

SERVICE DATE – SEPTEMBER 13, 2012

SURFACE TRANSPORTATION BOARD

DECISION

Docket No. EP 558 (Sub-No. 15)

RAILROAD COST OF CAPITAL—2011

Digest:¹ The agency finds that the cost of capital for the railroad industry in 2011 was 11.57%. This figure represents the Board's estimate of the average rate of return needed to persuade investors to provide capital to the freight rail industry. The cost-of-capital figure, which is calculated each year, is an essential component of many of the agency's core regulatory responsibilities.

Decided: September 11, 2012

One of the Board's regulatory responsibilities is to determine annually the railroad industry's cost of capital.² This determination is one component used in evaluating the adequacy of a railroad's revenue each year pursuant to 49 U.S.C. § 10704(a)(2) and (3). Standards for R.R. Revenue Adequacy, 364 I.C.C. 803 (1981), modified, 3 I.C.C. 2d 261 (1986), aff'd sub nom. Consol. Rail Corp. v. United States, 855 F.2d 78 (3d Cir. 1988). The cost-of-capital finding may also be used in other regulatory proceedings, including, but not limited to, those involving the prescription of maximum reasonable rate levels, the proposed abandonment of rail lines, and the setting of compensation for use of another carrier's lines.

This proceeding was instituted in Railroad Cost of Capital—2011, EP 558 (Sub-No. 15) (STB served Feb. 3, 2012) to update the railroad industry's cost of capital for 2011. In that decision, the Board solicited comments from interested persons on the following issues: (1) the railroads' 2011 current cost of debt capital; (2) the railroads' 2011 current cost of preferred equity capital (if any); (3) the railroads' 2011 cost of common equity capital; and (4) the 2011 capital structure mix of the railroad industry on a market value basis.

We have received comments from the Association of American Railroads (AAR) that provide the information that is used in making the annual cost-of-capital determination, as established in Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad

¹ The digest constitutes no part of the decision of the Board but has been prepared for the convenience of the reader. It may not be cited to or relied upon as precedent. Policy Statement on Plain Language Digests in Decisions, EP 696 (STB served Sept. 2, 2010).

² The railroad cost of capital determined here is an aggregate measure. It is not intended to measure the desirability of any individual capital investment project.

Industry's Cost of Capital, EP 664 (Sub-No. 1) (STB served Jan. 28, 2009). Western Coal Traffic League (WCTL) replied to AAR's submission. WCTL raises various issues concerning AAR's filing, including, but not limited to, AAR's use of proprietary information, AAR's failure to account for callable debt, and AAR's treatment of operating leases and government grants. These issues are addressed below.

2011 Cost-of-Capital Determination

Consistent with previous cost-of-capital proceedings, AAR calculated the cost of capital for a "composite railroad" based on criteria developed in Railroad Cost of Capital—1984, 1 I.C.C. 2d 989 (1985).³ According to AAR, the following three railroad holding companies meet these criteria: CSX Corporation (CSX), Norfolk Southern Corporation (NS), and Union Pacific Corporation (UP).

As discussed below, we have examined the procedures used by AAR to calculate the following components for the railroad industry's 2011 cost of capital: (1) cost-of-debt capital; (2) cost of common equity capital; (3) cost of preferred equity capital;⁴ (4) capital structure; and (5) composite after-tax cost of capital. We estimate that the 2011 railroad cost of capital was 11.57%.

DEBT CAPITAL

AAR developed its 2011 current cost of debt using bond price data from Bloomberg Professional (Bloomberg), a subscription service, rather than Standard & Poor's Corporation (S&P) *Bond Guide*, another subscription service that had been used in past cost-of-capital proceedings. According to AAR, Bloomberg was used because it included data from 65 bonds, representing 97% of the book value of all railroad bonds issued by the composite railroad.⁵ By contrast, AAR asserts that S&P included data for only 30 bonds, representing only 38% of the book value of all the composite railroad bonds.⁶ AAR's cost-of-debt figure is based on the market-value yields of the major forms of long-term debt instruments for the railroad holding companies used in the composite. These debt instruments include: (1) bonds, notes, and debentures (bonds); (2) equipment trust certificates (ETCs); and (3) conditional sales agreements (CSAs). The yields of these debt instruments are weighted based on their market values.

³ The composite railroad includes those Class I carriers that: (1) are listed on either the New York or American Stock Exchange; (2) paid dividends throughout the year; (3) had rail assets greater than 50% of its total assets; and (4) had a debt rating of at least BBB (Standard & Poor's) and BAA (Moody's).

⁴ There was no preferred stock outstanding in the year 2011.

⁵ AAR Opening, V.S. Gray 8.

⁶ Id.

Cost of Bonds, Notes, and Debentures (Bonds)

AAR used data from Bloomberg for the current cost of bonds, based on monthly prices and yields during 2011, for all issues (a total of 65) that were publicly traded during the year.⁷ To develop the current (in 2011) market value of bonds, AAR used these traded bonds and additional bonds that were outstanding but not publicly traded during 2011. Continuing the procedure in effect since 1988, AAR based the market value on monthly prices for all traded bonds and the face or par value (\$1,000) for all bonds not traded during the year. AAR computed the total market value of all outstanding bonds to be \$23.4 billion (\$22.6 billion traded, and \$787 million non-traded).⁸ Based on the yields for the traded bonds, AAR calculated the weighted average 2011 yield for all bonds to be 3.913%.⁹ We have examined AAR's bond price and yield data and have determined that AAR's computations are correct. Our calculations and data for all bonds are shown in **Tables 1** and **2** of the Appendix.

In its comments, WCTL notes that AAR has chosen to rely on a proprietary data source for its bond pricing figures, Bloomberg, which is a subscription service.¹⁰ As a result, WCTL asserts that AAR's calculations cannot be verified from its workpapers.¹¹ Citing Railroad Cost of Capital—2006, EP 558 (Sub-No. 10), slip op. at 7 (STB served Apr. 15, 2008), WCTL states that the Board has previously rejected AAR's attempt to rely on proprietary data.¹² WCTL suggests that it may be appropriate for the Board to consider the following: (a) whether there are suitable non-proprietary sources of bond data other than S&P; (b) assuming a proprietary source must be utilized to achieve needed coverage, whether some other source should be used in addition to, or instead of, Bloomberg; and (c) whether a mechanism can be devised to provide appropriate access to Bloomberg data.¹³ WCTL also asserts that AAR has failed to provide workpaper calculations for the S&P data that were also supplied, and thus, that aspect of AAR's calculations also cannot be confirmed.¹⁴

On rebuttal, AAR responds that its use of a subscription service for outstanding bond data is not a change from past cost-of-capital proceedings.¹⁵ According to AAR, the only change that has occurred is the type of subscription service utilized.¹⁶ AAR states that it drew data from

⁷ Id.

⁸ AAR Opening, V.S. Gray 10.

⁹ Id.

¹⁰ WCTL Reply 2.

¹¹ Id. at 3.

¹² Id.

¹³ Id. at 4.

¹⁴ Id. at 3.

¹⁵ AAR Rebuttal 2-3.

¹⁶ Id. at 3.

Bloomberg because it contained more relevant information than S&P, the subscription service relied on in past proceedings.¹⁷ While AAR notes that use of the S&P data would provide a more favorable result for AAR and its member railroads, it asserts that the Bloomberg data are more comprehensive and more appropriate for these purposes.¹⁸ AAR also states that WCTL's reference to Railroad Cost of Capital—2006 is misleading.¹⁹ AAR asserts that parties in that decision objected to the Board's proposal to rely on weekly stock data from the New York Stock Exchange Index, in favor of publicly available S&P data.²⁰ According to AAR, because the Board found no material difference between the sources at issue, the Board continued to rely on publicly available information.²¹ AAR states that here, in contrast, it drew data from a subscription service that contained more relevant information than the subscription service relied on in past proceedings.²² As such, AAR asserts that it properly relied on more comprehensive information to calculate the cost of bond debt.²³ AAR further argues that WCTL's assertion that AAR's calculations cannot be verified from its workpapers is also misleading because, as in past cost-of-capital proceedings, its bond calculations are available for verification in Appendix A of the filing, not the workpapers.²⁴ AAR also asserts that its calculations for the S&P data were provided in its workpapers.

The use of a subscription service for outstanding bond data is permissible and consistent with past annual cost-of-capital proceedings. Indeed, AAR has previously relied on S&P's subscription service for retrieval of bond data. See, e.g., R.R. Cost of Capital—2010, EP 558 (Sub-No. 14), slip op. at 2-3 (STB served Oct. 3, 2011). Moreover, WCTL's reliance on Railroad Cost of Capital—2006 is misplaced. In that decision, the Board determined that using the publically available price index, rather than the confidential total return index, had no material effect on the Board's analysis. See R.R. Cost of Capital—2006, slip op. at 7. Thus, the Board determined that it would rely on the publically available data to promote transparency and predictability. Id. Here, WCTL has not provided an alternative approach to using Bloomberg's or S&P's proprietary data. Further, the Board finds both Bloomberg and S&P to be credible providers of financial data. Because WCTL has not raised reasonable concerns as to the reliability of either source, nor has it provided an alternative data source, the Board will accept the data submitted by AAR as the best evidence of record. AAR's bond calculations were available for verification in Appendix A of the filing. Further, summary tables of data provided by both Bloomberg and S&P were made available for review in AAR's workpapers.

¹⁷ Id.

¹⁸ Id. at 3-4.

¹⁹ AAR Rebuttal at 3.

²⁰ Id.

²¹ Id.

²² Id.

²³ Id.

²⁴ AAR Rebuttal 4.

Cost of Equipment Trust Certificates (ETCs)

ETCs are not actively traded on secondary markets. Therefore, their costs must be estimated by comparing them to the yields of other debt securities that are actively traded. Following the practice in previous cost-of-capital proceedings, AAR used government securities with maturities similar to these ETCs as surrogates for developing yields. After calculating the 2011 yields for these government securities, AAR added basis points²⁵ to these yields to compensate for the additional risks associated with the ETCs.

There were no new ETCs issued during 2011. However, there were 10 ETCs outstanding during the year.²⁶ AAR calculated that the yield spread for ETCs was 80 basis points higher than the yield for government bonds.²⁷ Using the yield spreads, AAR calculated the weighted average cost of ETCs to be 2.779%²⁸ and their market value to be \$313 million for 2011.²⁹

We have examined and accept the cost and market value of the ETCs using AAR's data. **Table 3** in the Appendix shows a summary of the ETC computations.

Cost of Conditional Sales Agreements (CSAs)

CSAs represent a small fraction (less than 1%) of total railroad debt. For 2011, no CSAs were modeled.³⁰

Capitalized Leases and Miscellaneous Debt

As in previous cost-of-capital determinations, AAR excluded the cost of capitalized leases and of miscellaneous debt in its computation of the overall current cost of debt because these costs are not directly observable in the open market. Also, in keeping with past practice, AAR included the book value of leases and commercial paper in the overall market value of debt, which is used to determine the railroads' capital structure mix. AAR calculated that the market value for the capitalized leases and miscellaneous debt was \$1.845 billion for 2011.³¹

²⁵ A basis point equals 1/100th of a percentage point.

²⁶ AAR Opening, V.S. Gray 15.

²⁷ AAR Opening, V.S. Gray 14. This is the same spread used in 2010.

²⁸ This percentage is lower than the 2010 figure of 3.227%.

²⁹ AAR Opening, V.S. Gray 15. AAR approximated the market values of ETCs using the same procedures used in previous cost-of-capital determinations.

³⁰ AAR Opening, V.S. Gray 17. Modeled CSAs are CSAs that can be used in AAR's model to determine market value. According to AAR, non-modeled CSAs are included in the miscellaneous debt category.

³¹ AAR Opening, V.S. Gray 18. This figure consists of \$1.885 billion of capitalized leases and -\$39.874 million of miscellaneous debt. AAR Opening, Appendix E. The

(continued . . .)

We have examined and accept the market value for capitalized leases and miscellaneous debt using AAR's data. **Table 5** in the Appendix shows the calculations for capitalized leases and miscellaneous debt to be \$1.845 billion.

Total Market Value of Debt

AAR calculated that the total market value for all debt during 2011 was \$25.524 billion.³² We have examined AAR's data and have determined that AAR's calculation is correct. **Table 6** in the Appendix shows a breakdown of the market value of debt.

Flotation Costs of Debt

AAR calculated flotation costs for bonds, notes, and debentures by calculating a yield based on the price to investors and a yield that also included flotation costs. The difference between the two yields is the flotation costs expressed in percentage points. For 2011, seven new issues were reported in five filings.³³ A simple average of the seven flotation costs is 0.067%.³⁴ AAR calculated the 2011 flotation costs for bonds using publicly available data from electronic filings with the U.S. Securities and Exchange Commission (SEC). For the calculation of ETC flotation costs, AAR used a historical SEC study composed of railroad ETC data for the years 1951, 1952, and 1955. SEC, Cost of Flotation of Corporate Securities 1951-1955 (1957). AAR asserts that, in that study, the SEC determined ETC flotation costs to average 0.89% of gross proceeds. *Id.* Using 0.89% for ETCs, and assuming that coupons are paid twice per year and that the duration for new ETCs is 15 years, yields flotation costs of 0.073%.

To compute the overall effect of the flotation cost on debt, the market value weight of the debt outstanding is multiplied by the respective flotation cost. The weight for each type of debt is based on market values for debt, excluding all other debt.³⁵ All other debt is excluded from the weight calculation, because a current cost of debt for other debt has not been determined.³⁶ AAR calculated that flotation costs for debt equal 0.067%.³⁷

(. . . continued)

miscellaneous debt figure is negative due to the inclusion of unamortized debt discounts. Non-modeled ETCs, as defined by AAR, are included in the miscellaneous debt category.

³² AAR Opening, V.S. Gray 19.

³³ AAR Opening, V.S. Gray 21.

³⁴ AAR Opening, V.S. Gray 24.

³⁵ All other debt represents capitalized leases, miscellaneous debt, non-modeled ETCs, and non-modeled CSAs.

³⁶ Current costs can be determined for three of the four debt categories—bonds, ETCs, and CSAs. Therefore, the weighted average cost of debt is based upon these three (of the four) debt categories. AAR Opening, V.S. Gray 19.

³⁷ AAR Opening, V.S. Gray 21.

WCTL states that data from Morningstar, Inc., indicate that CSX, NS, and UP have all issued debt pursuant to SEC Rule 144A, 17 C.F.R. § 230.144A, which governs private resales of securities to institutions.³⁸ According to WCTL, the flotation costs should be adjusted to reflect the carriers' use of this practice.³⁹ WCTL also argues that AAR has improperly included expenditures in its flotation cost calculation that are incurred by the railroad, as opposed to costs that the underwriter subtracts from the offering.⁴⁰ WCTL asserts that AAR should provide additional information to determine whether these railroad flotation costs are included in the general and administrative costs when the Board reviews the reasonableness of a challenged rate under its stand-alone cost (SAC) test.⁴¹ According to WCTL, the stand-alone railroad (SARR) and captive shipper may have to pay twice for such costs—once in the cost of capital itself, and a second time in the direct costs of the SARR.⁴²

On rebuttal, AAR asserts that, although WCTL criticizes AAR's calculation of flotation costs, WCTL fails to explain how the cost of debt should be adjusted based on its criticism.⁴³ AAR further states that it is beyond the scope of this proceeding to determine whether debt placed with private parties has either a higher or lower flotation cost than that placed through public offerings, or to undertake a study of a railroad's internal costs of issuing debt financing.⁴⁴ AAR therefore urges the Board to reject WCTL's arguments.⁴⁵

We will accept AAR's calculation of floatation costs as the best evidence of record. WCTL has not provided support for its statement that debt issued pursuant to Rule 144A allows an issuer to avoid or reduce flotation costs. Moreover, WCTL has not provided an alternative approach to our current flotation cost calculation, which is based upon publically available data from electronic filings with the SEC.

³⁸ WCTL states that Rule 144A creates a non-exclusive safe harbor that allows issuers to place debt through private placements to qualified institutional buyers without registering the securities, thereby avoiding or reducing flotation costs for the securities. WCTL Reply 5-6. Thereafter, buyers may sell the securities to other qualified institutional buyers, although the restriction on resale may expire after a period of time. Id. at 6.

³⁹ Id.

⁴⁰ Id.

⁴¹ Id.

⁴² Id.

⁴³ AAR Rebuttal 4.

⁴⁴ AAR Rebuttal, V.S. Gray 8.

⁴⁵ AAR Rebuttal 5.

We have reviewed AAR's calculations concerning flotation costs and find that the cost factors developed for the various components of debt are reasonable.⁴⁶ **Table 7** in the Appendix shows these calculations.

Overall Current Cost of Debt

AAR concluded that the railroads' cost of debt for 2011 was 3.97%.⁴⁷ We have verified that the percentage put forth by AAR is correct. **Table 8** in the Appendix shows the overall current cost of debt.

In its comments, WCTL asserts that AAR's cost of debt analysis is flawed by failing to take into account that a significant amount of the railroads' debt is callable.⁴⁸ According to WCTL, the callability of debt is significant for STB purposes in two respects. First, WCTL states that a callable bond will be less desirable to investors, compared to a non-callable bond, because the issuer may call the bond if interest rates fall, thereby depriving the investor of the upside return.⁴⁹ Second, WCTL states that the Board has denied SARRs the benefits of the callability feature, or at least the ability to refinance debt when interest rates decrease.⁵⁰ Thus, WCTL argues that shippers are forced to pay a cost of debt that reflects a premium for the callability feature, but are not allowed to take advantage of the callability in SAC rate cases when interest rates decrease.⁵¹

On rebuttal, AAR states that WCTL has failed to explain how application of the callability feature should change the cost-of-debt calculation.⁵² AAR further asserts that, instead of focusing on the cost of capital, WCTL makes an ancillary argument related to the Board's SAC rate cases.⁵³ According to AAR, arguments involving changes to the Board's SAC rate case precedent are far beyond the scope of this annual cost-of-capital proceeding and should be ignored by the Board.⁵⁴

⁴⁶ AAR calculated the 2011 flotation costs for bonds using publicly available data from electronic filings with the SEC.

⁴⁷ AAR Opening, V.S. Gray 25. This percentage is lower than the 2010 cost of debt (4.61%). As explained above, our measurement of the railroads' cost of debt entails the calculation of a weighted average of the current yields of the various debt instruments issued by the three railroads in our sample.

⁴⁸ WCTL Reply 4.

⁴⁹ Id.

⁵⁰ Id. at 4-5.

⁵¹ Id. at 5.

⁵² AAR Rebuttal 4.

⁵³ Id. at 5.

⁵⁴ Id.

We will not consider this ancillary argument presented by WCTL because WCTL has failed to provide an analysis of how to account for callable debt under the current cost-of-debt calculation or its impact. Moreover, to the extent the WCTL argument relates to the Board's SAC rate cases, the issue is outside the scope of this annual proceeding and will not be considered. Individual litigants in SAC cases are not precluded from making this argument in those cases.

COMMON EQUITY CAPITAL

We estimate the cost of common equity capital by calculating the simple average of estimates produced by a Capital Asset Pricing Model (CAPM) and the Morningstar/Ibbotson MSDCF.

CAPM

Under CAPM, the cost of equity is equal to $RF + \beta \times RP$, where RF is the risk-free rate, RP is the market-risk premium, and β (or beta) is the measure of systematic, non-diversifiable risk. In order to calculate RF , we asked the railroads to provide the average yield to maturity in 2011 for a 20-year U.S. Treasury Bond. Similarly, the railroads were asked to provide an estimate for RP based on returns experienced by the S&P 500 since 1926. Finally, we instructed the railroads to calculate beta using a portfolio of weekly, merger-adjusted railroad stock returns for the prior five years in the following equation:

$$R - SRRF = \alpha + \beta(RM - SRRF) + \varepsilon, \text{ where}$$

α = constant term;

R = merger-adjusted stock returns for the portfolio of railroads that meet the screening criteria set forth in Railroad Cost of Capital – 1984, 1 I.C.C. 2d 989 (1985);

$SRRF$ = the short-run risk-free rate, which we will proxy using the 3-month U.S. Treasury bond rate;

RM = return on the S&P 500; and

ε = random error term.

RF – The Risk-Free Rate

To establish the risk-free rate, AAR relies on the Federal Reserve website to retrieve the average yield to maturity for a 20-year U.S. Treasury Bond. Using the average yield to maturity in 2011 for a 20-year U.S. Treasury Bond, consistent with Railroad Cost of Capital—2006, AAR

calculated the 2011 risk-free rate to be 3.62%.⁵⁵ We have examined AAR's data and the data from the Federal Reserve's website, and have determined that AAR's computation is correct.

RP – The Market-Risk Premium

Using the approach settled upon in the Cost of Capital Methodology, AAR submitted data reflecting a market-risk premium of 6.62%.⁵⁶ We have examined the underlying data here and agree that the market-risk premium is 6.62%.

In its comments, WCTL argues that the CAPM market-risk premium is overstated and should be based upon a shorter period of time. According to WCTL, AAR's market-risk premium calculation is based on returns beginning in 1926. Quoting the Canadian Transportation Agency (CTA), WCTL argues that "a longer period gives too much weight to distant market events that may have no bearing on current market conditions. . . . '[R]eturns over more recent periods are likely to be a better measure of investor expectations going forward, because the economy and capital markets have evolved so much over time.'"⁵⁷ WCTL asserts that, combining the market-risk premium of 6.62% with the CAPM risk-free rate of 3.62%, would result in a finding that investors in the current environment expect equities to provide a long-term return of 10.24%.⁵⁸ WCTL argues that such an argument flies in the face of widespread sentiment that expectations have changed in recent years and reflect a "new normal" with substantially diminished returns.⁵⁹ WCTL asserts that a key question for the Board to consider is whether the 10.24% represents a reasonable measure of expectation for equity investors in the current environment.⁶⁰

On rebuttal, AAR asserts that WCTL has previously raised the argument for use of a shorter period for measurement of the market-risk premium, and that the argument was rejected by the Board in Methodology to Be Employed in Determining the Railroad Industry's Cost of Capital, EP 664 (STB served Jan. 17, 2008).⁶¹ According to AAR, that decision also notes that WCTL's own regulated utility members regularly and aggressively advocate use of longer time horizons to calculate the market-risk premiums in their own proceedings before their state public

⁵⁵ AAR Opening, V.S. Gray 29.

⁵⁶ AAR Opening, V.S. Gray 30.

⁵⁷ WCTL Reply 10 (quoting Can. Transp. Agency, 425-R-2011, ¶ 326, Review of the Methodology Used by the Can. Transp. Agency to Determine the Cost-of-Capital for Federally-Regulated Ry. Cos. (2011) (Can. Transp. Agency, 425-R-2011) (quoting Brattle Group, Review of Regulatory Cost of Capital Methodologies (Nov. 4, 2010) (Brattle Report))).

⁵⁸ WCTL Reply 10.

⁵⁹ Id.

⁶⁰ Id. at 11.

⁶¹ AAR Rebuttal, V.S. Gray 12-13.

utility commissions.⁶² AAR also challenges WCTL's reliance on the CTA as an example of a regulator that uses recent periods of time to determine the market-risk premium. According to AAR, the CTA has concluded with regards to the CAPM market-risk premium that, "[g]iven the absence of any conclusive evidence of a structural break in the market premium time series and in order to satisfy its three criteria, the Agency will use as much historical return data as possible, subject to the availability of reliable data."⁶³ Thus, AAR states that the number of years used in calculating the market risk premium is not limited because it "gives too much weight to distant market events."⁶⁴ Rather, AAR argues that the limitation is caused by the availability of reliable Canadian market data.⁶⁵

In Methodology to Be Employed in Determining the Railroad Industry's Cost of Capital, slip op. at 8, the Board stated, "[w]e are now persuaded that basing the equity-risk premium on returns dating from 1926 is the superior and more standard approach." The Board went on to suggest that parties should petition the Board to modify its approach, should another methodology become the industry norm. Id. at 9. WCTL has failed to demonstrate that another approach is now the industry norm. Although the investment market has been volatile in recent years, we do not conclude that this means that investment expectations have reached a "new normal" as WCTL argues. Moreover, should WCTL desire to challenge the Board's use of the historical average from 1926, or any other part of the methodology adopted in our prior rulemaking, it must petition the Board.⁶⁶

Calculating Beta

The Cost of Capital Methodology requires parties to calculate CAPM's beta using a portfolio of weekly, merger-adjusted stock returns for the prior five years in the following equation: $R - SRRF = \alpha + \beta(RM - SRRF) + \varepsilon$. In applying the modified approach for the calculation of beta,⁶⁷ as applied in Railroad Cost of Capital—2010, slip op. at 6, AAR's calculations estimate that the value of beta is 1.1623.⁶⁸

⁶² AAR Rebuttal, V.S. Gray 13 (citing Methodology to Be Employed in Determining the R.R. Industry's Cost of Capital, slip op. at 8).

⁶³ AAR Rebuttal, V.S. Gray 12 (quoting Can. Transp. Agency, 425-R-2011, ¶ 335).

⁶⁴ AAR Rebuttal, V.S. Gray 12.

⁶⁵ Id.

⁶⁶ Methodology to Be Employed in Determining the R.R. Industry's Cost of Capital, slip op. at 9; R.R. Cost of Capital—2010, slip op. at 7-8; R.R. Cost of Capital—2008, EP 558 (Sub-No. 12), slip op. at 2 (STB served Sept. 25, 2009).

⁶⁷ For the purposes of determining the number of shares outstanding, new shares outstanding are assigned to the first Friday on, or after, the effective date.

⁶⁸ AAR Opening, V.S. Gray 34. AAR uses the SAS General Linear Model procedure to compute regression data. The Board uses a standard Excel regression method.

Cost of Common Equity Capital using CAPM

Using the modified approach for assigning the new shares outstanding, we calculate the cost of equity as $RF + \beta \times RP$, or $3.62\% + (1.1623 \times 6.62\%)$, which equals 11.31%.⁶⁹ **Tables 9** and **10** in the Appendix show the calculations of the cost of common equity using CAPM.

To calculate the 2011 market value of common equity for each railroad, AAR calculated each railroad's weekly market value using data on shares outstanding from railroad 10-Q and 10-K reports, multiplied by stock prices at the close of each week in 2011. AAR calculated the combined 52-week average market value of the railroads as \$97.034 billion.⁷⁰

Multi-Stage Discounted Cash Flow

The cost of equity in a Discounted Cash Flow (DCF) model is the discount rate that equates a firm's market value to the present value of the stream of cash flows that could affect investors. These cash flows are not presumed to be paid out to investors; instead, it is assumed that investors will ultimately benefit from these cash flows through higher regular dividends, special dividends, stock buybacks, or stock price appreciation. Incorporation of these cash flows, as well as the expected growth of earnings, are the essential elements of the Morningstar/Ibbotson MSDCF model.

Cash Flow

The Morningstar/Ibbotson MSDCF model defines cash flows (CF), for the first two stages, as income before extraordinary items (IBEI), minus capital expenditures (CAPEX), plus depreciation (DEP) and deferred taxes (DT), or

$$CF = IBEI - CAPEX + DEP + DT.$$

The third-stage cash flow is based on two assumptions: depreciation equals capital expenditures, and deferred taxes are zero. That is, cash flow in the third stage of the model is based only on IBEI.

To obtain an average cash flow to sales ratio, AAR divided the total cash flow in the 2007-2011 periods by the total sales over the same period. To obtain the 2011 average cash flow, the cash-flow-to-sales ratio is multiplied by the sales revenue from 2011. The 2011 average cash flow figure is then used as the starting point of the Morningstar/Ibbotson MSDCF model. The initial value of IBEI is determined through the same averaging process for the cash flows in stages one and two. According to AAR, the data inputs in the cash flow formula were retrieved from the railroads' 2007-2011 10-K filings with the SEC.

⁶⁹ AAR Opening, V.S. Gray 34.

⁷⁰ AAR Opening, V.S. Gray 25-26.

Growth Rates

Growth of earnings is also calculated in three stages. These three growth-rate stages are what make the Morningstar/Ibbotson model a “multi-stage” model. In the first stage (years one through five), the firm’s annual earnings growth rate is assumed to be the median value of the qualifying railroad’s three- to five-year growth estimates, as determined by railroad industry analysts, and published by Institutional Brokers Estimate System (I/B/E/S). In the second stage (years six through 10), the growth rate is the average of all growth rates in stage one. In the third stage (years 11 and onwards), the growth rate is the long-run nominal growth rate of the U.S. economy. This long-run nominal growth rate is estimated by using the historical growth in real GDP and the long-run expected inflation rate.

AAR calculated the first- and second-stage growth rates according to the I/B/E/S data, which was retrieved from Thomson One Investment Management. The third-stage growth rate of 5.19% was calculated by using the sum of the long-run expected growth in real output (3.24%) and the long-run expected inflation (1.95%).⁷¹

After reviewing the evidence provided by AAR, we find the growth rates correct and consistent with the Board’s approved methodology, and we will employ them in the determination of the cost of equity for 2011.

Market Values for MSDCF

The final inputs to the Morningstar/Ibbotson MSDCF model are the stock market values for the equity of each railroad. According to AAR, it used stock prices from Yahoo Finance for December 30, 2011, and shares outstanding from the 2011 Q3 10-Q reports filed with the SEC.

We have reviewed AAR’s evidence and find market values used in the 2011 estimate of the cost of equity using the Morningstar/Ibbotson MSDCF correct.

Cost of Common Equity Capital Using MSDCF

AAR estimates a MSDCF cost of equity of 15.83%.⁷² Accordingly, we calculate the MSDCF as 15.83%, and we will average this estimate with the cost of equity derived from the CAPM approach. **Table 11** shows the MSDCF inputs and the cost of equity calculation.

Cost of Common Equity

Based on the evidence provided, we conclude that the railroad cost of equity in 2011 is 13.57%.⁷³ This figure is based on an estimate of the cost of equity using CAPM of 11.31% and a

⁷¹ AAR Opening, V.S. Gray 40.

⁷² AAR Opening, V.S. Gray 43.

⁷³ Id.

MSDCF estimate of 15.83%. **Table 12** shows both costs of common equity for each model, and the average of the two models.

In its comments, WCTL states that, while AAR appears to have followed the Board's methodology for estimating the cost of equity, WCTL has no confidence in the accuracy of the results, especially in the continued use of the MSDCF method and the use of an allegedly excessive market risk premium in the CAPM analysis.⁷⁴ According to WCTL, it understands that the Board prefers to use two methods to generate stability in the cost-of-equity results.⁷⁵ However, WCTL notes that the 15.83% result of the MSDCF analysis exceeds the 11.31% result of the CAPM analysis by more than four percentage points.⁷⁶ According to WCTL, such a discrepancy between the two figures should trigger a Board analysis to determine which figure is more plausible.⁷⁷

WCTL also questions AAR's five-year growth rate of 14.62%.⁷⁸ WCTL argues that such a growth rate translates into a virtual doubling of cash flow (earnings) after five years.⁷⁹ Although WCTL admits that the rate of growth may be realistic given the railroads' pricing power and the prospects of the economic recovery, WCTL argues that the Board's MSDCF model posits that the growth will continue for an additional five years, thereby quadrupling the railroads' free cash flow at the end of 10 years.⁸⁰ According to WCTL, such a quadrupling for a large, stable, and mature industry over a 10-year period is unrealistic. WCTL notes that the CTA decided to rely exclusively on the CAPM approach, and not on a combined CAPM/MSDCF approach for its cost-of-capital methodology.⁸¹ According to WCTL, the CTA also concluded that combining the CAPM and MSDCF models "becomes entirely judgmental as there are no theoretical guidelines for combining estimates from cost of equity models."⁸² WCTL also cites a consultant hired by the CTA, Brattle Group, for the proposition that the MSDCF model is inherently difficult to use.⁸³ As such, WCTL submits that "the STB's stage two growth rates reflect precisely the concern noted by the CTA"⁸⁴

⁷⁴ WCTL Reply 6.

⁷⁵ Id. at 7.

⁷⁶ Id.

⁷⁷ Id.

⁷⁸ Id.

⁷⁹ Id.

⁸⁰ WCTL Reply 7-8.

⁸¹ Id. at 9 (citing Can. Transp. Agency, 425-R-2011, ¶ 209).

⁸² Id. (citing Can. Transp. Agency, 425-R-2011, ¶ 214).

⁸³ Id. (citing Can. Transp. Agency, 425-R-2011, Appendix B, ¶ 134 (quoting Brattle Report 52-53)).

⁸⁴ WCTL Reply 9. WCTL also quoted the CTA's consultant, Brattle Group, in support of its argument that there are inherent difficulties in the MSDCF model, particularly for

(continued . . .)

On rebuttal, AAR states that WCTL concedes in its reply that “the annual cost of capital docket are not to be utilized for seeking changes to the STB’s basic methodology,”⁸⁵ and that AAR has followed the Board’s methodology for estimating the cost of equity.⁸⁶ AAR states that, nonetheless, WCTL has dedicated numerous pages in its reply to attacking the Board’s methodology for estimating the cost of equity.⁸⁷ AAR states that WCTL’s proposals to change the Board’s established criteria and methodology for use in the annual cost-of-capital proceeding should be rejected as improper.⁸⁸

Regarding WCTL’s argument about its lack of confidence in the accuracy of results produced in the Board’s cost of equity approach, as the Board has discussed in Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry’s Cost of Capital, EP 664 (Sub-No. 1), slip op. at 5 (STB served Jan. 28, 2009), “[a]veraging the results of the commercially accepted Morningstar/Ibbotson multi-stage DCF with the results of CAPM establishes the best estimate of the railroad industry’s cost of equity for our regulatory purposes.” Further, the Board determined that, “[b]y using an average of the results produced by both models, we harness the strengths of both models while minimizing their respective weaknesses.” Id. Thus, we are not persuaded by WCTL’s argument that further consideration should be given to determine which figure is more plausible between the 15.83% result of the MSDCF analysis and the 11.31% result of the CAPM analysis.

We also find unconvincing WCTL’s argument that the five-year growth rate of 14.62% yields an unrealistically high figure. WCTL has failed to articulate a proposal to support its criticism of the second-stage growth rate in the MSDCF model. Notwithstanding the aforementioned, WCTL’s arguments appear to be a collateral attack on various components of our cost-of-capital methodology, particularly our continued use of the MSDCF model as part of our estimate. As the Board has previously stated, we will not entertain arguments raised in EP 558 proceedings that propose a methodological change to the cost-of-capital determination. In Methodology to Be Employed in Determining the Railroad Industry’s Cost of Capital, slip op. at 18, the Board held that, “while in the past we have entertained challenges to the agency’s model in the 558 proceedings, we will no longer do so. As such, future requests to [change our methodology] must be brought (in the form of a petition for rulemaking) in a 664 proceeding, not in the annual 558 proceeding, in which we calculate the cost of capital for a particular year.”

(. . . continued)

determining the dividend growth rate for the long-term. Upon review of WCTL’s argument, however, it appears that the Brattle Group is referring to a single-stage DCF model, rather than a multi-stage model. See id.

⁸⁵ AAR Rebuttal 5 (citing WCTL Reply 2 n.2).

⁸⁶ Id. (citing WCTL Reply 6).

⁸⁷ AAR Rebuttal 5.

⁸⁸ Id. at 6.

PREFERRED EQUITY

Preferred equity has some of the characteristics of both debt and equity. Essentially, preferred stock issues are like common stocks in that they have no maturity dates and represent ownership in the company (usually with no voting rights attached). They are similar to debt in that they usually have fixed dividend payments (akin to interest payments).

There were no preferred stock issues outstanding at the end of 2011.

CAPITAL STRUCTURE MIX

The Board will apply the same inputs used in the market value for the CAPM model to the capital structure.

We have determined that the average market values of debt and common equity are \$25.524 billion and \$97.034 billion, respectively.⁸⁹ The percentage share of debt decreased, from 23.38% in 2010 to 20.83% in 2011. The percentage share of common equity increased, from 76.62% in 2010 to 79.17% in 2011. **Table 13** in the Appendix shows the calculations of the average market value of common equity and relative weights for each railroad. **Table 14** in the Appendix shows the 2011 capital structure mix.

In its reply comments, WCTL asserts that the capital structure should be adjusted to reflect operating leases and grants received by railroads.⁹⁰ WCTL submits that operating leases should be classified as debt and that the Board should reexamine this issue, especially because “the Financial Accounting Standards Board (FASB) is far along towards adopting a rule to require such treatment for financial reporting purposes.”⁹¹ WCTL proposes that operating leases be classified as debt in advance of any change by the FASB, as “the investment community already generally treats railroad operating leases as debt.”⁹² WCTL also states that consideration should be given to the treatment and reporting of funds that the railroads receive under grants from the federal government.⁹³ According to WCTL, the assets purchased and the investments made with such grants may presumably enter the investment base of carriers, where they become eligible for a return of, and a return on, investment at the before-tax cost of capital as part of the Uniform Rail Costing System program.⁹⁴ WCTL states that, while the public may provide

⁸⁹ We note that, for the average market value of debt and common equity, the figures contained in AAR’s narrative, AAR Opening, V.S. Gray 44, are inconsistent with the values included in Tables 8, 12, and 20, AAR Opening, V.S. Gray 19, 25, 45. As such, we will rely upon the figures contained in said tables.

⁹⁰ WCTL Reply 11.

⁹¹ Id. at 12.

⁹² Id.

⁹³ Id. at 15.

⁹⁴ Id. at 16.

carriers with such benefits, it is another thing to require shippers to compensate carriers for those benefits already provided by the public.⁹⁵

On rebuttal, AAR asserts that WCTL's argument about adjusting the capital structure to reflect operating leases has already been argued and rejected by the Board.⁹⁶ AAR states that it prefers to wait on FASB to create a standard, rather than allowing operating leases to be classified as debt in advance of any change by the FASB.⁹⁷ Regarding the argument about railroad investment bases that were purchased using grants or low-interest loans from public entities, AAR comments that railroad assets financed using such grants or loans typically supply a benefit to the public in addition to the railroad.⁹⁸ AAR argues that, because such programs usually originate due to a public perception of public need, rather than the railroad's business needs, it would seem to defy logic that the railroad's act of good citizenship toward one public entity should then be repaid by the Board penalizing that same rail carrier through the cost-of-capital process.⁹⁹ According to AAR, the logical result of doing so would be to reduce a railroad's incentive to participate in public-private partnership projects that involve public funds and might bring public benefits.¹⁰⁰

We reject WCTL's arguments discussed above. We will not expand the scope of this proceeding to reexamine whether operating leases should be categorized as debt. As the Board stated in Methodology to Be Employed in Determining the Railroad Industry's Cost of Capital, slip op. at 15, 49 U.S.C. § 11161 instructs the Board to conform its accounting principles to GAAP to the maximum extent practicable, and "we rely on Generally Accepted Accounting Principles (GAAP) to distinguish between the types of leases." We see no reason to depart from GAAP here, and will reevaluate our current methodology if there are relevant (not just contemplated) changes to GAAP. We also note that WCTL appears to misunderstand how grant assets are treated. Under 49 C.F.R. pt. 1201 subpart A—Uniform System of Accounts (Instructions for Prop. Accounts 2-17), a railroad's asset accounts shall not include those assets, or portions thereof, that were not purchased or constructed with railroad funds, because a railroad incurs no costs for such assets. Grant assets are created or purchased with monies received from government agencies, and thus, are not derived from the railroad's own funding. Therefore, such grant assets are not included in a railroad's net investment base when computing revenue adequacy. Moreover, any methodological changes to the Board's capital structure, or proposals to alter the Board's reporting requirements, should be raised in a petition for rulemaking, as opposed to this proceeding to determine the annual cost of capital. Methodology to Be Employed in Determining the R.R. Industry's Cost of Capital, slip op. at 18.

⁹⁵ Id.

⁹⁶ AAR Rebuttal, V.S. Gray 13.

⁹⁷ AAR Rebuttal, V.S. Gray 14.

⁹⁸ AAR Rebuttal, V.S. Gray 15.

⁹⁹ AAR Rebuttal, V.S. Gray 16.

¹⁰⁰ Id.

COMPOSITE COST OF CAPITAL

Based on the evidence furnished in the record, and our adjustments to the calculations discussed above, we conclude that the 2011 composite after-tax cost of capital for the railroad industry, as set forth in **Table 15** in the Appendix, was 11.57%. The procedure used to develop the composite cost of capital is consistent with the Statement of Principle established by the Railroad Accounting Principles Board: “Cost of capital shall be a weighted average computed using proportions of debt and equity as determined by their market values and current market rates.” R.R. Accounting Principles Bd., Final Report, Vol. 1 (1987). The 2011 cost of capital was 0.54 percentage points higher than the 2010 cost of capital (11.03%).

CONCLUSIONS

We find that for 2011:

1. The current cost of railroad long-term debt was 3.97%.
2. The cost of common equity was 13.57%.
3. The capital structure mix of the railroads was 20.83% long-term debt and 79.17% common equity.
4. The composite railroad industry cost of capital was 11.57%.

Environmental and Energy Considerations

We conclude that this action will not significantly affect either the quality of the human environment or the conservation of energy resources.

It is ordered:

1. This decision is effective on October 13, 2012.
2. This proceeding is discontinued.

By the Board, Chairman Elliott, Vice Chairman Mulvey, and Commissioner Begeman.

APPENDIX

Table 1
2011 Traded & Non-traded Bonds

Railroad	Traded vs. Untraded	Number	Market Value (\$ in 000)	% Market Value to All Bonds
CSX	Traded ¹	24	\$8,520,900	94.76%
	Non-traded	8	471,571	5.24%
	Total	33	8,992,471	
NSC	Traded ²	18	7,589,026	98.54%
	Non-traded	3	112,102	1.46%
	Total	23	7,701,128	
UPC	Traded ³	23	6,469,220	96.95%
	Non-traded	7	203,666	3.05%
	Total	30	6,672,886	
Composite	Traded	65	\$22,579,146	96.63%
	Non-traded	18	787,339	3.37%
	Total	83	23,366,485	
¹ Includes 3 bonds issued during 2011, prorated based on date of issue.				
² Includes 3 bonds issued during 2011, prorated based on date of issue.				
³ Includes 1 bond issued during 2011, prorated based on date of issue.				

Table 2
2011 Bonds, Notes, & Debentures

Railroad	Number of Traded Issues	Market Value Traded Issues (\$000)	Current Cost	Weighted Cost
CSX	24	\$8,520,900	3.957%	1.493%
NSC	18	7,589,026	4.127%	1.387%
UPC	23	6,469,220	3.605%	1.033%
Composite		\$22,579,146		3.913%

Table 3
2011 Equipment Trust Certificates

Railroad	No. of Issues	Market Value (\$000)	Yield %	Weighted \$ Yield (\$000)
CSX	5	\$98,058	1.906%	\$1,869
NSC	3	60,551	1.698%	1,028
UPC	2	154,435	3.757%	5,803
Composite	10	\$313,044	2.779%	\$8,700

Table 4
2011 Conditional Sales Agreements

Railroad	Number of Issues	Market Value (\$000)	Current Cost	Weighted Cost
Composite		\$0		0%

Table 5
2011 Capitalized Leases & Miscellaneous Debt

Railroad	Capitalized Leases (\$000)	Miscellaneous Debt¹ (\$000)	Total Other Debt (\$000)
CSX	\$8,747	\$58,128	\$66,875
NSC	2,285	(213,452)	(211,167)
UPC	1,873,616	115,450	1,989,066
Composite	\$1,884,648	(\$39,874)	\$1,844,774²

¹ Miscellaneous debt includes unamortized debt discount.

² This figure includes \$27,974 of non- modeled ETCs and CSAs.

Table 6
2011 Market Value of Debt

Type of Debt	Market Value of Debt (\$000)	Percentage of Total Market Value (Excluding Other Debt)
Bonds, Notes, & Debentures	\$23,366,485	98.68%
ETCs	313,044	1.32%
CSAs	0	0.00%
Subtotal	\$23,679,529	100.00%
Capitalized Leases/Miscellaneous Debt	1,844,774	NA
Total Market Value of Debt	\$25,524,303	NA

Table 7
2011 Flotation Cost for Debt

Type of Debt	Market Weight (Excludes Other Debt)	Flotation Cost	Weighted Average Flotation Cost
Bonds, Notes, & Debentures	98.68%	0.067%	0.066%
ETCs	1.32%	0.073%	0.001%
CSAs	0.00%	0.000%	0.000%
Total	100.00%		0.067%

Table 8
2011 Cost of debt

Type of Debt	Percentage of Total Market Value (Excludes Other Debt)	Debt Cost	Weighted Debt Cost (Excluding Other Debt)
Bonds, Notes, & Debentures	98.68%	3.913%	3.8616%
ETCs	1.32%	2.779%	0.0367%
CSAs	0.00%	0.00%	0.00%
Subtotal	100.00%		3.898%
Flotation Cost			0.067%
Weighted Cost of Debt			3.965%

Table 9
2011 Summary Output

Regression Statistics					
Multiple R	0.780884				
R-Square	0.609780				
Adjusted-R Square	0.608274				
Standard Error	0.030356				
Observations	261				
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.372963	0.372963	404.728847	7.51191E-55
Residual	259	0.238672	0.000922		
Total	260	0.611635			
	Coefficients	Standard Error	T Stat	P-Value	
Intercept	0.003982	0.001879	2.118970	0.035045	
X-Variable	1.162320	0.057776	20.117874	7.51191E-55	

Table 10
2011 CAPM Cost of Common Equity

Risk-Free Rate (RF)	3.62%	
RF+(Beta x Market Risk Premium)	3.62% + (1.1623 x 6.62%)	11.31%
Cost of Equity		11.31%

Table 11
2011 MS-DCF Railroad Cost of Equity
(\$ in millions)

Railroad	CSX		NSC		UNP	
Initial CF	\$1,119		\$1,268		\$2,156	
Input for terminal CF	\$1,612		\$1,748		\$2,799	
Stage 1 Growth Rate	14.25%		14.50%		15.10%	
Stage 2 Growth Rate	14.62%		14.62%		14.62%	
Stage 3 Growth Rate	5.19%		5.19%		5.19%	
Year	Value on 12/31 of each year	Present Value	Value on 12/31 of each year	Present Value	Value on 12/31 of each year	Present Value
1	\$1,278	\$1,095	\$1,452	\$1,243	\$2,482	\$2,158
2	1,461	1,072	1,662	1,219	2,856	2,160
3	1,669	1,050	1,903	1,195	3,288	2,162
4	1,907	1,028	2,179	1,172	3,784	2,164
5	2,178	1,006	2,495	1,149	4,355	2,165
6	2,497	988	2,860	1,127	4,992	2,158
7	2,862	970	3,278	1,106	5,722	2,151
8	3,280	953	3,758	1,086	6,559	2,144
9	3,760	936	4,307	1,066	7,517	2,137
10	4,309	919	4,937	1,046	8,616	2,130
Terminal	\$ 56,697	\$12,094	\$61,735	\$13,080	\$119,946	\$29,649
ΣPV	\$22,112		\$24,489		\$51,177	
Market Value	\$22,112		\$24,489		\$51,177	
COE	16.71%		16.79%		15.00%	
Weighted COE	3.78%		4.20%		7.85%	
COE	15.83%					

Table 12
2011 Cost of Common Equity Capital

Model	
Capital Asset Pricing Model	11.31%
Multi-Stage Discounted Cash Flow	15.83%
Cost of Common Equity	13.57%

Table 13
2011 Average market Value

Railroad	Average Market Value (\$000)	Average Market Weight
CSX	\$25,457,455	26.24%
NSC	24,096,087	24.83%
UPC	47,480,771	48.93%
COMPOSITE	\$97,034,314	100.00%

Table 14
2011 Capital Structure Mix

Railroad	Type of Capital	Market Value (\$000)	Weight
CSX	Debt	\$9,157,404	26.46%
	Equity	25,457,455	73.54%
NSC	Debt	7,550,512	23.86%
	Equity	24,096,087	76.14%
UPC	Debt	8,816,387	15.66%
	Equity	47,480,771	84.34%
Composite Weight	Debt	25,524,303	20.83%
	Equity	97,034,314	79.17%
	Total	\$122,558,616	100.00%

Table 15
2011 Cost-of-Capital Computation

Type of Capital	Cost	Weight	Weighted Average
Long-Term Debt	3.97%	20.83%	0.83%
Common Equity	13.57%	79.17%	10.74%
Composite Cost of Capital		100.00%	11.57%