking beta has been devised so analysts typically rely on the historical measure and assume either explicitly or implicitly that this historical beta is a reliable predictor of the expected future beta. Third, the model requires an estimate of the expected future market risk premium, calculated as the expected return on the market or market proxy less the risk-free rate. For many years, analysts used the historical difference between the return on a market portfolio proxy and the risk-free rate as the expected market risk premium, relying on the implicit assumption that investors expect that future market returns will be similar to past returns. This assumption is frequently violated in practice and so this historical market risk premium is, at best, an imprecise estimate of the expected market risk premium. Recently, to address this shortcoming

[2] Daves, Phillip R., Michael C. Ehrhardt, and Robert A. Kunkel, 2000 "Estimating Systematic Risk: The Choice of Return Interval and Estimation Period," *Journal of Financial and Strategic Decisions*. Vol. 13, No. 1, Spring 2000. pp. 7-13.

analysts have estimated the market risk premium using the DCF model applied to the S&P 500, and I use that method here. The underlying assumption for this method is that the combination of relatively stable per share S&P 500 dividend growth and reliable short-term analyst forecasts of this growth can provide a more reliable estimate of the expected market risk premium than can historical values of the realized market risk premium.

Q. WHAT ARE THE ADVANTAGES AND DISADVANTAGES OF THE DCF MODEL?

A. The Discounted Cash Flow Method (DCF), also called the Dividend Growth Model, assumes that the value of a share of stock is the present value of the dividends that are expected to be paid into the indefinite future, with a discount rate equal to the required return on the stock. If r_S is the required return on the stock of a company and D_t are the expected future dividends, then

$$\text{Price} = \sum_{t=1}^{\infty} \frac{D_t}{(1+r_s)^t}$$

If dividends are expected to grow at a constant rate, g, then this simplifies to

$$\text{Price} = \frac{D_0(1+g)}{r-g}$$

Solving for r_S gives an expression for the required return on the stock as a function of the dividend yield and the expected growth rate

$$r_S = \frac{D_0(1+g)}{\text{Price}} + g$$

This method has the advantage of conceptual simplicity—the expected return on the stock is simply the sum of the forward dividend yield and the expected dividend growth

rate—but is only applicable to companies that have reached a steady-state growth stage and whose dividends are expected to grow at this single constant growth rate in perpetuity. This assumption is inappropriate for most companies. However, companies in the electric utility industry tend to have stable cash flows and dividends due to the nature of the underlying business and the regulatory environment in which they operate. For this reason, the underlying assumptions for the DCF model are reasonably correct for companies in the electric utility industry.

Q. HOW DID YOU USE COMPARABLE COMPANIES IN YOUR ANALYSIS?

A. Kingsport Power Company is a regulated, non-traded electricity distribution company. Standard methods for calculating a required return on equity for publicly traded companies all require market prices for equity, which aren't available for Kingsport, and so the required returns to equity on a set of publicly traded electric utilities with similar characteristics to Kingsport were used to estimate an unlevered required return for equity invested in this business line. This unlevered required return was then re-levered to account for Kingsport's capital structure to calculate a required return for Kingsport's equity.

Exhibit No. 2 (PRD) shows the Value Line Investment Survey list of 45 publicly traded electric utilities.[3] Exhibit No. 3 (PRD) shows the subset of 8 companies that, according to Value Line's reports, generated less than 50% of the electricity that they sold. This selection of companies consisting of Ameren Corp., Black Hills Corp., Centerpoint Energy Inc., Edison International, ITC Holdings Corp., PG&E Corp., Sempra Energy, and UIL Holdings Corp., plus Kingsport's parent company, American Electric Power,

[3] http://www.valueline.com

constitutes the comparison group for calculating the electricity distribution line of business required return to equity.

Q. HOW DID YOU ACCOUNT FOR LEVERAGE IN YOUR ANALYSIS?

A. Companies with similar underlying lines of business will have similar business risk, but may have quite different required returns to equity if their capital structures differ. This relation between underlying business risk and levered required return is captured most accurately by the Compressed Adjusted Present Value method of pricing equity. See Kaplan and Ruback (1995) and Ehrhardt and Daves (2002).[4] The older method of accommodating varying capital structures in the calculation of required return to equity described by Hamada (1972) makes two unrealistic assumptions: that the debt tax shield should be discounted at the risk-free rate and that the firm does not grow.[5] Ehrhardt and Daves (2002) show that these assumptions imply incorrect firm valuation results and that the unlevered required return on equity, r_U, must be used to discount the debt tax shields to correctly value a firm in the presence of growth. This corrected assumption implies that the relation between the unlevered required return, the levered required return, r_L, the cost of debt, r_d, and the weights on debt and equity, w_d, w_S, is given by

$$r_L = r_U + (r_U - r_d)\frac{w_d}{w_S}$$

[4] Kaplan, Steven N and Richard S. Ruback, 1995, "The Valuation of Cash Flow Forecasts: An Empirical Analysis," Journal of Finance, Vol. 50, no. 4, September, 1995. pp. 1059-1093. This paper develops the Compressed Adjusted Present Value methodology for valuation. Ehrhardt, Michael C. and Phillip R. Daves, 2002, "Corporate Valuation: The Combined Impact of growth and the Tax Shield of Debt on the Cost of Capital and Systematic Risk," Journal of Applied Finance, Fall/Winter 2002, pp. 7-14. This paper shows how to use it to correctly lever and unlever required returns.

[5] Hamada, R. S., 1972, "The Effect of a Firm's Capital Structure on the Systematic Risk of Common Stocks," 1972, Journal of Finance 27 (No. 2, May), pp. 435-452.

This differs from the Hamada (1972) expression that has traditionally been used to lever and unlever required returns in that it does not include a term with the tax rate. The term with the tax rate vanishes when the discount rate on the debt tax shield is assumed to be equal to the unlevered required return on stock. Solving this equation for the unlevered required return gives the expression for calculating the unlevered required return from the observed levered required return

$$r_U = w_d r_d + w_s r_L$$

To account for varying capital structures, I first unlevered each company's required or expected return using its existing capital structure and required return on debt. This gives the required return each of the comparison companies would have if they had no debt. I then re-levered these required or expected returns using KGPCo's capital structure and weighted average cost of debt to calculate the required return to KGPCo's equity.

IV. CAPM CALCULATIONS

Q. HOW DID YOU CALCULATE THE CAPM BETA FOR EACH COMPANY?

A. There are a number of financial data providers that provide beta estimates from historical data. Exhibit No. 4 (PRD) shows the beta estimates as of 4/30/2015 from Value Line, finance.yahoo.com, and betas I calculated by regressing daily stock returns on the S&P 500 return using 1 and 3 years of daily data. The beta estimates are all broadly consistent. For the purposes of this study, I use the betas I calculate using one year of daily data.

Q. WHAT RISK-FREE RATE DID YOU USE IN YOUR ANALYSIS?

A. Exhibit No. 5 (PRD) shows summary statistics for the 30-year Treasury rate over the past 2 years. The current rate as of 4/30/2015 is 2.75%. The mean rate over the last year was

3.49% with a minimum of 2.25% and a maximum of 3.49%. The mean rate over the past 2 years has been 3.30% with a minimum of 2.5% and a maximum of 3.96%.

Federal Reserve interest rate policy interventions over the past two years have suppressed long-term interest rates and so current interest rates may not reflect investors' long-term required returns. Although the April 29, 2015 Federal Reserve Open Market Committee press release indicated that the current policy of open market purchases of long-term securities will continue for the near term, this policy will certainly change once economic growth reaches target levels.[6] Long-term interest rates will increase once the current policy is discontinued. As such, investors expect a higher risk-free rate in the future than the current rate and I have chosen the 2-year 30-year Treasury average of 3.30% as the risk-free rate for use in the CAPM calculations.

Q. HOW DID YOU CALCULATE A MARKET RISK PREMIUM FOR YOUR ANALYSIS?

A. I compiled three different estimates for the market risk premium. The first is the traditional historical market risk premium calculated as the difference between Ibbotson's Large-Cap Stocks historical return of 12.1% and Ibbotson's Long-Term Government Bonds historical return of 6.1%.[7] This difference is 6.0%.

The second measure is Pablo Fernandez's (2015) average of the reported market risk premiums used in practice from his survey of finance and economics researchers and professionals.[8] This average is 5.4%.

[6] http://www.federalreserve.gov/newsevents/press/monetary/20150429a.htm.
[7] Ibbotson SBBI Classic Yearbook 2014, Morningstar Corporation.
[8] Fernandez, Pablo, Pablo Linares and Isabel Fernandez Acin, 2014, "Market Risk Premium used in 88 Countries in 2014: A Survey with 8,228 Answers," 2014, http://ssrn.com/abstract=2450452.

The third measure comes from applying the DCF model to the S&P 500. Standard and Poors reports per-share dividends for the S&P 500 and Exhibit No. 6 (PRD) summarizes the calculations. The dividend yield on the S&P 500 as of 3/31/2015 was 2.041%. The historical growth rate in per-share dividends varies from 6.25% to 14.08% as the period covered ranges from 5 years to 20 years. The highest growth rate is over the last 5 years while the lowest average growth rate is over the last 20 years. The 10-year compound growth rate was 7.04%, which is also consistent with finance.yahoo.com's reported mean analyst forecasted 5-year earnings growth rate for the S&P 500 of 7.0%. I have chosen this 10-year historical compound growth rate in dividends as the long-term growth rate for the DCF model.

The DCF constant growth model also depends on the expected total dividend over the next year. Since dividends on the S&P 500 grow each quarter, growing the current per-share dividend by the annual rate will over-estimate the total dividends over the year. To correct for this, dividends over the next year are calculated as the current quarter's dividend multiplied by 4 and then grossed up by ½ of the expected annual growth rate. With this adjustment and using the historic 10-year compound growth rate in dividends as g, the expected return on the market from the DCF model is

$$ER_M = \frac{D\left(1+\frac{g}{2}\right)}{\text{Price}} + g$$

$$= 2.041\% \left(1+\frac{g_{10}}{2}\right) + g_{10}$$

$$= 9.15\%$$

The expected market risk premium from the DCF model is the expected return on the market less the risk-free rate, or 9.15% - 3.30% = 5.85%.

I use the average of the historical risk premium of 6%, the analysts' average risk premium of 5.4%, and the DCF implied risk premium of 5.85%, or 5.75% as the market risk premium in this study.

Q. WHAT WERE THE LEVERED CAPM REQUIRED RETURNS?

A. The CAPM required return is calculated as $r_f + \beta ER_M$. Exhibit No. 7 (PRD) shows the levered required returns for AEP and the 8 comparison companies using the calculated 1-year betas. These levered required returns range from 6.39% to 9.55%.

V. DCF CALCULATIONS

Q. HOW DID YOU ESTIMATE THE CURRENT DIVIDEND YIELD ON THE COMPARABLE COMPANIES?

A. The DCF method gives the following expression for the required return on stock

$$r_S = \frac{D_0(1+g)}{\text{Price}} + g$$

D_0 is calculated as 4 times the current quarterly dividend. g is the growth rate, discussed below. When dividends grow during a calendar year this expression will overestimate the actual average total dividend received in a given year, and so a half-year growth correction is used for the first year's dividend growth

$$r_S = \frac{D_0\left(1+\frac{g}{2}\right)}{\text{Price}} + g$$

The price for each company is as of April 30, 2015 as reported by finance.yahoo.com. The current quarterly dividend for each company is the most recent quarterly dividend paid as reported by finance.yahoo.com.

Q. HOW DID YOU ESTIMATE FUTURE DIVIDENDS AND DIVIDEND GROWTH RATES?

A. As all of the members of the group of comparison companies are publicly traded and well-followed by analysts, there are several sources of analysts' earnings and dividend forecasts. Exhibit No. 8 (PRD) reports the dividend yield as of 4/30/2015, mean analyst 5-year earnings growth estimates provided by finance.yahoo.com and Value Line as well as the mean Value Line 5-year dividend growth estimates.

Although the DCF model uses discounted dividends, the forecasted dividend growth rate is not always consistent with a steady state growth rate. For a company experiencing stable organic growth, the long-term growth rate in dividends and earnings should be the same. However, dividends are a management choice variable over the short term and their growth may vary substantially from that of earnings over this short term. For this reason, I have chosen to use the mean analyst growth estimate in earnings provided by finance.yahoo.com as the long-term growth rate in the DCF model.

Q. WHAT WERE THE LEVERED DCF EXPECTED RETURNS?

A. Exhibit No. 9 (PRD) shows the estimated DCF levered required returns for each company. These required returns range from 3.46% to 13.48%. The Exhibit also shows the CAPM levered required returns.

VI. KGPCo'S LEVERED REQUIRED RETURN TO EQUITY

Q. HOW DID YOU ACCOUNT FOR KGPCo'S CAPITAL STRUCTURE IN YOUR CALCULATIONS?

A. The levered DCF and CAPM required returns were unlevered using each company's book value capital structure and the Adjusted Present Value model. The cost of long-term debt was assumed to be the median BBB yield for corporate bonds of maturity between 15 and 30 years as of 4/30/2015 as reported by bonds.yahoo.com of 4.68%. The short-term rate was assumed to be 0.45% which was the median yield on BBB short-term corporate debt. The overall required return on debt was calculated as the book value weighted average of the long- and short-term components.

Exhibit No. 9 (PRD) shows each company's unlevered cost of capital as estimated by the CAPM and the DCF models. The CAPM unlevered required returns to equity range from 5.05% to 6.42% while the DCF unlevered required returns to equity range from 3.73% to 7.53%. Note that for one company, Edison International, the DCF unlevered required return was actually higher than the levered required return. This is because the DCF model provided a very low estimated levered required return which was less than the assumed cost of debt. I did not delete this observation even though the DCF model provided a counterintuitive result in order to maintain the complete sample of comparable companies.

Exhibit No. 10 (PRD), Panel A reports the mean, 33rd percentile, the median, and the 67th percentile unlevered returns for the 8 comparison companies and for AEP. Row 1 reports these summary statistics for the DCF model, Row 2 reports them for the CAPM, and Row 3 reports the average of the summary statistics for the DCF and CAPM models. The mean DCF unlevered cost of equity was 6.31% and the mean CAPM unlevered cost of equity was 5.67%. The average of these two is 5.99%. Similarly, the average 33rd

percentile unlevered cost of equity was 5.93%. For the median, it was 6.23% and for the 67th percentile it was 6.64%. AEP's average unlevered cost of equity was 5.82%. Exhibit No. 10 (PRD), Panel B reports Kingsport's estimated levered required rate of return based on each summary statistic. Re-levering the unlevered costs of equity was accomplished using the Compressed APV model

$$r_L = r_U + (r_U - r_d)\frac{w_d}{w_S}$$

and Kingsport's book value capital structure of 47% equity and 53% debt. Kingsport's weighted average cost of debt of 2.30% was calculated as a weighted average of the cost of long-term debt of 4.52% and a cost of short-term debt of 0.29%. Based on the summary statistics for the 8 comparison companies, Kingsport's levered cost of equity is between 10.02% (based on the 33rd percentiles) and 11.06% (based on the 67th percentiles) with a point estimate of 10.66% (based on the medians).

Q. WHAT RANGE AND POINT ESTIMATE FOR KGPCo'S REQUIRED RETURN ON EQUITY DID YOU OBTAIN?

A. Kingsport's required rate of return to equity, based on its current capital structure and the required rates of return to a sample of 8 comparison electric utilities should be between 10.02% and 11.06% with a point estimate of 10.66%.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Vita of Phillip Daves

Phillip R. Daves, Ph.D.

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Education:
Ph.D. Business Administration (Finance), May 1989. University of North Carolina at Chapel Hill. "Capital Allocation and Corporate Structure under Asymmetric Information."
M.S. Mathematics, August 1984. University of North Carolina at Chapel Hill.
A.B. Economics cum laude, May 1981. Davidson College; Davidson, North Carolina.

Experience:
Director, Global Leadership Scholars, University of Tennessee at Knoxville. July 2013 to present.
Associate Professor of Finance, University of Tennessee at Knoxville. August 1994 to present.
Assistant Professor of Finance, University of Tennessee at Knoxville. August 1988 to August 1994.

Honors and Awards:
Finalist, University Alumni Teaching Award, Spring 2012
Sharon Pryse/Trust Company Outstanding Finance Faculty Award, 2012
Finalist CBA Outstanding Service to Students Award, Spring 2011
Finalist CBA Outstanding Teacher Award, Spring 2010
College of Business Patton Scholar 2009
Baker Center Faculty Associate 2009 to 2012
College of Business Voigt Scholar 2008 to present
College of Business Stokely Scholar, 2006 and 2007.
Outstanding Faculty Award by the Physician's Executive MBA program, 2003, 2005, 2008, 2011, 2012
Allen H. Keally Outstanding Teacher Award, April, 1993

Research Interests:
Risk Management, Asset Pricing, Valuation, Agency Theory, Information Asymmetry, Mathematical Modeling, Corporate Finance, Quantitative Methods in Finance, Corporate Control.

Teaching:
Intermediate Finance, Investments, Portfolio Theory, and Advanced Topics in Finance for undergraduates, Principles of Finance for MBAs, and Asset Pricing for Ph.D.s.

Publications:

"Creating a Synthetic After-Tax Zero-Coupon Bond Using U.S. Treasury STRIP Bonds: Implications for the True After-Tax Spot Rate," with M. Ehrhardt, *Applied Financial Economics*, Volume 21, Issue 10 May 2011 pp; 695-705.

"Electronic Communication Networks, Market Makers, and the Components of the Bid-Ask Spread," with T. Shawn Strother and James W. Wansley, *International Journal of Managerial Finance*, Volume 5, no. 1 (2009), pp. 81-109.

Convertible Securities, Employee Stock Options, and the Cost of Equity, with Michael C. Ehrhardt, *Financial Review*, Volume 42 (2007), pp. 267-288.

"Corporate Valuation: The Combined Impact of Growth and the Tax Shield of Debt on the Cost of Capital and Systematic Risk," with M. Ehrhardt. *Journal of Applied Finance,* Fall/Winter, 2002.

"Estimating Systematic Risk: The Choice of Return Interval and Estimation Period," with Michael C. Ehrhardt, Robert A. Kunkel, *Journal of Financial and Strategic Decisions*. Vol. 13, no. 1, 2000.

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"Cash Flow, Expansion, and the Access to Capital," in *The Business of Medicine: What Every Physician Leader Needs to Know,* Michael Stahl and Peter Dean, eds. Aspen Publishers, 1999.

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"Initial Dividends and Implications for Investors," monograph with James W. Wansley and William R. Lane, 1997, The Research Foundation of The Institute of Chartered Financial Analysts, Charlottesville, VA.

"A Guide to Investing in U.S. Treasury STRIPS" Reprinted in *Economic Survey*, and also in *The Investments Reader*, 2nd edition, Robert W. Kolb, ed., Blackwell Publishers, 1995.

"Market Reaction to Periodic Stock Distributions," with Robert M. Conroy, *International Journal of Finance*, volume 6, no. 4, 1994, pp. 893-916.

"Information Release, Signaling, and Market Competition," with Alan Tucker, *Applied Financial Economics* (vol 3, 1993)

"Joint Time-Series, Cross-Sectional Maximum Likelihood Estimation of the Parameters to the Cox Ingersoll Ross Interest Rate Process," with Mike Ehrhardt, *Financial Review* (May, 1993).

"Liquidity, Reconstitution, and the Value of U.S. Treasury Strips," with Mike Ehrhardt. *Journal of Finance* (March 1993).

"Investing in U.S. Treasury STRIPS," with Mike Ehrhardt and John Wachowicz. *AAII Journal*, January, 1993.

"U.S. Savings Bonds: A Dominant Short-Term Investment?" with Robert Kunkel. *AAII Journal*, February, 1993.

"After the Fall: Savings Bonds are Still Attractive Short Term" with Robert Kunkel. *AAII Journal*, April, 1993.

Textbooks:
Intermediate Financial Management, with Eugene Brigham, 6th, 7th, 8th, 9th,10th, 11th and 12th editions, 2016, Cengage Learning Publishing.

Study Guide to Accompany Intermediate Financial Management, with Eugene Brigham, 6th, 7th, 8th, 9th, 10th and 11th editions, 2013, Cengage Learning Publishing.

Test Bank to Accompany Intermediate Financial Management, with Eugene Brigham , 6th, 7th, 8th, 9th, 10th, and 11th, 12th editions, 2016, Cengage Learning Publishing.

Corporate Valuation: A guide for managers and investors, with Michael C. Ehrhardt and Ronald E. Shrieves, 2004, South-Western Publishing.

Presented papers:
"Where or Where Has My Basis Gone? The Impact of Corporate and Personal Taxes on the Valuation of Employee Stock Options," with Michael C. Ehrhardt, November 2011 SFA meetings, Key West, Florida.

"A new January barometer: the Index of Consumer Sentiment," with Ronnie Chen, 2010 MFA meetings, Las Vegas, Nevada.

"Stock Price Efficiency and Uptick Rules", with Min Zhao at the Southern Finance Association (SFA) 2009 Annual Meeting, Captiva Island, FL

"Private Information-Driven Short Selling and Uptick Rules," With Min Zhao, Financial Management Association Meetings, Reno, Nevada, October, 2009.

"Information-Driven Short Selling and Uptick Rules," with Min Zhao, Midwest Financial Association Meetings, Chicago, IL, March 2009.

"Information-Driven Short Selling and Suspension of the Uptick Rules," with Min Zhao, Southern Financial Association Meetings, Key West, FL, November 2008.

"Spurious Predictive Power of Macroeconomic Variables For Momentum," with Seung-Chan Park, Financial Management Association Meetings, October 2006, Salt Lake City.

"Corporate Valuation and Asset Allocation for Defined Benefit Pension Funds," with M. Ehrhardt, Financial Management Association Meetings, October 2006, Salt Lake City.

"Alternative Trading Systems and Depth," with T. Shawn Strother and
James W Wansley, Financial Management Association meetings, October, 2005, Chicago.

"Alternative Trading Systems and Informed Trading," with T. Shawn Strother and James W Wansley, Southern Finance Association Meetings, November 2004, Naples, FL.

"Alternative Trading Systems and Informed Trading ," with T. Shawn Strother and James W Wansley, Financial Management Association Meetings, October 2004, New Orleans.

"The Impact of Electronic Communication Networks on the Components of the Bid-Ask Spread," with T. Shawn Strother and James W. Wansley. Financial Management Association Meetings, October 2004, New Orleans.

"Convertible Securities and the Cost of Capital: Much Ado about Nothing, or Something?" with Michael C. Ehrhardt. Financial Management Association Meetings, October 2004, New Orleans.

"Technical Variables: Stock Prices, Volatility, Volume and
A Conceptual Algorithm for Selling Pressure -Internet-Posted Recommendations," with Joon Song. Eastern Finance Association Meetings, April, 2004, Mystic, CT.

"Convertible Securities and the Cost of Capital:
Much Ado about Nothing (In Some Situations)," with Michael C. Ehrhardt. Eastern Finance Association Meetings, April, 2004, Mystic, CT.

A Conceptual Algorithm for Selling Pressure -Internet-Posted Recommendations," with Joon Song. Midwest Finance Association Meetings, 2004, Chicago.

"Organizational Architecture and Performance: An Empirical Analysis," with Michael C. Ehrhardt and John Gallagher. Southern Finance Association Meetings, December, 2003. Charleston, SC.

"What Determines Volume on the NYSE and Nasdaq," with James Wansley and Rongrong Zhang. Southern Finance Association Meetings, December, 2003. Charleston, SC.

"Cross-Sectional Determinants of Trading Volume: NASDAQ vs. NYSE/AMEX," with Rongrong Zhang and James Wansley. Eastern Finance Association Meetings, Baltimore, April, 2002.

"Corporate Valuation: The Combined Impact of Growth and the Tax Shield of Debt on the Cost of Capital and Systematic Risk," Eastern Finance Association Meetings, Charleston, April 2001.

"The Impact of Electronic Communication Networks on the components of the Inside Bid-Ask Spread during Different Market Environments," with Jim Wansley and Shawn Strother. Eastern Finance Association Meetings, Myrtle Beach, April 2001.

"Capital Budgeting, the Valuation of Projects with Non-Operating Costs," with Michael C. Ehrhardt. Financial Management Association Meetings, Seattle, October 2000.

"Measurement Differences in Volume and Liquidity Between the NYSE/AMEX and the Nasdaq," Financial Management Association European Meetings, Zurich, June 1997.

"Determinants of Reported Trading Volume Differences Between the NYSE/AMEX and the Nasdaq," Financial Management Association Meetings, New Orleans, October 1996.

"Increases in the Systematic Riskiness of Large Firms," with Mike Ehrhardt, Robert Kunkel, and Greg Kuhlemeyer, FMA Meetings, October 1993.

"Liquidity, Reconstitution, and The Value of U.S. Treasury Strips," with Mike Ehrhardt, FMA Meetings, October 1992.

"Ex-date Returns on Stock Dividends and Trading Activity," with Robert M. Conroy, SFA Meetings, November 1991.

"Ex-date Returns on Stock Dividends and Trading Activity," with Robert M. Conroy, FMA Annual Meeting, October 1990.

"Acquisitions, Spinoffs, and Optimal Corporate Structure," University of Tennessee Computing Center Supercomputing Symposium, November 1989.

"Acquisitions, Spinoffs, and Optimal Corporate Structure under Asymmetric Information," FMA annual meeting, October 1989.

"Information Release, Signalling, and Market Competition," with Alan L. Tucker, FMA annual meeting, October 1989.

"Capital Allocation and Corporate Structure under Asymmetric Information" at the FMA dissertation seminar, October 1987.

"Market Reaction to Periodic Stock Distributions," with Robert M. Conroy, FMA annual meeting, October 1987.

Grants:

Micro-Financing in Solar Technology, October, 2012
Department of Energy. This study would model investment decisions in solar energy as a function both of the economic benefits of solar energy and the social good that it generates. Specifically, it would address the tradeoff that investors are willing to make between financial return and social good. Co-Investigator, Requested: $1,728,597.24. Jim Ostrowski, Rapinder Sawhney, Phillip Daves, Kimberly Douglass, Jada Huskey. Proposal submitted in October, 2012 and not accepted by the DOE.
CBER Report to Tennessee Department of Finance and Administration on TennCare. February 2000. Total Grant Size $7,670 including overhead.
CBER Report to Tennessee Department of Human Services "To develop child care agency criteria for evaluating financial and staffing performance." December 2000. Total Grant Size $102,811.

University Service:

University-wide Honors Committee, 2013-Present
University-wide Undergraduate Research Council, 2013-Present
Director, College of Business Global Leadership Scholars Program, 2013-present
College of Business Undergraduate Curriculum Revision Task Force, 2013-present
University-wide SAIS revision task force, 2013-present
University-wide Human Resources Policies Advisory Committee, 2013-present
University-wide Undergraduate Research Advisory Committee 2013-present
Chair, Faculty Senate Faculty Affairs Committee 2011-2013
Faculty Senate Library Committee Member 2010-2011
University Research Council Technological Advisory Committee 2010 to present
Faculty Senate, 2010 to 2013
College of Business Diversity Steering Committee 2007 to present
Microeconomics Qualifying Exam Committee 2005 to 2010

College of Business Administration Honors Program, steering committee, 2007 to 2010
Life of the Mind Instructor, 2003, 2005, 2006, 2007, 2008
Department Telecommunications Committee, 1998 to present.
College of Business Dean's Faculty Advisory Council, 2002 to 2003
Director, Department of Finance Ph.D. Program, 2003 to 2009
College of Business Committee on Academic Integrity 2001 to present.
Undergraduate Appeals Committee 1999 to 2000
Chancellor's Advisory Committee on Planning and Budget, 1999 to 2000.
University Club Board of Directors, 2000 to August 2001.
Professional Development Award Evaluation Panel, 1999.
Faculty Advisor for the Tennessee Valley Authority Investment Challenge, 1998-1999.
Upward Bound Orientation, Summer, 1998.
Physician's Executive MBA Core, 1998 to present.
Physician's Executive MBA Curriculum Design Committee, 1997.
University Club Swim Team Board, 1996-1998.
2nd Year MBA Revision Committee, Spring, 1993.
M.B.A. Project/Presentation Evaluator, Fall, 1992.
M.B.A. Project/Presentation Evaluator, Fall, 1991.
Student Exchange Program with R.M.I.T., winter, 1992.
Student Job Interviews Trip to Atlanta, Fall, 1991.
Advising Center Advisor, Spring, 1991
Honors Banquet, Spring, 1991
Keynote Speaker for Tennessee Valley Employee Benefit Council, Spring, 1990.
College of Business Administration Computer Resources Advisory Committee.
Finance Department Ph.D. Committee. 1994 to present.
Finance Department Undergraduate Committee. 1993 to 2000.
Faculty Advisor to Student FMA 1988-1997.

Honors Thesis Advising:
Kristen Disbrow (GLS), 2014
Toby Koerton (Chancellor's Honors), 2013
Jonathan Chavez (GLS), 2013
Jillian Cherry (GLS), 2013
Jillian Olsson (GLS), Spring 2011
Nick Stewart (GLS), Spring 2011
Chandler Allen (GLS), Fall 2009
Dipti Chhajwani (University Honors), Spring, 2009
Henry Fennell (Director, University Honors), Spring 2007
Conner Corwin (Director, University Honors), Spring 2007

Dissertation Committees:
Ahiteme Houndonougbo 2013-2014 (Economics)
Jilleah Welsh 2014 (Economics)
Lee Biggerstaff 2013 (Finance)
Karen Craig 2012 (Finance)
Josh White 2012 (Finance)
Kirill Yakovlev 2012 (Mathematics)
Youping Li 2011 (Economics)
Maria Sarigiannidou 2010 (Economics)
Ali-Al Nadi 2010 (Economics)
Victoria Messman 2010 (Finance)
Yu Zhang 2008 – 2010 (Finance)
Si Shiying 2008 – 2009 (Mathematics)
Martin Tackie 2009 (Economics)
Steve Cotton 2008 (Economics)
David Moore 2007 (Finance)
Min Zhao 2007 (Finance – chairman)
Victoria Javine 2006 – 2009 (Finance)
Mark Pate 2006 – 2008 (Finance)
Trey Flautt 2006 – (Finance)
Jing Lin 2005 – 2007 (Accounting)
Giorgio Gotti 2006 – 2007 (Accounting)
Seung-Chan Park 2004 – 2005 (Finance – chairman)
Maksym Bychkov 2004 – 2005 (Management Science)
Kenneth Small (Finance) 2003 – 2004
T. Shawn Strother (Finance) 2001 – 2003
Craig A. Turner 1999 "Betting the Farm: The Effect of Prior Performance on the Framing of Strategic Risk Decisions."
David Stewart 1995-1997 (Finance – chairman) "An Asset Pricing Model that Corrects for Variance Expectation Bias."
Lisa Zhao 1995- (Finance – chairman)
Greg Kuhlemeyer 1994 – 1995 (Finance)
Robert Kunkel 1992 – 1994 (Finance)
Yatin Bhagwat 1991 – 1992 (Finance)
Efi Pilarinu 1991 – 1993 (Finance)
Roger Clark, 1990 – 1992 (Finance)
David Menachoff, 1991 – 1992 (Marketing, Transportation and Logistics)

Professional Service:
Program Committee, Investments Track Chair, Southern Finance Association Meetings to be held in Key West, FL, November 2011
Program Committee, Eastern Finance Association annual Meetings, Spring, 1989
FMA Annual Meetings, October, 1990: Discussant.

Program Committee, Southern Finance Association annual Meetings, November, 1990, Session Chair, Discussant.
Program Committee, Eastern Finance Association annual Meetings, Spring, 1992
Program Committee, Financial Management Association annual Meetings, October, 1992, Discussant.
Awards Committee, Financial Management Association annual meetings, October, 1992
Program Committee, Eastern Finance Association annual Meeting, Spring, 1993.
Reviewed Papers for: *Journal of Business and Economics*, *Financial Review*, *Applied Financial Economics*, *Journal of Business Finance*, *Journal of Financial Research*, *Review of Financial Economics*, *Journal of Futures Markets*.

Community Service:
Chair, Investments subcommittee of the Historic Tennessee Theater Foundation board
Vice President, Historic Tennessee Theater Foundation board
Volunteer for Child and Family Services.
Volunteer for Habitat for Humanity.
Church of the Ascension Land Trust Committee.
Knoxville Youth Soccer Association Coach.
Nominated for J.C. Penny Golden Rule Award for Community Service.
Church Council, St. John's Lutheran

Consulting Interests:
Risk management, small firm valuation, derivative securities risks and analysis, bank customer satisfaction, and investments analysis. Customers include First Tennessee National Bank, Tennessee Bankers Association, InterAg Consulting, John Harder and Co., Dr. Caroll Coffee, D.D.S., LifeCare Medical Associates, PA., IJ Corporation, Clayton Homes, Inc. Bush Brothers, Inc., CyberCE, Inc., Cush Industries, State of Tennessee Department of Finance and Administration, State of Tennessee Department of Human Services, State of Tennessee office of Finance and Administration, City of Nashville, United States Department of Energy, Sony Corporation, Nova Inc.

EXHIBIT NO. 2 (PRD)

Electric Utilities as Listed by Value Line
Source: Value Line www.valueline.com

Name
AMEREN CORP
AMERICAN ELECTRIC POWER CO
ALLETE INC
AVISTA CORP
BLACK HILLS CORP
CMS ENERGY CORP
CLECO CORP
CENTERPOINT ENERGY INC
DOMINION RESOURCES INC
DTE ENERGY CO
DUKE ENERGY CORP
EMPIRE DISTRICT ELECTRIC CO
EL PASO ELECTRIC CO
EDISON INTERNATIONAL
EVERSOURCE ENERGY
ENTERGY CORP
EXELON CORP
FIRSTENERGY CORP
GREAT PLAINS ENERGY INC
HAWAIIAN ELECTRIC INDS
IDACORP INC
ITC HOLDINGS CORP
ALLIANT ENERGY CORP
MGE ENERGY INC
NEXTERA ENERGY INC
OGE ENERGY CORP
OTTER TAIL CORP
PG&E CORP
PUBLIC SERVICE ENTRP GRP INC
PNM RESOURCES INC
PINNACLE WEST CAPITAL CORP
PEPCO HOLDINGS INC
PORTLAND GENERAL ELECTRIC CO
PPL CORP
SCANA CORP
SOUTHERN CO
SEMPRA ENERGY
TECO ENERGY INC
INTEGRYS ENERGY GROUP INC
UIL HOLDINGS CORP
UNITIL CORP
VECTREN CORP
WISCONSIN ENERGY CORP
WESTAR ENERGY INC
XCEL ENERGY INC

EXHIBIT NO. 3 (PRD)

Value Line Electric Utility Industry:
Subset that generates less than 50% of the electricity they sell
Source: Value Line www.valueline.com

Ticker	Name
AEE	AMEREN CORP
BKH	BLACK HILLS CORP
CNP	CENTERPOINT ENERGY INC
EIX	EDISON INTERNATIONAL
ITC	ITC HOLDINGS CORP
PCG	PG&E CORP
SRE	SEMPRA ENERGY
UIL	UIL HOLDINGS CORP

EXHIBIT NO. 4 (PRD)

Beta Estimates

Name	Beta Value Line	Calculated Beta 1-Year	Calculated Beta 3-Year	Yahoo Beta
American Electric Power	0.70	0.65	0.58	0.41
Ameren	0.75	0.70	0.63	0.46
Black Hills Corp	0.90	1.09	1.00	1.10
Centerpoint Energy	0.80	0.94	0.77	0.39
Edison International	0.75	0.55	0.54	0.35
ITC Holdings	0.65	0.54	0.57	0.20
PG&E corp	0.65	0.55	0.53	0.17
Sempra Energy	0.75	0.86	0.73	0.27
UIL Holdings	0.80	0.68	0.67	0.72

EXHIBIT NO. 5 (PRD)

Interest Rates 4/30/2015

Source: http://www.federalreserve.gov/econresdata/default.htm

	Current	1-year min	1-year mean	1-year max	2-year min	2-year mean	2-year max
30-year Treasury	2.75%	2.25%	3.00%	3.49%	2.25%	3.30%	3.96%

Other maturities	Current
20-year Treasury	2.49%
10-year Treasury	2.05%
1-year Treasury	0.24%
1-month Treasury	0.00%

Moody's Aaa Seasoned Corporate Index: 3.74%
Moody's Baa Seasoned Corporate Index: 4.65%

Median 10+ year non-callable BBB Corporates from bonds.yahoo.com: 4.61%
Median 20+ year non-callable BBB Corporates from bonds.yahoo.com: 4.68%

EXHIBIT NO. 6 (PRD)

Market Risk Premium Calculation Data

(3/31/2015 from www.spindices.com)
S&P 500 Level: 2,067.89
Projected current year dividend per share: $42.21
Dividend yield: 2.041%
30-year Treasury: Expected: 3.30%

S&P 500 Historical Growth Rates

	Growth Rate	Implied Expected Market Return	Implied Expected Market Risk Premium
20-year dividend growth rate:	6.25%	8.36%	5.06%
15-year dividend growth rate:	6.54%	8.64%	5.34%
10-year dividend growth rate:	7.04%	9.15%	5.85%
5-year dividend growth rate:	14.08%	16.27%	12.97%

Sample calculation using the 10-year dividend growth rate for g:
Expected return on the market = dividend yield(1+g/2) + g
= 2.041%(1 + 7.04%/2) + 7.04%
= 9.15%
Market risk premium = Expected return on market – risk-free rate
= 9.15% - 3.3%
= 5.85%

Notes: Dividend growth rates are historic compound growth rates, calculated from www.spindices.com.
The expected return on the market is calculated as (dividend yield)(1 + g/2) + g.
Analyst survey market risk premium from Fernandez: 5.4%
Average of Ibbotson Large-Cap, S&P implied from 10-year growth rate, and Analyst survey for Market Risk Premium: 5.75%

EXHIBIT NO. 7 (PRD)

8 Company and AEP Levered CAPM Required Returns

Name	Calculated Beta 1-Year	CAPM Levered required return
American Electric Power	0.65	7.02%
Ameren	0.70	7.34%
Black Hills Corp	1.09	9.55%
Centerpoint Energy	0.94	8.73%
Edison International	0.55	6.46%
ITC Holdings	0.54	6.39%
PG&E corp	0.55	6.46%
Sempra Energy	0.86	8.26%
UIL Holdings	0.68	7.19%

Note: The risk-free rate was assumed to be 3.3% and the market risk premium was assumed to be 5.75%.

EXHIBIT NO. 8 (PRD)

8-Company and AEP Dividend Information 4/30/2015

Name	Dividend Yield	Mean Analyst Growth Estimate	Value Line Dividend Growth Estimate	Value Line Earnings Growth Estimate
American Electric Power	3.73%	5.18%	5.00%	5.50%
Ameren	4.02%	6.85%	2.00%	5.00%
Black Hills Corp	3.17%	7.00%	3.50%	9.50%
Centerpoint Energy	4.56%	1.58%	2.50%	1.50%
Edison International	2.75%	0.70%	9.50%	2.50%
ITC Holdings	1.79%	11.58%	12.00%	12.00%
PG&E corp	3.47%	4.59%	2.50%	8.00%
Sempra Energy	2.66%	7.91%	6.00%	6.00%
UIL Holdings	3.49%	7.75%	0.00%	4.50%

Note: Dividend yield is as of 4/30/2015. Mean Analyst Growth Estimate is the mean analyst 5-year growth (EPS) estimate from www.finance.yahoo.com. Value Line Dividend Growth Estimate is Value Line's estimate of annual dividend growth over the next 5 years. Value Line Earnings Growth Estimate is Value Line's estimate of annual earnings growth over the next 5 years.

EXHIBIT NO. 9 (PRD)

8 Company and AEP Levered and Unlevered Cost of Equity 4/30/2015

Name	DCF Levered	DCF Unlevered	CAPM Levered	CAPM Unlevered
American Electric Power	9.01%	6.20%	7.02%	5.43%
Ameren	11.01%	7.53%	7.34%	5.73%
Black Hills Corp	10.29%	6.76%	9.55%	6.42%
Centerpoint Energy	6.17%	4.74%	8.73%	5.58%
Edison International	3.46%	3.73%	6.46%	5.63%
ITC Holdings	13.48%	7.10%	6.39%	5.05%
PG&E corp	8.14%	6.33%	6.46%	5.49%
Sempra Energy	10.67%	6.93%	8.26%	5.88%
UIL Holdings	11.38%	7.39%	7.19%	5.60%

Market risk premium	5.75%
Risk-free rate	3.30%
Cost of long-term debt	4.68%
Cost of short-term debt	0.45%

EXHIBIT NO. 10 (PRD)

Unlevered and Levered Costs of Equity for the 8 Companies, AEP, and Kingsport Power Company

Panel A: Summary Statistics for the Unlevered Costs of Equity for the 8 Comparison Companies and for AEP

		Excluding AEP			AEP
	Mean	33%	Median	67%	
DCF r_u	6.31%	6.28%	6.85%	7.11%	6.20%
CAPM r_u	5.67%	5.57%	5.61%	5.73%	5.43%
Average of DCF and CAPM	5.99%	5.93%	6.23%	6.42%	5.82%

Panel B: Kingsport's Levered Required Return on Equity Based on Each Summary Measure of Unlevered Required Return

		Excluding AEP			AEP
Kingsport r_L based on:	Mean	33%	Median	67%	
DCF r_u	10.84%	10.77%	11.97%	12.53%	10.60%
CAPM r_u	9.47%	9.26%	9.35%	9.60%	8.97%
Average of DCF and CAPM	**10.15%**	**10.02%**	**10.66%**	**11.06%**	**9.78%**

Re-Levering Assumptions:	
Kingsport w-equity	47.00%
Kingsport w-debt	53.00%
Kingsport weighted r_d	2.30%
Market risk premium	5.75%

Note: Kingsport's levered cost of equity is calculated using the re-levering formula based on the Compressed Adjusted Present Value method, and is calculated as $r_L = r_u + (r_u - r_d)w_d/w_s$.