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BEFORE THE
SURFACE TRANSPORTATION BOARD

METHODOLOGY TO BE EMPLOYED IN DETERMINING THE RAILROAD INDUSTRY'S COST OF CAPITAL	Ex Parte No. 664

PETITION OF THE ASSOCIATION OF AMERICAN RAILROADS TO REOPEN THE RECORD FOR THE LIMITED PURPOSE OF RECEIVING THE STATEMENT OF PROFESSOR STEWART C. MYERS

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December 21, 2007

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The Association of American Railroads ("AAR"), a party to this proceeding, hereby petitions the Board to reopen the record that it closed by Decision served on December 18, 2007, for the limited purpose of accepting the attached Verified Statement of Professor Stewart C. Myers. Professor Myers' brief Statement responds directly to certain materials introduced at the December 4, 2007 hearing in this matter by representatives of the Western Coal Traffic League ("WCTL") which bear directly on the Board's consideration of the proper implementation of the Capital Asset Pricing Model ("CAPM") that the Board has indicated it is inclined to adopt for determining the railroad industry's cost of capital.

The WCTL material at issue is erroneous or misleading. Moreover, interested parties had no notice that WCTL would offer much of it until the December 4 hearing, and no opportunity to scrutinize the material until WCTL formally filed a pdf file of the material with the Board several days later. Specifically:

(1) In its December 4 presentation, WCTL suggests for the first time that a market risk premium of 5.2% can be justified primarily by reference to *prospective* forecasts of the market risk premium (i.e., forecasts based on the subjective opinion of the forecaster rather than a regression analysis of actual historical data). WCTL also submitted a selection of nine examples of such forecasts, most

of which were not previously in the record. For the reasons explained by Professor Myers, relying on these forecasts (rather than estimates derived from historical data) to determine the regulated cost of equity would be unsound.

(2) AAR has shown in this proceeding that the 8.5 percent cost of equity supported by WCTL in this proceeding is approximately 200 basis points below the equity cost of 10-11% that electric utilities are generally allowed by the state and federal commissions that regulate the utilities' own rates, even though railroads have higher betas than electric utilities. In its December 4 presentation, WCTL belatedly tries to explain away this inconsistency on the theory that a cost of equity in the range of 10.5%, when "relevered" to reflect the supposedly lower debt ratios of railroads, is actually equivalent to the 8.5% value proposed by the Board. As Professor Myers explains, WCTL's calculations are both confused and misleading. WCTL has arbitrarily assumed that electric utility betas are above one, when they are in fact consistently below one, and has confused book debt ratios with market rate structures. Correcting these errors demonstrates that the electric utility cost of equity figures at issue, when adjusted to reflect the higher asset betas of the railroad industry, support a railroad cost of equity of about 11%, not 8.5%.

(3) Two of WCTL's slides create the impression that Standard & Poor's has determined that the railroad cost of equity in 2006 was 8.7 percent. In fact, the 8.7% value was an estimate of the railroads' *weighted average* cost of capital, including debt. The cost of equity implied by this value is significantly higher.

Because AAR had understood from comments made at the December 4 hearing that the Board was leaving the record in this proceeding open in order to seek responses to particular questions and to permit the parties to submit materials responsive to issues that arose during the hearing, AAR was surprised by the Board's unanticipated decision to close the record without affording interested parties an opportunity to make such a submission. However, once AAR became aware of the Board's Decision to close the record, it promptly coordinated with Professor Myers to have him prepare the attached Statement addressing three specific items: the exhibit presented by WCTL's counsel purporting to "adjust" the allowed returns for electric utilities that were included in the prehearing submission of one of AAR's witnesses; the exhibit presented by WCTL witnesses Hodder and Crowley containing a railroad cost of capital estimate from Standard & Poor's, and the exhibit presented by those witnesses with projected market risk premiums. The attached Statement of Professor Myers succinctly addresses those three subjects.

The matters addressed in Professor Myers' Statement are central to the issues before the Board in this important rulemaking proceeding. Failure to reopen the record for Professor Myers' statement would prejudice AAR's interests by depriving it of an opportunity to respond to WCTL's claims. Accordingly, AAR requests that the Board grant this Petition and accept Professor Myers' Statement into the record.

Respectfully submitted,

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December 21, 2007

VERIFIED STATEMENT OF STEWART C. MYERS

My name is Stewart C. Myers. I submitted Verified Statements in this proceeding on September 27 and October 29, 2007 and presented written and oral testimony to the Board at its hearing on December 4, 2007. The Association of American Railroads (AAR) has asked me to review the PowerPoint slides presented by the Western Coal Traffic League (WCTL) at the hearing. I will comment briefly on three of the slides.

The WCTL's "adjustment" of allowed returns for electric utilities

WCTL counsel Mr. Robert Rosenberg presented a slide purporting to derive a railroad cost of equity of 8.47% for 2005. He got this number by adjusting average allowed returns for electric utilities in 2005 for differences in financial leverage. The WCTL's calculation is mixed up and misleading, however. It confuses book with market debt ratios and it uses electric utility betas well above one, when actual electric utility betas have been consistently below one.

Mr. Rosenberg's slide starts with an average equity return of 10.54% for electric utilities. This is the average return on book (rate-base) value allowed by state regulators in 2005.[1] (The slide ignores electric-utility returns allowed by FERC, which averaged 12% in 2005.) The slide assumes that state regulators were following the CAPM, perhaps implicitly. With a cost of equity of 10.54% and a risk-free rate of 4.251%, the CAPM formula is:

$$\text{Cost of equity} = 10.54 = 4.251 + \text{beta} \times \text{Market risk premium (MRP)}$$

The WCTL's slide assumes MRP = 5.2% and solves for beta at 1.2094. But this makes no sense,

[1] The average allowed returns are reported in the written testimony of G. Paul Moates on behalf of the AAR, December 4, 2007, p. 2 and Attachment A. The averages are compiled by Regulatory Research Associates.

because betas can be measured with reasonable accuracy; one does not have to infer them. In 2005 the average Value-Line beta for the electric utilities was .895.[2] Substituting this beta in the CAPM formula uncovers a more realistic MRP of 7.0%:

$$R = 10.54 = 4.251 + 0.895 \times \text{MRP}, \text{ which implies MRP} = 7.0\%.$$

Therefore state regulators' allowed returns in 2005 imply an MRP almost two percentage points above the 5.2% average that the WCTL now says is "reasonable." The implied MRP of 7.0% is almost identical to the 7.1% historical average that WCTL witnesses Mr. Thomas Crowley and Mr. Daniel Fapp recently believed was the "best estimate."[3]

Equity betas reflect financial as well as business risk. Equity betas can be unlevered to get asset betas reflecting business risk only. Mr. Rosenberg used the simplified formula Equity beta = Asset beta × (1 + D/E).[4] D and E should be the *market* values of debt and equity. Mr. Rosenberg uses the electric utilities' *book* debt and equity, which is a mistake. (The Board correctly uses market values to calculate the weighted average cost of capital.)

The average market-value debt and equity percentages for electric utilities were 42% and 58% in 2005, so D/E was 42/58 = 0.724. The unlevered asset beta was 0.895/1.724 = 0.519, not 0.5652 as calculated by Mr. Rosenberg.

Mr. Rosenberg assumes that railroads had the same business risk (asset beta) as the electric utilities. *If* this were true, one could use the electric utilities' asset beta to calculate an equity beta and cost of equity for railroads. The railroads' average market debt and equity ratios were 30.4% and 69.6% in 2005, so D/E was 30.4/69.6 = 0.437. The equity beta would be 0.519

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[2] This is an average of betas reported by Value Line in 2005 for the sample of utilities used to derive the 10.54% average allowed return. The average for the sample of all electric utilities followed by Value Line was 0.83. The 2007 Value Line average beta was .90 for both samples.

[3] Verified Statement of Thomas D. Crowley and Daniel L. Fapp, July 25, 2007, p. 6.

[4] This formula ignores taxes and assumes a debt beta of zero.

$\times$ 1.437 = .746 and the cost of equity would be 4.251 + .746 $\times$ 7.0 = 9.47%. The difference between this cost of equity and the 10.54% allowed return for electric utilities reflects the railroads' lower market-value debt ratio and the assumption that railroads and electric utilities have the same business risk.

Actual railroad betas were higher than 0.746, however, which demonstrates that business risk was higher for railroads than for electric utilities.[5] The actual betas also imply that the railroad industry's cost of equity must have been higher than 9.47%. For example, I calculated a 2005 cost of equity for railroads at 10.9%, using an average Value Line beta of 0.94.[6]

The cost of equity and the weighted average cost of capital

Mr. Crowley and Professor James Hodder presented another slide with a railroad cost-of-capital estimate by Standard & Poor's of 8.7% for 2006. This is an estimate of the *weighted average* cost of capital (WACC), not an estimate of the cost of equity. The weighted average cost of capital blends a cost of debt, which is well below the average, with a cost of equity, which must be above the average. A weighted average of 8.7% requires a cost of equity that is significantly *above* 8.7%.

In October the WCTL submitted a document from UBS Investment Research giving a WACC estimate for railroads of 9.5%.[7] A WACC of 9.5% requires a cost of equity significantly *above* 9.5%.

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[5] That is, unlevering railroads' actual equity betas would give asset betas greater than the asset beta for electric utilities.

[6] See my Reply Verified Statement, p. 4.

[7] Reply Comments of the Western Coal Traffic League, October 29, 2007, Exhibit D.

Market risk premium (MRP)

My Verified Statements focused on the proper calculation and interpretation of historical-average MRPs. The 50-year average proposed by the Board is too short. It is definitely shorter than the standard averages, which go back to 1926 (the SBBI Yearbooks) and 1900 (Dimson-Marsh-Staunton).[8]

Mr. Crowley and Professor Hodder presented a slide on the "Market Wide Risk Premium," which quotes the historical averages and adds several "prospective" MRPs.

There is a large research literature attempting to explain past average MRPs and to adjust historical averages to improve forecasts of future MRPs. This literature is complicated and inconclusive.[9] There has been a wide range of opinions and forecasts. The "Market Wide Risk Premium" slide includes some lower ones, without thorough documentation or discussion.

MRP forecasts vary by context. For example, investment bankers often use relatively low MRPs in evaluating and promoting takeovers and other deals. In my experience, corporations estimating costs of capital for their own businesses use higher MRPs that are closer to historical averages. Allowed rates of return by electric utility regulators imply higher MRPs, as I showed above.

The SBBI Yearbooks report an adjusted MRP forecast, which is lower than the historical average from 1926. The adjustment recognizes the fact that part of the average historical return to investors was generated by an upward trend in price-earnings ratios. This trend probably will not continue. The adjusted forecast takes the trend out of the historical averages. The adjustment for 2005 takes the MRP from the historical average of 7.1% to 6.28%. The corresponding historical and adjusted MRPs through the end of 2006 are 7.13% and 6.35%.

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8 E. Dimson, P.R. Marsh and M. Staunton, *Global Investment Returns Yearbook 2007*, London Business School and ABN AMRO, February 2007, and *SBBI Valuation Edition, 2007 Yearbook*.

9 For a review of research on the MRP, see R. Mehra, ed., *Handbook of the Equity Risk Premium*, Elsevier B. V., 2008.

My Reply Verified Statement noted the "view that average MRPs over the next decades are likely to be lower than long-term historical averages." (p. 8) That is why I used a range of 5% to 7% rather than the long-term historical averages, which are 6% to 7%. The Board's proposed MRP of 5.2% (for 2005) is at the bottom of this range. As I have noted, the bottom of a reasonable range is not a reasonable place to be.

The 5% to 7% range given in my Reply Verified Statement is tighter than MRP range given in the Brealey-Myers-Allen textbook. [10] The textbook's range is 5% to 8% over short-term interest rates and would be about 4% to 7% over long-term interest rates (3.8% to 6.8% in the WCTL's slide). The range quoted in the textbook reflects diverse research results and differences of opinion among practitioners. It also reflects the difficulty in estimating the MRP. Here I believe that a range of 5% to 7% is more consistent with regulatory practice and with corporations' estimates of their own costs of capital. I also recommend that the Board put more weight on the objective evidence provided by long-term historical returns, and relatively less weight on subjective forecasts. [11]

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[10] R. A. Brealey, S. C. Myers and F. Allen, *Principles of Corporate Finance*, 8th ed., McGraw-Hill Irwin, 2006, pp. 151-154.

[11] Forecasts also shift over time. For example, it was hard to stand at the end of the dot.com boom, when price-earnings and price-dividend ratios were at peak levels, and not anticipate lower returns and risk premiums going forward. This is part of the explanation for some of the very low MRP estimates in the early 2000s. It's not clear that such estimates would still hold several years later, particularly at a time of high macroeconomic uncertainty.

VERIFICATION

I, Stewart C. Myers, declare under penalty of perjury that the foregoing statement is true and correct and that I am qualified and authorized to file this statement.

Executed on December 19, 2007

Stewart C. Myers

CERTIFICATE OF SERVICE

I hereby certify this 21st day of December, 2007, that I have served copies of the foregoing on all parties of record in this proceeding.

Matt Wolfe

Matt Wolfe