# STB EX PARTE NO. 558 (SUB-NO. 7)
# RAILROAD COST-OF-CAPITAL—2003

*Decided June 22, 2004*

Upon review of the evidence tendered in this proceeding, the Board finds that in 2003, the railroad industry had a composite after-tax cost-of-capital of 9.4%, based on: (1) a current cost-of-debt of 5.0%; (2) a current cost of common equity capital of 12.7%; and (3) a capital structure mix of 42.8% debt and 57.2% common equity.

BY THE BOARD:

One of the Surface Transportation Board's regulatory responsibilities is the annual determination of the railroad industry's cost-of-capital. This determination is one component used in evaluating the adequacy of railroad revenues each year under the procedures and standards mandated by Congress in the Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act) and promulgated in *Standards for Railroad Revenue Adequacy*, 364 I.C.C. 803 (1981), *modified*, 3 I.C.C.2d 261 (1986). This finding may also be used in other regulatory proceedings, including, but not necessarily limited to, those involving the prescription of maximum reasonable rate levels, the proposed abandonment of rail lines, and the setting of compensation for disputed trackage rights fees.

The most recent determination of the railroad industry's cost-of-capital was for the year 2002 in *Railroad Cost of Capital - 2002*, 7 S.T.B. 1 (2003) *(Cost 02)*. The instant proceeding, instituted in *Railroad Cost of Capital 2003*, STB Ex Parte No. 558 (Sub-No. 7) (STB served December 11, 2003), updates the railroad industry's cost-of-capital for the year 2003.

The only party to provide evidence in this proceeding was the Association of American Railroads (AAR). The AAR concluded that the composite after-tax cost-of-capital for the railroad industry for 2003 was 9.4%, lower than the 2002 cost-of-capital rate of 9.8%.

Consistent with previous cost-of-capital proceedings, the AAR determined the overall railroad industry cost-of-capital rate using a "composite railroad" consisting of Class I carriers controlled by selected major railroad holding companies. The AAR's selection of these companies was based on criteria developed in *Railroad Cost of Capital - 1984*, 1 I.C.C.2d 989 (1985).[1] The following companies that met these criteria are: Burlington Northern

[1] These criteria are as follows: (1) the company is listed on either the New York or American Stock Exchange; (2) the company paid dividends throughout the year; (3) the company's rail assets are greater than 50% of its total assets; and (4) the company has a debt rating of at least BBB (Standard & Poor's) and Baa (Moody's).

Santa Fe Corporation (BNSF), CSX Corporation (CSX), Norfolk Southern Corporation (NSC), and the Union Pacific Corporation (UPC).[2]

As discussed below, we have examined the procedures used by the AAR to determine the following for 2003: (1) the railroad industry's current cost-of-debt capital; (2) its cost of common equity capital; (3) its cost of preferred equity capital;[3] (4) its capital structure mix; and (5) the composite after-tax railroad industry cost-of-capital. We have determined that the 2003 railroad cost-of-capital was 9.4%.

## DEBT CAPITAL

The AAR developed its 2003 current cost-of-debt using bond price data from Standard & Poor's Corporation *Bond Guide* and a Standard and Poor's database for those bonds not traded. The AAR's cost-of-debt figure is based on the market value yields of the major forms of long-term debt instruments for the sample railroad holding companies listed above. 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)*

The AAR used data contained in Standard & Poor's *Bond Guide* for the current cost of bonds, based on monthly prices and yields during 2003, for all issues (a total of 66) that were publicly traded during the year. To determine the current (2003) market value of bonds, the AAR used these traded bonds and 56 additional bonds that were outstanding but not traded during 2003. Continuing the procedure in effect since 1988, the 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. The AAR computed the total market value of all outstanding bonds to be $24.240 billion ($19.235 billion traded, and $5.005 billion untraded). Based on the yields for the traded bonds, the AAR calculated the weighted average 2003 yield for all bonds to be 4.84%. We have examined the AAR's bond price and yield data and have determined that the AAR's computations are correct. Our calculations and data for all bonds are shown in Tables 1 and 2 of the Appendix.

### *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, the AAR used government securities with maturities similar to

[2] These are the same companies included by the AAR and used in our 2002 cost-of-capital decision. *See Cost 02.*

[3] There was no preferred stock outstanding for 2003.

these ETCs as surrogates for determining yields. After determining the 2003 yields for these government securities, the AAR added basis points[4] to these yields to compensate for the additional risks associated with the ETCs.

No new ETCs were issued during 2003. There were 38 ETCs issued prior to 2003 that were outstanding during the year. The AAR determined that the yield spread for ETCs was 114 basis points higher than the yield for government bonds.[5] Using the yield spreads, the AAR calculated the weighted average cost of ETCs to be 4.68%[6] and their market value to be $1.476 billion for 2003.[7]

We have analyzed the ETC cost and market value evidence supplied by the AAR and find several errors in the AAR's data.[8] Based on our analysis, the weighted cost of ETCs is unchanged, but the market value should be $1.338 billion. A summary of our ETC computations is shown in Table 3 in the Appendix.

*Cost of Conditional Sales Agreements (CSAs)*

CSAs represent a small fraction (less than 1%) of total railroad debt and only four CSAs (three issued by CSX and one issued by UPC) were outstanding in 2003. The cost of CSAs, however, can be estimated. The AAR used the yield spread between CSAs and ETCs for 1997 (the last year when a new CSA was issued) of 32 basis points to develop the year 2003 yield spread between CSAs and government bonds. This results in 146 basis points being added to government bond yields to develop the cost of CSAs.[9] Using this yield spread the AAR determined the weighted average cost of CSAs for 2003 to be 5.17%. The AAR determined the market value for CSAs to be $0.118 billion.[10] We have examined the cost and market value of the CSAs using the AAR's data, and have determined that the AAR computed the interest rate and market value of CSAs correctly. The results of these computations are shown in Table 4 in the Appendix.

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

[5] This figure is same as the spread used in 2002.

[6] This is substantially lower than the 2002 figure of 5.38%.

[7] The AAR has approximated the market values of ETCs using the same procedures used in previous cost-of-capital determinations.

[8] These include: (a) failure of the AAR to exclude BNSF Series T ETCs, which matured in 2003; and (b) inclusion of 4 issues for CSX which should have been included as miscellaneous debt (Series 25, 230, 234, and 235).

[9] This yield spread equals the yield spread for ETCs vs. government bonds of 114 basis points plus the yield spread between ETCs and CSAs of 32 basis points. These are the same numbers as used in the 2002 determination.

[10] The AAR approximated the market values of CSAs using the same procedures used in previous cost-of-capital determinations.

*Miscellaneous Debt and Capitalized Leases*

As in previous cost-of-capital determinations, the AAR excluded the costs 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, the 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. The AAR noted that the cost of capitalized leases is generally higher than that of other debt, but it did not make any upward correction for the cost of those leases. The AAR determined that the market value for the capitalized leases and miscellaneous debt was $4.275 billion for 2003.[11] We have examined the AAR's workpapers and other evidence and have adjusted this figure to $4.233 billion.[12] Table 5 in the Appendix shows our recalculations for capitalized leases and miscellaneous debt.

*Total Market Value of Debt*

The AAR determined that the total market value for all debt during 2003 was $30.111 billion. Due to our adjustments discussed previously, we have recomputed the total market value for all railroad debt in 2003 to be $29.931 billion. Table 6 in the Appendix shows a breakdown of the market value of debt.

*Flotation Costs of Debt*

As in past cost-of-capital decisions, the AAR's calculation of the current cost-of-debt included a flotation cost factor consisting of costs associated with the issuance of new debt such as underwriters' fees, advertising costs, and legal fees. The AAR determined that flotation costs for debt equaled 0.16%. We have reviewed the AAR's calculations concerning flotation costs and find that the cost factors developed for the various components of debt are reasonable.[13] Table 7 in the Appendix shows these calculations.

*Overall Current Cost-of-Debt*

The AAR concluded that the railroads' current cost-of-debt for 2003 was 4.99%. Our calculations produce a slightly lower figure (4.97%), rounded to 5.0%.[14] Our calculations are shown in Table 8 in the Appendix.

[11] This consists of $2.423 billion of capitalized leases and $1.852 billion of miscellaneous debt.

[12] Our adjustment is based on a series of minor recalculations of various miscellaneous debt issues for NSC and UPC.

[13] The AAR's flotation cost factors are based on data developed by Salomon Brothers for ETCs and studies by the Securities and Exchange Commission concerning flotation costs for issuances of new bonds. The estimated flotation cost for CSAs is the same as that used in prior proceedings.

[14] This is significantly lower than the 2002 cost-of-debt (6.00%).

## COMMON EQUITY CAPITAL

In previous cost-of-capital decisions, we have determined the cost of common equity using a Discounted Cash Flow (DCF) method. The AAR submitted evidence as to the current cost of equity capital using this procedure. This evidence is virtually identical to that furnished by the AAR in previous cost-of-capital proceedings.

### *Market Value of Common Equity*

The AAR calculated the 2003 market value of common equity by multiplying the number of shares outstanding by the daily closing price for each trading day during the year for each of the sample railroad holding companies. The AAR determined that the average market value for the year 2003 was $39.985 billion. We have reviewed the AAR's calculations and have determined that this number is correct. Table 9 in the Appendix shows the calculations of the average market value of common equity and relative weights for each railroad.

### *Discounted Cash Flow Method*

The DCF method of determining the cost of common equity is used by the majority of state regulatory agencies and has been used by the Interstate Commerce Commission (ICC) and the Board for many years. Under the DCF method, the cost of common equity is the discount rate that makes the present value of expected returns from holding a stock (dividends and price appreciation) equal to the current market value of that stock. The DCF method considers two variables ─ dividend yield and expected growth in earnings per share.[15]

*Dividend Yield*

[15] In *Railroad Cost of Capital - 1982*, 367 I.C.C. 662 (1983), the ICC developed the following DCF formula:

$K = [D_{(O)} \times (1 + g/2)/P_{(O)}] + g$, where:

K = cost of common equity
$D_{(O)}$ = annual dividend
$P_{(O)}$ = current stock price
g = expected growth rate

This formula assumes that, at the start of the year, an investor would require a return on equity (K) equal to $[D_{(O)}/P_{(O)}] + g$, where $D_{(O)}/P_{(O)}$ represents the average dividend yield expected for the year and g represents an estimate of the expected growth rate. At the end of the year, the investor would be concerned with projected returns for the following year and would require a K equal to $[D_{(O)} \times (1+g)/P_{(O)}] + g$, which would allow for dividend growth for the following year. The average of these two formulas produces this DCF formula.

The AAR computed the 2003 average dividend yield for the composite group of railroads using the same method that it employed in past cost-of-capital determinations, *i.e.*, weighting each company's monthly dividend yield on the basis of its prorated share of the total market value for the composite for each day during that month based on daily closing prices. The AAR developed a composite dividend yield of 1.64% for 2003. We have reviewed the AAR's calculations and have determined that this number is correct. This figure is higher than the 2002 dividend yield (1.40%). Our calculations of the dividend yield are shown in Table 10 in the Appendix.

*Growth Rate*

The AAR used the five-year earnings per-share growth rate forecasts published monthly by the Institutional Brokers Estimate System (IBES) throughout 2003.[16] The AAR developed growth rates for each of the railroad holding companies that make up the composite by averaging the IBES forecasts for that company. It then weighted each company's growth rate according to its prorated share of the market value of the total railroad composite to arrive at a single projected growth rate. The AAR concluded that this composite growth rate was 11.0%, based on a truncated average of the forecasts.[17] We have determined that this is correct. This is 0.13 of a percentage point lower than the 11.13% growth rate developed in the 2002 cost-of-capital decision. Our growth rate calculations are shown in Tables 11 (truncated) and 12 (nontruncated) of the Appendix.

*Flotation Costs*

As with the issuance of new debt instruments, flotation costs are also incurred with the issuance of new equity securities. In *Adequacy of Railroad Revenue (1979 Determination)*, 363 I.C.C. 344, 352 (1979), the ICC concluded that flotation costs for equity capital should not be considered unless new equity had, in fact, been issued. This conclusion has been reaffirmed in subsequent cost-of-capital decisions. Because no railroad issued any new common equity capital during 2003, no flotation cost factor has been included in the DCF formula.

[16] As has been the case since the findings in *Railroad Cost of Capital - 1987*, 4 I.C.C.2d 621 (1988), we have relied on the use of consensus analyst 5-year earnings per-share growth rate data published by IBES to develop the growth rate estimates used in the DCF approach. IBES data include growth rate estimates from essentially all major brokerage firms.

[17] IBES provides a simple average, the highest forecast, and the lowest forecast for each railroad. The AAR excluded the highest and lowest forecasts to arrive at the truncated average. This is the same procedure that has been followed in previous cost-of-capital determinations.

*Conclusion - Cost of Common Equity Capital*

Using a truncated average IBES growth rate (g) forecast of 11.0%, a dividend yield ($D_{(O)}/P_{(Q)}$) of 1.64%, and the Board's DCF formula, the AAR determined the cost of common equity for 2003 to be 12.73%, rounded to 12.7%. This figure is 0.1 percentage point higher than the cost of common equity for 2002 (12.6%).[18]

## PREFERRED EQUITY

Preferred equity has some of the characteristics of debt and some of the characteristics of equity. Essentially, preferred 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 like debt in that they usually have fixed dividend payments (akin to interest payments).

There were no preferred stock issues outstanding at the end of 2003.[19]

## CAPITAL STRUCTURE MIX

Our computations of market values and the capital structure mix for 2003 are shown in Table 14 in the Appendix. We have determined that the market value of bonds and common equity for 2003 was $69.92 billion. The percentage share of common equity increased slightly from 56.7% in 2002 to 57.2% in 2003. The percentage share of debt also increased from 41.2% in 2002 to 42.8% in 2003. Due to elimination of preferred stock during 2003, the percentage share of preferred equity decreased from 2.1% in 2002 to 0% in 2003.

## COMPOSITE COST-OF-CAPITAL

Based on the evidence furnished in the record, and our adjustments to that evidence discussed above, we conclude that the 2003 composite after-tax cost-of-capital for the railroad industry, as set forth in Table 15 in the Appendix, was 9.4%. 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."[20] The 2003 cost-of-capital is 0.4 percentage point lower than the 2002 cost-of-capital (9.8%).

## CONCLUSIONS

*We find that for 2003*:

[18] Table 13 in the Appendix shows our calculation of the cost of common equity.

[19] Two railroad holding companies, NSC and UPC, redeemed all of their preferred stock and there is no longer any outstanding.

[20] Railroad Accounting Principles Board *Final Report*, Vol. 1 (1987).

1. The current cost of railroad long-term debt was 5.0%.
2. The cost of common equity was 12.7%.
3. The capital structure mix of the railroads was 42.8% long-term debt and 57.2% common equity.
4. The composite railroad industry cost-of-capital was 9.4%.

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.

Regulatory Flexibility Analysis

Pursuant to 5 U.S.C. 605(b), we conclude that our action in this proceeding will not have a significant economic impact on a substantial number of small entities. The purpose and effect of the action are merely to compute the annual railroad industry cost-of-capital. No new reporting or other regulatory requirements are imposed, directly or indirectly, on small entities.

*It is ordered*:
1. This decision is effective on June 28, 2004.
2. This proceeding is discontinued.

By the Board, Chairman Nober, Vice Chairman Mulvey, and Commissioner Buttrey.

# APPENDIX

Table 1
2003 Traded & Untraded Bonds / Market Value By Company

| Railroad | Traded vs Untraded | Number | Market Value ($ in 000) | % Market Value to All Bonds |
|---|---|---|---|---|
| BNSF | Traded [1] | 26 | $5,228,167 | 91.43% |
| | Untraded | 8 | 489,986 | 8.57% |
| | Total | 34 | 5,718,153 | |
| CSX | Traded [2] | 8 | $2,118,658 | 40.45% |
| | Untraded [3] | 22 | 3,118,815 | 59.55% |
| | Total | 30 | 5,237,473 | |
| NSC | Traded | 15 | $6,540,139 | 94.07% |
| | Untraded | 5 | 412,103 | 5.93% |
| | Total | 20 | 6,952,242 | |
| UPC | Traded [4] | 17 | $5,348,457 | 84.46% |
| | Untraded [5] | 21 | 984,394 | 15.54% |
| | Total | 38 | 6,332,851 | |
| COMPOSITE | Traded | 66 | $19,235,421 | 79.35% |
| | Untraded | 56 | 5,005,298 | 20.65% |
| | Total | 122 | 24,240,719 | |

[1] Includes 1 bond issued during 2003, prorated based on date of issue.
[2] Includes 1 bond issued during 2003, prorated based on date of issue.
[3] Includes 3 bonds issued during 2003, prorated based on date of issue.
[4] Includes 1 bond issued during 2003, prorated based on date of issue.
[5] Includes 3 bonds issued during 2003, prorated based on date of issue.

Table 2

Calculation of 2003 Value and Cost of Bonds, Notes, & Debentures

| Railroad | Number of Traded Issues | Market Value Traded Issues ($000) | Current Cost | Weighted Cost |
|---|---|---|---|---|
| BNSF | 26 | $5,228,167 | 5.08% | 1.38% |
| CSX | 8 | 2,118,658 | 4.71% | 0.52% |
| NSC | 15 | 6,540,139 | 5.15% | 1.75% |
| UPC | 17 | 5,348,457 | 4.29% | 1.19% |
| Composite | 66 | $19,235,421 | | 4.84% |

Table 3
Calculation of 2003 Value and Cost of Equipment Trust Certificates
(Note: All Issued Prior to 2003)

| Railroad | No. of Issues | Market Value ($000) | Yield % | Weighted $ Yield ($000) |
|---|---|---|---|---|
| BNSF | 12 | $386,023 | 4.69% | $18,085 |
| CSX | 12 | 490,363 | 4.75% | $23,292 |
| NSC | 9 | $293,619 | 4.66% | $13,680 |
| UPC | 5 | $168,355 | 4.51% | $7,591 |
| Composite | 38 | $1,338,360 | 4.68% | $62,648 |

Table 4
Calculation of 2003 Value and Cost of Conditional Sales Agreements

| Railroad | Number of Issues | Market Value ($000) | Current Cost | Weighted Cost |
|---|---|---|---|---|
| CSX | 3 | $115,990 | 5.21% | 5.09% |
| UPC | 1 | $2,773 | 3.43% | 0.08% |
| Composite | 4 | $118,763 | | 5.17% |

Table 5
Calculation of 2003 Value of Capitalized Leases & Miscellaneous Debt

| Railroad | Capitalized Leases ($000) | Miscellaneous Debt ($000) | Total Other Debt ($000) |
|---|---|---|---|
| BNSF | $611,696 | $487,245 | $1,098,941 |
| CSX | 58,000 | 116,600 | 174,600 |
| NSC | 223,125 | 716,000 | 939,125 |
| UPC | 1,530,652 | 489,317 | 2,019,969 |
| Composite | $2,423,473 | $1,809,162 | $4,232,635 |

Table 6
Calculation of 2003 Market Value of Debt

| Type of Debt | Market Value of Debt ($000) | Percentage of Total Market Value (Excluding Miscellaneous Debt) |
|---|---|---|
| Bonds, Notes, & Debentures | $24,240,719 | 94.33% |
| ETCs | 1,338,360 | 5.21% |
| CSAs | 118,790 | 0.46% |
| Subtotal | 25,697,869 | 100.00% |
| Capitalized Leases/Miscellaneous Debt | 4,232,635 | NA |
| Total Market Value of Debt | $29,930,504 | NA |

Table 7
Calculation of 2003 Flotation Cost For Debt

| Type of Debt | Market Weight (Excludes Miscellaneous Debt) | Flotation Cost | Weighted Average Flotation Cost |
|---|---|---|---|
| Bonds, Notes, & Debentures | 94.33% | 0.16 | 0.151% |
| ETCs | 5.21% | 0.13 | 0.007% |
| CSAs | 0.46% | 0.13 | 0.001% |
| Total | 100.00% | | 0.158% |

Table 8
Calculation of 2003 Cost-of-debt

| Type of Debt | Percentage of Total Market Value( Excludes Miscellaneous Debt) | Debt Cost | Weighted Debt Cost (Excluding Miscellaneous Debt) |
|---|---|---|---|
| Bonds, Notes, & Debentures | 94.33% | 4.82% | 4.55% |
| ETCs | 5.21% | 4.68% | 0.24% |
| CSAs | 0.46% | 5.17% | 0.02% |
| Subtotal | 100.00% | - | 4.81% |
| Flotation Cost | | | 0.16% |
| Weighted Average Cost-of-debt | - | - | 4.97% |
| Rounded to | | | 5.0% |

Table 9
Calculation of 2003 Market Value and Weights of Common Equity

| Railroad | Average Market Value ($000) | Average Market Weight |
|---|---|---|
| BNSF | 10,404,921.9 | 26.02% |
| CSX | 6,568,313.2 | 16.43% |
| NSC | 7,788,504.3 | 19.48% |
| UPC | 15,227,799.2 | 38.08% |
| COMPOSITE | $39,989,539 | 100.00% |

Table 10
Calculation of 2003 Dividend Yields for Common Equity

| Railroad | Average Weight In Composite | Dividend Yield | Weighted Dividend Yield |
|---|---|---|---|
| BNSF | 26.02% | 1.93% | 0.50% |
| CSX | 16.43% | 1.31% | 0.22% |
| NSC | 19.48% | 1.51% | 0.29% |
| UPC | 38.08% | 1.65% | 0.63% |
| COMPOSITE | 100.00% | | 1.64% |

Table 11
Calculation of 2003 Truncated Growth Rates

| Railroad | Average Weight In Composite | Truncated Average Growth Rate | Contribution To Truncated Average Growth Rate |
|---|---|---|---|
| BNSF | 26.02% | 9.25% | 2.41% |
| CSX | 16.43% | 11.45% | 1.88% |
| NSC | 19.48% | 11.24% | 2.19% |
| UPC | 38.08% | 11.88% | 4.52% |
| COMPOSITE | 100.00% | | 11.00% |

Table 12
Calculation of 2003 Nontruncated Growth Rates

| Railroad | Average Weight In Composite | Nontruncated Average Growth Rate | Contribution To Nontruncated Average |
|---|---|---|---|
| BNSF | 26.02% | 9.15% | 2.38% |
| CSX | 16.43% | 11.51% | 1.89% |
| NSC | 19.48% | 12.19% | 2.37% |
| UPC | 38.08% | 11.70% | 4.46% |
| COMPOSITE | 100.00% | | 11.10% |

Table 13
Computation of the 2003 Cost of Common Equity

| | | |
|---|---|---|
| Dividend Yield | 1.64% | |
| Dividend Yield Times 1+½ Growth Rate | 1.64% x 1.055 | 1.73% |
| Growth Rate | | 11.0% |
| Cost of Equity | | 12.73% |
| Rounded to | | 12.70% |

Table 14
Computation of 2003 Capital Structure Mix

| Type of Capital | Market Value ($000) | Weight |
|---|---|---|
| Debt | $29,930,504 | 42.8% |
| Common Equity | 39,989,539 | 57.2% |
| TOTAL | $69,920,043 | 100.0% |

Table 15
2003 Cost-of-capital Computation

| Type of Capital | Cost (Rounded) | Weight | Weighted Average |
|---|---|---|---|
| Long-Term Debt | 5.0% | 42.8% | 2.14% |
| Common Equity | 12.7% | 57.2% | 7.26% |
| COMPOSITE COST-OF-CAPITAL | | 100.0% | 9.40% |