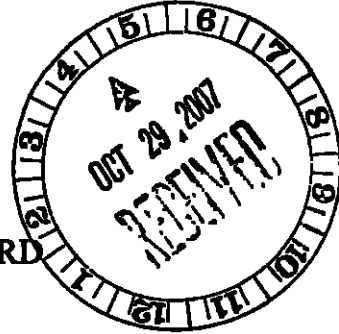


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BEFORE THE
SURFACE TRANSPORTATION BOARD



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In the Matter of.

METHODOLOGY TO BE EMPLOYED
IN DETERMINING THE RAILROAD
INDUSTRY'S COST OF CAPITAL

STB Ex Parte No. 664

REPLY COMMENTS OF THE WESTERN COAL TRAFFIC LEAGUE

WESTERN COAL TRAFFIC LEAGUE

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REPLY COMMENTS OF THE WESTERN COAL TRAFFIC LEAGUE

The Western Coal Traffic League ("WCTL" or "League") hereby submits its reply comments regarding the Notice of Proposed Rulemaking ("NPR" or "Notice") that the Surface Transportation Board ("STB" or "Board") originally served in the above-captioned proceeding on August 14, 2007, and corrected on August 20, 2007

WCTL's reply comments primarily address the opening comments filed by the Association of American Railroads ("AAR") as well as statements filed by individual member railroads. WCTL's comments also reply to the comments filed by Dr. Partha S. Mohanram. The comments of the AAR, the individual member railroads, and Dr. Mohanram are, for the sake of convenience, collectively referred to as "Railroads."

WCTL's reply comments also include a Reply Verified Statement from Thomas D. Crowley and Daniel L. Fapp of L.E. Peabody & Associates, Inc. ("Crowley/Fapp RVS," attached as Exhibit A) and a Reply Verified Statement from Dr. James E. Hodder ("Hodder RVS," attached as Exhibit B).

I. INTRODUCTION AND SUMMARY

Nothing filed by the Railroads warrants any major modification, or delay in the adoption, of the STB's proposal in its NPR to calculate the cost of equity ("COE")

portion of the cost of capital ("COC") using the Capital Asset Pricing Model ("CAPM") instead of the Discounted Cash Flow ("DCF") model. Most certainly, nothing filed by the Railroads provides any justification for continued use of the STB's prior single-stage DCF model.

Significantly, the Railroads make no real effort to defend the prior model. Instead, the Railroads espouse a range of positions in their comments that essentially devolve to requests that the STB: (1) modify the DCF model in various ways so that it yields COE values that are lower than those under the single-stage DCF model, but still quite high; (2) modify the CAPM approach, primarily by using higher railroad beta values in conjunction with an increased market risk premium, to produce COE values higher than those proposed in the NPR; (3) choose from no lower than the midpoint of the range of resulting DCF and CAPM values; and (4) move to the high end of that range of values to avoid setting the COE so low as to impair the railroad industry's ability to meet growing demand or risk repeating the industry's difficulties of thirty years ago. The intended, and not surprising, effect of all of these changes is to produce a higher COE and COC.

However, there is no basis for any major change in the STB's proposal. Some of the AAR's technical criticisms of the NPR's CAPM methodology have some merit, but their impact is minor. Their more drastic proposals that would result in sharp increases in the COE lack merit in multiple respects.

That said, WCTL does find some common ground with the Railroads, especially the AAR.

First, WCTL agrees and has previously stated that the STB should not abandon its “common sense” in establishing the COE. As WCTL has previously noted, any model can yield anomalous results under some potential conditions. However, the fact is that the STB’s proposal and its results are entirely reasonable. In contrast, what the Railroads seek are in large part outcome-oriented modifications that have no reasonable foundation.

Second, as WCTL has previously stated, some form of a multi-stage DCF model would be useful as a check on the CAPM calculations.¹ As shown in the Crowley/Fapp RVS, a reasonable multi-stage DCF model yields COE values quite in line with the NPR’s CAPM calculations. The Railroads generate higher DCF results only by using unreasonable assumptions, especially as to the terminal growth rate. Under the circumstances, DCF analysis does not provide a sufficient basis for modifying the NPR’s proposed COE approach, although it should continue to be considered, especially if railroad beta values rise significantly.

Third, some of the AAR’s CAPM criticisms have some merit or at least plausibility, but their impact is minor and actually reduces the COE in some years.² Other

¹Dr. Hodder’s RVS at 3 and 9-11 explains why the Ohlson-Juettner and Residual Income Valuation models offered by Dr. Mohanram are far less useful for this purpose than the multi-stage DCF model.

²The plausible proposals are to: (a) use the 20-year Treasury bond to determine the risk-free rate, (b) use the S&P 500 for the market proxy (especially as S&P 500 data is readily available), (c) calculate beta using the Treasury bill rate of return, (d) recognize the beta intercept value is not necessarily zero, and (e) replace the static 5.2% equity risk premium with a rolling one.

AAR proposals, especially to use a beta measurement period of less than five years and to inflate the equity risk premium, lack a reasonable basis.

Fourth, WCTL agrees that assuming the railroad beta is 1.0 is not reasonable, although WCTL disagrees with AAR as to whether the betas should generally be greater or lesser than 1.0.

Fifth, WCTL recognizes that different CAPM inputs will produce different results and that selecting the inputs entails judgment and discretion. For example, use of Ibbotson five-year betas and the Ibbotson 80-year risk premium (which is quite high) yield results very close to those originally presented by WCTL witness Crowley for calculating the 2005 COE. That said, the NPR's ten-year beta has the virtue of being transparent, and the length of the measurement period provides stability, meaning it will be lower than a shorter beta in some years, but higher in others, and the resulting beta is reasonable when compared to other figures. See Crowley/Fapp Exhibit No 6. The trade-off is a reasonable one.³

The imprecision associated with CAPM, especially the measurement of beta and the equity risk premium, is hardly a reason to jettison CAPM, especially given CAPM's theoretical soundness, its prevalence in the financial and regulatory communities, and the greater imprecision and arbitrariness associated with other methods

³WCTL agrees that use of publicly-available data is desirable and that limitations on the availability of the CRSP data utilized by the STB complicated the review of the STB's workpapers. However, the AAR's strident criticism of the STB in this regard comes with some irony as the railroads in rate cases over the years relied on proprietary, and very expensive, dispatching programs and criticized shippers for relying on a program that was fully disclosed to the railroads and to the STB.

Nor is it any reason to seek to use higher inputs, to use an average of inputs or results, to combine inputs from different sources in inconsistent ways, or especially to choose from the higher end of values or to provide for a COE “add.”⁴ Instead, the STB should utilize the inputs that it believes are most appropriate and provide a reasonable explanation for its choice

The Railroads’ frustration at being confined to a reasonable COE is predictable, but the Railroads have no entitlement to an unreasonable COE. They have certainly not provided any empirical evidence to suggest that the STB’s COE figures are unrealistic. In particular, taking (a) a reasonable 4.5% figure for the risk-free rate, and (b) the 4% prospective equity risk premium regularly used by Morgan Stanley and presented by Kansas City Southern, yields an overall COE for the market of 8.5%, which equals the COE figure derived by the STB for 2005. The Railroads might, for regulatory purposes, prefer a higher figure, and investors would always prefer a higher figure as well. However, the 8.5% COE figure is well within the zone of reasonableness.

In short, nothing presented by the Railroads warrants any significant modification or further delay in adoption of the STB’s proposal in its NPR to calculate the COE using CAPM. WCTL adds, however, that the STB should also adjust the capital structure of the Railroads to correct for the excessive equity-debt ratio and to treat operating leases as debt.

⁴Use of a COE “add” is particularly unwarranted. The railroad industry is in very enviable condition, has not issued equity in many years, has ample ability to issue debt on very favorable terms, and should view the projected traffic growth as a desirable opportunity. Deliberately inflating the COE forces shippers to subsidize the railroad industry and otherwise distorts the market allocation of resources.

II. THE STB'S USE OF CAPM TO DETERMINE THE RAILROAD INDUSTRY COE IS REASONABLE AND APPROPRIATE

A. CAPM IS BROADLY ACCEPTED AND THEORETICALLY SOUND

As the NPR notes, it is especially appropriate for the STB to utilize CAPM to calculate the COE because of its broad acceptance in the financial community. CAPM is the dominant approach to calculating COE.

Moreover, CAPM is especially appropriate in terms of the underlying theory. As even the AAR notes, a proper COE should "estimate the forward-looking returns on equity that investors currently demand for investments of comparable risk." AAR at 7, citing *FPC v. Hope Natural Gas Co*, 320 U.S. 591, 603 (1944) ("the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks"). CAPM achieves this objective by combining (a) a risk-free rate of return, which represents what investors are demanding for a risk-free investment that reflects expected inflation, and (b) a market equity risk premium, adjusted to reflect the nondiversifiable risk (beta) of the particular stock or, in this case, group of stocks

Because CAPM is so well-accepted and directly reflects the appropriate considerations, *i.e.*, inflation and risk, for determining the COE, it is an especially sound choice for the STB's purposes. Accordingly, the opponents should face a higher burden in showing how and why some other approach would be superior. The Railroads have not begun to meet that burden. Indeed, many of their criticisms serve only to highlight the soundness of relying on the CAPM approach.

B. THE RAILROADS' CRITICISMS OF CAPM ARE OVERSTATED AND UNFOUNDED

The Railroads noted that some academicians and others have criticized CAPM or its particular inputs or suggested various modifications or alternatives. But none of what the Railroads say shows that CAPM is inappropriate for the task of determining the COE for the railroad industry. The Railroads have certainly not identified a superior alternative.

In particular, the Railroads' witnesses, relying primarily on prior publications of Drs. Eugene F. Fama and Kenneth R. French ("Fama-French"), claim that CAPM does not yield sound empirical results *See, e.g.,* Myers VS at 5-6. But the Railroads' arguments are an exercise in misdirection in several respects.

First, the fact that Fama-French have been able to show that CAPM does not fully explain results for all equity investments and that more accurate results can be obtained by introducing additional factors (for size and ratio of market to book value of assets) does not demonstrate that CAPM is basically defective. To the contrary, it shows that CAPM can, and has been, empirically tested, and there may be classes of investments (especially growth stocks and small stocks) for which supplemental analysis can yield more accurate results.

Second, the Fama-French criticisms are, at their core, a vindication of the basic CAPM approach. Specifically, Fama-French do not advocate the abandonment of the basic CAPM approach. Indeed, the first factor in their three-factor formula is the market return, which they then build upon by introducing two additional factors, market

capitalization and market-to-book valuation. Hodder RVS at 11. Their approach is thus a refinement of CAPM to achieve a better fit with some of the data.

In this regard, it is significant that the Railroads make no demonstration that the Fama-French three-factor approach would yield results for the railroad industry that would be more accurate or significantly different. Instead, the bulk of their comments are directed to refining the CAPM inputs, primarily for the purpose of achieving the sorts of outcomes that the Railroads prefer, a matter addressed *infra*. What is significant for present purposes is that the Railroads do not propose that a Fama-French three-factor approach would represent a significant improvement or change in the overall analysis.

Third, relatively recent Fama-French analysis indicates that the shortcomings of CAPM may relate to a very small category of outlier stocks. Their analysis is described in an article by Mark Hulbert, founder of the Hulbert Financial Digest, in the New York Times, *Strategies: How to See the Big Picture in Little Slices of the Market* (April 1, 2007), copy attached as Exhibit C. The article explains that:

Thanks in large part to a 1992 study by two finance professors, Eugene F. Fama of the University of Chicago and Kenneth R. French, now of Dartmouth, it is now widely known on Wall Street that certain groupings of stocks, reflecting specific investment styles, tend to outperform others. Small-cap value stocks, for example, have outperformed the broad stock market, on average, over the long term, while large-cap growth stocks have lagged behind.

Now the two professors have revisited the subject, examining the reasons for these trends. It turns out that the bulk of these sector differences results from the behavior of just a handful of stocks. If not for these outliers, in fact, the long-term returns of the various sectors would not have been appreciably different from those of the overall market.

The working paper referenced in the New York Times article is available at <http://ssrn.com/abstract=926556>. The same or similar paper was also published at *Financial Analysts Journal*, Vol. 63, No. 3, pp. 48-58 (2007).

The recent Fama-French analysis indicates that the real significance of the additional factors in their analysis relates to the very small number of stocks that migrate from one category to another, *e g* , the rare small stock that turns into a large growth stock.⁵ The Railroads make no suggestion that the railroad stocks fall into this category at this time, and the recent Fama-French analysis thus reinforces the validity and utility of using the basic CAPM approach to measure the railroad industry COE at this time

In short, the Railroads have not shown that the NPR's proposal to rely on the CAPM approach to determine the COE is unreasonable or unsound. Nor have they identified a superior alternative.

C. THE STB'S INPUTS ARE REASONABLE AND APPROPRIATE, WHEREAS THE RAILROADS' ARE NOT

The Railroads devote much of their effort to seeking to adjust the CAPM inputs proposed in the NPR in order to achieve higher COE results that are more to their liking. The CAPM model has only a few inputs -- the risk-free rate of return ("RFR"), the equity (sometimes referred to as the market) risk premium ("ERP"), and the beta factor -- and the Railroads manage to disagree with all of them. While some of the Railroads' proposed changes have some merit, those with merit have only minor impact.

⁵Like nearly every large corporation in existence today, the railroads started off small, but that time was quite long ago

It is only the proposed changes for which there is no support that would result in a large increase in the COE.

1. Criterion for Determining Risk-Free Rate of Return and Equity Risk Premium

For the most part, the Railroads acknowledge that the RFR and ERP need to be determined on a consistent basis, *i.e.*, using the same Treasury bond (or other measure). Hodder RVS at 4; Crowley/Fapp RVS at 4 This principle is important because the basic exercise is to divide the total market return into its RFR and ERP components, with only the equity risk component being subject to adjustment by the beta. If the two components are measured inconsistently, then there is the potential to end up with an inappropriate total market return.

However, the Railroads make some references to using a shorter-term interest rate (such as the 90 day Treasury bill) to determine the ERP, but not the RFR.⁶ Historically, short-term interest rates have been lower than long-term interest rates. Accordingly, using a short-term interest rate will typically result in a higher ERP, which combined with a higher beta (which is part of the Railroads' program), will produce a higher COE. However, if a short-term interest rate is used to calculate the ERP, and a long-term (higher) interest rate is used for the RFR, the starting point for application of the beta becomes a total return that is higher than that of the general market

⁶See, *e.g.*, AAR at 21 (short-term T-Bill is a reasonably proxy for the RFR), and Myers VS, Table 3, calculating various ERP, including one for short-term Treasury bill rates.

2. Risk-Free Rate of Return

Beyond that, the Railroads generally claim that the 20-year Treasury bond and not the 10-year Treasury bond should be used to measure the RFR and ERP because the longer bonds have a higher rate of return. AAR at 25. The STB's decision to use the 10-year Treasury Bond was reasonable precisely because the bond has been consistently issued over the period(s) under review and thus it could be consistently applied.⁷ Moreover, the 20-year Treasury bond has been on average only modestly higher than the 10-year Treasury bond (during periods of inverted yield curves, it can be lower⁸), and thus the adjustment has little impact

The biggest point is that the same Treasury bond should be used for both the RFR and the ERP, as AAR advocates at 24, even as AAR claims shorter-term interest rates should be used for calculating the RFR (AAR at 21). Beyond that, WCTL does not object to use of the 20-year Treasury bond, although it believes that the 10-year Treasury bond is also appropriate.

⁷30-year Treasury bonds were discontinued on February 18, 2002 and reintroduced on February 9, 2006, and 20-year Treasury bonds were discontinued at the end of calendar year 1986 and reinstated on October 1, 1993. See <http://www.treas.gov/offices/domestic-finance/debt-management/interest-rate/yield.shtml>. WCTL agrees with the AAR that the yield to maturity should be used in deriving 20-year bond yields for the period that the bond was issued, but believes that the STB properly accounted for the yield to maturity on the 20-year Treasury bonds in its workpapers. Crowley/Fapp RVS at 4.

⁸The 20-year Treasury bond currently has a lower yield than the 10-year Treasury bond. One might infer that the market is projecting that inflation will be lower after ten years.

3. Equity Risk Premium

The Railroads devote substantial effort to criticizing the NPR's proposal to use a 50-year period for measuring the ERP on the grounds that it yields a figure that is too low. Instead, the Railroads argue for an 80-year premium (back to 1926), the longest period for which data is readily available.⁹

There should be no misunderstanding as to the basis of the Railroads' position. The Railroads seek a higher ERP so that it can be adjusted using a higher beta and then applied going forward.

However, there is, as Dr. Hodder noted in his December 2006 Verified Statement, abundant evidence that the ERP has been declining over time. Hodder RVS at 6. The unmistakable trend is confirmed by Hubbard/Stangle Exhibit 2, and even Dr. Myers acknowledges in footnote 10 that "Some research argues that the expected future MRP [market risk premium] is probably less than historical averages."¹⁰ Significantly, Kansas City Southern submitted comments using a 4% figure for the prospective ERP, which Nelson Walsh, Vice Chairman of Morgan Stanley's Investment Banking division, described as "supported by various academic studies" (Walsh VS at 3), and which Kansas City Southern described as "Morgan Stanley's standard assumption for market risk premium." Kansas City Southern Comments at 11. Crowley/Fapp RVS at 23.

⁹Myers VS at 6 also recommended use of 106 years of data, as discussed in Crowley/Fapp RVS at 19, 21 & n.51.

¹⁰Elsewhere, the Railroads criticize the STB's approach because it is either *ex ante* (Dr. Mohanram) or because it relies on historical data to make future predictions (*e.g.*, Myers VS at 6-7). However, the RFR represents a current market projection, and abundant evidence indicates that the historical ERP is too high.

There may be questions as to the full extent of the decline, *e.g.*, the extent to which the established trend is subject to some reversion to the mean, but the general consensus is that the ERP has declined in recent years. The Railroads' push for an 80-year measurement period is then a deliberate effort to achieve a favorable outcome, and the STB's 5.2% figure may prove to be quite conservative, *e.g.*, as compared to Morgan Stanley's standard practice.

To be sure, the choice of the period is significant. In particular, the differences between the 80-year average (7.1%), the 50-year average (5.2%), and the 20-year average (6.4%), account for the bulk of the variance between the Crowley, Hodder, and STB estimates for the 2005 cost of capital. Mr. Crowley used the 80-year average to be simple and conservative, consistent with his overall approach (which the AAR attacked at the time, but now references as ostensible support for its position). Dr. Hodder explained that the 20-year figure reflected the consensus that the ERP was shrinking. The STB's approach is quite reasonable, and is plainly not the lowest figure that it could have selected, *e.g.*, the 40-year period yields a 4.8% ERP, and Morgan Stanley currently uses a prospective 4% figure. A recent study indicates that reasonable estimates of the ERP range from 4% to 8% on an historical basis and 3% to 5% on an expected basis. Richard A. Derring, et al., *Equity Risk Premium. Expectations Great and Small*, North American Actuarial Journal (Jan. 2004) at 45 (discussed in Crowley/Fapp RVS at 22-23).¹¹ Another study referenced by Dr. Hodder indicates that average CFO

¹¹The AAR could have recommended a particular measuring period in response to the Advance Notice of Proposed Rulemaking or at the February 14, 2007 hearing, but did not do so and instead defended the prior single-stage DCF model without modification.

forecast risk premium relative to the 10-year Treasury bond has ranged between 4.65% and 2.39%. Hodder RVS at 6-7

Separate from the issue of the length of the averaging period is whether the STB should adopt an expanding or rolling average. Since there is substantial evidence that the ERP has been declining, it is appropriate to adopt a rolling average so as to cause older data to be replaced by current data and to track more closely the current trend. Accordingly, if the trend does revert to some prior mean (even that for the 80-year average), the rolling average will also track that reversion over time.

The AAR at 23-24 claims that the use of a rolling average “has little practical importance if the Board adopts a sufficiently long data series (e.g., beginning 1926 or earlier), since the resulting average should change only slightly from year to year.” The AAR’s claim is incorrect. As explained in Crowley/Fapp RVS at 19-20, eliminating the first three years (1926-1928) from the AAR’s recommended average and starting the resulting 77-year average averaging period at 1929 reduces the risk premium from 7.1% to 6.3%. The AAR’s insistence on a 7.1% ERP rests on precarious ground indeed.

Use of a rolling average makes a significant difference with the 50-year averaging period used in the NPR, as noted in Crowley/Fapp RVS at 22 and previous Table 1. In particular, the NPR’s values for 1997-2005 also assumed a 5.2% average reflecting the period 1956-2005. If, however, the 1997 calculation had used the data from 1948-1997, the COE would have been 2.83% higher due to that change alone. Moreover, the 2.83% increase would have effectively been phased out over the next eight years as

the 50-year period transitions from 1948-1997 to 1956-2005. In this manner, use of the rolling average reflects the more recent trend in the ERP.

4. Beta Issues

The Railroads raise several issues relating to the calculation of beta, but those that have merit have little impact on the current estimate.

The Railroads devote their greatest effort to arguing that the ten-year beta period used in the NPR is too long. However, a longer beta serves to isolate the impact of transient, short-term factors. In addition, the longer measurement period contributes to greater stability in the calculation of beta and thus the COE and overall COC, which is a very significant benefit, especially if the STB understandably wishes to avoid a situation where carriers flip-flop between being revenue adequate and revenue inadequate.

Furthermore, some academic research indicates that betas longer than 5 years are more accurate than shorter betas. Stephen Gray, et al., *The Performance of Alternative Techniques for Estimating Equity Betas in Australian Firms* (2005), noted in Crowley/Fapp RVS at 9-10. Furthermore, as discussed in Crowley/Fapp RVS at 8, and shown on their Exhibit No. 6, recalculating the STB's betas using a 5-year instead of 10-year measurement period (and using the 90-day Treasury bill rate) has modest impact on the betas and certainly does not yield a major increase. The AAR's fixation on the length of the STB's beta measurement period is thus a red herring.

Otherwise, the AAR and its witnesses argue at length that the STB's beta values are anomalous and that other (and higher) betas from respected financial information vendors should be utilized instead. For example, Hubbard/Stangle reference

Ibbotson, Value Line, and Bloomberg, and Myers references those as well as MSN MoneyCentral and Yahoo Finance. Interestingly, Hubbard/Stangle Ex 3a derives 2005 COE figures from the Ibbotson data that are higher than those in the NPR, even though the Ibbotson betas are, on average lower than those calculated by the STB; Hubbard/Stangle do so by using a RFR and ERP that are higher than that used by the STB. In fact, the Ibbotson-calculated risk premium (7.08%) is among the highest and is nearly double the 4% prospective figure regularly used by Morgan Stanley.

However, some of these betas presented by the AAR reflect measuring periods of two and three years.¹² Such shorter beta measurement periods are generally suspect for several reasons. Most fundamentally, the short-term betas simply do not accurately depict railroad risk at the current time. Significantly, Dr. Myers states in footnote 6 that “[u]seful (but not precise) estimates of past betas can usually be obtained from five years of monthly or weekly returns,” thereby implying that three-year or shorter betas are not very useful.

The problems are exacerbated here because the railroad stocks have outperformed what has generally been an “up” market in recent years. Specifically, railroad stocks have been among the best performing stocks in the NYSE and S&P 500. Under the circumstances, there is tendency for the beta estimates to be spuriously high, and it is far from clear that railroad stocks (or the overall market itself) will or should

¹²Bloomberg appears to have both a 2-year and 5-year beta, but Hubbard/Stangle use only the 2-year beta. Dr. Myers identifies the Yahoo Finance as a 36-month beta. An additional problem is that some of the other betas provided by the AAR witnesses are described as “adjusted,” but the nature of the adjustment(s) is not described.

repeat the performance over the past few years into the future. Hodder RVS at 5-6. Consequently, one should be careful in utilizing betas estimated over short periods. One should also avoid outcome-oriented manipulations of finance theory.

The recent period also complicates the task of separating the alpha from the beta. In substantial part, the data points (especially with two or three-year betas) are limited and/or noisy, and it is difficult to separate the extent to which railroad stocks were riskier from the extent that they simply experienced an above-average return. The AAR at 25 purports to agree that the intercept term should be plotted and considered. WCTL agrees, but adds that there has been no showing that its recognition should have any significant impact on the outcome of the analysis, especially if the beta measurement period is made long enough to limit dependence on short-term factors. Crowley/Fapp Exhibit No. 5, discussed in their RVS at 7 n.13, shows that the STB beta values are not significantly altered by inclusion of the intercept term.

Yet an additional problem is that the short-term betas may reflect more short-term anomalies and statistical noise. Significantly, because these models are proprietary and for the most part the developers choose not to disclose the applicable confidence intervals, one cannot even evaluate the uncertainty component. One advantage of the NPR's proposal in this regard is that it results in an open and transparent calculation (at least if non-proprietary data is used) where the confidence interval can be calculated and/or verified. WCTL adds that even if the confidence interval were very small, it would not establish that the resulting beta is suitable for

determining a long-term cost of capital. Instead, it would simply demonstrate a period of time when the railroad industry consistently outperformed the general market.

WCTL does agree that the beta should be constructed by comparing the relative returns of the particular stock and the general market relative to the short-term Treasury bill rate in both instances. However, the adjustment has relatively little impact, as discussed in Crowley/Fapp RVS at 5 and shown on their Exhibit No. 4

Otherwise, the AAR appears to have cherry-picked the additional betas submitted for comparison. As explained in Crowley/Fapp RVS at 11-16 and shown on their Exhibit No. 7, Standard & Poor's and Reuters Provestor are other respected financial vendor firms that publish betas, and their 2005 values are consistent with, or even lower than those, calculated by the STB.

The one area where WCTL and the AAR appear to agree is that there is no basis for concluding or assuming that railroad betas will converge to 1.0 over time

5. Overall Reasonableness of the STB's CAPM Calculations

Dr. Myers notes that the STB calculated a COE for BNSF for 2005 of 8.67% based on a RFR of 4.251%, an ERP of 5.2%, and a beta of 0.853, which he contrasts with a purportedly more reasonable COE of 11% based on a RFR of 4.7%, an ERP of 6.6%, and a beta (from Value Line) of 0.95.

However, the difference in outcome relates more to the ERP than to the difference in beta values. Assuming a beta of 1.0, the STB starts with a market return (RFR plus ERP) of 9.451%, whereas Dr. Myers starts at 11.1%, which accounts for most of the difference. The posited 11.1% return seems quite high. Indeed, Atticus

Capital references a general target return only in excess of 10%. Moreover, the Atticus Capital target return appears to be at least one percentage point greater than that projected by Morgan Stanley.

Additionally, Crowley/Fapp Exhibit No. 7 shows that the STB COE figures fall within the range of values calculated by other sources. Indeed, the most anomalous values are those calculated using the Bloomberg data, which reflects the very short (2-year) beta measurement period.

In short, the COE values calculated by the STB are reasonable and not at all anomalous. See Crowley/Fapp RVS at 11-16.

D. DCF ANALYSIS SUPPORTS THE NPR'S RESULT

The Railroads argue strenuously that the STB should not rely solely on the CAPM method, but that it should also consider some other measure, particularly use of a multi-stage DCF model, to calculate the COE.

WCTL agrees that the STB should not blindly follow any single model to determine the COE, as it is that approach that led to the unreasonable, implausible, unsustainable results under the single-stage DCF model. WCTL further recognizes that CAPM is capable of yielding unreasonable results under certain circumstances, especially if it is applied using a beta measurement period that is too short, or an ERP that is too high (or too low), which is what the Railroads presently advocate.

A multiple-stage DCF model, properly applied, has considerable potential to serve as a check on the reasonableness of application of the CAPM approach. Dr. Hodder presented just such an analysis in his Verified Statement that was submitted as

part of WCTL's comments submitted December 5, 2006, in response to the STB's Advance Notice of Proposed Rulemaking. Hodder RVS at 2-3, 7-8. At WCTL's request, witnesses Crowley and Fapp extended Dr. Hodder's analysis to the 1997-2006 period, utilizing the AAR's "consensus" truncated growth forecast and adjusted dividend yield, and assumed that (a) the forecasts hold for the first five years, (b) over the next ten years, there is an incremental phase-in of the terminal growth rate, so that (c) in year 15, the growth rate equals the terminal growth rate of 6%. The resulting COE figures shown in Crowley/Fapp Exhibit No. 8 and discussed in Crowley/Fapp RVS at 25-29, are generally consistent with those derived under CAPM using either the STB's or WCTL's inputs. A multiple-stage DCF model thus confirms the reasonableness of the CAPM results (unless the AAR's biased inputs are used to force the CAPM to yield a higher result).

Significantly, the Myers VS submitted by the AAR expresses significant support for the sort of multiple-stage DCF presented by Dr. Hodder, even as the Myers VS criticizes the STB's two-stage DCF analysis. First, Dr. Myers notes that "five or ten years" for the first stage, as opposed to the twenty years used by the STB, "is more common." Myers VS at 13. Dr. Myers then states that "[a]lso, the choice of the long-term GDP growth rate deserves more careful attention, because the cost of equity estimate is sensitive to this input," and Dr. Myers notes the Blue Chip forecast for 2005 was 5.5%, 0.9% higher than the 4.6% figure of the Social Security Administration. However, Dr. Hodder's 6% figure was higher still, and Crowley/Fapp's use of it is thus quite conservative. Nonetheless, it bears special emphasis that even the Ibbotson

industry median average COE figures (*e g* , 11.4% in March 2006, as reported by Hubbard/Stangle VS at 16) are substantially below the 16.1% that the AAR claimed was the only appropriate figure for the 2006 COE in the comments it filed in Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital – 2006*, on June 25, 2007, and August 13, 2007, the later which was submitted just one day before the STB originally served its NPR.¹³

Accordingly, while a multiple-stage DCF model has considerable potential value to serve as a check on the CAPM calculations, the problem, as soundly noted in the NPR at 6, is that there is not likely to be any consensus as to what inputs to use or how the various stages are to be combined.¹⁴ The multiple-stage DCF model thus does not lend itself to being used as the primary mechanism for determining the railroad industry COE.

¹³As explained in Crowley/Fapp RVS at 30-32, the Ibbotson industry average COE and COC figures cover the Standard Industrial Classification and thus reflect a number of smaller railroads that are apt to have a higher COE and COC (at least as claimed by Kansas City Southern). It is thus quite significant that the Ibbotson figures reflect median values (Hubbard/Stangle at ¶49), which indicates that the figures are significantly altered by including along with the four largest Class Is, KCS with its allegedly higher COE, and three short-line railroads. Hubbard/Stangle also state they “believe that [Ibbotson’s specific choices] are sensible from an economic perspective” (¶50), but it is not clear what all of those choices are, especially for the terminal growth rate. Indeed, the highest two-stage DCF figure mentioned by Dr. Myers is 9.96% (Myers VS at 13).

¹⁴WCTL continues to question whether the projections of financial analysts are suitable for such a purpose given that there are relatively few earnings estimates and there is such a wide disparity among the estimates. In that regard, it is significant that the AAR witnesses do not present a confidence interval analysis of those earnings projections. It seems apparent, however, that the confidence interval for the DCF approach is far greater than that for the CAPM analysis.

III. SELECTING FROM A RANGE OF UNREASONABLE COE VALUES WOULD NOT ACHIEVE A MORE REASONABLE OUTCOME

The Railroads argue that the STB should select the median value from a range of possible values, apparently as an alternative to selecting the value or specific approach that the STB deems to be the most probative, which is the approach that the STB proposed in its NPR.

The Railroads' approach might have some appeal if (a) the range of alternative values submitted fairly and accurately depicted the range of all possible values, and (b) there was no reason to think that some values were more accurate than others. But neither condition holds, and the benefits of the Railroads' recommended approach are illusory.

WCTL wishes to emphasize that it did not ask its witnesses to develop CAPM values for the 2005 and 2006 COE that would have any bias. Instead, it asked its witnesses to develop a CAPM estimate using standard methods and resources (*e.g.*, use of data from Ibbotson Associates) that would minimize controversy to the extent possible. In other words, WCTL did not begin with a "starting" figure, but instead with a concept that it considered to be reasonable and that did not involve manipulation. The reasonableness of WCTL's CAPM approach is confirmed by the AAR's experts that tend to recommend much the same approach, *e.g.*, use of 20-year Treasury bond, use of data from 1926 to determine the ERP (which overstates the ERP, as observed by Dr. Hodder), and use of a five-year beta from a respected vendor (Ibbotson).

In contrast, the AAR seeks to present what purports to be a range of different figures and different sources, but all are designed to result in a higher COE, at

least for the selected years that data is presented.¹⁵ Choosing from a range of estimates that have been biased in one direction does nothing to achieve a more reasonable result. Furthermore, as explained in Crowley/Fapp RVS at 12-13, Standard & Poor's and Reuters Provestor are respected firms that publish railroad betas that are lower than those utilized by the STB

Moreover, there are differences in the various estimates and data, and the STB can reasonably conclude that some of the estimates and data are more credible than other estimates and data. In particular, there is good reason to discount betas that are based on a measuring period that is less than five years, particularly given how railroad stocks and the general market have performed recently. Likewise, the Board could reasonably conclude that a ten-year beta measurement period was desirable in terms of (a) providing stability, and (b) reflecting a greater variety and more extensive record of underlying conditions. The Board could also reasonably decide that the period for measuring the equity risk premium should be less than 80 or 60 years, so as to not give undue weight to what may prove to be one-time events (the Depression and World War II) and to give a better reflection of what is an established trend towards declining equity risk premiums. Under the circumstances, the better course of action is for the STB to select the particular approach it believes to be most reasonable and appropriate and to provide an explanation for its selection.¹⁶ Selection from a range of estimates

¹⁵The AAR and its witnesses submit data for 2005 and 2007, but not for 2006, which is a conspicuous omission. Nor did the AAR present data for earlier years.

¹⁶The STB follows this approach in other instances, *e.g.*, using EIA estimates for future coal volumes and rates and Global Insight inflation forecasts in coal SAC cases.

would be appropriate only if the STB determined that all the estimates were equally credible and that the range was fairly weighted, neither of which appears to be the case.

The Railroads note, with some support, that CAPM results are not necessarily as precise as they may appear. In particular, there is some question as to how far the equity risk premium has declined, and beta values are subject to some statistical uncertainty. As noted above, however, that statistical uncertainty appears substantially less than that which attaches to the analyst projections used in the DCF approach. Moreover, the fact that there is some uncertainty is not a sound reason for adopting some other approach that is tied to greater uncertainty or requires outcome-determinative decisions for which there is no solid evidence to choose one way or the other. To this extent, there is a reasonable basis for the STB's proposal to choose a particular approach, be it partly mechanical, and apply it consistently.¹⁷ With such an approach, the STB should remain open to a demonstration that the results in a particular instance have left the realm of reasonableness (as was clearly the case with the single-stage DCF approach). However, there is no credible evidence that the STB's proposed approach results in values that are outside that realm of reasonableness, especially once the few relatively minor adjustments are made.

¹⁷The STB noted the virtues of the consistent application of a mechanical approach in rejecting WCTL's proposal regarding the 2005 cost of capital determination, and the AAR certainly supported the STB's decision. The STB has also opted for a mechanical approach in other contexts, *e.g.*, excluding movement-specific adjustments for variable cost determinations, prescribing a specific formula for measuring productivity, etc.

IV. THERE IS NO BASIS FOR PROVIDING THE RAILROADS A COE INCENTIVE

The Railroads are not content with merely choosing from the middle, or median, of a range of values. Instead, they explicitly argue for choosing from the upper end of the range. Towards this end, they identify several supporting reasons. None of them makes any sense whatsoever.

One stated concern is that the Railroads require an incentive in order to expand their systems. However, the opportunity to meet an expanding demand should, under the free-market principles that the Railroads and the STB purport to espouse, be incentive enough. Indeed, most firms would be extremely pleased to have the increasing demand projected by the study prepared by Cambridge Systematics, Inc. (“Cambridge”), and rightfully so.¹⁸

Concluding that the Railroads require a special incentive to serve the growing demand is tantamount to declaring that the free market cannot be trusted. The explicit introduction of a distortion is anathema to free markets, as well as the first element of the national rail transportation policy at 49 USC § 10701(1), “to allow, to the maximum extent possible, competition and the demand for rail services to establish reasonable rates for transportation by rail.” Moreover, the distortion would be paid for by the affected shippers and their customers, and the effect would likely be to reduce

¹⁸In that regard, it is significant that the Cambridge study notes that “[t]he anticipated rates of growth for the U.S. economy and freight transportation demand are about the same as those experienced over the last 30 years.” Cambridge at 2-5. In other words, the forecasted demand is nothing more than a continuation of long-established trends.

demand, meaning that the subsidy would tend to be self-defeating ¹⁹ The cross-subsidy cannot be justified in terms of the allocation of societal resources Hodder RVS at 11

There is also considerable irony in the suggestion that the STB's railroad rate regulation should involve an explicit subsidy In particular, the introduction of a subsidy is entirely inconsistent with the STB's determination in the *PPL Montana* and *Otter Tail* cases to prevent the stand-alone railroad ("SARR") from operating with any sort of cross-subsidy, even those utilized and exploited by the incumbent defendant. It would be difficult to reconcile an extremely rigorous application of a bar against cross-subsidization when it comes to reviewing the rates and costs of a SARR and an explicit cross-subsidy in the calculation of the COC.

Certainly, nothing in the text of 49 USC § 10704(a)(2) provides any basis for the STB to make a deliberate determination to select a higher COC than is required. The statute provides that the revenue levels, flow of net income, and capital are to be "adequate." There is no statement that they should be "more than adequate," which is what the Railroads effectively seek. Similarly, the national rail transportation policy is "to maintain reasonable rates where there is an absence of effective competition and where rail rates provide revenues which *exceed* the amount *necessary* to maintain the rail system and to attract capital." 49 USC § 10701(6). There is thus no provision for rates that are deliberately set to exceed the amount necessary to attract capital

¹⁹The need to measure the distortion and limit the cross-subsidization to some reasonable level would also conflict with the second element of the national rail transportation policy, 49 USC § 10701(2), "to minimize the need for Federal regulatory control over the rail transportation system."

Additionally, it is by no means apparent that increasing the COC will result in any increase in the Railroads' expansion of capacity, and it is plausible that it could have the opposite effect. WCTL's comments filed July 28, 2007, demonstrated that substantially more of the recent incremental inflow in dollars to the railroads had gone to rewarding stockholders through increased dividends and stock buybacks and to reducing long-term debt than had gone to increasing capital expenditures.²⁰ Setting the cost of capital towards the higher end of a range of reasonableness is thus much more likely to reward railroad stockholders than it is to incent capacity expansion, for which the Railroads already have ample incentive.

Indeed, if the COC were set too high (as it has been), then the Railroads may conclude that they can make themselves better off serving a smaller volume of traffic at higher rates (which appears to describe the recent experience of shippers) than by serving a larger volume of traffic at lower rates. Indeed, the reduction in output is precisely one of the chief problems with monopolies.

WCTL strongly disagrees with the Railroads' assertion that reducing the COC will have a deleterious impact on their ability to raise capital. For example, the Railroads made the same arguments with the same intensity in the case of the RCAF productivity adjustment, and there is no evidence that the Railroads suffered any harm

²⁰Union Pacific claims to be boosting its capital expenditures, but it is unclear that the increase in spending tracks its increase in profits or revenues. More to the point, a railroad that declares a sustained embargo on a major source of revenue and profits (its PRB traffic) *should* increase its capital expenditures. Union Pacific also references the drop in its stock price following the issuance of the NPR, but its stock price declined significantly over the prior month and, in any event, has now more than recovered.

as a consequence, as they were subsequently able to adjust their rate structures (to put it mildly). Since only a small segment of railroad traffic is even potentially subject to regulation, the COC is unlikely to have much of an effect on railroad investment in any event.

Moreover, the COC is of limited relevance since the Railroads have ample ability to finance their expansion by taking on additional debt on very favorable terms, as WCTL explained in its July 28, 2007 filing.

Additionally, all indications are that the Railroads are enjoying enviable returns on the limited additional capital that they have been investing in their operations (after paying for increased dividends and stock buybacks). On October 4, 2007, UBS Investment Research issued its *UBS Railroads Weekly* entitled "Returns at the Margin" (excerpt attached as Exhibit D; p. 2 shows railroad industry weighted average ROIC exceeding estimated 9.5% weighted average cost of capital starting the second quarter of 2006). The report presented the marginal return on invested capital of the four largest Class I Railroads from 2002 through 2007 (estimated). Besides showing a return on invested capital of 10.6% in 2006 and an estimated 10.9% in 2007 (UBS claims that the "consensus" figure for the railroad industry weighted average cost of capital is 9.5%), the report stated that "[o]ver the past few years, new capital investments have returned 20%+," including 106.5% in 2005 alone. It is difficult to imagine that such returns would be insufficient to induce further investment by reasonably-run businesses.

The Railroads also complain that the STB should avoid anything that amounts to or results in a precipitous decline in the COC or the COE. Here, again, the

Railroads' logic is non-existent. The Railroads can hardly claim any sort of vested interest in an inflated COE. Indeed, the COC and COE have increased substantially over the past few years since the STB established a value of 9.4% in 2003, and the STB should properly view that increase as a cause for concern. Any increase in long-term inflation since that time has been modest, and it is difficult to understand how what some have called the "railroad renaissance," with its exercise of market power by the industry, could have caused the industry to somehow become significantly more risky. Furthermore, if the Railroads behaved like a normal firm, they would view a sudden increase in their COC as a cause for concern and something to be corrected, rather than something to be preserved and, if possible, exacerbated.

Moreover, the Railroads' submissions are devoid of any claim or representation that they considered the results under the STB's single-stage DCF model to be reflective of what they internally consider their COE to be. Indeed, the Railroads are careful to avoid disclosing what they use internally as their COE or COC. The closest that any railroad comes to addressing this matter is Norfolk Southern ("NS"). NS does not state what it considers its COC to be, but it does state that it considers both CAPM and DCF calculations and that both calculations yield similar results. While NS is careful not to specify any of the details of its calculations, it seems highly unlikely that its figures under both methodologies would replicate those that the STB previously calculated, especially as the Railroads' own experts now present figures under both the multiple-stage DCF and the CAPM that are substantially lower than what the STB calculated for 2005.

The figures that the Railroads claim would be appropriate for the industry COC are out of line with what significant segments of the financial investment community consider to be accurate. As WCTL noted in its July 25, 2007 filing (Exhibit B), and as discussed *supra*, UBS has reported that 9.5% is the “consensus” COC figure among the investment community, including the railroad chief financial officers themselves. Standard & Poor’s reports lower values: 8.6% (for BNSF), 9% (for CSX), 9.1% (for NS), and 8% (Union Pacific). WCTL July 25, 2007 Comments, Crowley/Fapp VS (Exhibit A, Exhibit No. 8). These values are far more consistent with the STB’s calculations than they are with the values claimed by the Railroads. Indeed, notwithstanding UP’s vigorous complaints, the figure calculated for UP by Standard & Poor’s is only 0.5% (50 basis points) above the industry average COC calculated by the NPR *without* any adjustments.

In an effort to find support for some sort of COE “adder,” the Railroads refer to the incentive rate treatment that is available from the Federal Energy Regulatory Commission (“FERC”) under certain circumstances. The Railroads’ analogy is extremely inapt in several key respects.

First, FERC’s incentive rate treatment was established pursuant to a specific Congressional directive. Section 1241 of the Energy Policy Act of 2005 added new § 219 to the Federal Power Act (“FPA”) (16 U.S.C. §§ 825 *et seq.*). New § 219 of the FPA required FERC to enact a rule to incent investment in transmission “for the purpose of benefitting customers by ensuring reliability and reducing the cost of

delivered power by reducing transmission congestion.” The incentive rate treatment was specifically tied to increasing investment in transmission for specific purposes.

Second, those specific purposes required the investment to result either in a reduction in the cost of delivered power or improved reliability. The incentive treatment is thus tied to new investment that produces a specific benefit. In contrast, the Railroads seek a higher COE on their embedded investments so that they can continue to increase rates.

Third, the incentive rate treatment for transmission investment stands within a substantially different context from that governing railroads. In Order No. 888 issued in 1996, over ten years ago, FERC required virtually all electric public utilities subject to its jurisdiction to engage in “functional unbundling” of their generation and transmission activities and to provide “open access” to their transmission under terms that allowed competitors equal access to their transmission networks.²¹ The requirement is the equivalent of requiring the railroads to grant universal trackage rights to all competing generators and suppliers, with the trackage rights fee to be paid by those competitors to be not only “just and reasonable,” but also the same as what the railroads charge themselves. The railroad industry faces no equivalent obligation and vociferously opposes any and all changes that involve some modicum of open access.

Mere compliance with Order No. 888 is not sufficient to earn an electric public utility incentive rate treatment. Instead, the incentive return is only available

²¹Even those electric utilities not subject to FERC’s public utility jurisdiction could be required to provide open access as a condition to receiving open access from others.

under special circumstances, such as where a facility would not otherwise be built or an additional measure of open access and formal separation of operation from ownership will be achieved:

such as where the risks of a particular project exceed the normal risks undertaken by a utility (and hence are not reflected in a traditional discounted cash flow (DCF) analysis) and where necessary to encourage creation of a Transco [an independent transmission company] or participation in a Transmission Organization [where operational control over transmission assets is placed in an independent entity]. However, this does not mean that every new transmission investment should receive a higher return than otherwise would be the case.

FERC Order No. 679, *Promoting Transmission Investment through Pricing Reform*, 116

FERC ¶ 61,057(2006), at ¶ 27. On rehearing, FERC made clear that incentive rate treatment is limited only to specific projects, and not to the existing asset base.

We reject the argument of investor-owned utilities that ROE incentives be applied without regard to the nature of the facility being constructed or the risks associated with it. Specifically, the Commission reaffirms that the most compelling case for incentive ROEs are new projects that present special risks or challenges, not routine investments made in the ordinary course. We therefore reject the arguments ... that such routine investments should be treated the same ... as new projects that present special risks or challenges.... We also reject the argument that incentive ROEs should apply to existing transmission rate base that has already been built.

FERC Order No. 679-A, 117 FERC ¶ 61,345 (2006), at ¶¶ 60-61

In short, FERC's incentive rate treatment is not available for embedded investment, but only for future investments that are unusual in the sense of posing special risks or difficulties that necessitate an incentive for the investment to be made or

that confer unusual benefits, such as ceding control over transmission assets to a third-party. The Railroads' request to receive special treatment on all of their assets just so they can meet expected growth in demand when they should have no difficulty raising capital through traditional means, especially debt, shares none of these attributes.

V. CAPITAL STRUCTURE ISSUES CANNOT BE IGNORED OR DISMISSED

WCTL addressed capital structure issues (the appropriate debt-equity ratio, including the treatment of operating leases) in both its July 25, 2007 comments and its September 27, 2007 comments. Briefly stated, WCTL explained that there is substantial evidence that: (a) the railroads are generally underleveraged; (b) the financial community and the railroads themselves treat operating leases as debt for purposes other than generally accepted accounting principles ("GAAP"); (c) a more efficient capital structure and/or appropriate treatment of operating leases would lower the cost of capital significantly for URCS (Uniform Railroad Costing System)/variable costing purposes; (d) review of the capital structure is entirely appropriate and ultimately necessary under 49 USC § 10704(a)(2), as well as in keeping with the treatment of capital structure by other regulatory agencies; and (e) the suggestion that the capital structure must be dictated by GAAP considerations is nonsensical since the current cost of capital is not even a GAAP concept in the first place

The Railroads, especially the AAR, were very careful to avoid addressing capital structure issues in their opening comments (even as they went out of their way to speculate on the use of replacement costs for revenue adequacy purposes, a matter that was plainly outside the scope of the NPR). As a result, there is nothing for WCTL to

reply to regarding capital structure. It seems that the Railroads' strategy is to withhold their comments until the reply stage, so as to deprive WCTL of the opportunity to comment in return. The Railroads' tactics are unfortunate and not conducive to the efficient and effective discharge of the STB's responsibilities.

VI. THERE ARE GOOD REASONS TO BE WARY OF USING REPLACEMENT COSTS

The Railroads' submissions include a number of statements concerning the need to use replacement costs, especially for determining revenue adequacy.

As noted above, this matter was explicitly placed outside of the scope of the NPR, and WCTL sees no good reason to comment on the matter at length. That said, a few brief comments may be helpful.

First, determining the replacement cost or value of railroad assets is apt to be a difficult and controversial matter. To the extent the Railroads have recently engaged in substantial capital expenditures and otherwise marked-up asset values through mergers, their recorded asset values may not be understated by as much as the Railroads suggest. Moreover, replacement costs would need to be used in conjunction with the real, not nominal, cost of capital to avoid a double count of inflation. In short, replacement costs may well not be the panacea that the Railroads postulate.

Second, in terms of providing adequate financial incentive for investment, the fact is that the present approach affords the Railroads a current cost of capital on their contemporaneous investments, *e g* , if they invest \$1 billion in expanding capacity today, then the cost of capital is applied to the \$1 billion in additional investment going

forward.²² The mark-up associated with switching to replacement cost relates to investments made long ago. It is unclear how and why the Railroads would be entitled to a return of and a return on those original investments plus the replacement cost of those assets. There has been no suggestion that other investments are regularly valued in such a manner.

Third, replacement, or rather reproduction costs, are already reflected in the existing stand-alone cost (“SAC”) analysis. Most shippers understandably believe that the SAC system is now broken, irretrievably in the eyes of many, in large part because of the constraints that the STB has imposed on stand-alone railroads that are not imposed on real-world railroads (*e.g.*, inability to utilize cross-subsidies present in the existing rate structure, absence of market-based divisions, and failure to recognize productivity gains). The STB should not act to preclude the possibility of relief under the revenue adequacy constraint before it ever has a chance to be developed, especially on the basis of a concept (replacement costs) that is not regularly employed in evaluating the performance of other investments with which railroads compete.

Fourth, replacement cost accounting is not part of GAAP. While the determination of the current cost of capital is not a matter addressed by GAAP, the evaluation of the asset base plainly is, and the AAR’s own statements highlight the difficulty of reconciling replacement cost accounting with the STB’s governing statute.

²²The additional return applies whether the investment is for an entirely new asset, replacement of an old asset that has been destroyed, or for regular capital replacement

Additionally, nothing in 49 USC § 10704(a)(2) provides a basis to revalue embedded assets at replacement cost.

In short, the Railroads face a heavy burden in establishing the need and basis for replacement cost accounting.

VII. CONCLUSION

For the reasons stated above, the Board should calculate the railroad COE and COC using the CAPM approach as proposed in the NPR with only minor modification. The STB should also calculate the COE using an appropriate capital structure, that is, one that adjusts for the fact that the railroads are presently underleveraged, and one that treats operating leases as debt, which is how operating leases are treated by the financial community.

Respectfully submitted,

WESTERN COAL TRAFFIC LEAGUE

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EXHIBIT A

**Reply Verified Statement of
Thomas D. Crowley and Daniel L. Fapp**

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. Our qualifications and experiences are attached as Exhibit Nos. 1 and 2, respectively, to our Opening Verified Statement that was filed in this proceeding on September 27, 2007 ("Crowley/Fapp Opening VS").¹

In this Reply Verified Statement, we respond to certain comments submitted by Dr. Stewart C. Myers ("Myers") and Dr. R. Glenn Hubbard and Dr. Bruce E. Stangle ("Hubbard/Stangle") on behalf of the Association of American Railroads ("AAR") in the AAR's opening statement in this proceeding. Specifically, we comment on the following issues: (1) the appropriate surrogate for the risk-free rates of return to use in developing Beta estimates, developing the equity risk premium and applying the inputs to the Capital Asset Pricing Model ("CAPM"), (2) the appropriate time period over which to develop Beta estimates as well as the reasonableness of the STB's estimated railroad company Betas, (3) the proper procedures to develop estimates of the equity risk premium, as well as the reasonableness of the STB's estimate of the equity risk premium, (4) the use of a multi-stage Discounted Cash Flow ("DCF") model in estimating the railroad industry cost of equity, and (5) other related issues raised by Myers and Hubbard/Stangle.

¹ We add that developing the cost of capital for railroads has been a regular part of the practice of each of us during our tenure at L. E. Peabody & Associates, Inc. (36 years in the case of Mr. Crowley and ten years in the case of Mr. Fapp). Our analyses have been relied upon by a broad cross-section of clients including the United States Department of Transportation and other government agencies, utility companies, mining companies, and railroad companies. Our comments here, like our previous comments, including those submitted by Mr. Crowley concerning the 2005 cost of capital (in which Mr. Fapp assisted), are well-documented in terms of reliance on respected studies and publications, including various publications by Dr. Myers.

We summarize our testimony below under the following topical headings and in the accompanying Exhibits

- II Risk-Free Rates Of Return
- III Beta Estimates
- IV Equity Risk Premium Estimates
- V Use of Multi-Stage DCF Model
- VI Other Issues

II. RISK-FREE RATES OF RETURN

As we indicated in our Opening VS, the choice of the risk-free rate of return is a major factor in developing the inputs to, and the development of, the CAPM. Analysts use the risk-free rate to develop both Beta estimates and estimates of the equity risk premium. In addition, the risk-free rate of return is a direct input into the CAPM.^{2/}

The STB has proposed using yield-to-maturity ("YTM") on 10-year Treasury Bonds ("T-Bonds") as its estimate of the risk-free rate.^{3/} 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.^{4/}

Both Myers and Hubbard/Stangle take issue with the STB's proposed use of the 10-Year T-Bond as a surrogate for the general risk-free rate, as well as how the STB applied the 10-Year T-Bond in the STB's proposed CAPM methodology. First, Myers states that in developing an estimate of the equity risk premium, the STB should use the YTM on the underlying debt instrument and not the then current yield on the debt.^{5/} Second, Hubbard/Stangle state that the STB should consider only the portion of the T-Bond price associated with default risk of the bond and not the interest rate risk

^{2/} See Crowley/Fapp Opening VS at 7.

^{3/} See STB Ex Parte No. 664, *Methodology To Be Employed In Determining The Railroad Industry's Cost of Capital*, served August 20, 2007 ("Ex Parte 664") at 10.

^{4/} Id.

^{5/} See Myers at 9.

of the bond when estimating the equity risk premium.⁶ Third, both Hubbard/Stangle and Myers state that the source of the long-term risk-free rate of return used in developing the equity risk premium should also be the same source used in developing a CAPM estimated cost of equity.⁷ Fourth, Myers states that the STB should develop Beta estimates using a short-term Treasury Bill (“T-Bill”) rate instead of a long-term T-Bond rate as proposed by the STB.⁸

We concur with Hubbard/Stangle and Myers that the STB should use the YTM in developing an estimate of the equity risk premium rather than the current yield and that only the portion of the T-Bond rate of return associated with the coupon default risk should be considered in developing the equity risk premium. We note though, that while we did not have access to the STB’s proprietary CRSP T-Bond data, the STB did forward to us detailed descriptions of the data it acquired from CRSP. These descriptions indicate that the STB acquired from CRSP the YTM on 10-Year T-Bonds, and apparently used this data in its calculations.

We also agree with Hubbard/Stangle and Myers that the T-Bond rate used in developing the equity risk premium should also be the risk-free rate used in a CAPM estimate of the cost of equity.⁹

Finally, we also concur with Myers that in developing Beta estimates, the effective YTM on short-term T-Bills should be used instead of the longer-term T-Bond YTM. We tested the difference

⁶ See Hubbard/Stangle at 12-13.

⁷ See Hubbard/Stangle at 10-11 and Myers at 9.

⁸ See Myers at 10.

⁹ Myers also states that the STB used a 20-Year T-Bond to develop its equity risk premium. However, examination of the STB’s workpapers shows no 20-Year T-Bond data was acquired or used by the STB. Without direct access to the STB’s workpapers, which is prohibited given the STB’s license agreement with CRSP, we are unable to determine if Myers’ statement is correct. We agree that use of data that did not include the CRSP restrictions would facilitate the discussion of such matters.

in using T-Bill and T-Bond data over the 1997 to 2005 time period and found the difference *de minimus*. These results are displayed in Exhibit No. 4 to this verified statement.^{10/}

^{10/} Exhibit No. 1 through Exhibit No. 3 were included with our opening verified statement filed in this proceeding on September 27, 2007.

III. BETA ESTIMATES

Beta on common equity measures the systematic risk of stock relative to the risk of the market as a whole ^{11/} Analysts and financial researches have developed various methods for estimating Betas, but most customarily develop estimates of equity Beta through the use of an ordinary least squares ("OLS") regression model To develop Beta estimates using OLS, the following four preliminary issues must be resolved (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 a market index to use as a market proxy, and (4) the risk-free rate

The STB proposed a 10 year, or 120 month, analysis period in its OLS regression model using monthly New York Stock Exchange ("NYSE") Index returns as its surrogate for the return on the market and 10-Year T-Bond data as its surrogate for the risk-free rate As discussed above, Myers suggested the use of short-term T-Bill return data in lieu of the 10-Year T-Bond data in the OLS estimate, in which we concur, and neither Hubbard/Stangle nor Myers take strong exception to the use of NYSE data as a surrogate for the market ^{12/} Also, neither Hubbard/Stangle nor Myers stated that the use of monthly data was inappropriate Use of weekly data would provide more data points, but the trade-off could well be the introduction of additional statistical noise

^{11/} See Crowley/Fapp Opening VS at 15

^{12/} Myers indicates that the NYSE Index is not as widely used as the Standard & Poor's Composite Index ("S&P 500"), but does not appear to directly state the STB should disregard using the NYSE S&P 500 data has the virtue of being readily available without the CRSP restrictions We note that Value Line appears to derive its Beta estimates from NYSE data

Hubbard/Stangle and Myers take issue with the STB's proposed use of a 10-year OLS regression period ^{13/} Both Hubbard/Stangle and Myers point out that most commercial suppliers of Beta estimates use analysis periods of five (5) years or less. Additionally, both Hubbard/Stangle and Myers express concerns that a 10 year regression period would incorporate data that is no longer relevant in a changed railroad industry and incorporate atypical general economic data. Finally, both parties believe that the STB's methodologies produce Beta estimates that are too low relative to Beta estimates produced by financial data firms. We discuss Hubbard/Stangle's and Myers's time period concerns below.

A. APPROPRIATE TIME PERIOD

In Ex Parte 664, the STB proposes to calculate Beta estimates for the individual railroads using 10 years, or 120 months of data ^{14/} The STB believes a 10 year period balances the desire to eliminate statistical noise and achieve stability in the estimate, while allowing for the fact that a railroad's Beta may change over time ^{15/}

Hubbard/Stangle and Myers take exception to the STB's proposed use of a 10 year analysis period. Both indicate that most commercial financial data suppliers use analysis periods of five (5) years or less in their estimates of company Betas ^{16/} Hubbard/Stangle believe that the railroad

^{13/} Both Myers and Hubbard/Stangle also indicate that they believe if the STB were to continue to develop its own estimates of railroad company Betas using OLS regression, that parties should regress with an intercept term. See Hubbard/Stangle at n. 8, and Myers at n. 12. This is our position as well. See Crowley/Fapp Opening VS at 22-23. However, to test the impact of the intercept on the STB's Beta estimates, we performed OLS regressions using the STB's proposed procedures, but including an intercept term in the OLS analysis. The results, which we include in Exhibit No. 5 to this verified statement, show very little impact on the STB's Beta estimates.

^{14/} See Ex Parte 664 at 11.

^{15/} Id.

^{16/} See Hubbard/Stangle 8 and Myers at 10.

industry has changed too much in the preceding decade, and that 10 years of data may not capture the current returns expected of the railroads ¹⁷ Myers also believes that utilizing 10 years of historic data would incorporate the impact of the "dot com" boom of the late 1990's, which may inappropriately impact the Beta estimates ¹⁸

As we noted in the in our Opening Verified Statement, the STB's proposed use of a 10 year analysis period is outside the norm of analysis periods used by commercial suppliers of financial data ¹⁹ We also stated that the relative maturity of the railroad industry would not greatly impact Beta estimates based on 10 years of data instead of five years of data To test this assumption, we developed railroad specific Beta estimates using the STB's proposed methodology using five year analysis periods in lieu of the 10 year periods proposed by the STB As shown in Exhibit No 6 to this verified statement, the Betas produced using 60 month analysis periods are very similar to the Betas estimated by the STB for this range of data ²⁰

There is also research indicating that the use of a longer analysis period in the development of OLS regression analysis period may be beneficial by providing more stable estimates of Beta Early studies of Beta estimates highlighted the fact that Beta estimates of individual securities tend to be

¹⁷ See Hubbard/Stangle at 7

¹⁸ See Myers at 10

¹⁹ See Crowley/Fapp Opening VS at 16

²⁰ This is not to say the estimates are identical, but when viewed against Beta comparisons presented by others in this proceeding, the differences are relatively small For example, the single largest absolute difference shown in Exhibit No 6 to this verified statement is the CSX Beta estimates for 1999 with a difference of 0.28 In comparison, Myers's Table 1a shows an absolute difference in the Beta comparisons for NS of 1.12 The differences implicit in the Beta estimates contained in Exhibit No 6 pale in comparison to this extreme range

substantially more unstable than the Betas of a portfolio of securities^{21/} This instability could be mitigated however by the use of longer analysis periods Dr Jerome Baesel used monthly data to estimate Betas using estimation intervals of one year, two years, four years, six years and nine years^{22/} Dr Baesel found that as the estimation period increased, the stability of the Beta increased as well, concluding, “ the forecaster will be better off using longer estimation interval ”^{23/}

A recent study of equity returns in the Australian market found that longer measurement periods improve the accuracy of Beta estimates A report prepared for the Energy Networks Association investigated the optimal estimation period for equity Betas^{24/} The researchers in the study developed equity Beta estimates using 4, 5, 6, 7, 8, 9 and 10 years of monthly observation periods, and used the estimates to forecasts returns in the subsequent quarter^{25/} They then compared the forecast performance of the computed Betas The results indicated that Beta estimates created from longer estimation intervals outperformed those from intervals of five (5) years or less The researchers concluded

^{21/} See “On the Assessment of Risk,” Blume, Marshall, *Journal of Finance*, Vol 26, March 1971, pp 1-11 This is also consistent with Myers findings that the Beta of a portfolio of railroad equities was more stable than the Betas of the individual railroads See Richard A Brealey, Stewart C Myers and Franklin Allen, *Principles of Corporate Finance*, 8th Edition 2006 (“Brealey, Myers & Allen”) at 221

^{22/} See “On the Assessment of Risk: Some Further Considerations,” Baesel, Jerome B, *Journal of Finance*, Vol 29, December 1974, pp 1491-1494

^{23/} Id

^{24/} See “The Performance of 4 Alternative Techniques for Estimating Equity Betas for Australian Firms,” Stephen Gray, Jason Hall, Jerry Bowman, Tim Brailsford, Robert Faff and Bob Officer, May 2005

^{25/} There are suggestions that CAPM is strictly theoretical and incapable of empirical testing However, the referenced study specifically analyzed the accuracy of Beta estimates comparing forecasted to actual returns If CAPM were purely theoretical and enjoyed no empirical support, it would not be the preferred method for determining the cost of equity Nor would it regularly be taught in business schools

From this analysis, it can be concluded that the optimal estimation window to be used in OLS equity Beta estimation is longer than 4, 5 or 6 years. Using a longer time series of data improves the performance of equity Beta estimates relative to the 4-or 5-year OLS equity Beta estimates that are produced by some data services.²⁶

The STB chose a 10 year Beta estimation period to eliminate statistical noise and to achieve stability in its Beta estimate, while allowing for change in the equity Beta. The use of a 10-year Beta would achieve the goals of reducing the impact of data noise and providing stability. In addition, assuming the conclusions reached by Gray, *et al*, can be superimposed on the U.S. market, it appears that a longer estimate would provide for better, more stable results. This would appear to mitigate Hubbard/Stangle's concern that a 10 year estimation interval would provide poorer estimates of future returns.

**B. REASONABLENESS OF
THE STB'S BETA ESTIMATES**

Hubbard/Stangle and Myers express concerns regarding the reasonableness of the STB's Beta estimates. Myers believes that the STB's Beta estimation procedures do not follow standard industry practices, and generate, in part, downward biased estimates of the railroad industry cost of equity.²⁷ Hubbard/Stangle contend that the STB's Beta estimates are significantly lower than those produced by commercial financial data firms, leading, again in part, to lower cost of equity estimates.²⁸

²⁶ Id. at 25.

²⁷ See Myers at 11-12. Myers also believes the STB's use of a 5.2 percent equity risk premium also plays a key part in developing unreasonably low railroad cost of equity estimates.

²⁸ See Hubbard/Stangle at 14.

We believe that the concerns expressed by Hubbard/Stangle and Myers are misplaced. The STB estimates of the individual railroad Betas are within the range of Beta estimates developed by financial and investment research firms and other reliable sources of Beta estimates. We discuss the rationale for our position below.

1. The STB's 2005 Estimates Are Reasonable When Compared Against An Appropriate Range of Estimates

Hubbard/Stangle contend that the STB's Beta estimates, when combined with the STB estimated equity risk premium and a 10-year T-Bond rate, produce cost of equity estimates significantly lower than those produced using inputs from commercial data providers.^{29/} We will address the issues regarding the equity risk premium later in this verified statement, but address Hubbard/Stangle's concerns with the STB's Beta estimates in this section.

Hubbard/Stangle's Exhibit 3a compares the STB's 2005 Beta estimates to Betas developed by Ibbotson, Value Line and Bloomberg. They also compare the STB's 2005 CAPM cost of equity to that produced by data prepared in whole, or in part, by Ibbotson, Value Line, and Bloomberg.^{30/} From this data, Hubbard/Stangle conclude that the STB's estimates are below the range developed by commercial users.

While Ibbotson, Value Line and Bloomberg are respected developers of financial data, they do not constitute the universe of respected financial reporting firms. Other highly respected firms that

^{29/} See Hubbard/Stangle at 14.

^{30/} Hubbard/Stangle use an equity risk premium estimated by Ibbotson in combination with the Beta estimates developed by Bloomberg and Value Line, and a risk-free rate of return developed from a 20-Year T-Bond.

produce financial information include Standard & Poor's and Reuters Provestor. We have supplemented Hubbard/Stangle's Exhibit 3a to include the 2005 Beta estimates produced by Standard & Poor's and Reuters Provestor and summarize the results in Table 3 below ^{31/}

^{31/} Table 1 and Table 2 were included with our opening verified statement filed in this proceeding on September 27, 2007

Table 3
Restatement of Hubbard/Stangle Exhibit 3a - 2005 Cost of Equity

	<u>Railroads</u> (1)	<u>Beta</u> (2)	<u>Cost of Equity</u> (3)
<u>SFB Estimate</u>			
1 Burlington Northern Santa Fe Corp		0.85	8.69%
2 CSX Corp		0.83	8.57%
3 Norfolk southern Corp		0.85	8.69%
4 Union Pacific Corp		0.68	7.78%
<u>Ibbotson</u>			
5 Burlington Northern Santa Fe Corp		0.64	9.13%
6 CSX Corp		0.83	10.48%
7 Norfolk southern Corp		0.89	10.90%
8 Union Pacific Corp		0.59	8.78%
<u>Value Line</u>			
9 Burlington Northern Santa Fe Corp		0.95	11.33%
10 CSX Corp		1.00	11.68%
11 Norfolk southern Corp		1.00	11.68%
12 Union Pacific Corp		0.85	10.62%
<u>Bloomberg</u>			
13 Burlington Northern Santa Fe Corp		0.94	11.23%
14 CSX Corp		1.20	13.07%
15 Norfolk southern Corp		1.19	13.01%
16 Union Pacific Corp		0.81	10.32%
<u>Standard & Poor's</u>			
17 Burlington Northern Santa Fe Corp		0.53	8.35%
18 CSX Corp		0.71	9.63%
19 Norfolk southern Corp		0.66	9.27%
20 Union Pacific Corp		0.44	7.72%
<u>Reuters Provestor</u>			
21 Burlington Northern Santa Fe Corp		0.53	8.34%
22 CSX Corp		0.70	9.52%
23 Norfolk southern Corp		0.62	8.98%
24 Union Pacific Corp		0.41	7.50%
25 Median Without S&P and Reuters			11.07%
26 Median With S&P and Reuters			9.97%

Source Exhibit No. 7

As shown in Table 3, when Hubbard/Stangle's Exhibit 3a is updated to incorporate Beta estimates produced by Standard & Poor's and Reuters Provestor, the STB's estimates are clearly within the norm. Specifically, the STB's estimates of the cost of equity compare favorably with those produced using the Standard & Poor's and Reuter's Beta estimates. The STB cost of equity estimates are within the range of estimates developed from data used by commercial suppliers^{22/}

2. The STB's Beta Estimates Compare Favorably To Those Developed Using Commercially And Publicly Available Data

As we stated above, the universe of respected firms generating company specific Beta estimates is not limited to Ibbotson, Value Line and Bloomberg²². Standard & Poor's also is a highly respected financial research company, which produces Beta estimates for a wide range of companies as part of its S&P Stock Reports. In addition, to commercial suppliers of railroad company Beta estimates, Brealey, Myers & Allen also included in their text estimates of the 2003 railroad company Betas. We discuss each below.

To evaluate the reasonableness of the STB's estimated railroad company Betas, we looked for historical examples of railroad Beta calculations. One interesting source of historic betas was found in Brealey, Myers & Allen, in which the authors included 2003 Beta estimates for the four railroads

^{22/} Also note that the STB's estimates use a lower risk-free rate than that used by Hubbard/Stangle. If a 20-Year T-Bond rate is used instead of the 10-Year T-Bond applied by the STB, the STB's estimates would increase by an additional 30 basis points.

²³ In our verified statement in STB Ex Parte No. 558 (Sub-No. 10), Railroad Industry Cost of Capital--2006, and in Mr. Crowley's verified statement in Ex Parte No. 558 (Sub-No. 9), Railroad Industry Cost of Capital--2005, we utilized Ibbotson data to estimate railroad company Betas and the equity risk premiums. We chose to use Ibbotson data in those analyses because it is widely used and accepted, and we wished to avoid any arguments about our potential use of "non-standard" data. However, our use of Ibbotson data should not be taken to imply that we believe it is the only producer of acceptable financial data. We could have used other data and achieved similar results.

included in the STB's cost of capital determination ^{24/} As shown in Table 4 below, the Betas included by Brealey, Myers & Allen are significantly lower than those developed by the STB

Table 4		
2003 Railroad Betas Developed By The		
<u>STB, And Included in Brealey Myers & Allen</u>		
<u>Railroad</u>	<u>STB ^{1/}</u>	<u>Brealey</u>
<u>(1)</u>	<u>(2)</u>	<u>Myer & Allen ^{2/}</u>
		<u>(3)</u>
1 BNSF	0.83	0.53
2 CSX	0.85	0.58
3 Norfolk Southern	0.82	0.47
4 Union Pacific	0.68	0.47

^{1/} STB Ex Parte 664 workpapers

^{2/} Brealey, Myers & Allen page 221

As Table 4 above demonstrates, utilizing the approaches and data proposed by the STB produces a 2004 Beta estimates substantially higher than the Betas included in Brealey, Myers & Allen

In addition to the Betas included by Brealey, Myers & Allen, we also compared the STB's Beta estimates from 1998 to 2006 versus the Betas produced by Standard & Poor's for the same time periods. We display the results in Table 5 below

^{24/} See Brealey, Myers & Allen at 221. The authors did not indicate the source of their Beta estimates, but we assume that they are consistent with the estimates used by Myers in this proceeding.

Table 5
Comparison of STB and S&P Beta Estimates

Year ¹	BNSF		CSX		NS		UP	
	STB Beta ²	S&P Beta ³	STB Beta ²	S&P Beta ³	STB Beta ²	S&P Beta ³	STB Beta ²	S&P Beta ³
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 1998	1.05	0.96	1.06	1.17	0.93	1.08	0.82	0.71
2 1999	1.09	0.82	1.04	0.82	0.90	0.75	0.88	0.71
3 2000	1.07	0.80	0.99	0.72	0.78	0.63	0.84	0.57
4 2001	0.88	0.61	0.82	0.48	0.90	0.53	0.75	0.35
5 2002	0.78	0.56	0.79	0.53	0.78	0.61	0.64	0.43
6 2003	0.83	0.53	0.85	0.53	0.82	0.45	0.68	0.45
7 2004	0.83	0.52	0.82	0.57	0.80	0.52	0.66	0.36
8 2005	0.85	0.53	0.83	0.71	0.85	0.66	0.68	0.44
9 2006	0.86	0.84	0.87	0.98	0.89	0.73	0.69	0.69

^{1/} 1997 S&P Beta data was unavailable. 2006 SIB Betas estimated based on the SIB's procedures described in Ex Parte No. 661 decision.

^{2/} Source: STB Ex parte 664 workpapers.

^{3/} Standard & Poor's reported Betas.

As the data in Table 5 above indicates, the Beta estimates developed by the SIB are comparable to those developed by Standard & Poor's.

IV. EQUITY RISK PREMIUM ESTIMATES

As it stated in Ex Parte 664, the STB proposes to use monthly NYSE return data along with 10-year T-Bond data to develop its estimates of the equity risk premium^{35/} For Beta estimation purposes, the STB proposes using 10 years of NYSE data and risk-free rate data in its OLS regression analysis. For the equity risk premium used in the CAPM, the STB suggests using 50 years of NYSE and 10-Year T-Bond data.

We agree with Myers that the equity risk premium used in developing the railroad company Beta estimates should use a short-term T-Bill rate and not the 10-Year T-Bond proposed by the STB, although the impact is minimal. We also believe that Hubbard/Stangle and Myers are in general *conceptual agreement on the use of NYSE Index data to reflect expected returns on the market*, although the S&P 500 could be used instead and would make little difference. However, Hubbard/Stangle and Myers oppose the STB's proposed use of 50 years of historic data to estimate the equity risk premium. They believe that the estimated equity risk premium the STB has developed is at the bottom, or even below, the likely range of the risk premium in the United States. We discuss Hubbard/Stangle's and Myers' concerns below.

A. APPROPRIATE TIME PERIOD

The STB proposes to use monthly NYSE data over a 50 year time period to estimate the equity risk premium. As we stated in our Opening Verified Statement, we believed that the STB's

^{35/} See Ex Parte 664 at 10.

proposed 50 year interval meets the general parameters needed to develop an equity risk premium from historic data. First, it reduces the inherent volatility associated with short-term estimates ^{36/} Second, it provides greater assurance of developing an estimated premium above a fairly priced market ^{37/}

Hubbard/Stangle and Myers on the other hand oppose the use of a 50 year period as too short. Myers indicates that noise created by stock-market volatility can make it very difficult to pin down a true average ^{38/} Given the imprecision created by this volatility, Myers indicates that standard sources of historical average equity risk premium estimates have turned to longer, not shorter time periods. Hubbard/Stangle express similar sentiments stating that analysts often rely upon long-horizon risk premium estimates to reduce estimation error ^{39/} As such, the 50 year period proposed by the STB strikes Hubbard/Stangle as too short by industry standards.

We believe that the concerns noted by Hubbard/Stangle and Myers are overstated and that the STB's proposed 50 year interval is sufficient to estimate the equity risk premium and is, if anything, likely to prove to be on the high side. As a matter of practicality, the choice of the time period must satisfy two criteria. First, the chosen time period should include a sufficient number of months to allow for the construction of a meaningful frequency distribution ^{40/} Second, the choice must take into consideration that variability of returns was higher in the 1930's than in subsequent periods ^{41/}

^{36/} See Crowley/Fapp Opening VS at 10

^{37/} See Crowley/Fapp Opening VS at 11

^{38/} See Myers at 9

^{39/} See Hubbard/Stangle at 12

^{40/} See Fama, Eugene F., *Foundations of Finance*, New York: Basic Books, 1976 at 27

^{41/} Id

Hubbard/Stangle also contend that the STB's use of a 50 year historical period does not make use of all "available historic data." and that by ignoring this additional data the equity risk premium has been understated by 1.9 percent ^{42/} We have several problems with Hubbard/Stangle's contention. First, there is no clear definition what encompasses "all the available data." For example, Ibbotson chose 1926 as its starting point for its equity risk premium analyses because that is the year that CRSP chose as a starting point believing that this is when good-quality financial data first became available ^{43/} However, Myers chose to use an equity risk premium based on data extending back 26 years earlier to 1900 ^{44/} The equity risk premium used by Myers certainly contains more data, but produces a 6.6 percent premium, which is 0.5 percent lower than the 7.1 percent premium cited by Hubbard/Stangle. The amount of data does not appear to be the issue to Hubbard/Stangle, but rather the equity risk premium the data produces.

Second, even using a long historic period does not mean that the equity risk premium will be the 7.1 percent Hubbard/Stangle prefer. A review of the Ibbotson Risk Premium Over Time Report shows that moving from a 1926 starting-point to one only three years forward to 1929 reduces the equity risk premium to 6.3 percent ^{45/} The year 1929 was an aberration since it included the market crash preceding the Great Depression. But this demonstration just points to the arbitrary nature of selecting a starting-point for calculating a historic equity risk premium. The fact is an analyst could

^{42/} See Hubbard/Stangle at 13.

^{43/} See Pratt at 120.

^{44/} See Myers at 11.

^{45/} See Ibbotson Risk Premium Overtime Report Table A-1, Page 2 of 6.

choose a starting period that suites his or her needs and still encompass “all the available data” however the analyst wishes to define that term

When choosing the study period, both the level of the rates and variability should be considered. These criteria suggest that a reasonable historic average equity risk premium can be developed using data from as late as the 1950's⁴⁶. The STB's proposed approach meets these standards, and should provide an adequate estimate of the equity risk premium.

**B. REASONABLENESS
OF THE STB'S EQUITY
RISK PREMIUM ESTIMATE**

The STB estimated the 2005 equity risk premium to equal 5.2 percent, presumably based upon the procedures it outlines in its Ex Parte 664 decision⁴⁷. The STB's workpapers suggest that the 5.2% (which was fixed, rather than “rolling”) is not necessarily a definitive figure, but may have instead been intended as a starting point for the discussion of the proper method for developing and deploying an equity risk premium in CAPM⁴⁸. As we indicated in our Opening VS regarding the STB's solicitation of comments on whether to use a fixed or floating equity risk premium estimate, we believe that the STB should update its estimate of the equity risk premium annually, and should not rely upon a fixed estimate⁴⁹.

⁴⁶ See Harrington, Diana R., *Modern Portfolio Theory & The Capital Asset Pricing Model: A User's Guide*, Prentice Hall, 1983 at 116.

⁴⁷ See STB Ex Parte 664 electronic workpaper “STB COC CAPM workpaper.xls”. The STB presumably used its stated Ex Parte 664 methodology since the STB could not provide its actual risk premium calculations given licensing restrictions on the CRSP data used.

⁴⁸ For example, the STB's electronic workpaper caveats the 5.2 percent equity risk premium estimate as “Risk premium10 as of 2005 for now”.

⁴⁹ See Crowley/Fapp Opening VS at 11-14.

The question then becomes, is the 5.2 percent a reasonable estimate of the 2005 equity risk premium? Hubbard/Stangle and Myers believe the answer is no. Hubbard/Stangle state that the equity risk premium is more likely in the 7 percent range, while Myers uses a 6.6 percent equity risk premium in his calculation of The Burlington Northern Santa Fe Corporation's ("BNSF") 2005 cost of equity.^{50/}

We believe the STB's estimated 2005 equity risk premium of 5.2 percent is within the range of reasonable estimates produced by researchers and practitioners. As Hubbard/Stangle themselves point out, the determination of the equity risk premium is an open question in which there is no definitive answer.^{51/} This does not obviate the need for developing an estimate, though. While we cannot say with certainty that the STB estimate is the one "correct" answer, we can say whether it falls within the accepted norm of estimates. Our research indicates it does.

First, it must be remembered that the 5.2 percent used by the STB is reflective of 2005 only. As we showed in Table 1 of our Opening VS, we found that the equity risk premium using the STB's described rolling procedures ranged between approximately 5.0 and 7.6 percent between 1997 and 2006. This seems to fall directly in the range of equity risk premiums used by analysts and

^{50/} See Hubbard/Stangle at 11 and 13 and Myers at 11. BNSF is the corporate parent of BNSF Railway Company.

^{51/} See Hubbard/Stangle at 11. Hubbard/Stangle's claim that the STB understated the equity risk premium by 1.9 percent by not making use of "all the available historical data" seems a bit disingenuous. First, there is no clear definition of what represents "all the available historical data." Myers, for example, uses an equity risk premium estimate based on data back to 1900, which produces an equity risk premium lower than that suggested by Hubbard/Stangle. Hubbard/Stangle could be likely chastised for not using "all the available data" based on the estimate used by Myers. Second, depending upon the approach used in estimating the risk premium from historic data, the STB's estimate appears to be more than reasonable. Dimson, Marsh and Staunton estimated the equity risk premium from 1900 to 2000 using various econometric models and developed an equity risk premium of 5.4 percent. See *"Triumph of Optimism: 101 Years of Global Investment Returns,"* Princeton University Press. In this case, the estimated equity risk premium developed from "all available data" was nearly equal to that estimated by the STB.

researchers. For example, Brealey, Myers & Allen indicate that the STB's estimate lies within the bounds of a reasonable estimate.

Out of this debate only one firm conclusion emerges. Do not trust anyone who claims to *know* what returns investors expect. History contains some clues, but ultimately we have to judge whether investors on average have received what they expected. Many financial economists rely on the evidence of history and therefore work with a risk premium of 7.5 percent. The remainder generally use a somewhat lower figure. Brealey, Myers and Allen have no official position on the issue, but we believe that a range of 5 to 8 percent is reasonable for the risk premium in the United States.^{52/}

Other evidence supports the STB's calculation of a 2005 risk premium of 5.2 percent. A study published in the North American Actuarial Journal compiled evidence from recent research on the equity risk premium, and cataloged the empirical values of the equity risk premium implied.^{53/} The researchers did not limit themselves to estimates based on historical averages, but also reviewed estimates based on econometric analysis of historical data, as well as estimates of the projected equity risk premium.

The study was wide ranging, and included estimates from a large number of sources, ranging from Ibbotson Associates and Brealey and Myers, to the United States Social Security Administration. The researchers found that estimates of the equity risk premium based on historical averages and analysis of expected returns on historical data ranged from approximately 3.8 to 8.4

^{52/} See Brealey, Myers & Allen at 154 (emphasis in original).

^{53/} See "Equity Risk Premium: Expectations Great and Small," Derrig, Richard A. and Orr, Elisha D., *North American Actuarial Journal*, January, 2004, pp. 45 to 69.

percent, while projected premiums ranged from 0 to 5 percent ^{54/} Once again, the STB's estimate for 2005 falls within what can be considered a reasonable range

Finally, we note that the Kansas City Southern Railway Company ("KCS") presented evidence in this proceeding using an estimate of the equity risk premium lower than the 5.2 percent used by the STB. KCS included in its comments a calculation of a KCS specific CAPM cost of equity prepared by KCS's expert Mr. Nelson Walsh, Vice Chairman of the Investment Banking Group at Morgan Stanley. Mr. Walsh developed his KCS specific cost of equity utilizing Morgan Stanley's estimation of the market risk premium of 4 percent ^{55/} Mr. Walsh states that the 4 percent equity risk premium is supported by various academic studies, which are not specifically referenced in his verified statement, and Kansas City Southern's filing adds that "the market risk premium was calculated using Morgan Stanley's standard assumption for market risk premium" ^{56/} However, given that a respected investment banking firm such as Morgan Stanley relies upon an estimated market risk premium of 4 percent gives credence to the reasonableness of the STB's estimate of 5.2 percent for 2005. If anything, the STB's figure is likely to prove to be overstated.

In sum, as we stated in our Opening VS in this proceeding, no definitive estimate of the equity risk premium exists. Instead, the best that we can use is a reasonable estimate of the premium. We believe using the STB's proposed methodology will produce such a reasonable estimate.

^{54/} Id. at 64.

^{55/} See Walsh VS at 3.

^{56/} Mr. Walsh uses the market risk premium in conjunction with a predicted beta, and it thus appears that the market risk premium is *ex ante* in nature.

V. USE OF MULTI-STAGE DCF MODELS

The STB recognized in its Ex Parte 664 decision that the single-stage DCF approach the STB, and its predecessor agency the Interstate Commerce Commission, had relied upon for a number of years to develop the railroad industry cost of equity was flawed, and had been displaced by more sophisticated approaches to estimating required returns on equity. One of the updated approaches reviewed by the STB as part of this proceeding was a multi-stage DCF approach, which utilized multiple growth rates along with expected dividend yields to estimate the cost of equity. The STB indicated its reluctance in utilizing a multi-stage DCF approach given the approach's lack of foundation for preferring one multi-stage approach over another, and its openness to manipulation.

Hubbard/Stangle and Myers believe that the STB has unjustifiably disregarded the multi-stage DCF approach in favor of the CAPM, and should at the very least balance its CAPM produced results with those generated by application of a reasonable multi-stage DCF model. Hubbard/Stangle feel the CAPM is no more straightforward than a DCF approach or more reliant on objective facts than the DCF.⁵⁷ They also contend that a properly constructed multi-stage DCF approach would be a useful cross-check to the STB's CAPM cost of equity.⁵⁸

Myers expresses similar sentiments stating that the STB did not adequately consider multi-stage DCF models as alternatives or supplements to the CAPM.⁵⁹ Myers also indicates that the STB made

⁵⁷ See Hubbard/Stangle at 15.

⁵⁸ See Hubbard/Stangle at 16.

⁵⁹ See Myers at 12-13.

numerous errors in its development of the multi-stage DCF model the STB referenced in its Ex Parte 664 decision. Specifically, Myers argues that the STB incorrectly discounted the model's terminal value twice, giving the results what Myers terms "an arbitrary haircut."^{60/} Myers also states that the STB should not assume a company's initial growth stage will last for 20 years, but should rather assume the initial stage will last for only five (5) to 10 years.^{61/} Myers contends that the 4.6 percent terminal growth rate used in the STB's multi-stage DCF model is lower than that forecasted long-term growth in the economy expected by respected forecasters.^{62/}

As a threshold matter, we agree that in developing its multi-stage DCF approach the STB made the error in discounting the terminal value twice indicated by Myers. We also agree with Myers that normally an initial growth period would not extend for as long as 20 years, unless there was some very unique underlying situation. Finally, we agree again with Myers that a terminal growth rate somewhat higher than the 4.6 percent used by the STB should be considered.^{63/}

However, even with these corrections, we continue to have concerns regarding the utility of using a multi-stage DCF model to estimate the railroad industry cost of equity. As the STB emphasized in its Ex Parte 664 decision, there is no theoretical justification for choosing one multi-stage DCF approach over the other. Myers has pointed to this one issue previously in his writings on the use of multi-stage DCF models in regulatory settings.

^{60/} See Myers at 12-13.

^{61/} See Myers at 13.

^{62/} Id.

^{63/} For example, in his reply verified statement filed on behalf of the WCIL in Ex Parte No. 558 (Sub-No. 9), *Railroad Industry Cost of Capital - 2005*, Dr. James E. Hodder estimated the long-term growth rate in the U.S. Gross Domestic Product would be around 6 percent.

Anyone who has reviewed and tried to absorb [the DCF model results] will be frustrated at the inexplicable scatter of the DCF cost of equity estimates. It is tempting to look for some simple rule or message in these results. Unfortunately, the scatter is the rules and is the message. DCF is not one method but many. It is difficult (probably impossible) to say which growth rate measure or variable growth method is correct.^{64/}

This lack of a single theoretically justifiable model, as well as uncertainty of terminal growth value, railroad growth rates, appears to leave a multi-stage DCF model open to outcome-oriented manipulation.

If the STB does choose to use a multi-stage DCF approach in conjunction with, and not a replacement for, a CAPM approach, we suggest it follow the following guidelines in its development of the model:

1. The initial stage should not extend beyond the five (5) year period reflected in the truncated consensus analysts estimates of the future short-term railroad growth developed by IBES. This is the approach recommended by Hubbard/Stangle^{65/} in this proceeding and advocated by Myers/Borucki^{66/} and Brealey, Myers & Allen.^{67/}
2. Beginning in year 6, the railroad industry's short-term growth rate would be gradually adjusted to the long-term growth rate over a reasonable period of time, say 10 years. Brealey, Myers & Allen suggest using such an approach.^{68/}

^{64/} See "Discounted Cash Flow Estimates of the Cost of Equity Capital - 1 Case Study," Myers, Stewart C., and Borucki, Lynda S., *Financial Markets, Institutions & Instruments*, Volume 3, Number 3, 1994, 9-45, 27 ("Myers/Borucki").

^{65/} See Hubbard/Stangle at 16.

^{66/} See Myers/Borucki at 21.

^{67/} See Brealey, Myers & Allen at 70-71.

^{68/} Id.

- 3 The final, or terminal, stage should reflect the long-term expected growth rate in the United States Gross Domestic Product. Hubbard/Stangle^{69/} recommend this method, as do Brealey, Myers & Allen.^{70/}

We have developed the railroad industry cost of equity applying the procedures outlined above for the years 1997 through 2006 based on data contained in the STB's 1999 to 2005 Ex Parte 558 decisions, and based on the AAR's evidence submitted in STB Ex Parte No. 558 (Sub-No. 10). We have also used the 6% terminal growth value previously suggested by Dr. Hodder. The results are shown in Table 6 below comparing the multi-stage DCF costs of equity to the costs of equity developed by the STB and the AAR using a single-stage DCF model and the CAPM railroad industry cost of equity developed by the STB.

^{69/} See Hubbard/Stangle at 16.
^{70/} See Brealey, Myers & Allen at 71.

Table 6
Estimates of the Railroad Industry Cost of Equity

<u>Year</u>	<u>Single Stage DCF Railroad Industry Cost of Equity</u>	<u>Multi-Stage DCF Railroad Industry Cost of Equity</u>	<u>STB CAPM Railroad Industry Cost of Equity</u>
(1)	(2)	(3)	(4)
1 1997	13.8%	9.5%	11.9%
2 1998	13.1%	9.0%	10.2%
3 1999	12.9%	9.0%	10.7%
4 2000	13.9%	10.7%	10.7%
5 2001	12.8%	8.7%	9.2%
6 2002	12.6%	8.3%	8.3%
7 2003	12.7%	8.7%	8.0%
8 2004	13.2%	8.8%	8.2%
9 2005	15.2%	8.9%	8.4%
10 2006	16.1%	8.8%	9.0%

Sources: Column (2) from STB Ex parte 558 decisions and AAR filings in Ex Parte No. 558 (Sub No. 10); Column (3) from Exhibit No. 8; Column (4) from STB Ex Parte 664 and L. E. Peabody & Associates, Inc. analysis.

As Table 6 above shows, the multi-stage DCF develops a cost of equity that is quite consistent with the CAPM model results developed by the STB.

VI. OTHER ISSUES

In addition to the above comments regarding the application and implementation of the CAPM and multi-stage DCF models, we respond to several statements made by Hubbard/Stangle and Myers in their respective verified statements regarding aspects of the railroad industry cost of capital. Specifically, we comment on Hubbard/Stangle's suggestion of using the Ibbotson calculation of the industry average cost of capital for line-haul railroads as a cross-check on the STB's calculations. We also comment on Myers "asymmetric risk" argument. We discuss both these issues below.

A. IBBOTSON INDUSTRY COST OF CAPITAL

Hubbard/Stangle suggest that the STB consider cross-checking its calculations of the railroad industry cost of equity against the cost of equity included in the annual Ibbotson Associates *Cost of Capital Yearbook*.²¹ Hubbard/Stangle also contend that Ibbotson estimates of the railroad industry cost of equity represent a readily available alternative to the CAPM that does not require any additional resources on the part of the STB or the parties involved. It is unclear whether Hubbard/Stangle propose using the Ibbotson *Cost of Capital Yearbook* data as a supplement to, or a replacement for, the STB's calculations of the railroad industry cost of equity, but in either case, the STB should not give any weight to their proposal.

²¹ See Hubbard/Stangle at 16. Morningstar, Inc. acquired Ibbotson Associates in 2006, which now publishes the *Cost of Capital Yearbook* under the Morningstar name.

Ibbotson prepares reports for 300 U S -based industries that include a wide range of industry aggregate data, including industry betas, multiples, costs of equity estimates, and weighted average costs of capital ²² Ibbotson classifies its industry reports by Standard Industrial Classification ("SIC") codes, and produces reports at the 1, 2, 3 and 4-digit SIC Code levels. For example, data from BNSF would be included in four separate industry groupings: SIC Code 4 (Transportation, Communications, Electric, Gas, and Sanitary Services), SIC Code 40 (Railroad Transportation), SIC Code 401 (Railroads), and SIC Code 4011 (Railroads, Line-Haul Operating). The number of companies included in the industry groupings decreases as the SIC Code numbering increases. For example, SIC Code 4 includes 306 companies in the industry group average statistics, while SIC Code 40 includes only 9 companies. The lowest level which contains the Class I railroads included in the STB's cost of capital determination is SIC Code 4011, which includes eight (8) companies - BNSF, CSX Corporation ("CSX"), Genesee & Wyoming Incorporated ("G&W"), KCS, Norfolk Southern Corporation ("NS"), Pioneer Railcorp ("Pioneer"), Providence & Worcester Railroad ("P&W") and Union Pacific Corporation ("UP").

It is readily apparent that a comparison of the Ibbotson cost of equity calculations from its SIC Code 4011 report to a STB railroad industry cost of capital would miss the mark. The inclusion of the four additional railroads (G&W, KCS, Pioneer and P&W) beyond the four included in the current STB cost of capital determination, would make the comparison problematic at best. But the inclusion of three short-line and regional railroad companies (G&W, Pioneer and P&W) makes the

²² See Morningstar's website at <http://corporate.morningstar.com/ib/asp/subject.aspx?xmlfile=1426.xml> for a complete description of their industry reports.

comparison suspect Pioneer for example has a total market cap of only \$20 million, and has virtually no trading activity on its common stock. P&W is not far behind with a market cap of approximately \$80 million as of October 26, 2007, again with relatively light trading activity. While the market caps for Pioneer, P&W and G&W are so small that their inclusion in a market weighted cost of equity calculation may be irrelevant, the same cannot be said for KCS, which presumably would impact the industry average.

The Ibbotson cost of equity estimates also suffer from a lack of openness and clarity. While not casting doubt on the authors' veracity, it is impossible to "tease out" the impact of including four additional railroads without being able to see their underlying calculations of the different cost of equity estimates. For example, in developing their three-stage DCF cost of equity estimates, where did Ibbotson obtain its growth estimates for the short, medium and long-term? Hubbard/Stangle make some general references to Ibbotson's procedures, but do not give specifics. Second, how are the growth estimates weighted between the eight railroads included in the Ibbotson analysis? Without this information, we would be unable to determine if the Ibbotson estimates over or understate the cost of equity based on an average of only the four railroads included in the STB's cost of equity determination.

Given the apples to oranges nature of the Ibbotson industry costs of equity and the STB's cost of equity estimates, a meaningful comparison is just not possible, and Hubbard/Stangle's suggestions should be disregarded.

**B. RAILROAD INDUSTRY
"ASYMMETRIC RISK"**

Myers concludes his verified statement by making the following statement

The midpoint of a range for the cost of equity may under- or overstate the true cost of equity. Some imprecision is inevitable. Given the imprecision, the Board should weigh the costs of underestimating the true cost of equity against the costs of overestimating it. Underestimates are generally more costly. They deter capital investment. If the Board wants to encourage the railroad industry to modernize and expand capacity, it is better off settling on a higher cost of equity than a lower one.

Setting a higher cost of equity may also give railroads a cushion to offset asymmetric risk. Railroads face asymmetric risk when *competition or regulation limits upside profitability, with no offsetting downside protection*.²³

Myers passes off his comments with a sense of academic air, but in truth, he is asking for nothing more than the continued subsidization of the railroads by captive shippers. He indicates that underestimating the railroad industry cost of equity is more costly than overestimating the costs, so therefore it is better to err on the side of the railroads. As Myers presumably knows, there are costs associated with overestimates as well, costs which are borne by shippers in the form of higher than justified rail rates. Myers has not attempted to weigh these additional costs, and seems to ignore their consequence.

²³ See Myers at 14.

Myers statement that the STB should err towards the high side in estimating the railroad industry cost of equity to allow for potential shortcomings in available capital or for “asymmetric risk” also sounds suspiciously like the “fudge factors” that his other writings urge readers to avoid. In Brealey, Myers & Allen, the authors specifically advise against making adjustments to costs of capital to account for “bad outcomes.”

But in everyday usage, risk simply means “bad outcome.” People think of risks of a project as a list of things that can go wrong. For example,

- A geologist looking for oil worries about the risk of a dry hole
- A pharmaceutical manufacturer worries about the risk that cures for baldness may not be approved by the Food and Drug Administration
- The owner of a resort hotel in a politically unstable part of the world worries about the risk of expropriation

Managers add fudge factors to discount rates to offset worries such as these

This sort of adjustment makes us nervous. First, the bad outcomes we cited appear to reflect unique (i.e., diversifiable) risks that would not affect the expected rate of return demanded by investors.⁷⁴

In this situation, the railroads face the “bad outcome” of potential actions by the STB which may or may not limit railroad future income and potential access to capital. Myers seems to imply the way to handle this is to increase the railroad cost of equity to provide a “cushion” to offset this risks.

⁷⁴/ See Brealey, Myers & Allen at 223

Myers' other writings soundly advise that the railroads should not be given an additional cushion of support that they do not deserve or require

Finally, the STB has already addressed and rejected Myers' "asymmetric risk" claim in prior STB proceedings. Myers first raised his asymmetric risk argument in FMC ⁷⁵ where he argued a hypothetical stand-alone railroad ("SARR") would face asymmetric risk from other SARR's entering the market if the original SARR's earnings exceed expectations. This truncated upside earnings potential would not be offset by a similar limit on downside earnings, thereby increasing the risk to the SARR, and fostering a higher cost of capital ⁷⁶. The STB rejected Myers' argument as "unrealistic."

UP raised Myers' asymmetric risk argument again in WPL ⁷⁷. Like in FMC, the STB again rejected Myers' argument. In WPL, UP extended this argument to so-called real world railroads. UP argued in WPL that even though the UP does not operate in a contestable market like a SARR, a real world railroad would still face asymmetric risk requiring a higher cost of capital ⁷⁸. The STB rejected this new argument as being a violation of the efficient market hypothesis ⁷⁹.

⁷⁵ STB Docket No. 42022, FMC Wyoming Corporation and FMC Corporation vs. Union Pacific Railroad Company, 4 S.T.B. 699, 846 ("FMC").

⁷⁶ See FMC at 846.

⁷⁷ Docket No. 42051, Wisconsin Power And Light Company vs. Union Pacific Railroad Company, 5 S.T.B. 955, 982-984 ("WPL").

⁷⁸ See WPL at 982-984.

⁷⁹ The Efficient Market Hypothesis asserts that security prices reflect all publicly known and available information, including all potential risks. See Brealey, Myers & Allen at 337.

To the extent UP may face some (more limited) asymmetric earnings risk itself, as its counsel suggests, UP has not shown why that risk is not already reflected in its cost of capital. We presume efficient capital markets recognize and reflect all of the risks faced by railroads, which is why in FMC we treated a real options adjustment as a collateral attack on the railroad cost-of-capital figure that we use in our SAC analysis. Here, UP maintains that its proposed adjustment is not to the cost-of-capital figure itself (nor to the revenue estimates directly), but rather would introduce an additional cost component to the annual capital carrying charges. The result of its proposed adjustment, however, is the same as if it applied a higher cost of capital or lowered the revenue projections. ^{80/}

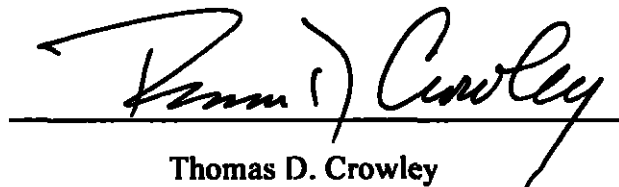
Once again in this proceeding, Myers has raised his asymmetric risk argument attempting to justify a higher than required railroad industry cost of equity. As the STB stated in WPL, the risks faced by railroads are well known and discussed nearly daily in the investment and railroad communities and thus should already be accounted for in the railroads security prices. Myers has not stated anything new in his latest submission, and he has done nothing more than refer to his prior submissions. There is thus no need to set the cost of equity at a higher than justified position to account for asymmetric risks.

^{80/} See WPL at 984

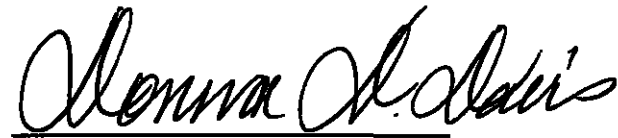
VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

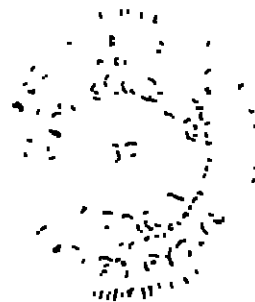
I, THOMAS D CROWLEY, verify under penalty of perjury that I have read the foregoing
Verified Statement of Thomas D. Crowley, that I know the contents thereof, and that the same
are true and correct Further, I certify that I am qualified and authorized to file this statement


Thomas D. Crowley

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


Notary Public for the State of Virginia

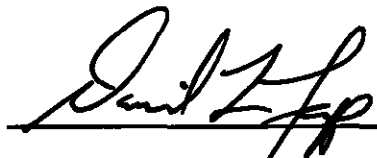
My Commission expires March 31, 2010



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

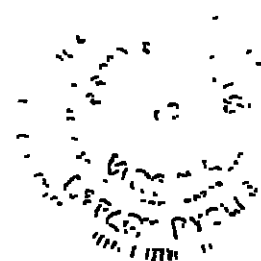
Sworn to and subscribed
before me this day of October 25, 2007.



Notary Public for the State of Virginia

My Commission expires

March 31, 2010



Comparison of STB Beta Estimates
With Beta Estimates Using Short-Term Risk-Free Rates

Year	BNSF		CSX		NS		UP	
	<u>With</u> <u>T-Bond 1/</u>	<u>With</u> <u>T-Bill 2/</u>	<u>With</u> <u>T-Bond 1/</u>	<u>With</u> <u>T-Bill 2/</u>	<u>With</u> <u>T-Bond 1/</u>	<u>With</u> <u>T-Bill 2/</u>	<u>With</u> <u>T-Bond 1/</u>	<u>With</u> <u>T-Bill 2/</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 1997	1.175	1.178	1.209	1.211	1.083	1.083	0.976	0.979
2 1998	1.051	1.055	1.062	1.066	0.934	0.936	0.824	0.826
3 1999	1.088	1.088	1.038	1.041	0.901	0.901	0.875	0.875
4 2000	1.068	1.068	0.978	0.981	0.782	0.782	0.843	0.844
5 2001	0.878	0.878	0.821	0.820	0.897	0.895	0.753	0.753
6 2002	0.783	0.784	0.785	0.782	0.778	0.780	0.637	0.637
7 2003	0.828	0.827	0.848	0.846	0.821	0.822	0.679	0.679
8 2004	0.831	0.835	0.820	0.820	0.796	0.803	0.660	0.663
9 2005	0.853	0.857	0.830	0.829	0.853	0.860	0.679	0.680

1/ Source: STB Ex Parte No. 664 workpapers

2/ Source: 10 year regression using CRSP NYSE and railroad return data, 3-Month T-Bills as the risk-free rate

Comparison of STB Beta Estimates Run With And Without Intercept Terms In The OLS

Year (1)	BNSF		CSX		NS		UP	
	Without an Intercept 1/ (2)	With an Intercept 2/ (3)	Without an Intercept 1/ (4)	With an Intercept 2/ (5)	Without an Intercept 1/ (6)	With an Intercept 2/ (7)	Without an Intercept 1/ (8)	With an Intercept 2/ (9)
1 1997	1 18	1 15	1 21	1 21	1 08	1 08	0 98	0 97
2 1998	1 05	1 03	1 06	1 08	0 93	0 94	0 82	0 84
3 1999	1 09	1 10	1 04	1 06	0 90	0 92	0 88	0 89
4 2000	1 07	1 07	0 98	1 00	0 78	0 83	0 84	0 85
5 2001	0 88	0 88	0 82	0 83	0 90	0 92	0 75	0 76
6 2002	0 78	0 78	0 79	0 79	0 78	0 78	0 64	0 64
7 2003	0 83	0 83	0 85	0 86	0 82	0 83	0 68	0 68
8 2004	0 83	0 82	0 82	0 83	0 80	0 79	0 66	0 65
9 2005	0 85	0 84	0 83	0 84	0 85	0 85	0 68	0 67

1/ Source STB Ex Parte No 664 workshops

2/ Source 10 year regression using CRSP NYSL and railroad return data. 10-year T-Bonds as the risk-free rate and including an intercept term

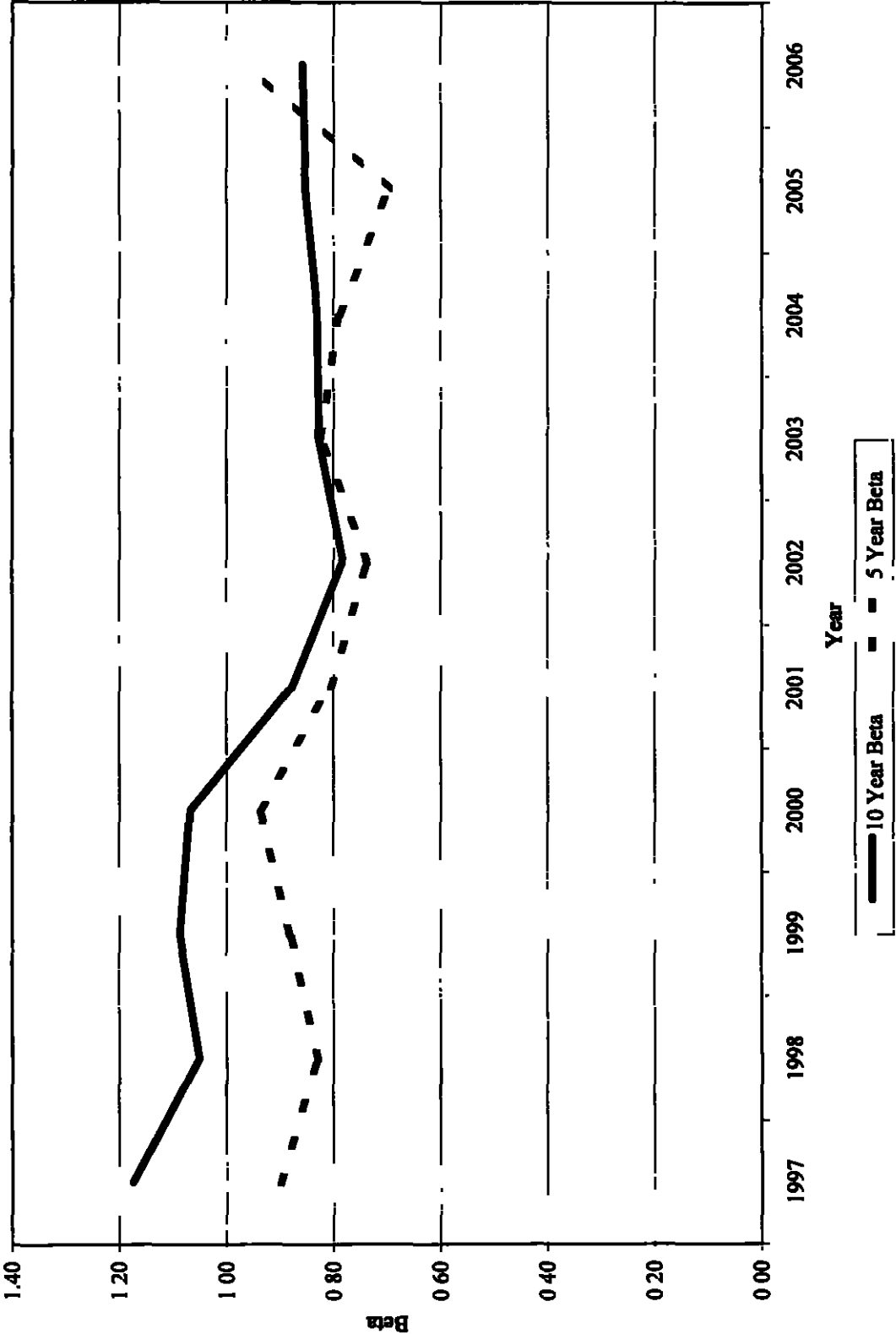
Comparison of STB 10 Year Betas and Five Year Betas Developed With T-Bills

Year	BNSF		CSX		NS		UP	
	<u>10 year 1/</u>	<u>5 Year 2/</u>	<u>10 year 1/</u>	<u>5 Year 2/</u>	<u>10 year 1/</u>	<u>5 Year 2/</u>	<u>10 year 1/</u>	<u>5 Year 2/</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1 1997	1.18	0.90	1.21	1.01	1.08	1.05	0.98	0.87
2 1998	1.05	0.83	1.06	0.85	0.93	0.85	0.82	0.65
3 1999	1.09	0.88	1.04	0.76	0.90	0.82	0.88	0.79
4 2000	1.07	0.94	0.98	0.75	0.78	0.73	0.84	0.67
5 2001	0.88	0.81	0.82	0.76	0.90	0.89	0.75	0.65
6 2002	0.78	0.74	0.79	0.69	0.78	0.67	0.64	0.54
7 2003	0.83	0.82	0.85	0.85	0.82	0.80	0.68	0.71
8 2004	0.83	0.79	0.82	0.88	0.80	0.79	0.66	0.54
9 2005	0.85	0.70	0.83	0.93	0.85	1.02	0.68	0.70
10 2006	0.86	0.96	0.86	1.06	0.89	0.90	0.69	0.77

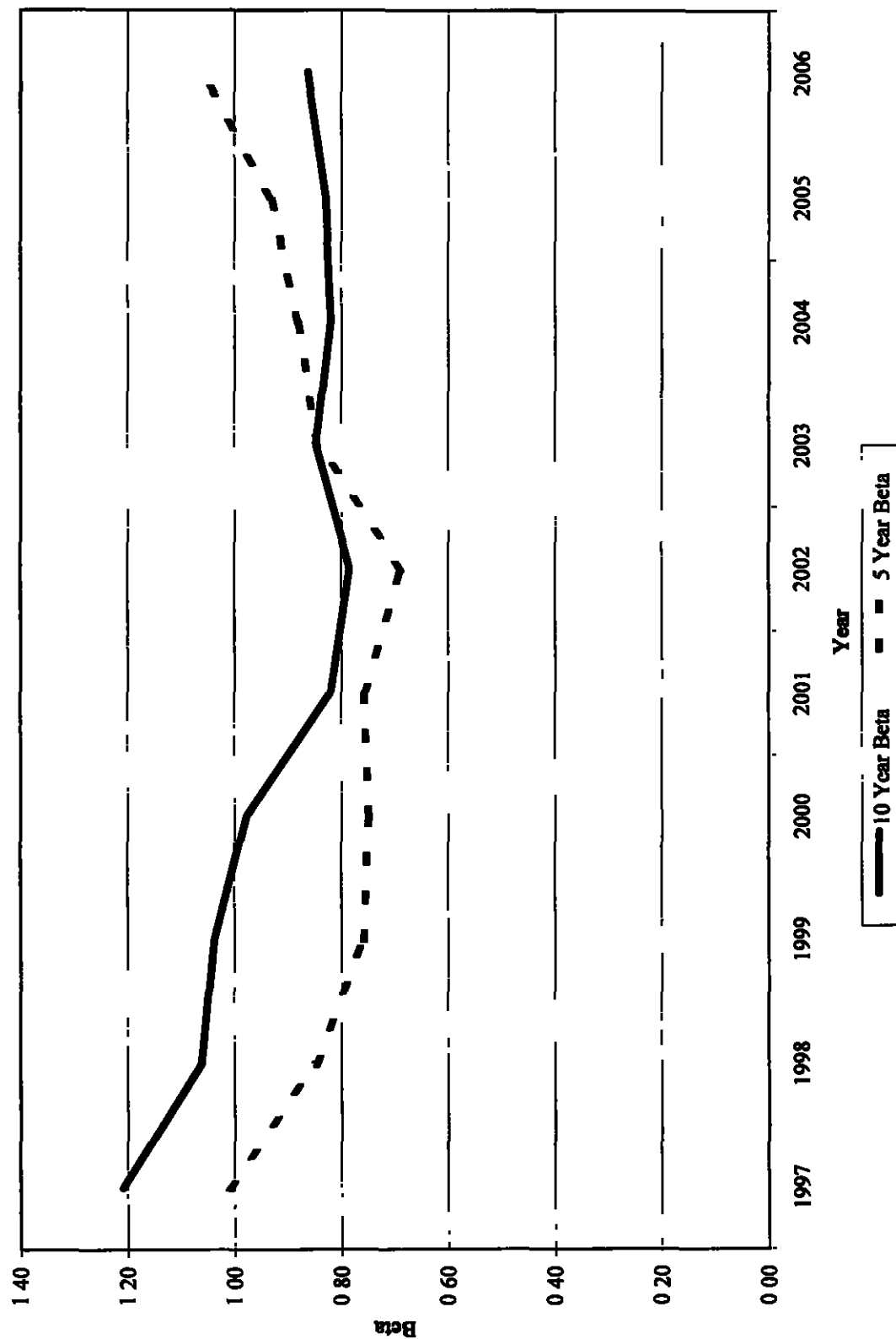
1/ Source: 1997 to 2005 STB Ex Parte No. 664 workpapers; 2006 L. E. Peabody & Associates, Inc. estimate

2/ Betas reflect a 60 period regression utilizing NYSE monthly returns and 3-Month T-Bill rate

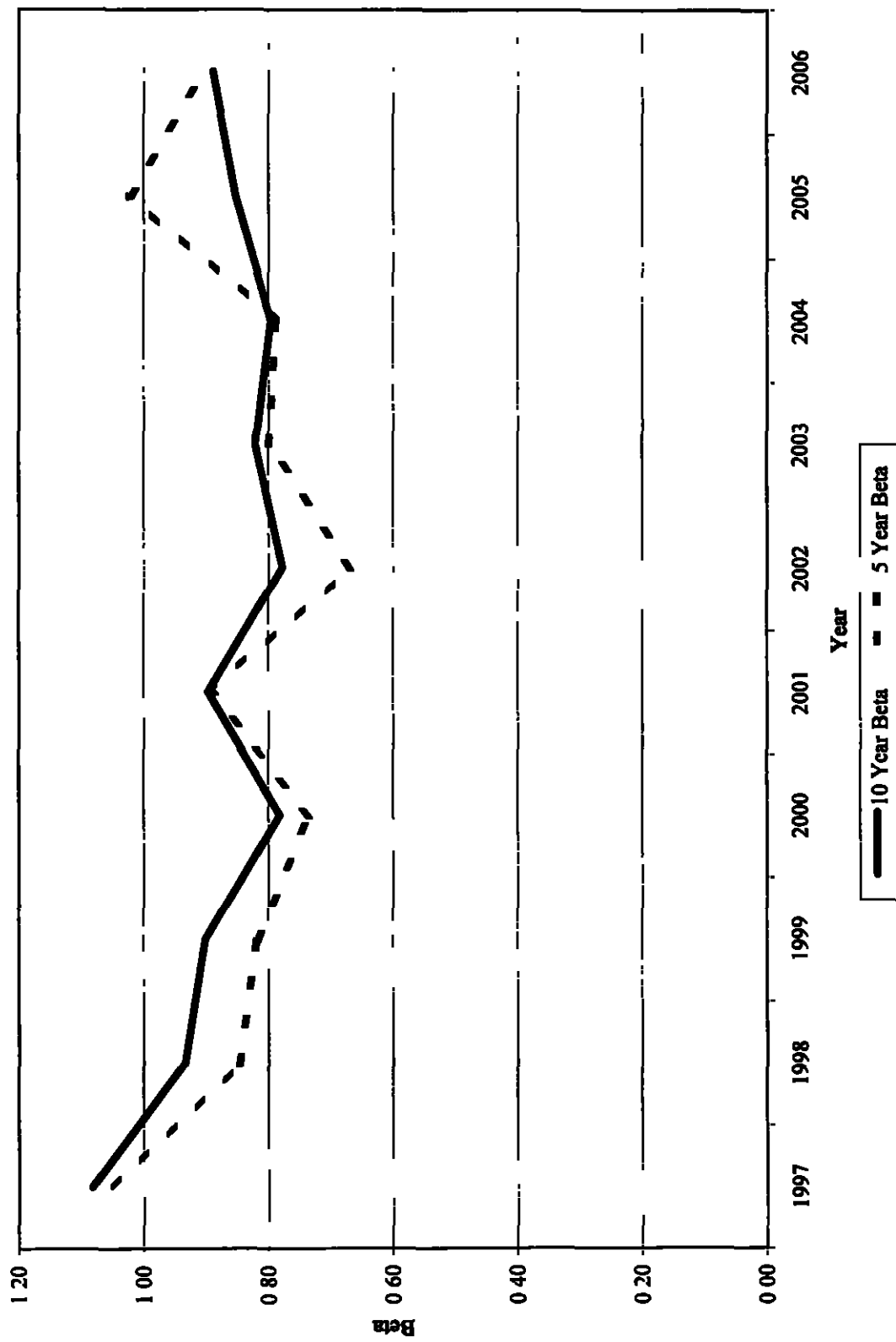
Comparison STB 10 Year BNSF Betas To 5 Year Betas Regressed Using 3 Month T-Bill Rates



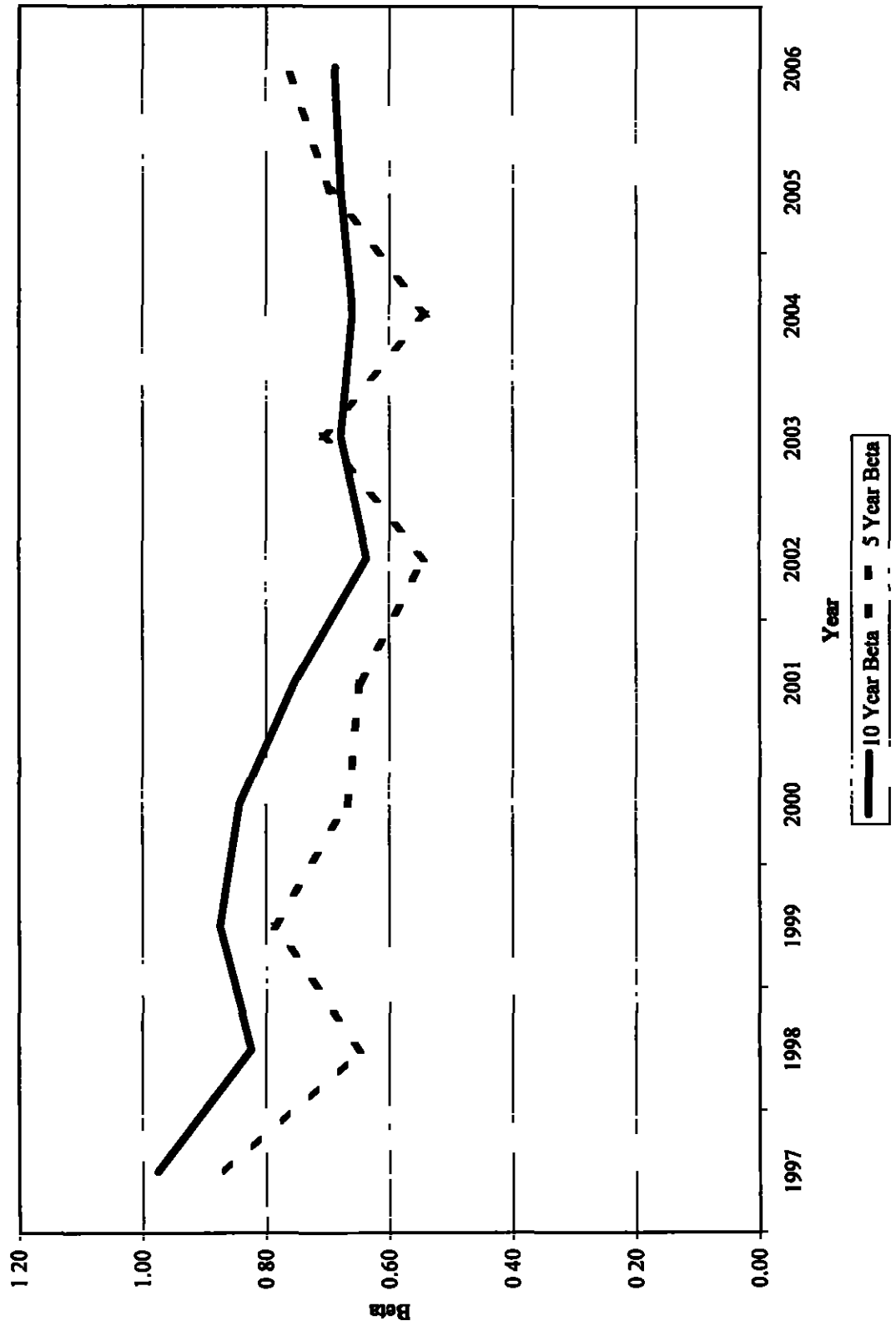
Comparison STB 10 Year CSX Betas To 5 Year Betas Regressed Using 3 Month T-Bill Rates



Comparison STB 10 Year NS Betas To 5 Year Betas Regressed Using 3 Month T-Bill Rates



Comparison STB 10 Year UP Betas To 5 Year Betas Regressed Using 3 Month T-Bill Rates



Restatement of Hubbard/Stangle Exhibit 3a -- 2005 Cost of Equity

	<u>Railroads</u> (1)	<u>Risk-Free Rate</u> (2)	<u>Beta</u> (3)	<u>Risk Premium</u> (4)	<u>Cost of Equity</u> (5)
<u>STB Estimate</u>					
1	Burlington Northern Santa Fe Corp	4.25%	0.85	5.20%	8.69%
2	CSX Corp	4.25%	0.83	5.20%	8.57%
3	Norfolk Southern Corp	4.25%	0.85	5.20%	8.69%
4	Union Pacific Corp	4.25%	0.68	5.20%	7.78%
<u>Ibbotson</u>					
5	Burlington Northern Santa Fe Corp	4.60%	0.64	7.08%	9.13%
6	CSX Corp	4.60%	0.83	7.08%	10.48%
7	Norfolk Southern Corp	4.60%	0.89	7.08%	10.90%
8	Union Pacific Corp	4.60%	0.59	7.08%	8.78%
<u>Value Line</u>					
9	Burlington Northern Santa Fe Corp	4.60%	0.95	7.08%	11.33%
10	CSX Corp	4.60%	1.00	7.08%	11.68%
11	Norfolk Southern Corp	4.60%	1.00	7.08%	11.68%
12	Union Pacific Corp	4.60%	0.85	7.08%	10.62%
<u>Bloomberg</u>					
13	Burlington Northern Santa Fe Corp	4.60%	0.94	7.08%	11.23% ^{1/}
14	CSX Corp	4.60%	1.20	7.08%	13.07% ^{1/}
15	Norfolk Southern Corp	4.60%	1.19	7.08%	13.01% ^{1/}
16	Union Pacific Corp	4.60%	0.81	7.08%	10.32% ^{1/}
<u>Standard & Poor's 2/</u>					
17	Burlington Northern Santa Fe Corp	4.60%	0.53	7.08%	8.35%
18	CSX Corp	4.60%	0.71	7.08%	9.63%
19	Norfolk Southern Corp	4.60%	0.66	7.08%	9.27%
20	Union Pacific Corp	4.60%	0.44	7.08%	7.72%
<u>Reuters Provestor 3/</u>					
21	Burlington Northern Santa Fe Corp	4.60%	0.53	7.08%	8.34%
22	CSX Corp	4.60%	0.70	7.08%	9.52%
23	Norfolk Southern Corp	4.60%	0.62	7.08%	8.98%
24	Union Pacific Corp	4.60%	0.41	7.08%	7.50%
24	Median Without S&P and Reuters				11.07%
25	Median With S&P and Reuters				9.97%

^{1/} Straight application of the CAPM does not produce the figures shown in Hubbard/Stangle's Exhibit 3a due most likely to rounding of the Beta. For commonality, the percentages presented by Hubbard/Stangle are used.

^{2/} Standard & Poor's Stock Reports. Only July 2005 estimates were available for S&P.

^{3/} Reuters Provestor Plus Company Reports. Only May 2005 estimates were available for Reuters.

1997 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	11.53%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.00%
3	Railroad Industry Average Dividend Yield <u>1/</u>	2.11%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	9.43%

	<u>Year</u>	<u>Annual Dividend Growth 5/</u>	<u>Dividend 6/</u>	<u>Discounted Dividend 7/</u>
	(1)	(2)	(3)	(4)
6	1	11.53%	2.3516	2.1490
7	2	11.53%	2.6227	2.1903
8	3	11.53%	2.9251	2.2324
9	4	11.53%	3.2623	2.2753
10	5	11.53%	3.6385	2.3191
11	6	10.98%	4.0379	2.3520
12	7	10.42%	4.4588	2.3734
13	8	9.87%	4.8989	2.3830
14	9	9.32%	5.3554	2.3807
15	10	8.77%	5.8248	2.3663
16	11	8.21%	6.3031	2.3401
17	12	7.66%	6.7859	2.3023
18	13	7.11%	7.2681	2.2535
19	14	6.55%	7.7444	2.1943
20	15	6.00%	8.2090	2.1256
21	<u>Terminal 8/</u>		253.9778	65.7628
22	<u>Cumulative Present Value 9/</u>			100.0
23	<u>Difference 10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (3) x [1 + current year Column (2)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3), Line 20 x (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 + Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

1998 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	11.18%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.83%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.91%

	<u>Year</u> (1)	<u>Annual Dividend Growth 5/</u> (2)	<u>Dividend 6/</u> (3)	<u>Discounted Dividend 7/</u> (4)
6	1	11.18%	2.0322	1.8659
7	2	11.18%	2.2594	1.9047
8	3	11.18%	2.5120	1.9443
9	4	11.18%	2.7928	1.9848
10	5	11.18%	3.1050	2.0261
11	6	10.66%	3.4361	2.0587
12	7	10.14%	3.7847	2.0819
13	8	9.63%	4.1490	2.0956
14	9	9.11%	4.5269	2.0993
15	10	8.59%	4.9157	2.0931
16	11	8.07%	5.3125	2.0769
17	12	7.55%	5.7138	2.0510
18	13	7.04%	6.1159	2.0156
19	14	6.52%	6.5145	1.9713
20	15	6.00%	6.9054	1.9186
21	<u>Terminal 8/</u>		251.2660	69.8121
22	<u>Cumulative Present Value 9/</u>			100.0
23	<u>Difference 10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15 prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] \ Line 3 \ Line 4 Years 2 to 15 equal to previous year Column (4) \ [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3), Line 20 \ (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 + Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

1999 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	10.89%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.91%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.97%

	<u>Year</u> (1)	<u>Annual Dividend Growth 5/</u> (2)	<u>Dividend 6/</u> (3)	<u>Discounted Dividend 7/</u> (4)
6	1	10.89%	2.1138	1.9398
7	2	10.89%	2.3440	1.9741
8	3	10.89%	2.5992	2.0089
9	4	10.89%	2.8823	2.0443
10	5	10.89%	3.1962	2.0804
11	6	10.40%	3.5286	2.1078
12	7	9.91%	3.8784	2.1260
13	8	9.42%	4.2438	2.1349
14	9	8.93%	4.6230	2.1342
15	10	8.45%	5.0134	2.1240
16	11	7.96%	5.4123	2.1043
17	12	7.47%	5.8164	2.0753
18	13	6.98%	6.2223	2.0374
19	14	6.49%	6.6260	1.9911
20	15	6.00%	7.0236	1.9368
21	Terminal 8/		250.8705	69.1807
22	Cumulative Present Value <u>9/</u>			100.0
23	Difference <u>10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3) [Column (3), Line 20 x (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 - Line 4)^Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

2000 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	10.66%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	3.07%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	10.59%

	<u>Year</u> (1)	<u>Annual Dividend Growth 5/</u> (2)	<u>Dividend 6/</u> (3)	<u>Discounted Dividend 7/</u> (4)
6	1	10.66%	3.3934	3.0684
7	2	10.66%	3.7552	3.0703
8	3	10.66%	4.1555	3.0722
9	4	10.66%	4.5985	3.0740
10	5	10.66%	5.0887	3.0759
11	6	10.19%	5.6074	3.0648
12	7	9.73%	6.1529	3.0409
13	8	9.26%	6.7228	3.0043
14	9	8.80%	7.3141	2.9555
15	10	8.33%	7.9234	2.8950
16	11	7.86%	8.5465	2.8236
17	12	7.40%	9.1787	2.7420
18	13	6.93%	9.8150	2.6513
19	14	6.47%	10.4496	2.5523
20	15	6.00%	11.0766	2.4463
21	<u>Terminal 8/</u>		255.6558	56.4632
22	<u>Cumulative Present Value 9/</u>			100.0
23	<u>Difference 10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) - [(1 - Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3), Line 20 x (1 + Line 2)] - (Line 5 - Line 2)

For Column (4) Column (3), Line 21 - [(1 + Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

2001 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	11.00%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.66%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.62%

	<u>Year</u>	<u>Annual Dividend Growth 5/</u>	<u>Dividend 6/</u>	<u>Discounted Dividend 7/</u>
	(1)	(2)	(3)	(4)
6	1	11.00%	1.8412	1.6951
7	2	11.00%	2.0438	1.7323
8	3	11.00%	2.2686	1.7703
9	4	11.00%	2.5181	1.8091
10	5	11.00%	2.7951	1.8488
11	6	10.50%	3.0886	1.8808
12	7	10.00%	3.3975	1.9048
13	8	9.50%	3.7202	1.9202
14	9	9.00%	4.0550	1.9270
15	10	8.50%	4.3997	1.9249
16	11	8.00%	4.7517	1.9140
17	12	7.50%	5.1081	1.8943
18	13	7.00%	5.4656	1.8660
19	14	6.50%	5.8209	1.8297
20	15	6.00%	6.1702	1.7856
21	Terminal <u>8/</u>		249.8295	72.2970
22	Cumulative Present Value <u>9/</u>			100.0
23	Difference <u>10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3), Line 20 x (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 + Line 4)^ Column (1) - Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

2002 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	11.13%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.40%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.25%

	<u>Year</u> (1)	<u>Annual Dividend Growth 5/</u> (2)	<u>Dividend 6/</u> (3)	<u>Discounted Dividend 7/</u> (4)
6	1	11.13%	1.5580	1.4393
7	2	11.13%	1.7314	1.4776
8	3	11.13%	1.9241	1.5170
9	4	11.13%	2.1383	1.5574
10	5	11.13%	2.3763	1.5988
11	6	10.62%	2.6286	1.6338
12	7	10.10%	2.8942	1.6618
13	8	9.59%	3.1717	1.6824
14	9	9.08%	3.4597	1.6953
15	10	8.57%	3.7560	1.7003
16	11	8.05%	4.0584	1.6972
17	12	7.54%	4.3644	1.6861
18	13	7.03%	4.6710	1.6671
19	14	6.51%	4.9753	1.6403
20	15	6.00%	5.2738	1.6063
21	Terminal <u>8/</u>		248.6693	75.7393
22	Cumulative Present Value <u>9/</u>			100.0
23	Difference <u>10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2) Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3), Line 20 x (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 + Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 23

2003 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	11.00%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.64%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.59%

	<u>Year</u> (1)	<u>Annual Dividend Growth 5/</u> (2)	<u>Dividend 6/</u> (3)	<u>Discounted Dividend 7/</u> (4)
6	1	11.00%	1.8202	1.6762
7	2	11.00%	2.0204	1.7134
8	3	11.00%	2.2427	1.7515
9	4	11.00%	2.4893	1.7904
10	5	11.00%	2.7632	1.8301
11	6	10.50%	3.0533	1.8623
12	7	10.00%	3.3586	1.8865
13	8	9.50%	3.6777	1.9023
14	9	9.00%	4.0087	1.9095
15	10	8.50%	4.3494	1.9080
16	11	8.00%	4.6974	1.8976
17	12	7.50%	5.0497	1.8786
18	13	7.00%	5.4032	1.8511
19	14	6.50%	5.7544	1.8155
20	15	6.00%	6.0997	1.7722
21	<u>Terminal 8/</u>		249.7240	72.5548
22	<u>Cumulative Present Value 9/</u>			100.0
23	<u>Difference 10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5: Line 1

For years 6 to 15: prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2) - Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) = [(1 - Line 5)^ Current Year - Column (1)]

8/ For Column (3), [Column (3), Line 20] x [1 + Line 2] - (Line 5 - Line 2)

For Column (4), Column (3) - Line 21 - [(1 - Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

2004 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	11.39%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.00%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.67%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.72%

	<u>Year</u> (1)	<u>Annual Dividend Growth 5/</u> (2)	<u>Dividend 6/</u> (3)	<u>Discounted Dividend 7/</u> (4)
6	1	11.39%	1.8654	1.7157
7	2	11.39%	2.0778	1.7579
8	3	11.39%	2.3145	1.8010
9	4	11.39%	2.5781	1.8452
10	5	11.39%	2.8718	1.8905
11	6	10.85%	3.1834	1.9275
12	7	10.31%	3.5117	1.9558
13	8	9.77%	3.8549	1.9747
14	9	9.23%	4.2108	1.9840
15	10	8.70%	4.5769	1.9835
16	11	8.16%	4.9502	1.9732
17	12	7.62%	5.3273	1.9532
18	13	7.08%	5.7044	1.9236
19	14	6.54%	6.0774	1.8850
20	15	6.00%	6.4420	1.8378
21	Terminal <u>8/</u>		250.9413	71.5913
22	Cumulative Present Value <u>9/</u>			100.0
23	Difference <u>10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] x Line 3 x Line 4. Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), Line 20 x (1 + Line 2) - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 - Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

2005 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	13.66%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.42%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.76%

	<u>Year</u>	<u>Annual Dividend Growth 5/</u>	<u>Dividend 6/</u>	<u>Discounted Dividend 7/</u>
	(1)	(2)	(3)	(4)
6	1	13.66%	1.6172	1.4869
7	2	13.66%	1.8381	1.5539
8	3	13.66%	2.0892	1.6240
9	4	13.66%	2.3745	1.6971
10	5	13.66%	2.6989	1.7736
11	6	12.89%	3.0469	1.8410
12	7	12.13%	3.4164	1.8981
13	8	11.36%	3.8046	1.9435
14	9	10.60%	4.2078	1.9763
15	10	9.83%	4.6214	1.9958
16	11	9.06%	5.0403	2.0014
17	12	8.30%	5.4585	1.9929
18	13	7.53%	5.8696	1.9704
19	14	6.77%	6.2668	1.9343
20	15	6.00%	6.6428	1.8852
21	Terminal <u>8/</u>		255.1990	72.4255
22	Cumulative Present Value <u>9/</u>			100.0
23	Difference <u>10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15, prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2) Line 6] \ Line 3 \ Line 4. Years 2 to 15 equal to previous year Column (4) \ [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3), Line 20 \ (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3), Line 21 - [(1 + Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

2006 Multi-Step DCF Railroad Industry Cost of Equity

1	Railroad Industry 5-Year Estimated Truncated Growth Rate <u>1/</u>	14.75%
2	Assumed Railroad Industry Perpetual Growth Rate <u>2/</u>	6.0%
3	Railroad Industry Average Dividend Yield <u>1/</u>	1.26%
4	Present Value Of Perpetual Railroad Dividends <u>3/</u>	100
5	Implied Railroad Industry Cost of Equity <u>4/</u>	8.67%

	<u>Year</u>	<u>Annual Dividend Growth 5/</u>	<u>Dividend 6/</u>	<u>Discounted Dividend 7/</u>
	(1)	(2)	(3)	(4)
6	1	14.75%	1.4459	1.3306
7	2	14.75%	1.6591	1.4051
8	3	14.75%	1.9038	1.4837
9	4	14.75%	2.1846	1.5668
10	5	14.75%	2.5069	1.6546
11	6	13.88%	2.8547	1.7339
12	7	13.00%	3.2258	1.8031
13	8	12.13%	3.6170	1.8605
14	9	11.25%	4.0239	1.9047
15	10	10.38%	4.4413	1.9347
16	11	9.50%	4.8633	1.9496
17	12	8.63%	5.2827	1.9488
18	13	7.75%	5.6921	1.9324
19	14	6.88%	6.0835	1.9006
20	15	6.00%	6.4485	1.8540
21	Terminal <u>8/</u>		256.4724	73.7371
22	Cumulative Present Value <u>9/</u>			100.0
23	Difference <u>10/</u>			0

1/ STB Ex Parte No. 558 decision for stated year

2/ Estimated future growth in Gross-Domestic Product

3/ Assumed value

4/ Value derived through iterations that sets Line 23 equal to zero

5/ For Years 1 to 5, Line 1

For years 6 to 15 prior year Column (2) - [Line (1) - Line (2)] - 10

6/ Year 1 equal to [1 + Column (2), Line 6] x Line 3 x Line 4 Years 2 to 15 equal to previous year Column (4) x [1 + current year Column (3)]

7/ Column (3) - [(1 + Line 5)^ Current Year Column (1)]

8/ For Column (3), [Column (3) Line 20 x (1 + Line 2)] - (Line 5 - Line 2)

For Column (4), Column (3) Line 21 - [(1 + Line 4)^ Column (1), Line 20]

9/ Sum of Lines 6 to 21

10/ Line 4 - Line 22

EXHIBIT B

Reply Verified Statement of Dr. James E. Hodder

REPLY VERIFIED STATEMENT

OF

JAMES E. HODDER

I. Introduction

My name is James E Hodder I am the Charles and Laura Albright Professor of Finance at the University of Wisconsin-Madison and am currently also Chairman of the Finance Department. My address is 3441 Crestwood Drive, Madison, Wisconsin 53705 My background and qualifications were discussed in my Verified Statements in this proceeding that were filed on December 8, 2006 (Hodder 2006 VS), and September 27, 2007 (Hodder 2007 VS).

In this Reply Verified Statement, I have been asked by the Western Coal Traffic League (WCTL) to provide comments on the Verified Statement of Professor Stewart C Myers (Myers VS) and the Verified Statement of Dean R Glenn Hubbard and Dr. Bruce E Stangle (Hubbard/Stangle VS) Both of those Verified Statements were submitted to the Surface Transportation Board (Board) on behalf of the Association of American Railroads (AAR) in response to the Board's proposed methodology for estimating the railroad industry's cost of equity as presented in its Notice of Proposed Rulemaking (NPR) in STB Ex Parte No 664 originally served August 14, 2007, as corrected on August 20, 2007 I have also been asked to review and comment on the Reply Verified Statement regarding that NPR which is being submitted by Thomas D. Crowley and Daniel L. Fapp (Crowley/Fapp Reply VS) on behalf of WCTL. In addition, I was asked

to comment on the proposal submitted to the Board by Professor Partha S. Mohanram in response to Board's NPR.

First of all, it is important to note that there are several points where Myers VS, Hubbard/Stangle VS, and Crowley/Fapp Reply VS all agree. I will identify those points in my subsequent discussion. Where the statements of the witnesses disagree, the disagreements tend to be focused on different aspects of implementation issues where there are no necessarily "right answers". However, it may be helpful to the Board if I highlight the underlying issues and tradeoffs. In several instances, the Crowley/Fapp Reply VS already does this, including estimates of the numerical impact on cost of equity estimates. Indeed, I commend them for being quite thorough and professional in their well-documented Reply VS. Identifying cases where reasonable alternatives are apt to have only a minimal impact on the final cost of equity figure should be helpful in focusing the discussion on the high-impact choices.

Most, if not all, of the comments and statements in this proceeding have acknowledged that cost of equity estimation should not be expected to yield precise answers. This is true whether using an estimation procedure based on the Capital Asset Pricing Model (CAPM) or on a Discounted Cash Flow (DCF) approach. In this regard, I particularly like Professor Myers' comment that "There are no consensus inputs to the CAPM, and therefore no consensus output."¹ A few lines later, he suggests that:²

Given the CAPM's imprecision and imperfections, the Board should not rely on it exclusively. It should not ignore evidence from DCF models. These models are at the very least a useful check on the CAPM.

¹ Myers VS at 3

² Myers VS at 3

I continue to believe there are especially serious problems with the single-phase (perpetual growth) DCF model previously used by the Board. However, I endorse the suggestion that a multiphase DCF model similar to the procedure outlined in the Crowley/Fapp Reply VS be used to provide a check on results obtained using the CAPM.

It is worth emphasizing that variation in cost of equity estimates using the CAPM is the result of different input choices. A multiphase DCF model is not inherently more accurate than the CAPM. However, the two models require very different types of implementation assumptions. In particular, inflation and risk are explicit in the CAPM, but only implicit in the DCF model. Hence the output of one model provides an implicit cross-check mechanism on the reasonableness of inputs used to generate the other model's estimate.

Later, I will provide more detailed comments regarding Professor Mohanram's suggestion that the Board use an accounting model instead of the CAPM to estimate the cost of equity for railroads. The two models he suggests are conceptually similar to a multiphase DCF model based on dividend growth. However, both his suggested models have serious drawbacks which make them inferior to a relatively simple multiphase DCF model based on dividends. Consequently, I recommend against using either of his suggested models even as a cross-check on the CAPM, especially as compared to a multiphase DCF model.

II. CAPM Inputs

To generate a cost of equity estimate using the CAPM, three inputs are needed: a “riskless” interest rate, the firm’s Beta, and a market risk premium (MRP) -- which is also referred to as the equity risk premium. There seems to be general agreement on using the yield-to-maturity (YTM) for a long-term U.S. Treasury bond as the proxy for the riskless rate. I still feel that a 20-year maturity is probably a better match for the life of railroad investments than is a 10-year maturity. The issue here is incorporating the implicit inflation forecast that best matches the investment horizon. However, the differential effect on a cost of equity estimate of using the YTM for a 10-year versus a 20-year bond will typically be minor.

There is some question/confusion as to whether the Board used YTM or current yield in its calculations. There is general agreement that using YTM is the appropriate procedure. There were also questions regarding the bond maturity and calculation procedure used by the Board in its MRP estimates. Again, there seems to be general agreement that the same maturity bond should be used for both the riskless rate and for the MRP estimate. The fact that the Board cannot share its full workpapers due to a licensing agreement with CRSP, the source of its NYSE index and bond data, is most unfortunate. It is almost inevitable that there will be occasional questions regarding details of particular calculations, and the ability to share future workpapers seems extremely important.

The NYSE index contains many more firms than the S&P 500. Such broader coverage is more consistent with the underlying theory for the CAPM, although the additional firms in the NYSE index add only moderately in terms of market

capitalization. However, restrictions on the Board's ability to share data and information on its calculation procedures are clearly a major problem. In my view, this argues for using a publicly available market index (such as the S&P 500) in future estimation procedures.

There seems to be agreement that the Beta estimates should use Treasury Bill rates (rather than long-term bond yields) in calculating excess returns for the market index and the individual stock. There is also agreement that allowing for a non-zero intercept term in the regression estimate is appropriate. There is disagreement over the time period length that should be used in estimating Betas. The Board used 10 years of monthly data as an attempt "to balance the desire to eliminate statistical noise and achieve stability in the estimate, while allowing for the fact that Beta may change over time."³ There are three intertwined issues here – a desire to have more data points to mitigate the effects of noisy data, the likelihood that firm characteristics may change through time so that the "true" Beta is changing, and the possibility of an anomalous period of either market or firm price behavior.

I interpret Professor Myers' comment about the 10-year sample period including the dot.com boom as a concern about a market anomaly biasing the Beta estimate.⁴ However, a concern about anomalous behavior also argues against using a relative short estimation period which would make the Beta estimate more sensitive to any such behavior that occurred during that shortened time frame. The Board felt that a period of less than five years might "add too much noise."⁵ The concern about anomalous behavior would also seem to argue for a time frame of at least five years, which is the

³ NPR at 11

⁴ Myers VS at 10

⁵ NPR at 11

period used by many commercial beta vendors. Crowley/Fapp discuss an Australian paper that examines the forecasting performance of Betas estimated using time series longer than 5 years and finds they outperform estimates using 4 and 5 years of monthly data. While this could be a characteristic of the firms or time period, it does suggest that if the firms in question are expected to be evolving slowly, using a time frame longer than 5 years may be quite reasonable. Apparently, this is also what the Federal Reserve concluded with regard to U S banks

This brings me to a discussion of the market risk premium, for which I'm using the abbreviation MRP. Professor Myers describes the problem of estimating MRP as something that is improved with more data points and a longer time period. However, we also have the issue of anomalous periods and reason to believe that the MRP changes through time. As I stated previously⁶

The Market Risk Premium should be expected to reflect the perceptions and risk attitudes of those supplying capital to the market. Those perceptions are of both economy-wide risks as well as the particular situations of capital suppliers. It is clear that such perceptions change through time. Furthermore, the identity of capital suppliers also changes over time in response to such factors as demographics, global trade imbalances, and financial innovations.

To the extent our cost of equity estimate will be used in evaluating investment projects with cash flows stretching into the future, we would really like to have a forecast of MRP for the future.⁷ However, the approach being considered is to use historical data to predict future behavior.

An alternative pursued by Professors John Graham and Campbell Harvey is based on a sequence of surveys of U S. Chief Financial Officers (CFOs) – in effect, a consensus

⁶ Hodder 2007 VS at 3

⁷ Parenthetically, the same is true with Beta

forecast.⁸ The average number of respondents to that quarterly survey has been 271; and the average CFO forecast risk premium for the S&P 500 relative to the 10-year Treasury bond has varied between 4.65% and 2.39%.⁹ This is a reasonable and forward-looking procedure which results in MRP estimates that are substantially lower than the 5.2% used by the Board in its sample calculations.

With a large range of plausible MRP estimates as well as estimation error regarding Beta, a substantial range for cost of equity estimates is clearly possible (depending on the input values employed). One way for the Board to deal with this issue is to specify a particular procedure for generating input values. That will generate a single output value, but the result is apt to be controversial. It would seem prudent to at least use a multiphase DCF procedure to check that the CAPM estimate seems reasonable from that alternative perspective.

III A Multiphase DCF Approach

I am sympathetic to the Board's concern that "there is no sound theoretical basis to prefer one multi-stage DCF over another."¹⁰ However, this is again an implementation issue rather than what is "theoretically" correct. Fundamentally, implementing the DCF approach requires estimates of future dividends -- a forecasting exercise to which there will be no theoretically correct approach. Viewed from this perspective, the problem is quite analogous to forecasting the future MRP (as well as a firm's future Beta) as a CAPM input. With either the CAPM or a multiphase DCF model, the Board is going to

⁸ There has been a sequence of papers describing their results. A recent version is Graham, John R. and Campbell R. Harvey (2007), "The Equity Risk Premium in January 2007: Evidence from the Global CFO Outlook Survey," available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=959703.

⁹ Ibid at 5.

¹⁰ NPR at 5.

have to specify some procedures based on what it deems reasonable -- because there is no one right answer.

In that spirit, let me suggest a relatively simple multiphase DCF procedure, which I think the Board could implement without too much difficulty.¹¹

- a. Obtain a 5-year dividend growth forecast which would be used with the firm's current dividend to generate the dividend pattern for the next 5 years
- b. Obtain an economy-wide long-term (perpetual) growth rate to use starting in year 15. That implies there would be a Terminal Value that could be calculated at the end of year 15 using the single-phase DCF model to value all the subsequent years
- c. Between years 5 and 15, use a dividend growth rate that declines linearly from the year-5 rate down to the year-15 rate. If for example, the dividend growth rate assumed for the first 5 years were 12% and the long-term growth rate assumed were 5%, the rate would decline 0.7% to 11.3% in year 6, to 10.6% in year 7, etc. until it reached 5% in year 15

Crowley/Fapp introduce such a procedure in Section V of their Reply VS. There are clearly choices to be made regarding how the growth rate estimates are obtained, but that should be at least as manageable as obtaining CAPM input estimates and perhaps less controversial. A ten-year straight-line adjustment phase is clearly a simplification, but it at least has the virtue of being simple.

¹¹ The model described here is a slight modification of the procedure presented in my 2006 VS and in my testimony before the Board in February 2007. The difference here is specifying a linear decline in the dividend growth rate during the transition phase.

IV Professor Mohanram's Suggested Models

Professor Mohanram submitted comments to the Board in response to its NPR. Those comments include the suggestion that the Board adopt an accounting-based model developed in Ohlson and Juettner (2005).¹² Professor Mohanram refers to this as the OJ model. He also describes a related approach which he calls the residual income valuation (RIV) model.

Both these models are based on multiphase DCF procedures. So their conceptual framework is closely related to multiphase DCF models based on dividend growth, such as discussed in the previous section of this Reply VS. The OJ and RIV models are based on earnings growth rather than dividend growth. However, share pricing based on expected future earnings is logically linked to dividend growth in that an infinite-horizon model ultimately determines firm value based on expected payouts in the form of dividends. This is abundantly clear in Assumption 1 of the OJ model.

In effect, the OJ and RIV models have a perspective that is similar to that provided by a multiphase DCF model based on dividends. It may make sense to use a multiphase DCF model to provide a cross-check on the Board's proposed CAPM approach, but I would not recommend either the OJ or RIV models for that purpose.

The OJ model is apparently quite sensitive to the two-year growth forecast. This is abundantly illustrated in Professor Mohanram's Table 3 for CSX and Norfolk Southern in the year 2000 and for Union Pacific in 1998. Certainly a firm's earnings may move up substantially after a poor year, but it isn't reasonable to think that its cost of equity moves up and down by 10 percentage points from one year to the next. The cost of equity

¹² Ohlson, James A. and Beate E. Juettner-Nauroth (2003), "Expected EPS and EPS Growth as Determinants of Value," Review of Accounting Studies, 10, pp349-365

estimate also seems very sensitive to the ratio eps_1/P_0 . For example, note the 1.9% drop in Burlington Northern's estimated cost of equity between 2000 and 2005 in Mohanram's Table 3. The growth rate parameters and calculated A values in that table for both years are very similar. Apparently the difference is due a drop in eps_1/P_0 .

Last, but far from least, the OJ model seems to take a very long time converging to the long-term growth rate. In this regard, Professor Mohanram's Figure 3 appears misleading. That figure seems to be using the 2006 estimates for Union Pacific from his Table 3. When I attempted to replicate the earnings growth rate decline using equations from the original OJ paper's Appendix I, the earnings growth rate was still above 9% after 100 years (compared with the stated long-term growth rate parameter of 4%). It appears the problem is that Professor Mohanram's estimated (not actual) Union Pacific dividend payout rate of 35.4% is not high enough to satisfy the requirements for convergence to the long-term growth rate in the OJ model.

Turning to the RIV model, the implementation used by Professor Mohanram is a three-phase procedure. He uses analyst growth estimates to get expected earnings-per-share (EPS) values for the first five years. In year 15, he estimates a terminal value using a perpetual growth model. For the intervening period of 10 years, he uses a linear (straight line) interpolation procedure. This involves using interpolated return-on-equity (ROE) values to get EPS values, which are linked with estimated dividend payout rates to get updated Book Values, which are linked to the following year's ROE, etc. This seems considerably more convoluted and less transparent than an analogous three-phase DCF model with a straight-line interpolation of dividends for the middle phase. Moreover,

accounting earnings are notoriously more volatile than dividends. Consequently, a multiphase dividend capitalization model seems preferable

In summary, I see major disadvantages to both the OJ and RIV models. If the Board wants to have a cross-check on its proposed CAPM estimation, I suggest a multiphase DCF approach based on dividends.

V Concluding Observations

In his Verified Statement, Professor Myers seems to suggest that the Board bias its cost of equity decisions in an upward direction in order to encourage railroad modernization and expansion.¹³ I strongly disagree with that perspective. The Board should try to determine the railroad cost of capital in an unbiased manner, favoring neither the railroads nor shippers. To do otherwise can lead to economically inefficient investments by both groups. An artificially high cost of equity determination represents an implicit subsidy to railroads and a penalty for shippers (vice versa if it is set too low). Both groups should rationally respond by adjusting their investment decisions. It is not in the interest of our national economy to distort investment decisions of either group.

There has been some CAPM-bashing based on references to articles by Fama and French. The Fama and French three-factor model can be viewed as an empirical extension of the CAPM, adding two additional factors (Size and Book-to-Market) that seem to improve empirical performance but have little theoretical justification. Fundamentally, this is not a rationale for using a DCF approach but for augmenting the CAPM. That would leave the Board with the same implementation issues of the basic CAPM plus some additional ones.

¹³ Myers VS at 4

As I have indicated on several occasions, the benefit of obtaining estimates from both the CAPM (or a similar model) and from a multiphase DCF model is that they use different approaches with very different types of inputs. However, they should yield similar cost of equity estimates if the input assumptions are consistent with each other. Both types of models have significant implementation issues. One is not better than the other, but rather they are different. In the current circumstances, different perspectives can be helpful.

VERIFICATION

I, James E Hodder, verify under penalty of perjury that the foregoing is true and correct
Further, I certify that I am qualified and authorized to file this Reply Verified Statement
Executed on October 26, 2007

A handwritten signature in black ink, appearing to read "J E Hodder", written over a horizontal line.

EXHIBIT C

**New York Times, *Strategies. How to See the Big Picture
in Little Slices of the Market* (April 1, 2007)**



April 1, 2007

STRATEGIES

How to See the Big Picture in Little Slices of the Market

By MARK HULBERT

DIVERSIFICATION, it turns out, is important not only in your overall portfolio, but also within the particular market sectors you favor.

Thanks in large part to a 1992 study by two finance professors, Eugene F. Fama of the University of Chicago and Kenneth R. French, now of Dartmouth, it is now widely known on Wall Street that certain groupings of stocks, reflecting specific investment styles, tend to outperform others. Small-cap value stocks, for example, have outperformed the broad stock market, on average, over the long term, while large-cap growth stocks have lagged behind.

Now the two professors have revisited the subject, examining the reasons for these trends. It turns out that the bulk of these sector differences results from the behavior of just a handful of stocks. If not for these outliers, in fact, the long-term returns of the various sectors would not have been appreciably different from those of the overall market.

Because it's hard if not impossible to pick individual outperformers, it is no less important to invest broadly within stock sectors than it is in the overall market.

The new study is entitled simply "Migration." A version of the working paper, which has been circulating in academic circles, is at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=926556.

In the study, the professors segregated all publicly traded stocks into two groups — small and large — according to their market capitalizations. Next they divided each group into value, growth and blend categories. They ended up with six investment styles, which correspond loosely to the categories that Morningstar uses to classify stock mutual funds.

The study focused on stocks that shift among these categories, a process the professors call migration. A small-cap value stock that becomes popular among investors, for example, may migrate to the small-cap blend or small-cap growth category. And if the company's market cap grows enough, the stock may move into one of the large-cap styles. Similarly, a large-cap growth stock may fall out of favor and migrate to the large-cap value category and, if it falls on particularly bad times, it may even shift into one of the small-cap categories.

Consider the stock of Pier 1 Imports. The professors placed it in the small-cap blend category in the mid-1990s. By 1998, owing to the spectacular run-up in the stock price, it had migrated to the large-cap growth category. In the wake of the stock's poor performance in more recent years, however, Pier 1 by mid-2006 had slipped back into the professors' small-cap value category.

The professors found that even though only a minority of stocks migrated from one category to another in a typical year, these stocks had an outsized influence on each style's overall performance. They reached this conclusion after analyzing a series of hypothetical style portfolios, each of which was rebalanced once a year to include only the stocks that met the style's definition. The professors compiled a full 80 years of performance data for each portfolio, from 1927 through 2006.

Consider their small-cap value portfolio. They calculated that it produced a gain of 22.5 percent, annualized, before transaction costs, over the last eight decades, versus a gain of 13.3 percent, annualized, for a capitalization-weighted index of the entire stock market. Only one in four small-cap value stocks migrated to another style in the average year during this period. But if the migrating stocks had not been included in the years that they shifted out of the portfolio, it would have underperformed the market — gaining only 13.1 percent, annualized, over the eight decades.

It's worth noting that over shorter periods, some styles performed far better or worse than they did over the full 80 years. During the late 1990s, for instance, the large-cap growth sector bucked its long-term trend and beat the market. Today, some advisers are arguing that small-cap stocks will not live up to their historical pattern and that the sector will lag

Such shorter-term deviations are of little more than historical interest unless investors believe that they can successfully forecast which styles will be in or out of vogue. But that is a very tough task for anyone, Professor French said in an interview.

THE professors' findings don't mean that you should stop emphasizing particular sectors of the market. After all, if the future is like the past, the small-cap value category will outperform other sectors over the long term. But the professors' conclusions do suggest that this bright performance will most likely come from just a small number of stocks.

And if picking the right stocks is beyond most investors' abilities, there is another, easier solution: buying a low-cost index fund that is a diversified bet on stocks of a particular investment style.

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EXHIBIT D

**UBS Investment Research, *UBS Railroads Weekly*,
“Returns at the Margin” (October 4, 2007)**

Returns at the Margin

■ Chart of the week: Marginal Return on Invested Capital

Due to the railroad industry's dismal historical returns, we felt that the average ROIC ratio understated the industry's growth potential. In Chart 1, we've shown Marginal Return on Invested Capital (MROIC) of the big 4 US rails (BNI, CSX, NSC, UNP). Over the past few years, new capital investments have returned 20%+, bolstering ROIC close to 11% from a bleak 6.7% in 2002. MROIC's at these levels demonstrate the industry's new pricing environment and the healthy returns from efficiency investments, such as new sidings, double tracking, newer loco's and switching technology.

■ U.S. volumes

US carload volumes were flat again (+0.2%) in Week 39 with gains in chemicals (+4.5%), coal (+4.4%), and ag (+4.2%) and declines in autos (-1.1%), paper & forest (-8.7%), metals (-8.4%), and building mats (-8.3%). Intermodal traffic was down y/y (-2.0%). The quarter closed with y/y declines in carloads (-1.6%) and intermodal (-3.2%).

■ Canadian volumes

Canadian carloads were also flat (-0.1%) with positive growth in coal (+11%), chemicals (+7.6%), and ag (+1.9%), and softness in building mats (-9.5%), paper & forest (-6.1%), metals (-2.7%) and autos (-1.9%). Intermodal traffic fell less than 1%. The Canadian railroads closed the quarter with y/y weakness in carloads (-1.4%) and gains for intermodal (+5.1%).

4 October 2007

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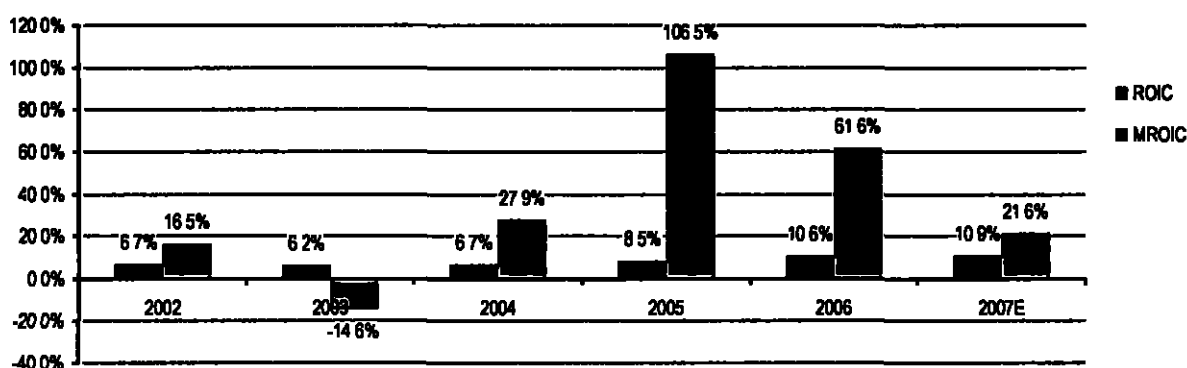
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Chart 1: Marginal Return on Invested Capital* of the Big 4 U S Rails (2002 – 2007E)



Source: Company reports, UBS estimates

* MROIC = (y/y change in NOPAT) / (y/y change in avg. Invested Capital)
NOPAT = EBIT (1 - 35), Invested Capital = Average Net Debt and Equity

This report has been prepared by UBS Securities LLC

ANALYST CERTIFICATION AND REQUIRED DISCLOSURES BEGIN ON PAGE 15.

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Valuation, Ratings & Targets

Ratings & Targets

Railroad	Rating	PT	Upside to PT	Basis
Norfolk Southern	Buy	\$ 67	32%	Cheapest stock in the group on P/E yet superior quality to all but CN Tough comps LTM has driven worst volume growth, but comps get easier from Q3/07 As growth reverts to the group mean so should valuation
Canadian National (CS)	Buy	\$ 71	27%	Third cheapest stock in the group on P/E, with superior operational efficiency Results should start to improve in H2/07 as comps get easier and with the ramp up of Prince Rupert and a harder working balance sheet
Kansas City Southern	Buy	\$ 40	26%	The margin and growth stories have stalled somewhat recently, but its LT story and "vision" to create a new Asia-US trade route via Mexico remain compelling Ultimately a takeover target, which should support valuation
Union Pacific	Buy	\$ 135	22%	Best L-T margin story driven by i) 32% of revenues under legacy contracts that will be repriced up ~30% over next few years, and ii) High cost network but efficiency injected in Q4/06 and costs are starting to come out
Canadian Pacific (CS)	Buy	\$ 83	19%	Gains in efficiency and robust volume growth in the bulk segment will continue to underpin growth in EPS Leverage to global economic growth and Western Canada defensive attributes DM&E acquisition modestly accretive
CSX	Buy	\$ 49	17%	A margin story like UNP but less LT potential LBO and activist hedge fund spec had driven a premium valuation to the group, which the credit crisis has since wiped out Mgt doing the right things and operations improving
Burlington Northern	Neutral	\$ 94	16%	Tough comps and terrible intermodal growth (35% of sales) are keeping the top line weak and operations are not improving enough to offset this with fluidity-driven cost takeouts Sentiment too positive given Buffett interest

Valuation Multiples

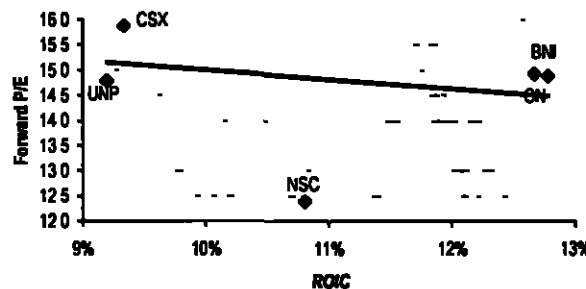
Company	Price	ROIC
Union Pacific	\$111.02	9.2%
Burlington Northern	\$ 81.32	12.8%
CSX	\$ 41.93	9.3%
Norfolk Southern	\$ 50.58	10.8%
Canadian National	\$ 55.85	12.7%
Canadian Pacific	\$ 89.51	10.0%
Kansas City Southern	\$ 31.72	6.3%

Average (P/E Ex-KSU)

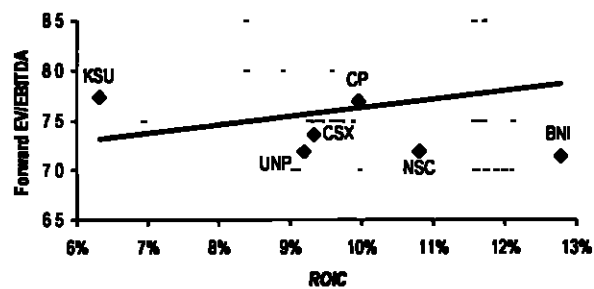
P/E			
LTM	NTM	2007	2008
17.5	14.8	16.3	13.6
16.1	14.9	15.8	13.9
18.2	15.9	16.9	14.4
13.8	12.4	13.3	12.1
16.3	14.9	15.9	13.8
17.0	16.3	16.0	13.8
24.5	19.7	23.0	17.6
16.5	14.9	15.7	13.6

EV/EBITDA			
LTM	NTM	2007	2008
8.3	7.2	7.7	6.8
7.6	7.1	7.4	6.9
8.0	7.4	7.7	6.9
7.7	7.2	7.6	6.9
9.5	9.2	9.4	8.8
8.1	7.7	8.3	7.8
8.7	7.7	8.3	7.3
8.3	7.6	8.1	7.3

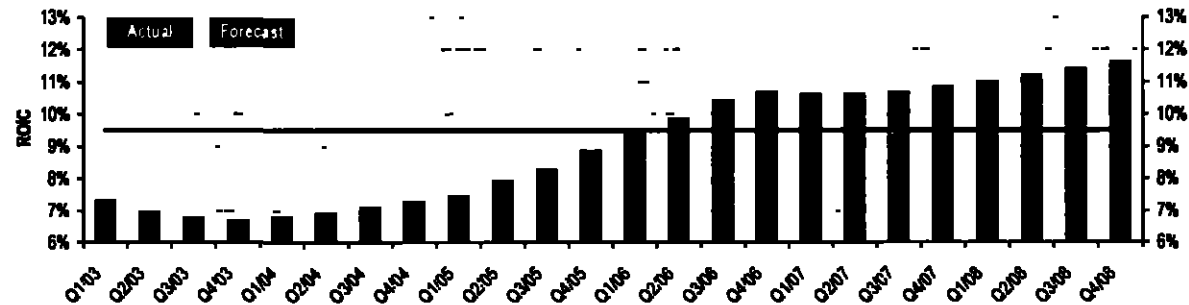
ROIC vs Forward P/E



ROIC vs Forward EV/EBITDA



Rail Industry Weighted Average ROIC vs WACC Estimate at 9.5%



Source (all tables and charts) UBS estimates ROIC numbers are LTM