I. INTRODUCTION

We are Thomas D Crowley and Daniel L Fapp We are economists and, respectively, the President and a Vice President of L E Peabody & Associates, Inc , an economic consulting firm that specializes in solving economic, transportation, marketing, and fuel supply problems Mr Crowley has spent most of his consulting career of over thirty-six (36) years evaluating fuel supply issues and railroad operations, including railroad costs, prices, financing, capacity and equipment planning issues His assignments in these matters were commissioned by railroads, producers, and shippers of different commodities A copy of his credentials is included as Exhibit No 1 to this verified statement ("VS")

Mr Fapp has been with L E Peabody & Associates, Inc since 1997 During this time, he has worked on numerous projects dealing with railroad operational and financial issues Prior to joining L E. Peabody & Associates, Inc , Mr Fapp was employed by BHP Copper Inc in the role of Transportation Manager - Finance and Administration, and where he also served as an officer and Treasurer of the three BHP Copper Inc. subsidiary railroads, The San Manual Arizona Railroad, the Magma Arizona Railroad and the BHP Nevada Railroad A copy of his credentials is included as Exhibit No 2 to this VS

Our consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations In these assignments, we have calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity We are also well acquainted with and have used the commonly accepted models for determining a firm's cost of equity, including the Discounted Cash Flow Model

("DCF"), Capital Asset Pricing Model ("CAPM"), Fama-French Three Factor Model and Arbitrage Pricing Model

We have developed railroad industry average cost of capital and company specific cost of capital for use in litigation and for use in general business management For several clients, we have both individually and together determined the Going Concern Value ("GCV") of privately held railroads Developing the GCV under the Income Based Methodology requires developing company specific costs of debt and equity for use in discounting future company cash flows We have also developed cost of capital in order to capture the costs associated with shipper investment in railroad equipment and road property Our findings regarding railroad cost of capital have been presented to U S District and State courts, the Interstate Commerce Commission, the Surface Transportation Board ("STB") and the Federal Railroad Administration

We have been asked by Counsel for the Western Coal Traffic League ("WCTL") to provide comments on the STB's proposed methodology to estimate the railroad industry's cost of equity ("COE") as presented in STB Ex Parte No 664 *Methodology To Be Employed In Determining The Railroad Industry Cost Of Capital*, served August 20, 2007 ("Ex Parte 664") Specifically, WCTL has requested we comment on the following issues (1) the proposed single-Beta Capital Asset Pricing Model ("CAPM"), (2) the proper term of U S Treasury instruments to use as a proxy for the risk-free rate of return. (3) the proposed use of New York Stock Exchange ("NYSE") data to develop equity risk premium estimates, (4) the appropriate time period in which to develop estimates of

railroad specific Beta, (5) the necessity of developing railroad Beta estimates on an annual basis, and (6) the necessity of including an intercept term in the Beta estimate regression model

We present our testimony below under the following topical headings

II Single-Beta CAPM

III Risk Free Rates Of Return

IV Equity Risk Premium

V Beta Estimation

II. SINGLE-BETA CAPM

The STB has proposed adopting a single-Beta version of the CAPM as its methodology for estimating the railroad industry COE.[1] The CAPM calculates a firm's COE by comparing the company's risk profile to that of the market as a whole, and taking into consideration the risk-free rate of return. Mathematically, the following equation expresses the STB's proposed single-Beta CAPM:

$$k = r_f + \beta(rp_m)$$

Where:

- k = COE,
- r_f = Rate of return available on a risk-free security,
- β = The measure of systematic risk of a stock, relative to the market as a whole, and
- rp_m = The general equity risk premium for the market

The STB proposes to estimate the COE individually for each railroad company included in its study group, and to develop an industry-wide COE based on the weighted-average of the individual railroad COE weighted on equity market capitalization.[2]

We agree that the STB should replace its current Discounted Cash Flow ("DCF") methodology used to estimate the railroad industry COE with a CAPM approach. As Mr. Crowley detailed in his

---

1 See Ex Parte 664 at 10.

2 Id.

Reply VS in STB Ex Parte No 558 (Sub-No 9), *Railroad Industry Cost of Capital - 2005*,[3] and the STB acknowledges in its Ex Parte 664 decision, the single-stage DCF model previously used by the STB is fatally flawed due to, among other reasons, its use of an assumed single perpetual growth rate.[4]

Some have argued that the DCF approach should not be completely discarded, but should be modified to use multiple growth rates instead of a single perpetual growth rate. These arguments are misguided. The STB has correctly stated that "multi-stage" DCF model approaches suffer from their own limitations, including lack of any theoretical justification for the assignment of multiple growth factors.[5] The STB's observation is clearly supported in the academic literature. For example, Dr. Stewart Myers, the Gordon Y. Billard Professor of Finance at the Massachusetts Institute of Technology, states that

---

[3] See Exhibit B of the Reply Comments of the Western Coal Traffic League in STB Ex Parte No. 558 (Sub-No. 9), *Railroad Industry Cost of Capital - 2005*, filed with the STB April 28, 2006.

[4] See Ex Parte 664 at 4. This is not to infer that the perpetual growth rate in the STB's DCF model is the current model's only flaw. As discussed in Mr. Crowley's VS in Ex Parte No. 558 (Sub-No. 9), the model suffers from other defects as well.

[5] See Ex Parte 664 at 6.

> It is very difficult to say which growth rate measure or variable-growth method is "correct." One is therefore left with unexplained differences which could have considerable economic significance
>
> ***
>
> It proves that the strong simplifying assumptions of the DCF method are *not* satisfied in real life. Second, DCF in practice is not one but many methods, depending on how growth is forecasted. Each approach to forecasting growth seems plausible and no doubt "works" for some companies. But in the end there is no general rule for choosing among them. The DCF method at best requires a significant admixture of judgement. At worst, it can be cherry-picked to "prove" an advocate's point.[6]

We agree that the single-Beta CAPM model proposed by the STB is an appropriate method for developing the railroad industry COE. It provides a reasonable estimate of a company's COE, and is solidly grounded in financial theory and practice.

---

[6] See "Discounted Cash Flow Estimates of the Cost of Equity Capital - A Case Study," Myers, Stewart C., and Borucki, Lynda S., *Financial Markets, Institutions & Instruments*, Volume 3, Number 3, 9-45, 11 to 12 (emphasis in original).

III. RISK-FREE RATES OF RETURN

The choice of the risk-free rate of return is a major factor in developing CAPM Analysts use the risk-free rate to develop Beta estimates, and to develop estimates of the equity risk premium In addition, the risk-free rate is a direct input into the CAPM itself

The STB has proposed using yield-to-maturity ("YTM") on 10-year Treasury Bonds ("T-Bonds") as its estimate of the risk-free rate [7] The STB stated that it chose the 10-Year T-Bond because it is the longest T-Bond continuously issued, because a large majority of analysts use T-Bonds with maturities of 10 years or longer in their analyses, and because the longer-term yield better matches the long-term nature of railroad investments [8]

We agree that the STB should use a long-term T-Bond as its estimate of the risk-free rate of return Some researchers believe that a short-term Treasury Bill ("T-Bill") is appropriate for use with the CAPM They argue that the CAPM is inherently a one-period model of the risk and return on an asset, and that current short-term YTM on T-Bills are reasonable predictors of future short-term returns [9] However, the consensus opinion amongst analysts and researchers is that in developing the COE using the CAPM, one should use the YTM on long-term T-Bonds [10] This is because the longer-term to maturity of T-Bonds closely matches the assumed long-term nature of most investments, longer-term YTM in T-Bonds fluctuate less than short-term rates and are therefore

---

7 See Ex Parte 664 at 10

8 Id

9 See "Damodaran On Valuation Security Analysis for Investment and Corporate Finance," Aswarth Damodaran, John Wiley & Sons, Inc, 1994 ("Damodaran"), at 26

10 See "Cost of Capital Estimation and Applications," Shannon P Pratt, John Wiley & Sons, 2002 ("Pratt"), at 60

less likely to introduce unwarranted short-term distortions. and T-Bonds include the impact of projected inflation rates [11]

The STB's decision to use a 10-year T-Bond YTM differs from consensus opinion on the use of the YTM on 20-year T-Bonds [12] However, analysis of 10 and 20-year T-Bond data indicates that the average spread on YTM for the 10 and 20-year T-Bonds for the last 50 years has only been 12 5 basis points, or 0 125% [13] This would infer that the use of a 10-year T-Bond will not produce a significant difference in the COE than would the use of a 20-year T-Bond

---

11/ Id and Damodaran at 26

12/ See Pratt at 60

13/ Derived based on data from CRSP US Stock and CRSP US Indices Databases and CRSP Monthly Treasury US Database Guide ©200707 Center for Research in Security Prices (CRSP®), Graduate School of Business, The University of Chicago ("CRSP Data")

IV. EQUITY RISK PREMIUM

By definition, the equity risk premium is the expected return of the stock market minus the expected return of a riskless bond [14] From an investor's perspective, the equity risk premium is paramount Since stocks are riskier than bonds, the equity risk premium must be large enough to induce risk-adverse investors to purchase equity The equity risk premium is also a key factor in the development and use of the CAPM Analysts use the change in the equity risk premium over time in their regression models to develop Beta estimates Additionally, analysts also use the historic average risk premium as a direct input into the CAPM to develop required rates of return on the asset being priced In the instant proceeding, the STB proposes to develop equity risk premiums for both of these purposes

As it stated in its Ex Parte 664 decision, the STB proposes to use monthly NYSE return data along with 10-year T-Bond data to develop its estimates of the monthly equity risk premium required in calculating railroad company specific Beta, and to develop the average equity risk premium for use in the CAPM [15] We agree with the STB's use of average YTM in the 10-year T-Bonds as a surrogate for the risk-free rate as we indicated above We also agree with the STB's selection of the NYSE as a surrogate for the equity market as a whole The NYSE is the largest equity market in the world in terms of dollar volume, with a combined capitalization of its listed companies equaling $25 trillion at the end of 2006 [16] Additionally, the equity of all four railroads included in the STB's cost

---

[14] See "The Equity Risk Premium Essays and Explorations," Goetzmann, William N , and Ibbotson, Roger G , Oxford University Press, 2006 ("Goetzmann and Ibbotson"), at 7 Also see Pratt at 60

[15] See Ex Parte 664 at 10

[16] See www nysedata com/nysedata/asp/factbook/printer_friendly asp?mode=table&key=2213

of capital determination trade on the NYSE It is common practice of Beta-estimation services to estimate the Beta of a company's equity relative to the index of the market in which the equity trades [17] Finally, many analysts use NYSE data as their surrogate for overall market returns, and NYSE index correlates almost perfectly with other broad market indexes such as the Standard & Poor's 500 [18]

The STB solicited two comments related to equity risk premiums in its Ex Parte 664 decision First, the STB seeks comments on the appropriate time period over which to estimate the historic equity risk premium [19] Second, the STB seeks comments on the appropriateness of using a fixed equity risk premium instead of calculating the equity risk premium annually [20] We address these two issues below

A. TIME PERIOD

We believe the STB's proposed use of a 50-year historic period to develop the equity risk premium is appropriate Shorter-term estimations face volatility problems, which may lead to illogical results [21] Many researchers believe that the inherent volatility of shorter-term averages creates too great a cost to overcome the advantages associated with getting more updated premium information [22]

17/ See Damodaran at 27

18/ See Pratt at 61 and 83, and "Best Practices in Estimating the Cost of Capital Survey and Synthesis," Bruner, Robert F, Eades, Kenneth M, Harris, Robert S, and Higgins, Robert C, *Financial Practice and Education*, Spring/Summer 1996, 13-38, at 20 ("Best Practices")

19/ See Ex Parte 664 at 10

20/ Id

21/ See Pratt at 63

22/ See "Estimating Equity Risk Premiums," Damodaran, Aswath, Stern School of Business, available in his website at http //pages stern nyu edu/~adamodar/ ("Damodaran Risk Premium")

In addition, the estimation of the equity risk premium seeks to determine the premium above a fairly valued market [23/] Developing shorter-term estimates could lead one to conclude the markets themselves are undervalued or overvalued at any particular time This is not the information sought in the development of the equity risk premium, but rather the information desired is the development of the equilibrium position

Analysts and researchers have not come to a consensus on the "correct" time period to estimate historic equity risk premiums, but do agree on the use of a long-run average The STB's proposed use of a 50-year historic analysis meets this goal While we would not object to a shorter time period than 50-years, the selected study period should not be less than 20 years As indicated above, analyzing shorter time periods may lead to illogical conclusions

B. FIXED VS. ROLLING AVERAGE CALCULATIONS

The STB also seeks input into whether it should utilize a fixed or static equity risk premium in its development of the CAPM, or instead should calculate the equity risk premium annually.[24/] While the STB does not explicitly state its proposed methodology in the Ex Parte 664 decision, we presume the STB intends to develop a rolling 50-year average equity risk premium

We believe the STB should utilize a moving average in its calculation of the equity risk premium We came to this position based upon the theoretical correctness of a changing equity risk premium and upon a doctrine of fairness to the parties involved

---

[23/] See Goetzmann and Ibbotson at 8
[24/] See Ex Parte 664 at 10

The equity risk premium should change because the amount of risk the market will accept over time will change Fundamentally, the equity risk premium is the price of risk, and will be set by supply and demand conditions This means that the amount of risk available on the stock market is not likely to be constant because of continual issuances and repurchases of stock, changes in leverage, and changes in underlying business conditions [25/]

The fact that the equity risk premium is not static means that establishing a fixed premium will lead to either an overstatement or understatement of the railroad industry COE Table 1 below shows the rolling arithmetic mean of the equity risk premium for the period 1997 through 2006 as measured by the difference between rolling 50 year average NYSE returns and rolling 10-year T-Bond YTM over the same 50 year period Table 1 clearly shows the variable nature of the equity risk premium as proposed by the STB

[25/] See Goetzmann and Ibbotson at 12

Table 1
50 Year Rolling Average Equity Risk Premiums

	Year (1)	50 year Rolling Arithmetic Average (2)
1	1997	7 33%
2	1998	7 61%
3	1999	7 36%
4	2000	6 81%
5	2001	6 17%
6	2002	5 47%
7	2003	5 99%
8	2004	5 35%
9	2005	5 02%
10	2006	5 14%

Source CRSP Data

As Table 1above shows, the rolling average equity risk premium has changed every year over the last 10-years as measured by an arithmetic mean.

General fairness dictates that the COE change with the equity risk premium Assume the STB fixed the equity risk premium at the 1998 averages of either 7 61%, based on the arithmetic mean A COE calculation for every year through 2006 would overstate the COE relative to the rolling average equity risk premium for that year. Conversely, setting the equity risk premium at the 2005 levels of 5 02% based on the arithmetic mean, would understate the COE for every other year in the period shown in Table 1 above Theory acknowledges that the equity risk premium will change over

time, and therefore, fairness calls for using a changing equity risk premium in developing the railroad industry COE

V. BETA ESTIMATION

Beta on common equity measures the systematic risk of stock relative to the risk of the market as a whole [26] Analysts and financial researches have developed various methods for estimating Beta, but most customarily develop estimates of equity Beta through the use of an ordinary least squares ("OLS") regression model [27] To develop Beta estimates using OLS, one must resolve four preliminary issues (1) the length of the total time period over which returns are measured, (2) the periodicity of the measurement within the time period selected, (3) the choice of market index to use as a market proxy, and (4) the risk-free rate [28]

We discussed above our agreement with the STB's proposed methodology resolving three of these four preliminary issues Namely, the STB's proposed use of monthly returns in the OLS regressions, its use of NYSE total return data as a proxy for the market as a whole, and its use of the 10-year T-Bond as a surrogate for the risk-free rate The remaining issue revolves around the time period over which to perform the OLS regressions The STB proposes to use a 120 month analysis period, but also seeks comments on the possible use of a 60 month analysis period or a 300 month analysis period [29]

The STB also seeks comment on two other related issues First, whether the calculation of individual railroad company Beta is even necessary given that some studies infer that equity Beta

---

[26] In using the term "Beta" here, we mean the measure of risk inherent in a railroad's common equity relative to the market Betas can also be estimated for other assets as well, and are not exclusive to common stock

[27] See Pratt at 80

[28] As noted earlier, the risk-free rate is used to determine the Betas and is used to calculate the CAPM

[29] See Ex Parte 664 at 11

will divert toward the market level Beta of one (1) over time, and therefore it may be reasonable to assume that each railroad's Beta equals the market Beta of one (1) Second, the STB seeks comments on whether it should perform its OLS regressions with or without an intercept term We discuss each of these issues below

A. APPROPRIATE TIME PERIOD

The STB proposes to use 10 years, or 120 months, of average monthly stock return data to develop railroad company specific Beta estimates, but also requested comment on the appropriateness of using either 5 years (60 months) or 25 years (300 months) of monthly observations in its estimation of railroad Beta We believe that the proposed 120 month time period is acceptable, but note it is longer than the period used by most commercial developers of Beta estimates We also believe that under no circumstance should the STB use a period of more than 10 years, and most definitely should not use a 25 year analysis period We discuss our rational for these positions below

1. 5 Year Analysis Period

Developing Beta estimates using historic equity return data inherently involves a trade-off in data availability and accuracy A longer estimation period provides more data for the regression which potentially provides a more statistically significant result On the other hand, the target firm may have had changes in its risk characteristics over a longer time period [30/] The inclusion of market

---

[30/] See Damodaran at 26, Best Practices at 20. and "Principles of Corporate Finance," Brealey, Richard A , and Meyers, Stewart C , Fourth Edition at 185 ("Brealey & Meyers")

return data from a time period in which risk was different may alter the Beta estimate, and the subsequent COE

Most commercial developers of equity Beta have found that a five year interval provides enough data to develop statistically acceptable regression estimates, while not misstating the subject company's risk Investment firms that calculate company Beta using five year intervals include Ibbotson Associates.[31] Value Line, Standard & Poor's and Merrill Lynch [32] The exception to this norm is Bloomberg Data Services which relies upon two years of data

2. **25 Year Analysis Period**

For the same reasons that most financial companies do not go beyond five year interval in developing their Beta estimates, the STB should under no circumstance use a 25 year analysis period to estimate railroad company Beta Simply stated, the railroad industry has changed too much in the last 25 years and a 25 year average would not reflect current risk and equity costs

It is a well acknowledged fact that the railroad industry of 25 years ago bears little resemblance to the railroad industry today from operating, financial, and risk perspectives [33] In the early 1980's, Congress had just recently passed the Staggers Rail Act of 1980 ("Staggers Act"), and railroads were still adjusting to competing in a mostly unregulated environment At the same time, the railroad industry was in difficult financial condition with many railroads facing the risk of bankruptcy, and

---

31/ Morningstar, Inc acquired Ibbotson Associates in March, 2006 Since all of the literature relied upon for this VS refers to data produced while still under Ibbotson Associates, we continue to use the Ibbotson name here

32/ See Pratt at 82 and Damodaran at 26

33/ See, for example, WCTL's and the railroad industries filings in STB Ex Parte No 658, *The 25th Anniversary of the Staggers Rail Act of 1980 A Review and Look Ahead*

others disappearing from existence altogether Competitive risk was much higher 25 years ago as there were 35 Class I railroads operating in the U S versus the four (4) major U S Class I railroads operating today and the operations of the 35 were more localized or regional in nature Rail operating practices were much less efficient than seen today, particularly in terms of the large number of employees, leading to high labor risks Generally accepted financial theory tells us that the railroad's stock prices 25 years ago took into consideration these high risk factors, and priced railroad stocks accordingly [34/]

The railroads of today simply do not face nearly the same level of risk that the railroads did back in the early 1980's Intramodal competition has nearly disappeared from the railroad industry Competition has declined so much that the STB has commissioned a report on railroad competition and shipper captivity The industry consolidation has meant that each of the four Class I railroads covers a very substantial service area with a diverse mix of traffic which serves to reduce risk The railroads' balance sheets have strengthened with the divestiture of redundant assets and the decline in railroad long-term debt This also has led to dramatically different capital structures within the industry Finally, railroads today employ substantially smaller workforces for the volume of traffic handled, which reduces exposure to labor risks These facts too are reflected in today's rail stock prices

---

[34/] See Brealey & Meyers at 290 The concept of Market Efficiency states that all relevant and ascertainable information about a company is reflected in its security prices Therefore, the risks the railroads faced 25 years ago were imputed by the market into their stock prices

The incorporation of stock price data from 25 years ago into a calculation of the price of rail equity today makes little sense, and would only serve to distort the current cost of railroad industry equity

B. NECESSITY OF CALCULATING BETA

The STB has requested comments on whether it is even necessary to estimate railroad specific Beta on an annual basis, or, in the alternative, simply assume that all railroad Beta equal (1) [35] The STB seeks comments on this issue based on the idea that Beta will move towards (1) over time, as has allegedly been shown to have happened in the banking and payment providing services industry [36]

We believe that the STB should not adopt such an assumption, but rather continue to develop or acquire railroad specific Beta on an annual basis. We base our belief on the fact that the assumption would violate financial theory, and on the basis that the empirical data shows that the risk of the railroad industry is currently well below the market as we discuss below

1. Assuming A Beta Of One Misstates Risk

Assuming railroad Betas equal the market return of one (1) ignores the fundamentals of capital market theory ("CMT") that underlie the CAPM CMT divides risk into two components (other than maturity risk) systematic risk and unsystematic risk [37] Systemic risk is the uncertainty of future

---

35/ See Ex Parte 664 at 11

36/ Id

37/ See "The Capital Asset Pricing Model," Perold, Andre F , *Journal of Economic Perspectives*. Vol 18, No 3, 3-24 ("Perold") at 11 Also see Pratt at 71 and Brealey & Meyer at 162, or any other principles of corporate finance text

returns owing to the sensitivity of the return on the subject investment to movements in the returns for the market as a whole Unsystematic risk is a function of the characteristics of the industry, the individual company and the type of investment interest A fundamental assumption of the CAPM is that the risk premium portion of a security's expected return is a function of the security's systemic risk This is because CMT assumes investors hold, or can hold, a well diversified portfolio, which will diversify away the unsystemic risk Therefore the only risk pertinent is systemic risk

The CAPM leads to the conclusion that the required excess return for a security over and above the risk-free rate, or its equity risk premium, is a linear function of its Beta, which reflects the investment's systematic risk This means that each investment should lie on a line connecting the risk-free rate and the return on the market as a whole This line is known as the Security Market Line ("SML") which we display in the graph included as Exhibit No 3 to this VS As shown in Exhibit No 3, the market as a whole has a Beta equal to one (1) and the risk-free rate, which lies at the left end of the SML in the graph, has a Beta equal to zero (0) Stock A, which has a Beta equal to 0 5 and intercepts the SML at Point a, has a required rate of return half way between the risk-free rate and the return on the market as a whole

The problem with the STB's assumption that it can simply assume that the railroads' Beta equal one (1) can be seen if we assume that Stock A is a railroad stock Stock A's systemic risk, represented by its Beta of 0 5, indicates that it only requires half of the excess return above the risk-free rate as that as of the market as a whole If one were to arbitrarily assume that Stock A's Beta is equal to one (1), it would impose a cost (the return between Points a and b in the graph) well above the required return dictated by Stock A's systemic risk This cost would come in the form of

a higher railroad industry COE, and, subsequently, a higher cost of capital To impute a cost that is not dictated by a stock's systematic risk is contradictory to the fundamentals of CMT

2. Evidence Shows That Railroad Risk Is Falling

Besides the theoretical issue that assuming railroad's stock Beta equal one (1), empirical evidence shows that the railroads are becoming less risky over time, rather than more risky To implicitly assume that railroad equity is becoming more risky is to impute unwarranted costs on to shippers As we discussed above, the railroads are clearly less risky now than they were 25 years ago Analysis of the STB's railroad equity Beta estimates and Ibbotson Beta estimates confirms this reduction

To demonstrate the reduction in railroad risk not related to changes in railroad leverage, we adjusted the railroad's Beta estimates to remove the risk attributable to financial leverage We developed each railroad's unlevered Beta by dividing the STB's Beta estimate by one plus the specific railroad's average debt to equity ratio over the 10 year period used to estimate the railroad's Beta [38] Table 2 below shows the STB's estimations of the U S Class I railroads common equity Beta over the last six (6) years [39]

---

[38] See Pratt at 84, "A reasonable approach [to unlever Beta] might be to determine the average leverage for the company during the beta measurement period rather than the leverage at the end of the measurement period

[39] In its workpapers in this proceeding, the STB estimated individual railroad Beta for the years 1997 through 2005 using rolling 10 year intervals of return and T-Bond data to develop its estimates Developing unlevered estimates of the STB's individual Beta required us to therefore develop average debt to equity ratios across each 10 year interval for each railroad We did not develop unlevered Betas for 1997, 1998 or 1999, however, due to a lack of railroad specific debt and equity information contained in the Interstate Commerce Commission's ("ICC") Railroad Industry Cost of Capital prior to the 1991 Railroad Industry Cost of Capital decision The ICC did not include railroad specific market values for Conditional Sales Agreements, Equipment Trust Certificates, Capitalized Leases or Miscellaneous Debt in its 1992 or 1993 decisions, but did indicate aggregate industry values for these debt instruments and railroad specific market values for notes and debentures For these two years, we allocated non-debenture/note debt based on 1994 distributions We do not believe this impacts the analysis since well over 80% of debt is accounted for by notes and debentures

Table 2
Estimates of Railroad Company 10 Year Unlevered Beta

	Year (1)	BNSF (2)	CSX (3)	NS (4)	UP (5)
1	2000	0 73	0 64	0 56	0 55
2	2001	0 61	0 52	0 60	0 48
3	2002	0 54	0 48	0 49	0 40
4	2003	0 56	0 51	0 49	0 42
5	2004	0 55	0 47	0 46	0 40
6	2005	0 57	0 47	0 49	0 42

Source STB Ex Parte 664 electronic file "COC CAPM workpaper xls"

As Table 2 above shows, each of the railroad's unlevered Betas has fallen over the 2000 to 2006 six year period based upon STB estimates of railroad Beta and STB/ICC railroad capital structures

C. REGRESSING WITH OR WITHOUT AN INTERCEPT

The STB also seeks comments on whether it should perform OLS regression estimates of Beta with or without an intercept term In developing OLS regression estimates of equity Beta with intercept terms, the intercept term is known as Alpha or "α "[40] Alpha represents an abnormal return that is not explained by the CAPM, and is most commonly used by portfolio managers to show whether they "beat" the market on a risk adjusted basis

[40] See Brealey & Meyers at 186

We believe that the proper application of the CAPM requires the use of an intercept term in the OLS regression The accepted methodology is to include an intercept term in the Beta regression model [41] The inclusion of the intercept in the model provides for the best statistical fit of the data To not include the intercept term runs the risk of misstating the required return For example if you have years where the firm did well and the market as whole did not, an OLS regression will tend to show a positive (but likely insignificant) intercept [42] In such a year, forcing the intercept to zero (0) would bias the Beta (slope) estimate upward under such circumstances Conversely, in years where the firm was financially down while the market as a whole was up, an OLS regression estimate of Beta run without an intercept would bias the Beta downwards

---

41/ See Best Practices at 19 and Brealey & Myers at 186

42/ A statistical T-test can tell whether the Alpha is caused by random errors or is statistically significant Statistically, it tests the null hypothesis that the Alpha is equal to zero versus the alternative hypothesis that it is not equal to zero

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, THOMAS D CROWLEY, verify under penalty of perjury that I have read the foregoing Verified Statement of Thomas D Crowley, that I know the contents thereof, and that the same are true and correct Further, I certify that I am qualified and authorized to file this statement

Thomas D Crowley

Sworn to and subscribed
before me this day of September 25, 2007

Anthony V Evanshaw III
Notary Public for the State of Virginia

My Commission expires. September 30, 2007

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, DANIEL L. FAPP, verify under penalty of perjury that I have read the foregoing Verified Statement of Daniel L Fapp, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Daniel L. Fapp

Sworn to and subscribed
before me this day of September 25, 2007.

Anthony V. Evanshaw III
Notary Public for the State of Virginia

My Commission expires: September 30, 2007

STATEMENT OF QUALIFICATIONS

My name is Thomas D Crowley I am an economist and President of the economic consulting firm of L E Peabody & Associates, Inc The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, Virginia 22314, 5901 N Cicero Avenue, Suite 504, Chicago, Illinois 60646 and 10445 N Oracle Road, Suite 151, Tucson, Arizona 85737

I am a graduate of the University of Maine from which I obtained a Bachelor of Science degree in Economics I have also taken graduate courses in transportation at George Washington University in Washington, D C I spent three years in the United States Army and since February 1971 have been employed by L E Peabody & Associates, Inc

I am a member of the American Economic Association, the Transportation Research Forum, and the American Railway Engineering and Maintenance-of-Way Association

The firm of L E Peabody & Associates, Inc specializes in analyzing matters related to the rail transportation of coal As a result of my extensive economic consulting practice since 1971 and my participating in maximum-rate, rail merger, service disputes and rule-making proceedings before various government and private governing bodies, I have become thoroughly familiar with the rail carriers that move coal over the major coal routes in the United States This familiarity extends to subjects of railroad service, costs and profitability, railroad capacity, railroad traffic prioritization and the structure and operation of the various contracts and tariffs that historically have governed the movement of coal by rail.

STATEMENT OF QUALIFICATIONS

As an economic consultant, I have organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, for shippers, for associations and for state governments and other public bodies dealing with transportation and related economic problems Examples of studies I have participated in include organizing and directing traffic, operational and cost analyses in connection with multiple car movements, unit train operations for coal and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from both eastern and western origins to various destinations in the United States The nature of these studies enabled me to become familiar with the operating practices and accounting procedures utilized by railroads in the normal course of business

Additionally, I have inspected and studied both railroad terminal and line-haul facilities used in handling various commodities, and in particular unit train coal movements from coal mine origins in the Powder River Basin and in Colorado to various utility destinations in the eastern, mid-western and western portions of the United States and from the Eastern coal fields to various destinations in the Mid-Atlantic, northeastern, southeastern and mid-western portions of the United States These operational reviews and studies were used as a basis for the determination of the traffic and operating characteristics for specific movements of coal and numerous other commodities handled by rail

STATEMENT OF QUALIFICATIONS

I have frequently been called upon to develop and coordinate economic and operational studies relative to the acquisition of coal and the rail transportation of coal on behalf of electric utility companies My responsibilities in these undertakings included the analyses of rail routes, rail operations and an assessment of the relative efficiency and costs of railroad operations over those routes I have also analyzed and made recommendations regarding the acquisition of railcars according to the specific needs of various coal shippers The results of these analyses have been employed in order to assist shippers in the development and negotiation of rail transportation contracts which optimize operational efficiency and cost effectiveness

Moreover, I have developed numerous variable cost calculations utilizing the various formulas employed by the Interstate Commerce Commission ("ICC") and the Surface Transportation Board ("STB") for the development of variable costs for common carriers, with particular emphasis on the basis and use of the Uniform Railroad Costing System ("URCS") and its predecessor, Rail Form A I have utilized URCS/Rail form A costing principles since the beginning of my career with L E Peabody & Associates Inc in 1971

I have frequently presented both oral and written testimony before the ICC, STB, Federal Energy Regulatory Commission, Railroad Accounting Principles Board, Postal Rate Commission and numerous state regulatory commissions, federal courts and state courts This testimony was generally related to the development of variable cost of service calculations, rail traffic and operating patterns, fuel supply economics, contract interpretations, economic principles

STATEMENT OF QUALIFICATIONS

concerning the maximum level of rates, implementation of maximum rate principles, and calculation of reparations or damages, including interest I presented testimony before the Congress of the United States, Committee on Transportation and Infrastructure on the status of rail competition in the western United States I have also presented expert testimony in a number of court and arbitration proceedings concerning the level of rates, rate adjustment procedures, service, capacity, costing, rail operating procedures and other economic components of specific contracts

Since the implementation of the *Staggers Rail Act of 1980*, which clarified that rail carriers could enter into transportation contracts with shippers, I have been actively involved in negotiating transportation contracts on behalf of coal shippers Specifically, I have advised utilities concerning coal transportation rates based on market conditions and carrier competition, movement specific service commitments, specific cost-based rate adjustment provisions, contract reopeners that recognize changes in productivity and cost-based ancillary charges. I have also reviewed, analyzed and evaluated both UP's Circular 111 and BNSF 90068 rate levels and other terms and conditions on behalf of coal shippers

I have been actively engaged in negotiating coal supply contracts for various users throughout the United States In addition, I have analyzed the economic impact of buying out, brokering, and modifying existing coal supply agreements My coal supply assignments have encompassed

STATEMENT OF QUALIFICATIONS

analyzing alternative coals to determine the impact on the delivered price of operating and maintenance costs, unloading costs, shrinkage factor and by-product savings

I have developed different economic analyses regarding rail transportation matters for over sixty (60) electric utility companies located in all parts of the United States, and for major associations, including American Paper Institute, American Petroleum Institute, Chemical Manufacturers Association, Coal Exporters Association, Edison Electric Institute, Mail Order Association of America, National Coal Association, National Industrial Transportation League, North America Freight Car Association, the Fertilizer Institute and Western Coal Traffic League In addition, I have assisted numerous government agencies, major industries and major railroad companies in solving various transportation-related problems

In the two Western rail mergers that resulted in the creation of the present BNSF Railway Company and Union Pacific Railroad Company and in the acquisition of Conrail by Norfolk Southern Railway Company and CSX Transportation, Inc , I reviewed the railroads' applications including their supporting traffic, cost and operating data and provided detailed evidence supporting requests for conditions designed to maintain the competitive rail environment that existed before the proposed mergers and acquisition In these proceedings, I represented shipper interests, including plastic, chemical, coal, paper and steel shippers

STATEMENT OF QUALIFICATIONS

I have participated in various proceedings involved with the division of through rail rates For example, I participated in ICC Docket No 35585, *Akron, Canton & Youngstown Railroad Company, et al v Aberdeen and Rockfish Railroad Company, et al* which was a complaint filed by the northern and mid-western rail lines to change the primary north-south divisions I was personally involved in all traffic, operating and cost aspects of this proceeding on behalf of the northern and mid-western rail lines I was the lead witness on behalf of the Long Island Rail Road in ICC Docket No 36874, *Notice of Intent to File Division Complaint by the Long Island Rail Road Company*

STATEMENT OF QUALIFICATIONS

My name is Daniel L Fapp I am Vice President of the economic consulting firm of L E Peabody & Associates, Inc The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA 22314, 5901 N Cicero Avenue, Suite 504, Chicago, IL 60646 and 10445 N Oracle Road, Suite 151, Tucson, AZ 85737

I received a Bachelor of Science degree in Business Administration with an option in Marketing (cum laude) from the California State University, Northridge in 1987, and a Master of Business Administration degree from the University of Arizona's Eller School of Management in 1993, specializing in finance and operations management. I am also a member of Beta Gamma Sigma, the national honor society for collegiate schools of business

I have been employed by L E Peabody & Associates, Inc since December 1997 Prior to joining L E Peabody & Associates, Inc , I was employed by BHP Copper Inc in the role of Transportation Manager - Finance and Administration, and where I also served as an officer of the three BHP Copper Inc subsidiary railroads, The San Manual Arizona Railroad, the Magma Arizona Railroad (also known as the BHP Arizona Railroad) and the BHP Nevada Railroad I have also held operations management positions with Arizona Lithographers in Tucson, AZ and MCA-Universal Studios in Universal City, CA

While at BHP Copper Inc , I was responsible for all financial and administrative functions of the company's transportation group I also directed the BHP Copper Inc subsidiary railroads' cost and revenue accounting staff, and managed the San Manuel Arizona Railroad's and BHP Arizona

STATEMENT OF QUALIFICATIONS

Railroad's dispatchers and the railroad dispatching functions I served on the company's Commercial and Transportation Management Team and the company's Railroad Acquisition Team where I was responsible for evaluating the acquisition of new railroads, including developing financial and economic assessment models While with MCA-Universal Studios, I held several operations management positions, including Tour Operations Manager, where my duties included vehicle routing and scheduling, personnel scheduling, forecasting facilities utilization, and designing and performing queuing analyses

As part of my work for L E Peabody & Associates, Inc , I have performed and directed numerous projects and analyses undertaken on behalf of utility companies, short line railroads, bulk shippers, and industry and trade associations Examples of studies which I have participated in organizing and directing include, traffic, operational and cost analyses in connection with the rail movement of coal, metallic ores, pulp and paper products, and other commodities I have also analyzed multiple car movements, unit train operations, divisions of through rail rates and switching operations throughout the United States The nature of these studies enabled me to become familiar with the operating procedures utilized by railroads in the normal course of business

Since 1997, I have participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads I have conducted on-site studies of switching, detention and line-haul activities relating to the handling of coal I have also participated in and managed several projects assisting short-line railroads In these engagements,

STATEMENT OF QUALIFICATIONS

I assisted short-line railroads in their negotiations with connecting Class I carriers, performed railroad property and business evaluations, and worked on rail line abandonment projects

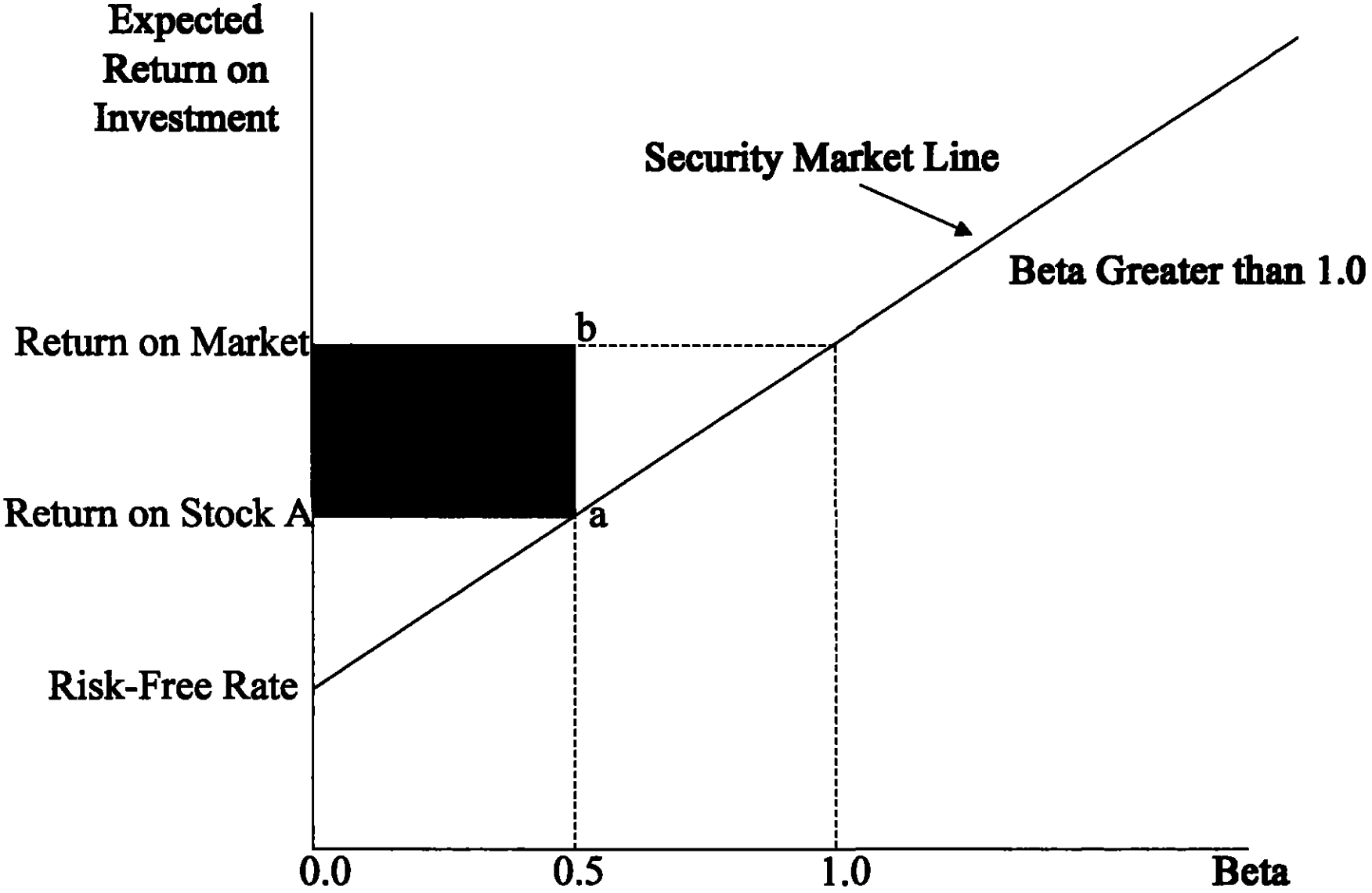
I have been frequently called upon to perform financial analyses and assessments of Class I, Class II and Class III railroad companies In addition, I have developed various financial models exploring alternative methods of transportation contracting and cost assessment, developed corporate profitability and cost studies, and evaluated capital expenditure requirements I have determined the Going Concern Value of privately held freight and passenger railroads, including developing company specific costs of debt and equity for use in discounting future company cash flows My consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations In these assignments, I have calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity I am also well acquainted with and have used the commonly accepted models for determining a firm's cost of equity, including the Discounted Cash Flow Model ("DCF"), Capital Asset Pricing Model ("CAPM"), Farma-French Three Factor Model and Arbitrage Pricing Model

In my tenure with L E. Peabody & Associates, Inc , I have assisted in the development and presentation of traffic and revenue forecasts, operating expense forecasts, and discounted cash-flow models which were presented in numerous proceedings before the STB I presented evidence applying the STB's stand-alone cost procedures in Docket Number 42057, *Public Service Company*

STATEMENT OF QUALIFICATIONS

of Colorado d/b/a Xcel Energy v The Burlington Northern and Santa Fe Railway Company, and in Docket Number 42071, *Otter Tail Power Company v BNSF Railway Company* I have also presented evidence before the STB in Ex Parte No 661, *Rail Fuel Surcharges*, and in Ex Parte No 558 (Sub-No 10), *Railroad Cost of Capital - 2006* In addition, my reports have been used as evidence before the Nevada State Tax Commission

Security Market Line



(Graph not to scale)