

**BEFORE THE
SURFACE TRANSPORTATION BOARD
EX PARTE 552 (Sub-No. 24)**

**ENTERED
Office of Proceedings
February 10, 2021
Part of
Public Record**

RAILROAD REVENUE ADEQUACY—2019 DETERMINATION

ERRATA

Union Pacific Railroad Company, Norfolk Southern Railway Company, and the U.S. rail operating affiliates of Canadian National Railway Company (“CN”) (collectively, “Petitioners”) submit this Errata to correct one minor error in their Comments filed on October 21, 2020.

In the process of compiling workpapers responsive to the Board’s order of December 30, 2020 in Ex Parte 766, Petitioners discovered that their calculations for 2019 used an incorrect market risk premium, which slightly affected the cost of capital calculations. While this error did not materially affect the analysis presented in the October 21, 2020 Comments, in the interest of accuracy Petitioners are filing this Errata to correct the miscalculation.

Specifically, the Errata slightly reduced the calculation of 2019 median adjusted return on invested capital minus cost of capital for the S&P 500 Benchmarking Group; the figure changed from 10.3% to 9.9%. The weighted average of that same figure for the railroad industry in 2019 was unchanged at 1.4%.

Exhibit A corrects the calculation on page 3 of the comments and pages 3 and 4 of the supporting verified statement. Exhibit B is a complete corrected copy of Petitioners' October 21, 2020 filing.

Respectfully submitted,

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Dated: February 10, 2021

CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of February, 2021, I served the foregoing Errata by email on the service list for Ex Parte 552 (Sub-No. 24).

/s/ Matthew J. Warren

ATTACHMENT A

ERRATA PAGES TO OCTOBER 21, 2020 COMMENTS

Adjusted ROIC net cost of capital for each Class I railroad (using the Board's calculation that the railroad industry's cost of capital in 2019 was 9.34%).¹¹

Table 1

2019 Adjusted ROIC and 2019 Adjusted ROIC Minus Cost of Capital Calculations for Class I Railroads and Median S&P 500 Company

Railroad	Adjusted ROIC	Adjusted ROIC Minus Cost of Capital
BNSF Railway Company	10.2%	0.9%
CSX Transportation, Inc.	10.8%	1.5%
Grand Trunk Corporation (including U.S. affiliates of Canadian National Railway)	7.0%	-2.3%
Kansas City Southern Railway Company	5.8%	-3.5%
Norfolk Southern Combined Railroad Subsidiaries	10.2%	0.8%
Soo Line Corporation (including U.S. affiliates of Canadian Pacific Railway)	9.3%	0.0%
Union Pacific Railroad Company	13.4%	4.0%
Railroad Industry Weighted Average	10.8%	1.4%
S&P 500 Benchmarking Group Median	19.2%	9.9% 10.3%

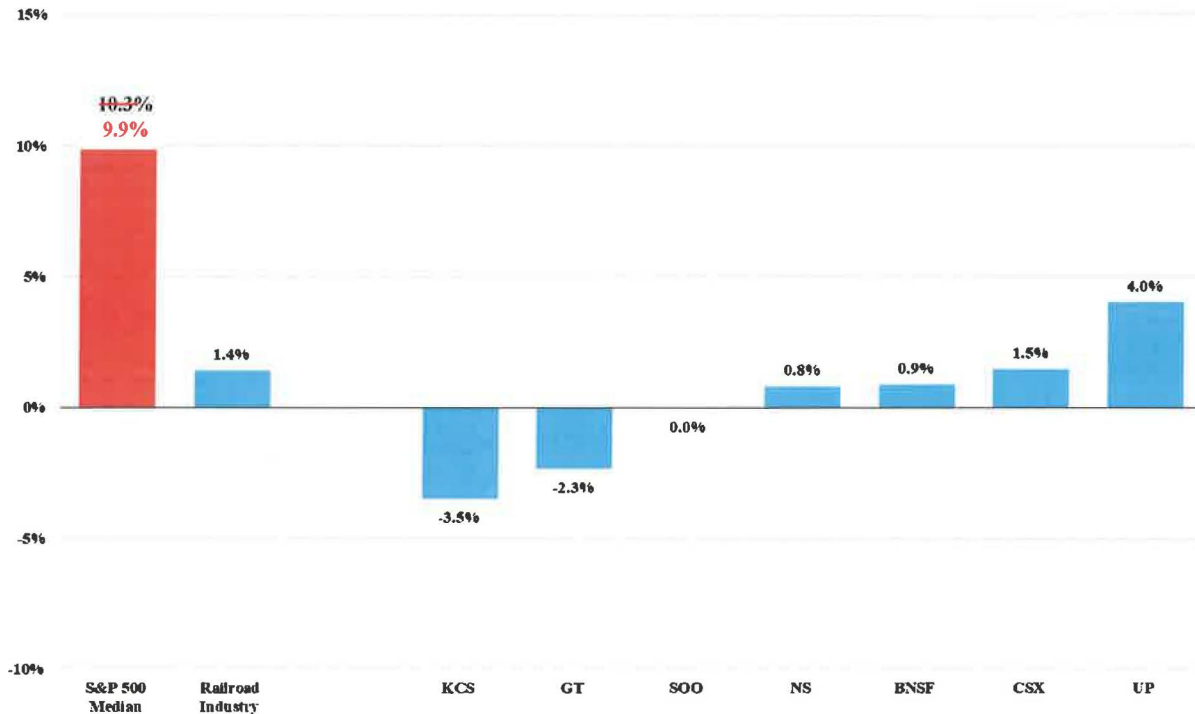
Table 1 shows that, for the S&P benchmarking group described in the EP 766 Petition, in 2019 the median Adjusted ROIC minus cost of capital was **9.9%** ~~10.3%~~. Each of the Class I railroads' Adjusted ROIC minus cost of capital for 2019 falls below that median. The approach proposed in Ex Parte 766 is a reasonable way for the Board to incorporate a broader set of data into its revenue adequacy

¹¹ *Railroad Cost of Capital—2019*, Ex Parte No. 558 (Sub-No. 23) (STB served Aug. 5, 2020).

seven Class I Railroads in 2019 is well below the median of the financial performance of the S&P 500 benchmarking group.¹⁰

Figure 1

**2019 Financial Performance (Adjusted ROIC Minus COC)
Class I Railroads versus S&P 500 Benchmarking Group**



Sources: STB 2019 Revenue Adequacy Determination; Murphy & Zmijewski V.S.

¹⁰ Although Figure 1 and Table 1 show the railroads' financial performance based on the Adjusted ROIC metric and benchmarking against the S&P 500 companies excluding railroads, financial institutions and real estate companies, the financial performance of the railroad industry and each railroad is also well below the median if we used the STB's definition of ROIC, or if we used either of the other two benchmarking groups in the Murphy & Zmijewski V.S. (S&P 500 Industrials or the S&P 500 companies including, financial institutions and real estate companies). See Murphy & Zmijewski V.S., including footnote 59.

Table 1
2019 Adjusted ROIC and 2019 Adjusted ROIC Minus Cost of Capital
Calculations for Class I Railroads and Median S&P 500 Company

Railroad	Abbreviation	Adjusted ROIC	Adjusted ROIC Minus Cost of Capital
BNSF Railway Company	BNSF	10.2%	0.9%
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Grand Trunk Corporation (including U.S. affiliates of Canadian National Railway)	GT	7.0%	-2.3%
Kansas City Southern Railway Company	KSC	5.8%	-3.5%
Norfolk Southern Combined Railroad Subsidiaries	NS	10.2%	0.8%
Soo Line Corporation (including U.S. affiliates of Canadian Pacific Railway)	SOO	9.3%	0.0%
Union Pacific Railroad Company	UP	13.4%	4.0%
Railroad Industry Weighted Average	Railroad Industry	10.8%	1.4%
S&P 500 Benchmarking Group Median	S&P 500 Median	19.2%	9.9 10.3%

Sources: STB 2019 Revenue Adequacy Determination; Murphy & Zmijewski V.S.

ATTACHMENT B

CORRECTED

OCTOBER 21, 2020 COMMENTS

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

EX PARTE 552 (Sub-No. 24)

RAILROAD REVENUE ADEQUACY—2019 DETERMINATION

**COMMENTS OF CN, NORFOLK SOUTHERN RAILWAY COMPANY, AND
UNION PACIFIC RAILROAD COMPANY**

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October 21, 2020

Norfolk Southern Railway Company, Union Pacific Railroad Company, and the U.S. operating subsidiaries of CN (collectively, “EP 766 Petitioners”) respectfully submit these comments to provide the Board with information about how the revenue adequacy modernization they proposed in Ex Parte 766¹ could be applied to the Board’s 2019 railroad revenue adequacy determination. In support, Petitioners provide the attached Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski.²

Currently, the Board’s annual railroad revenue adequacy determination compares a railroad’s accounting-based rate of return on invested capital (“ROIC”) to the railroad industry’s cost of capital (“COC”) and defines revenue adequacy as the point at which a railroad achieves an ROIC “equal to at least” the COC.³ By contrast, the comparison approach proposed by Petitioners in Ex Parte 766 would define annual revenue adequacy as the point at which a railroad’s Adjusted STB ROIC (“Adjusted ROIC”) exceeds the industry cost of capital by more than the median S&P 500 firm’s ROI exceeds its cost of capital, with both data sets being measured in the same way.⁴ The Adjusted ROIC reflects the Board’s ROI calculation, with two adjustments: (1) inclusion of non-goodwill intangible assets in the investment base; and (2) use of a “flow-through” approach for deferred taxes that removes the effect of annual deferred taxes from the ROI numerator and

¹ See *Joint Petition for Rulemaking to Modernize Annual Revenue Adequacy Determinations*, Ex Parte 766 (filed Sept. 1, 2020) (“EP 766 Petition”).

² Exhibit 1, Verified Statement of Kevin M. Murphy and Mark E. Zmijewski (“Verified Statement”).

³ *Railroad Revenue Adequacy—2019 Determination*, Ex Parte 552 (Sub-No. 24) (STB filed Oct. 1, 2020); see Verified Statement ¶ 1; EP 766 Petition, Verified Statement ¶ 44.

⁴ See EP 766 Petition at 21; *id.*, Verified Statement ¶¶ 50, 55–65.

removes the effect of accumulated deferred tax liabilities from the ROI denominator.⁵

To implement the comparison approach, the Board could direct the Association of American Railroads (AAR) to submit each year the Adjusted ROIC⁶ and cost of capital calculations for every company in the S&P 500.⁷ The AAR's S&P 500 calculations would be based upon the same measurement of inputs used by the Board to calculate railroad ROIC and COC.⁸ From the AAR's data, the Board would calculate the "S&P Differential," which is the median difference between the Adjusted ROIC and the cost of capital for all companies in the S&P 500 (except for banking and real estate companies).⁹ Finally, the Board would make its annual revenue adequacy determination based on whether the difference between Adjusted ROIC and COC exceeded the S&P Differential.¹⁰

In their attached Verified Statement, Professors Murphy and Zmijewski provide the results of this comparison approach for the 2019 revenue adequacy determination. Table 1 from the Verified Statement, reproduced below, shows the Adjusted ROIC calculations for each Class I railroad for 2019. It also shows the

⁵ See EP 766 Petition at 21; *id.*, Verified Statement ¶¶ 55–65.

⁶ As set forth in the Petition, the Board could adopt and implement the comparison approach even if it declines to use the Adjusted ROIC recommended by Professors Murphy and Zmijewski. EP 766 Petition at 21, n.45.

⁷ See EP 766 Petition at 21. This submission would be "available for Board staff review and for comments from any interested parties." EP 766 Petition at 21; *see also id.*, Verified Statement ¶ 65.

⁸ See *id.*, Verified Statement ¶ 65 and n.62.

⁹ See EP 766 Petition at 21.

¹⁰ See *id.* at 20–21; *see also id.*, Verified Statement ¶ 32.

Adjusted ROIC net cost of capital for each Class I railroad (using the Board's calculation that the railroad industry's cost of capital in 2019 was 9.34%).¹¹

Table 1

2019 Adjusted ROIC and 2019 Adjusted ROIC Minus Cost of Capital Calculations for Class I Railroads and Median S&P 500 Company

Railroad	Adjusted ROIC	Adjusted ROIC Minus Cost of Capital
BNSF Railway Company	10.2%	0.9%
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Union Pacific Railroad Company	13.4%	4.0%
Railroad Industry Weighted Average	10.8%	1.4%
S&P 500 Benchmarking Group Median	19.2%	9.9%

Table 1 shows that, for the S&P benchmarking group described in the EP 766 Petition, in 2019 the median Adjusted ROIC minus cost of capital was 9.9%. Each of the Class I railroads' Adjusted ROIC minus cost of capital for 2019 falls below that median. The approach proposed in Ex Parte 766 is a reasonable way for the Board to incorporate a broader set of data into its revenue adequacy

¹¹ *Railroad Cost of Capital—2019*, Ex Parte No. 558 (Sub-No. 23) (STB served Aug. 5, 2020).

determinations, and the Board should institute a proceeding to explore that approach.

Respectfully submitted,

/s/ Raymond A. Atkins

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October 21, 2020

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

RAILROAD REVENUE ADEQUACY—2019 DETERMINATION

VERIFIED STATEMENT OF

PROFESSOR KEVIN M. MURPHY

PROFESSOR MARK E. ZMIJEWSKI

**OCTOBER 21, 2020
(UPDATED FEBRUARY 10, 2021)**

1. On September 1, 2020, we submitted a verified statement (“Murphy & Zmijewski V.S.”)¹ in connection with the Joint Petition for Rulemaking to Modernize Annual Revenue Adequacy Determinations filed by Canadian National, Norfolk Southern, and Union Pacific (“Joint Petition”)² before the Surface Transportation Board (“STB” or the “Board”).³ In the Murphy & Zmijewski V.S., we explained why, based on economic principles and well-established economic research, evaluating the financial performance of the railroad industry by comparing an accounting-based measure of the industry’s rate of return on invested capital (“ROIC”) to the industry’s cost of capital (“COC”) in isolation is not informative about whether the railroad industry is earning an economic rate of return greater than its cost of capital. We also explained why benchmarking the railroads’ financial performance to the financial performance of a group of companies with which the railroads compete for capital is a widely-used and informative way to assess the railroads’ financial performance, and is an informative way to evaluate how the railroads’ economic rate of return compares with that of firms in competitive industries. We then applied this benchmarking methodology annually from 2006 through 2019 and showed that, in each year during that period, the financial performance of each of the seven Class I Railroads and the railroad industry as a whole was well below the median financial performance of the S&P 500 benchmarking groups.⁴

¹ Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski, Ex Parte No. 766 (filed Sept. 1, 2020).

² Joint Petition for Rulemaking to Modernize Annual Revenue Adequacy Determinations, Ex Parte No. 766 (filed Sept. 1, 2020).

³ On October 13, 2020, we also submitted a Supplemental Verified Statement in Ex Parte 766 in which we responded to comments submitted by two groups in response to the initial Joint Petition. Supplemental Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski, Ex Parte No. 766 (filed Oct. 13, 2020).

⁴ Our conclusions were unchanged regardless of which accounting rate of return measure we used (the STB ROIC minus COC or our proposed Adjusted ROIC minus COC), and regardless of which benchmarking group we used (S&P 500 companies excluding financial institutions and real estate companies, S&P 500 companies including

2. On August 5, 2020, the STB published its 2019 Cost of Capital Decision in which it concluded that the railroad industry's cost of capital in 2019 was 9.34%.⁵ On October 1, 2020, the STB published its 2019 Revenue Adequacy Determination.⁶ Based on its measure of 2019 railroad industry COC, the Board determined that the 2019 ROIC of five of the seven Class I Railroads exceeded the industry COC, and thus these five railroads were revenue adequate for that year.⁷

3. In Figure 1 and Table 1 below, we show the 2019 financial performance of the railroads and the median firm in the S&P 500 benchmarking group reported in the Murphy & Zmijewski V.S. This analysis provides economic evidence of how the railroads' 2019 financial performance compared to that of companies with which the railroads compete for capital. Using the adjusted accounting rate of return (Adjusted ROIC)⁸ proposed in the Murphy & Zmijewski V.S., we show the median financial performance of the S&P 500 benchmarking group, the railroad industry,⁹ and the seven Class I Railroads. Consistent with the results in the Murphy & Zmijewski V.S., we find that the financial performance of the railroad industry and each of the

financial institutions and real estate companies, or S&P 500 Industrial companies). See Murphy & Zmijewski V.S., including footnote 59.

⁵ Railroad Cost of Capital—2019, Ex Parte No. 558 (Sub-No. 23).

⁶ Railroad Revenue Adequacy—2019 Determination, Ex Parte 552 (Sub-No. 24) ("2019 Revenue Adequacy Determination").

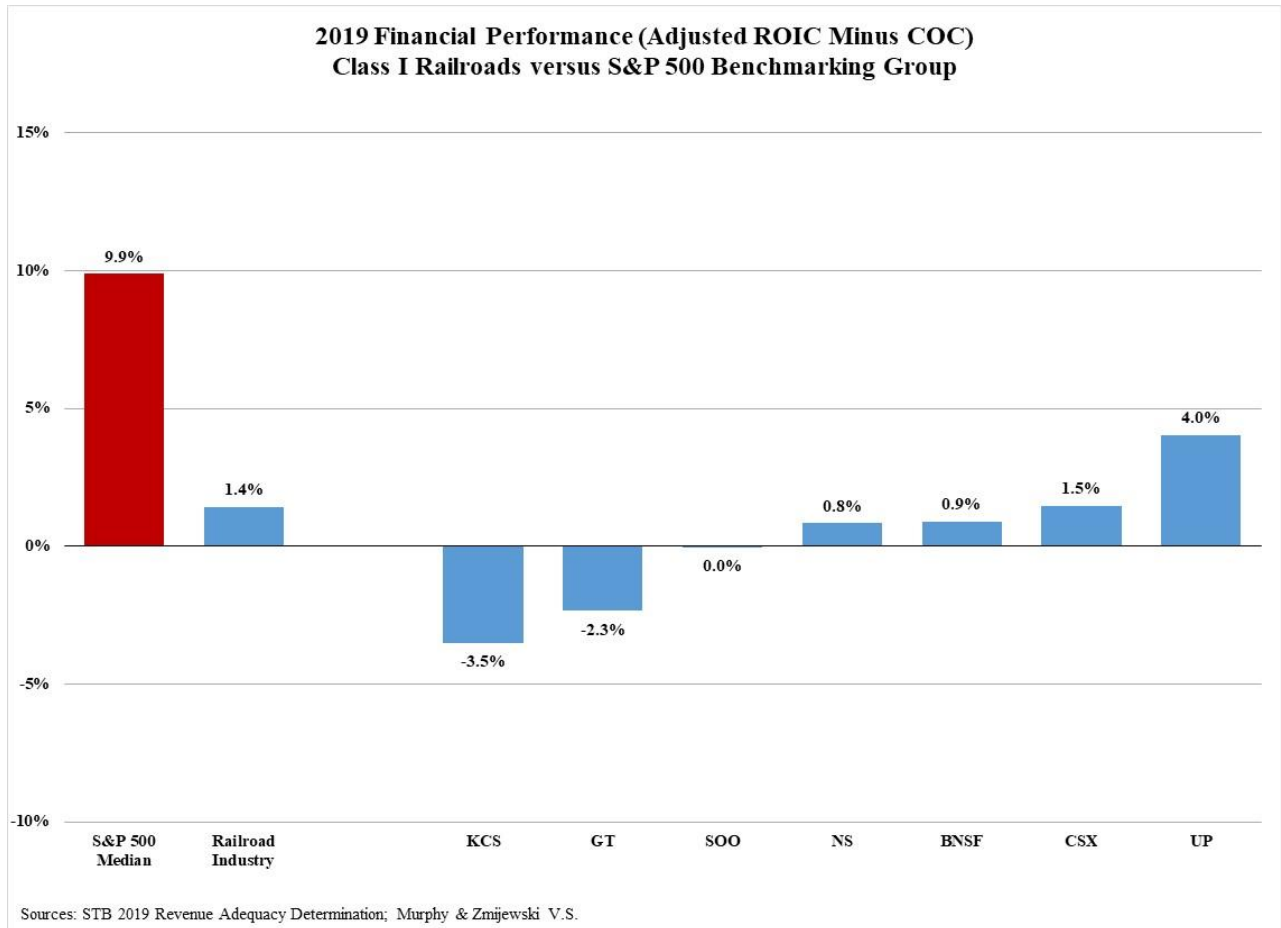
⁷ 2019 Revenue Adequacy Determination, p. 2. The five railroads are BNSF Railroad Company, CSX Transportation, Inc., Norfolk Southern Combined Railroad Subsidiaries, Soo Line Corporation, and Union Pacific Railroad Company.

⁸ We use the Adjusted ROIC metric as we believe it is more informative for assessing the financial performance of the railroads. Although accounting measures like ROIC do not measure the economic rate of return accurately, the Adjusted ROIC allows for a more meaningful comparison with the companies in the S&P 500 benchmarking group. See, Murphy & Zmijewski V.S., Section IV.B and Appendix A, Section B.

⁹ We calculate the financial performance of the railroad industry as the weighted average of the financial performance of the seven Class I Railroads.

seven Class I Railroads in 2019 is well below the median of the financial performance of the S&P 500 benchmarking group.¹⁰

Figure 1



¹⁰ Although Figure 1 and Table 1 show the railroads' financial performance based on the Adjusted ROIC metric and benchmarking against the S&P 500 companies excluding railroads, financial institutions and real estate companies, the financial performance of the railroad industry and each railroad is also well below the median if we used the STB's definition of ROIC, or if we used either of the other two benchmarking groups in the Murphy & Zmijewski V.S. (S&P 500 Industrials or the S&P 500 companies including, financial institutions and real estate companies). See Murphy & Zmijewski V.S., including footnote 59.

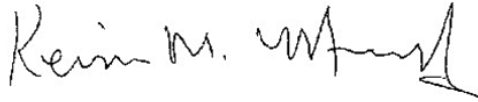
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Railroad Industry Weighted Average	Railroad Industry	10.8%	1.4%
S&P 500 Benchmarking Group Median	S&P 500 Median	19.2%	9.9%

Sources: STB 2019 Revenue Adequacy Determination; Murphy & Zmijewski V.S.

VERIFICATION

I, Kevin M. Murphy, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

A handwritten signature in black ink that reads "Kevin M. Murphy". The signature is written in a cursive style with a large, stylized 'K' and a distinct 'M'.

Kevin M. Murphy

I, Mark E. Zmijewski, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

A handwritten signature in black ink that reads "Mark E. Zmijewski". The signature is written in a cursive style with a large, stylized 'M' and 'Z'.

Mark E. Zmijewski