SERVICE DATE – JULY 31, 2014

SURFACE TRANSPORTATION BOARD

DECISION

Docket No. EP 558 (Sub-No. 17)

RAILROAD COST OF CAPITAL—2013

Digest:[1] The agency finds that the cost of capital for the railroad industry in 2013
was 11.32%. 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: July 30, 2014

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—2013, EP 558 (Sub-No. 17)
(STB served Feb. 28, 2014) to update the railroad industry's cost of capital for 2013. In that
decision, the Board solicited comments from interested parties on the following issues: (1) the
railroads' 2013 current cost of debt capital, (2) the railroads' 2013 current cost of preferred
equity capital (if any), (3) the railroads' 2013 cost of common equity capital, and (4) the 2013
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

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[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, noting that it had no technical disagreements with AAR's calculations for the 2013 determination. At the same time, WCTL identified concerns regarding two matters: (1) the relationship of the 2013 cost-of-capital determination to the pending rulemaking proceeding in Petition of the Western Coal Traffic League to Institute a Rulemaking Proceeding to Abolish the Use of the Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Equity Capital, EP 664 (Sub-No. 2); and (2) the inclusion of Kansas City Southern (KCS) in the composite sample.

Specifically, WCTL argues that the determination of the railroad cost of capital for 2013 should be deferred or conditioned upon the outcome of EP 664 (Sub-No. 2), given that WCTL has raised questions regarding the methodology behind the cost-of-capital determination in that rulemaking proceeding.[3] WCTL argues that the Board previously deferred its annual determination while considering WCTL's concerns about the single-stage discounted cash flow methodology in Methodology to be Employed in Determining the Railroad Industry's Cost of Capital, EP 664, and should do so again.[4]

On rebuttal, AAR notes the importance of the annual cost-of-capital determination in that it is used in many Board proceedings, including the determination of railroad revenue adequacy.[5] AAR also notes that, subsequent to the experience cited by WCTL where the agency moved away from the single-stage methodology, the Board elected not to defer the establishment of a cost-of-capital determination while it considered using a Multi-Stage Discounted Cash Flow (MSDCF) model in calculating the cost of equity in Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Capital, EP 664 (Sub-No. 1).[6] AAR further objects to WCTL's request for a deferral because AAR disagrees on the merits with WCTL's petition for rulemaking.[7]

The Board will not defer the 2013 cost-of-capital determination or condition it on the outcome of EP 664 (Sub-No. 2). Although it is true, as WCTL argues, that the Board deferred its annual cost-of-capital determination for 2006 while considering WCTL's concerns about the single-stage discounted cash flow methodology (see R.R. Cost of Capital—2006, EP 558 (Sub-No. 10) (STB served Apr. 14, 2008)), the Board has since departed from that approach. Specifically, when the Board instituted a proceeding on the 2007 cost-of-capital determination, it decided not to defer the determination even though the Board was then considering its MSDCF approach. See R.R. Cost of Capital—2007, EP 558 (Sub-No. 11), slip op. at 2 (STB served Apr. 23, 2008). The Board recognized that the cost-of-capital determination plays a critical role in the regulation of railroads, and a deferral or conditional decision would have a significant

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[3] WCTL Reply 1-3.

[4] WCTL Reply 3.

[5] AAR Rebuttal 3.

[6] AAR Rebuttal 4.

[7] AAR Rebuttal 4-5.

adverse impact on numerous proceedings. See id. Therefore, the Board held that, "[g]iven its critical role in the regulation of railroads, it is important that [the cost of capital] be determined promptly even if the Board is considering changing the existing approach." Id.

WCTL also expresses concerns about the inclusion of KCS in the composite sample for the 2013 cost-of-capital determination.[8] While WCTL acknowledges that KCS meets the criteria for 2013, it notes that KCS has not met the criteria in past years.[9] WCTL notes that the Board's MSDCF and Capital Asset Pricing Model (CAPM) methodologies both utilize data from previous years (2009-2012), and WCTL questions whether it is appropriate to include data from KCS for years when KCS did not meet the criteria.[10] WCTL further questions precisely how KCS would be included in the composite sample, especially in the second stage of the MSDCF model, which utilizes an unweighted average of the carriers.[11]

On rebuttal, AAR states that it included KCS in the composite because KCS meets the stated criteria, and notes that WCTL does not contend otherwise.[12] AAR contends that WCTL's arguments represent a challenge to the Board's established cost-of-capital methodology, and as such are beyond the scope of this proceeding.[13]

The Board will accept AAR's inclusion of KCS in the composite sample because, as WCTL concedes, KCS meets the criteria for 2013. See R.R. Cost of Capital—1984, 1 I.C.C. 2d 989 (1985). Moreover, as WCTL notes, the inclusion of KCS has a "very modest effect on the calculations for the 2013 cost of capital."[14] Further, as the parties are aware, any proposed changes to the Board's established cost-of-capital methodology should be proposed in a separate petition for rulemaking in an EP 664 proceeding, and not within this annual EP 558 proceeding. See R.R. Cost of Capital—2012, EP 558 (Sub-No. 16), slip op. at 10 (STB served Aug. 30, 2013); Methodology to Be Employed in Determining the R.R. Industry's Cost of Capital (Cost of Capital Methodology), EP 664, slip op. at 18 (STB served Jan. 17, 2008).

2013 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.[15]

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[8] WCTL Reply 3.

[9] WCTL Reply 4.

[10] WCTL Reply 4.

[11] WCTL Reply 4-5.

[12] AAR Rebuttal 5.

[13] AAR Rebuttal 5-6.

[14] WCTL Reply 5.

[15] 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

According to AAR, the following four railroad holding companies meet these criteria: CSX Corporation (CSX), KCS, 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 2013 cost of capital: (1) cost-of-debt capital, (2) cost of common equity capital, (3) cost of preferred equity capital, (4) capital structure, and (5) composite after-tax cost of capital. We estimate that the 2013 railroad cost of capital was 11.32%.

DEBT CAPITAL

AAR developed its 2013 current cost of debt using bond price data from Bloomberg Professional (Bloomberg), a subscription service used in Railroad Cost of Capital—2012, EP 558 (Sub-No. 16) (STB served Aug. 30, 2013). 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.

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 2013, for all issues (a total of 76) that were publicly traded during the year.[16] To develop the current (in 2013) market value of bonds, AAR used these traded bonds and additional bonds that were outstanding but not publicly traded during 2013. 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 $26.8 billion ($25.4 billion traded, and $1.4 billion non-traded).[17] Based on the yields for the traded bonds, AAR calculated the weighted average 2013 yield for all bonds to be 3.620%.[18] 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.

(. . . continued)

assets greater than 50% of their total assets, and (4) had a debt rating of at least BBB (Standard & Poor's) and BAA (Moody's).

[16] AAR Opening, V.S. Gray 9.

[17] AAR Opening, V.S. Gray 10.

[18] AAR Opening, V.S. Gray 10.

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 2013 yields for these government securities, AAR added basis points[19] to these yields to compensate for the additional risks associated with the ETCs.

There were no new ETCs issued during 2013. However, there were four ETCs outstanding during the year.[20] AAR calculated that the yield spread for ETCs was 80 basis points higher than the yield for government bonds.[21] Using the yield spreads, AAR calculated the weighted average cost of ETCs to be 2.782%[22] and their market value to be $163.5 million for 2013.[23]

We have examined and will 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 2013, no CSAs were modeled.[24]

Capitalized Leases and Miscellaneous Debt

As in previous cost-of-capital determinations, AAR excluded the cost of capitalized leases and 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

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[19] A basis point equals 1/100th of a percentage point.

[20] AAR Opening, V.S. Gray 16.

[21] AAR Opening, V.S. Gray 14. This is the same spread used in 2012.

[22] This percentage is higher than the 2012 figure of 2.097%.

[23] AAR Opening, V.S. Gray 16. AAR approximated the market values of ETCs using the same procedures used in previous cost-of-capital determinations.

[24] 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.

value for the capitalized leases and miscellaneous debt was $1.459 billion for 2013.[25] We have examined and will 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 $1.459 billion.[26]

Total Market Value of Debt

AAR calculated that the total market value for all debt during 2013 was $28.384 billion.[27] 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 2013, six new issues were reported in five filings.[28] A simple average of the six flotation cost figures is 0.066%.[29] AAR calculated the 2013 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 outstanding debt 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.[30] All other debt is excluded from

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[25] AAR Opening, V.S. Gray 19. This figure consists of $1.73 billion of capitalized leases and -$271.5 million of miscellaneous debt. AAR Opening, Appendix E. The miscellaneous debt figure is negative due to the inclusion of unamortized debt discounts.

[26] We note that in its workpapers AAR appears to have excluded $32,000 in premiums/debt discounts in the CSX miscellaneous debt category. Although this $32,000 was excluded, due to rounding there was no impact on the total other debt calculation. See AAR Opening Work Paper "Debt Data and Work Tables" at CSX Ex. 4.

[27] AAR Opening, V.S. Gray 19.

[28] AAR Opening, V.S. Gray 22.

[29] AAR Opening, V.S. Gray 24.

[30] All other debt represents capitalized leases, miscellaneous debt, non-modeled ETCs, and non-modeled CSAs. There were no non-modeled ETCs in 2013. There was one non-modeled CSA that was not included because it matures in 2014. AAR Opening, V.S. Gray 18.

the weight calculation because a current cost of debt for other debt has not been determined.[31] AAR calculated that flotation costs for debt equal 0.066%.[32]

We have reviewed AAR's calculations concerning flotation costs and note that AAR applied an incorrect underwriting fee of 0.65% for one of NS's Senior notes. The correct underwriting fee is 0.875%. This change increases the total flotation cost to 0.068%. We will apply this change to the current cost of debt. We find that the cost factors developed for the various components of debt other than the correction stated above are reasonable.[33] **Table 7** in the Appendix shows these calculations.

Overall Current Cost of Debt

AAR concluded that the railroads' cost of debt for 2013 was 3.68%.[34] We have verified that the percentage put forth by AAR is correct. **Table 8** in the Appendix shows the overall current cost of debt.

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 2013 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:

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[31] Current costs can be determined for three of the four debt categories—bonds, ETCs, and CSAs. Usually, the weighted average cost of debt is based upon these three (of the four) debt categories, but in this instance only bonds and ETCs are present. AAR Opening, V.S. Gray 20.

[32] AAR Opening, V.S. Gray 24.

[33] AAR calculated the 2013 flotation costs for bonds using publicly available data from electronic filings with the SEC.

[34] AAR Opening, V.S. Gray 25. This percentage is higher than the 2012 cost of debt (3.29%). 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 four railroads in our sample.

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

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;
$SRRF$	=	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 2013 for a 20-year U.S. Treasury Bond, consistent with Railroad Cost of Capital—2006, EP 558 (Sub-No. 10), slip op. at 6 (STB served Apr. 15, 2008), AAR calculated the 2013 risk-free rate to be 3.12%.[35] 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 Cost of Capital Methodology, AAR submitted data reflecting a market-risk premium of 6.96%.[36] We have examined the underlying data here and agree that the market-risk premium is 6.96%.

Calculating Beta

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: $R - SRRF = \alpha + \beta(RM - SRRF) + \varepsilon$. Applying the modified approach for assigning the new shares

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[35] AAR Opening, V.S. Gray 30.

[36] The Ibbotson SBBI Valuation Yearbook published by Morningstar, which was previously used as the source of the market risk premium, has been discontinued. AAR has replaced the old source with the Ibbotson SBBI 2014 Classic Yearbook, which provides the same data reflecting the market-risk premium. AAR Opening, V.S. Gray 31.

outstanding,[37] as described in <u>Railroad Cost of Capital—2010</u>, slip op. at 6, AAR's calculations estimate that the value of beta is 1.3499, and we agree with this estimate.[38]

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 $3.12\% + (1.3499 \times 6.96\%)$, which equals 12.52%. **Tables 9** and **10** in the Appendix show the calculations of the cost of common equity using CAPM.[39]

To calculate the 2013 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 2013. AAR calculated the combined 53-week average market value of the railroads as $132.06 billion.[40]

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 and 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.

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[37] 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.

[38] AAR Opening, V.S. Gray 35. AAR uses the SAS General Linear Model procedure to compute regression data. The Board uses a standard Excel regression method.

[39] <u>See also</u> AAR Opening, V.S. Gray 37.

[40] AAR Opening, V.S. Gray 25-26.

To obtain an average cash-flow-to-sales ratio, AAR divided the total cash flow in the 2009-2013 periods by the total sales over the same period. To obtain the 2013 average cash flow, the cash-flow-to-sales ratio is multiplied by the sales revenue from 2013. The 2013 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' 2009-2013 10-K filings with the SEC.

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 5.58% was calculated by using the sum of the figures for long-run expected growth in real output (3.27%) and long-run expected inflation (2.31%).[41]

After reviewing the evidence provided by AAR, we find that the growth rates are correct and consistent with the Board's approved methodology, and we will employ them in the determination of the cost of equity for 2013.

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 January 3, 2014, and shares outstanding from the 2013 Q3 10-Q reports filed with the SEC.

We have reviewed AAR's evidence and find that the market values used in the 2013 estimate of the cost of equity using the Morningstar/Ibbotson MSDCF are correct.

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[41] In all of the prior cost-of-capital determinations that relied upon the MSDCF, the long-run growth rate used was that provided by Morningstar/Ibbotson in its Ibbotson SBBI Valuation Yearbook. According to AAR, this publication has been discontinued. However, the Ibbotson SBBI Classic Yearbook was expanded to contain many of the statistics found in the Valuation Yearbook. Using data from the Classic Yearbook, the Federal Reserve, and the Bureau of Economic Analysis, AAR has replicated the Ibbotson calculations for real growth rates and long term inflation. AAR Opening, V.S. Gray 43.

Cost of Common Equity Capital Using MSDCF

AAR estimates a MSDCF cost of equity of 13.40%.[42]   Accordingly, we calculate the MSDCF as 13.40%, 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 2013 was 12.96%.[43]   This figure is based on an estimate of the cost of equity using CAPM of 12.52% and a MSDCF estimate of 13.40%. **Table 12** shows both costs of common equity for each model, and the average of the two models.

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).

To determine the cost of preferred equity here, AAR examined the preferred stock issues of KCS, using the dividend yield method (dividends divided by market price). AAR computed the market value of the preferred stock by multiplying the average quarterly price for each issue by the number of shares outstanding. This is the same procedure used in previous cost-of-capital determinations. See, e.g., R.R. Cost of Capital—2002, EP 558 (Sub-No. 6), slip op. at 8-9 (STB served Jun. 19, 2003). AAR computed the market value of preferred equity during 2013 to be $6.254 million. AAR computed the cost of preferred equity to be 3.87%.[44]

We have determined that the AAR's computations are correct. **Table 13** shows the calculations of the cost of preferred equity.

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, common equity, and preferred equity are $28.384 billion, $132.062 billion, and $6.3 million respectively. The percentage share of debt decreased, from 22.56% in 2012 to 17.69% in 2013. The percentage

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[42] AAR Opening, V.S. Gray 45.

[43] AAR Opening, V.S. Gray 46.

[44] AAR Opening, V.S. Gray 50.

share of common equity increased, from 77.44% in 2012 to 82.31% in 2013. The percentage of preferred equity for 2013 was 0.004%. **Table 14** in the Appendix shows the calculations of the average market value of common equity and relative weights for each railroad. **Table 15** in the Appendix shows the 2013 capital structure mix.

COMPOSITE COST OF CAPITAL

Based on the evidence furnished in the record, we conclude that the 2013 composite after-tax cost of capital for the railroad industry, as set forth in **Table 16** in the Appendix, was 11.32%. 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 2013 cost of capital was 0.2 percentage points higher than the 2012 cost of capital (11.12%).

CONCLUSIONS

We find that for 2013:

1. The cost of railroad long-term debt was 3.68%.

2. The cost of common equity was 12.96%.

3. The cost of preferred equity was 3.87%.

4. The capital structure mix of the railroads was 17.69% long-term debt, 82.31% common equity, and 0.004% preferred equity.

5. The composite railroad industry cost of capital was 11.32%.

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 August 30, 2014.

2. This proceeding is discontinued.

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

APPENDIX

Table 1
2013 Traded & Non-traded Bonds

Railroad	Traded vs. Non-traded	Number	Market Value ($000)	% Market Value to All Bonds
CSX	Traded[1]	24	$9,542,545	98.56%
	Non-traded	6	139,489	1.44%
	Total	30	9,682,034	100.00%
KCS	Traded[2]	6	613,809	55.57%
	Non-traded	9	490,828	44.43%
	Total	15	1,104,637	100.00%
NSC	Traded[3]	21	8,866,417	92.87%
	Non-traded	3	680,407	7.13%
	Total	24	9,546,824	100.00%
UPC	Traded[4]	25	6,340,946	98.64%
	Non-traded[5]	8	87,558	1.36%
	Total	33	6,428,504	100.00%
Composite	Traded	76	$25,363,717	94.78%
	Non-traded	51	1,398,282	5.22%
	Total	127	26,761,999	100.00%

[1] Includes 1 bond issued during 2013, prorated based on date of issue.
[2] Includes 5 bonds issued during 2013, prorated based on date of issue.
[3] Includes 3 bonds issued during 2013, prorated based on date of issue.
[4] Includes 3 bonds issued during 2013, prorated based on date of issue.
[5] Includes 2 bonds issued during 2013, prorated based on date of issue.

Table 2
2013 Bonds, Notes, & Debentures

Railroad	Number of Traded Issues	Market Value Traded Issues ($000)	Current Cost	Weighted Cost
CSX	24	$9,542,545	3.698%	1.391%
KCS	6	613,809	3.875%	0.094%
NSC	21	8,866,417	3.722%	1.301%
UPC	25	6,340,946	3.336%	0.834%
Composite	**76**	**$25,363,717**		**3.620%**

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Table 3
2013 Equipment Trust Certificates

Railroad	No. of Issues	Market Value ($000)	Yield %	Weighted $ Yield ($000)
CSX	2	$26,164	1.266%	$331
KCS	0	0	0.00%	0
NSC	0	0	0.00%	0
UPC	2	137,359	3.070%	4,218
Composite	**4**	**$163,523**	**2.782%**	**$4,549**

Table 4
2013 Conditional Sales Agreements

Railroad	Number of Issues	Market Value ($000)	Current Cost	Weighted Cost
Composite	**0**	**$0**	■	**0.00%**

Table 5
2013 Capitalized Leases & Miscellaneous Debt

Railroad	Capitalized Leases ($000)	Miscellaneous Debt[1] ($000)	Total Other Debt ($000)
CSX	$7,994	$19,635	$27,629
KCS	17,217	0	17,217
NSC	2,684	(395,295)	(392,611)
UPC	1,702,280	104,184	1,806,464
Composite	**$1,730,175**	**($271,476)**	**$1,458,699**

[1] Miscellaneous debt includes unamortized debt discount.

Table 6
2013 Market Value of Debt

Type of Debt	Market Value of Debt ($000)	Percentage of Total Market Value (Excluding Other Debt)
Bonds, Notes, & Debentures	$26,761,999	99.39%
ETCs	163,523	0.61%
CSAs	0	0.00%
Subtotal	$26,925,522	100.00%
Capitalized Leases/Miscellaneous Debt	1,458,699	NA
Total Market Value of Debt	**$28,384,221**	**NA**

Table 7
2013 Flotation Cost for Debt

Type of Debt	Market Weight (Excludes Other Debt)	Flotation Cost	Weighted Average Flotation Cost
Bonds, Notes, & Debentures	99.39%	0.068%	0.0676%
ETCs	0.61%	0.073%	0.0004%
CSAs	0.00%	0.000%	0.0000%
Total	**100.00%**		**0.068%**

Table 8
2013 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	99.39%	3.620%	3.5982%
ETCs	0.61%	2.782%	0.0169%
CSAs	0.00%	0%	0.0000%
Subtotal	100.00%		3.615%
Flotation Cost			0.068%
Weighted Cost of Debt			**3.68%**

Table 9
2013 Summary Output

Regression Statistics					
Multiple R	0.831504				
R-Square	0.691399				
Adjusted-R Square	0.690208				
Standard Error	0.022634				
Observations	261				
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.297270	0.297270	580.271742	4.47919E-68
Residual	259	0.132684	0.000512		
Total	260				
	Coefficients	Standard Error	T Stat	P-Value	
Intercept	0.001263	0.001410	0.895572	0.371313	
X-Variable	1.349894	0.056038	24.088830	4.47919E-68	

Table 10
2013 CAPM Cost of Common Equity

Risk-Free Rate (RF)	3.12%	
RF+(Beta x Market Risk Premium)	3.12% + (1.3499 x6.96%)	12.52%
Cost of Equity		**12.52%**

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Table 11
2013 MS-DCF Railroad Cost of Equity
($ in millions)

Railroad	CSX		KCS		NSC		UNP	
Initial CF	$1,186		$46		$1,137		$3,076	
Input for terminal CF	$1,800		$304		$1,789		$3,825	
Stage 1 Growth Rate	8.15%		16.70%		10.75%		14.27%	
Stage 2 Growth Rate	12.47%		12.47%		12.47%		12.47%	
Stage 3 Growth Rate	5.58%		5.58%		5.58%		5.58%	
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	Value on 12/31 of each year	Present Value
1	$1,283	1,133	$54	$49	$1,259	$1,105	$3,515	$3,086
2	1,387	1,082	63	52	1,395	1,074	4,017	3,096
3	1,500	1,033	73	56	1,545	1,043	4,590	3,106
4	1,623	987	85	59	1,711	1,014	5,245	3,116
5	1,755	942	100	63	1,894	985	5,993	3,126
6	1,974	936	112	65	2,131	972	6,740	3,086
7	2,220	929	126	66	2,396	960	7,581	3,047
8	2,496	923	142	68	2,695	947	8,526	3,009
9	2,808	917	159	70	3,031	935	9,589	2,971
10	3,158	910	179	72	3,409	922	10,785	2,934
Terminal	$66,011	$19,028	$31,364	$12,580	$67,528	$18,268	$170,099	46,270
ΣPV	$28,819		$13,200		$28,225		$76,846	
Market Value	$28,819		$13,200		$28,225		$76,846	
COE	13.25%		9.57%		13.97%		13.90%	
Weighted COE	2.60%		0.86%		2.68%		7.26%	
COE	**13.40%**							

Table 12
2013 Cost of Common Equity Capital

Model	
Capital Asset Pricing Model	12.52%
Multi-Stage Discounted Cash Flow	13.40%
Cost of Common Equity	**12.96%**

Table 13
2013 Cost & Market Value of Preferred Stock

Railroad	Dividend	Value Per Share	Div. Yield %	Shares (000)	Market Value ($000)	Market Weight	Weighted Yield
CSX	0	0	0.00%			0.00%	0.00%
KCS	$1.00	$25.824	3.87%	242,170	$6,254	100.00%	3.87%
NSC	0	0	0.00%			0.00%	0.00%
UPC	0	0	0.00%			0.00%	0.00%
Composite					**$6,254**		**3.87%**

Table 14
2013 Average market Value

Railroad	Average Market Value ($000)	Average Market Weight
CSX	$25,364,866,989	19.21%
KCS	12,072,798,784	9.14%
NSC	24,192,243,638	18.32%
UPC	70,431,959,081	53.33%
COMPOSITE	**$132,061,868,492**	**100.00%**

Table 15
2013 Capital Structure Mix

Railroad	Type of Capital	Market Value ($000)	Weight
CSX	Debt	$9,735,827	27.74%
	Equity	25,364,867	72.26%
	P. Equity	0	0.00%
KCS	Debt	1,121,854	8.50%
	Equity	12,072,799	91.45%
	P. Equity	6,254	0.05%
NSC	Debt	9,154,213	27.45%
	Equity	24,192,244	72.55%
	P. Equity	0	0.00%
UPC	Debt	8,372,327	10.62%
	Equity	70,431,959	89.38%
	P. Equity	0	0.00%
Composite Weight	Debt	28,384,221	17.69%
	Equity	132,061,869	82.31%
	P. Equity	6,254	0.004%
	Total	$160,452,344	100.00%

Table 16
2013 Cost-of-Capital Computation

Type of Capital	Cost	Weight	Weighted Average
Long-Term Debt	3.68%	17.69%	0.65%
Common Equity	12.96%	82.31%	10.66%
Preferred Equity	3.87%	0.004%	0.00%
Composite Cost of Capital		**100.00%**	**11.32%**