

Before the Surface Transportation Board

302369

STB Docket No. EP 766

**Joint Petition for Rulemaking—Annual Revenue Adequacy
Determinations**

ENTERED
Office of Proceedings
May 17, 2021
Part of
Public Record

Opening Comments of Joint Shippers

Jeffrey O. Moreno
Karyn A. Booth
Jason D. Tutrone
Thompson Hine LLP
1919 M Street, NW Suite 700
Washington, D.C. 20036
(202) 331-8800
Jeff.Moreno@ThompsonHine.com
Karyn.Booth@ThompsonHine.com
Jason.Tutrone@ThompsonHine.com

Counsel for:
American Chemistry Council
Corn Refiners Association
The Fertilizer Institute
The National Industrial Transportation
League

Thomas W. Wilcox
Law Office of Thomas W. Wilcox, LLC
1629 K. Street, NW Suite 300
Washington D.C. 20006
(202) 508-1065
tom@twilcoxlaw.com

Counsel for:
National Grain and Feed Association

Michael McBride
Van Ness Feldman LLP
1050 Thomas Jefferson St., NW
Washington, D.C. 20007
(202) 298-1800
mfm@vnf.com

Counsel for:
The Chlorine Institute

Rob Benedict
Vice President, Petrochemicals and
Midstream
American Fuel & Petrochemical
Manufacturers
1800 M Street NW, Suite 900 North
Washington, DC 20036
(202) 457-0480
RBenedict@afpm.org

Dated: May 17, 2021

Table of Contents

I. Introduction and Summary.....	1
II. Redefining the revenue-adequacy methodology should not be a high priority.....	5
A. The rail industry is thriving financially under the current standard.	6
B. The agency should prioritize pending rulemakings to enhance competition through competitive switching and make rate remedies more accessible to captive shippers.	13
III. The Comparison Proposal is inconsistent with the 49 U.S.C. 10704(a)(2) statutory factors for determining revenue adequacy.	17
A. Comparing a railroad’s profitability to that of the median S&P 500 firm, or any other threshold firm, has no bearing on whether the railroad achieves the statutory definition of revenue adequacy and would produce erroneous results.	18
1. Congress defined revenue adequacy as whether a railroad can attract sufficient capital, not whether it is more profitable than half the S&P 500.	18
2. The median S&P 500 firm, or any other threshold firm, is an irrelevant benchmark for determining whether a railroad can compete for capital..	20
3. The profitability of the median S&P 500 firm or any other threshold firm has no bearing on whether a railroad is earning a reasonable profit or return.	22
4. If Joint Carriers’ criticism of the Board’s use of book values is correct, comparing railroad profitability to the median S&P 500 firm or any other firm would result in a massive error.	27
5. The Comparison Proposal inherently overstates the ROI of the median S&P 500 firm.	29
6. The Comparison Proposal cannot be salvaged by using the Industrials sector as a fallback benchmark.	31
B. The Comparison Proposal imposes an economic profit requirement that is not in the statute.	33
C. The Comparison Proposal attempts to measure the rail industry’s market power instead of its ability to raise capital.	34
IV. The Board’s current revenue-adequacy methodology is conservative.	38
A. The use of replacement costs is neither necessary nor appropriate.	38
B. The current methodology advances all the factors of revenue adequacy under 49 U.S.C. § 10704(a)(2).	42
C. The current methodology overstates the cost of capital.	48

D. The results of the current methodology are consistent with valid supplemental indicators of revenue adequacy.....	50
V. Conclusion.....	52

The American Chemistry Council, American Fuel & Petrochemical Manufacturers, Corn Refiners Association, National Grain and Feed Association, The Chlorine Institute, The Fertilizer Institute, and The National Industrial Transportation League (collectively, Joint Shippers) file these comments in response to the Surface Transportation Board’s decision served on December 30, 2020, in docket EP 766 seeking public comment on a petition filed on September 1, 2020, by Union Pacific Railroad Company (UP), Norfolk Southern Railway Company (NS), and the U.S. rail operating affiliates of Canadian National Railway Company (CN) (collectively, Joint Carriers) seeking a rulemaking for the purpose of changing the Board’s procedures for determining the revenue adequacy of Class I rail carriers. These comments are supported by the attached verified statement of G. Bennett Stewart, III (“Stewart V.S.”). Mr. Stewart has spent the past 40 years working on practical applications of the concept of economic profit through a valuation and management framework that he developed, called EVA or economic value added.

I. Introduction and Summary.

In their Petition, Joint Carriers propose to revamp the Board’s revenue-adequacy methodology in such a way that no railroad would be considered revenue adequate unless it is more profitable than half the S&P 500 firms (less railroads, financials, and real estate firms). While Joint Carriers claim this will provide the Board with a more accurate assessment, the proposal would produce distorted and implausible results. It would turn revenue adequacy into a measure of superstar financial health that half of the firms in the S&P 500—a curated collection of top-

performing and high-potential firms—would fail to achieve. Moreover, the proposal would cause the Board to view all Class I railroads as woefully revenue inadequate today and likely for years to come, despite real-world financial data showing that Class I railroads are attracting investment and earning strong returns. The proposal represents a radical departure from the Board’s established revenue-adequacy determinations without any sound statutory or economic rationale

Ironically, within months of Joint Carriers filing the Petition, multiple Class I railroads have applied to the Board to acquire other railroads, in what would be the largest railroad mergers in over a decade.¹ One proposed merger involves Canadian Pacific Railway (CP) acquiring Kansas City Southern (KCS)—both are railroads that the Board historically has deemed revenue inadequate. CP’s proposal triggered a competing bid by one of the Joint Carriers, CN, that raised the substantial premium CP has agreed to pay for KCS’s stock by a full 21%.² CN has since sweetened its bid, winning over KCS’s board of directors.³ Clearly, Class I

¹ Notice of Intent, *Canadian Nat’l Ry.—Control—Kan. City S. Ry.*, FD 36514 (STB Apr. 20, 2021); Notice of Intent, *Canadian Pac. Ry.—Control—Kan. City S.*, FD 36500 (STB Mar. 22, 2021); Application, *CSX Corp.—Control & Merger—Pan Am Systems, Inc.*, FD 36472 (STB Feb. 25, 2021).

² Press Release, Canadian Nat’l Ry., CN Makes Superior Proposal to Combine With Kansas City Southern (Apr. 20, 2021), <https://www.cn.ca/en/news/2021/04/cn-makes-superior-proposal-to-combine-with-kansas-city-southern/>.

³ Press Release, Canadian Nat’l Ry., CN Proposal Deemed Superior by Kansas City Southern (May 13, 2021), <https://www.cn.ca/en/news/2021/05/cn-proposal-deemed-superior-by-kansas-city-southern/>.

railroads do not seem to have any reservations about whether investments in their industry will produce adequate returns.⁴

Simply put, the Board's current revenue-adequacy methodology provides ample protection for railroads' financial needs, consistent with promoting a safe and efficient rail transportation system. As explained in Part II below, the railroad industry is thriving, and now is not the time to focus on how much more money Class I railroads should be allowed to earn through their differential pricing of captive traffic.⁵ The Board should instead prioritize its existing rulemakings to enhance rail-to-rail competition and make rate-reasonableness review more accessible and meaningful to rail shippers. Focusing on these rulemakings will promote a healthy, efficient, and competitive rail network, providing greater benefits than adjustments to a revenue-adequacy methodology that is economically sound and accurately depicts the financial health of the Class I railroads.

These comments focus specifically on Joint Carriers' Comparison Proposal, under which they propose that a railroad is revenue adequate only if its return on investment (ROI) less the railroad industry cost of capital (COC) exceeds the ROI

⁴ Joint Carriers suggest that railroads will invest internally generated funds outside the industry if they cannot earn a competitive return from investing internally. (Pet. 46-47.)

⁵ The ability of the rail industry to differentially price captive traffic exists precisely because of that captivity. An important function of the Board's revenue-adequacy determinations is to inform the Board about when it should refrain from exercising its regulatory powers to protect captive traffic.

less COC of the median S&P 500 firm (less railroads, financials, and real estate companies).⁶

Part III explains that the Comparison Proposal is inconsistent with the statutory revenue-adequacy factors at 49 U.S.C. § 10704(a)(2).

- The comparison to the median S&P 500 firm or any other threshold has no bearing on whether a railroad is earning a “reasonable and economic profit or return,” can raise “needed equity capital,” and can “attract and retain capital in amounts adequate to provide a sound transportation system.”⁷
- The Comparison Proposal requires a positive “economic profit,” which is not required under the statutory definition of revenue adequacy and would create economic inefficiencies.
- The Comparison Proposal would transform the revenue-adequacy determination into a measure of market power, which is not required under the statutory definition of revenue adequacy and would conflict with the broader statutory scheme.

Part IV explains that the Joint Carriers’ criticisms of the Board’s revenue-adequacy methodology are incorrect, and the methodology produces conservative results because they underestimate the true level of revenue adequacy.

⁶ (Pet. 20-21.)

⁷ 49 U.S.C. § 10704(a)(2).

- The use of book values ensures that railroads will be allowed—but not guaranteed—to earn returns that cover the cost of future investments while providing a competitive return.
- The Board’s use of the railroad industry cost of capital satisfies all the factors of revenue adequacy under 49 U.S.C. § 10704(a)(2) and, thus, enables railroads to effectively compete for capital.
- The Board overstates the railroad industry cost of capital and, thus, sets the revenue-adequacy threshold above the minimum required under 49 U.S.C. § 10704(a)(2).
- Valid supplemental indicators of revenue adequacy corroborate the Board’s recent revenue-adequacy findings.

II. Redefining the revenue-adequacy methodology should not be a high priority.

Despite the past decade-plus of strong financial performance by Class I railroads, Joint Carriers are calling on the Board to redefine its revenue-adequacy methodology in a way that would, to the surprise of no one, portray all Class I railroads as woefully revenue inadequate today and likely for years to come. Finding ways to change the revenue-adequacy methodology to recast financially sound Class I railroads as revenue inadequate should not be the Board’s priority. Instead, the Board should focus on existing rulemakings that would give captive shippers meaningful access to the Board’s unreasonable rate remedies and to competition.

A. The rail industry is thriving financially under the current standard.

The financial health of the freight-rail industry has flourished even for those rail carriers that the current standard has deemed revenue inadequate. The stock prices of Class I railroads have been rising, outpacing the S&P 500 index. Railroads are making substantial investments in their businesses while returning billions of dollars to their shareholders. This is not the struggling freight-rail industry that existed in 1976, when Congress established the revenue-adequacy standard.⁸

Since the Great Recession, railroad stock prices have far outpaced the S&P 500 index. During this period, the stock price of CN, the least profitable Class I railroad under the revenue-adequacy standard, increased about twice as fast as the S&P 500 index. The publicly traded Class I railroads with the highest percentage gains—UP, CSX, and KCS, rose approximately 2.5 times as fast as the S&P 500.

Railroads / SP 500 Index	Percent Increase 12/4/2007 to 3/19/2021⁹
UP	665%
CSX	659%
KCS	654%
CP	599%
NS	509%
CN	485%
S&P 500 Index	268%

⁸ Congress established the revenue-adequacy standard in the Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act), Pub. L. 94-210 § 205, 90 Stat. 31, 41 (1976).

⁹ Based on closing prices reported by Yahoo!Finance. The National Bureau of Economic Research identifies December 4, 2007 as the start of the Great Recession. Nat'l Bureau of Econ. Research, US Business Cycle Expansions and Contractions, <https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions> (last visited May 17, 2021).

Even over just the past 5 years, railroad stock prices have kept pace with or exceeded the gains of the S&P 500 index. The following table shows that, during this period, all publicly traded Class I railroads except CN are beating the S&P 500 index by at least 63%. CN trails the S&P 500 index by just 3%.

Railroads / S&P 500 Index	Percent Increase Over Last 5 Years¹⁰
CSX	336%
NS	310%
CP	283%
KCS	256%
UP	254%
S&P 500 Index	191%
CN	188%

Although increasing stock prices do not tell the full picture of a railroad’s financial health, outpacing the S&P 500 index over the long term cannot be ignored. At the very least, it confirms the conservatively high bar that the Board has set for revenue adequacy under the current standard.

Beyond stock prices, other measures show that the railroad industry is financially strong.

In UP’s most recent annual report, its chairman exclaims that its “operating ratio was a record 59.9%,” locomotive and workforce productivity improved 14% and 11% respectively; “Union Pacific returned \$6.3 billion to our shareholders in 2020,”

¹⁰ Based on closing prices reported by Yahoo!Finance for March 18, 2016 and March 19, 2021.

including \$2.6 billion in dividends which he noted were “maintained . . . through the economic downturn;” and UP invested \$2.84 billion in its business.¹¹

NS’s most recent annual report leads with a “Financial Highlights” page showing its total shareholder returns outpacing that of the S&P 500 index by a wide margin since December 2015.¹² In the report, the chairman tells shareholders that NS “attained a record low 61.8% operating ratio” and “funded \$1.5 billion in capital improvement projects.”¹³ He also explained that “our board approved dividend distributions of \$960 million, a 1% increase over the previous year,”¹⁴ in which NS raised dividends by 18% for a total payout of \$949 million.¹⁵ NS also “repurchased more than \$1.4 billion of the company’s shares.”¹⁶ In NS’s 2019 annual report, which describes NS’s performance leading into the COVID-19 pandemic, the chairman explained that NS “saw record income from railway operations as well as growth in net income and earnings per share.”¹⁷

In CN’s most recent annual report, its president and CEO explained that CN “annually invest[s] approximately 20% of [its] revenues” in its business and, “despite the financial impacts of the global pandemic, we held our capital budget

¹¹ Union Pacific Corp., Annual Report (Form 10-K), at 3-4 (Feb. 5, 2021).

¹² Norfolk Southern Corp., Annual Report (Feb. 4, 2021).

¹³ Norfolk Southern Corp., Annual Report 1, 4 (Feb. 4, 2021).

¹⁴ Norfolk Southern Corp., Annual Report 4 (Feb. 4, 2021).

¹⁵ Norfolk Southern Corp., Annual Report 4 (Feb. 6, 2020).

¹⁶ Norfolk Southern Corp., Annual Report 4 (Feb. 4, 2021).

¹⁷ Norfolk Southern Corp., Annual Report 1 (Feb. 6, 2020).

fairly steady and invested \$2.9 billion [CDN] back into the business.”¹⁸ The report also explains that CN increased its quarterly dividend per share by 7% and paid \$1.6 billion CDN in dividends in 2020 and plans to invest approximately \$3 billion CDN in its capital program in 2021.¹⁹ CN’s 2019 annual report, which describes its financial performance leading into the COVID-19 pandemic, states that CN returned \$3.2 billion CDN to shareholders in dividends and share repurchases, achieved its 24th consecutive increase in annual dividends, increased dividends an average of 16% each year since 2000, and has repurchased \$23 billion CDN in shares since 2000.²⁰ CN’s annual report also explains that CN invested \$3.9 billion CDN in its business,²¹ and its US subsidiaries maintain sufficient cash to meet their respective operational requirements.²²

Nowhere in their latest annual reports did UP, NS, or CN identify their revenue-adequacy figure reported by the Board. To the extent these reports made comparisons to the S&P 500, these comparisons were on stock price or total shareholder return.

It is not just railroad executives who have been claiming that railroads are in good financial health. Warren Buffett, one of the world’s most iconic investors and

¹⁸ Canadian National Ry., Annual Report at iv (2021).

¹⁹ Canadian National Ry., Annual Report 8 (2021).

²⁰ Canadian National Ry., Annual Report at iv (2020).

²¹ Canadian National Ry., Annual Report 6 (2020).

²² Canadian National Ry., Annual Report 26 (2020).

chairman of Berkshire Hathaway Inc., which owns BNSF Railway, frequently praises BNSF. In his 2021 letter to shareholders, he called BNSF one of Berkshire’s four “jewels.”²³ In the same letter, Mr. Buffett explains that, despite BNSF making large investments in fixed assets and that BNSF “must spend whatever it takes to maximize safety and service throughout its vast system,”²⁴ “BNSF has paid substantial dividends to Berkshire.”²⁵ He also states that “BNSF . . . will require major capital expenditures for decades to come. The good news is that [it is] likely to deliver appropriate returns on the incremental investment.”²⁶

The robust financial status of the railroad industry is also reflected in the Board’s revenue-adequacy determinations. Four of the seven Class I railroads have been revenue adequate consistently over the past decade.²⁷ A fifth, CSX, has been revenue adequate the last two years, having been on the verge of revenue adequacy for the preceding eight years.²⁸

²³ Letter from Warren E. Buffet, Chairman of the Board, Berkshire Hathaway Inc., to Shareholders of Berkshire Hathaway Inc. 5-6 (Feb. 27, 2021).

²⁴ Letter from Warren E. Buffet, Chairman of the Board, Berkshire Hathaway Inc., to Shareholders of Berkshire Hathaway Inc. 13 (Feb. 27, 2021).

²⁵ Letter from Warren E. Buffet, Chairman of the Board, Berkshire Hathaway Inc., to Shareholders of Berkshire Hathaway Inc. 14 (Feb. 27, 2021).

²⁶ Letter from Warren E. Buffet, Chairman of the Board, Berkshire Hathaway Inc., to Shareholders of Berkshire Hathaway Inc. 13 (Feb. 27, 2021).

²⁷ Surface Transp. Bd., Economic Data, <https://prod.stb.gov/reports-data/economic-data/> (last visited May 17, 2021) (“Revenue Adequacy” tab).

²⁸ *Id.*

This shift to revenue adequacy reflects that the financial health of today's railroad industry looks nothing like it did approximately 40 years ago when Congress first required the Interstate Commerce Commission to determine revenue adequacy. By 1976, when Congress passed the Railroad Revitalization and Regulatory Reform Act defining revenue adequacy, "the industry was rolling to the brink of ruin, with infrastructure so deficient rail cars simply fell off tracks."²⁹ The Penn Central, which was the largest railroad and the sixth largest corporation at the time in the United States, had declared bankruptcy six years earlier, and its bankruptcy would hold the title of the largest U.S. bankruptcy until the Enron bankruptcy in 2001.³⁰ At least three Class I railroads were in bankruptcy reorganization, and one-third of Class I railroads were earning a negative return on investment.³¹ Class I railroads had accumulated over \$4 billion in deferred maintenance and delayed capital expenditures,³² and more than 47,000 miles of

²⁹ Ass'n of Am. R.Rs., *The Staggers Rail Act 40th Anniversary*, <https://www.aar.org/campaigns/the-staggers-rail-act-40th-anniversary/> (last visited May 17, 2021).

³⁰ Wayne Duggan, *This Day in Market History: Penn Central Bankruptcy*, Yahoo!Finance (June 21, 2018), <https://finance.yahoo.com/news/day-market-history-penn-central-180215022.html#:~:text=When%20the%20U.S.%20government%20refused,the%20largest%20in%20American%20history>.

³¹ U.S. Gen. Accounting Office, *Economic and Financial Impacts of the Staggers Rail Act of 1980* at 11 (1990).

³² *Id.*

track operated at reduced speeds because of unsafe conditions.³³ By 1980, when Congress enacted the Staggers Rail Act provisions requiring annual revenue-adequacy determinations and making revenue adequacy a factor in determining the reasonableness of rail rates,³⁴ the rail share of intercity freight had fallen from 75% in 1929 to 38%.³⁵

Thanks to the current revenue-adequacy standard and other regulatory reforms, Class I railroads have become Wall Street darlings. Their returns on investment are nearly three times higher than in the 1980s, shortly after Congress stepped in to save them from financial ruin.³⁶ They also have made tremendous improvements in efficiency and productivity, and have shed unnecessary infrastructure and equipment in part through mergers that have resulted in duopolies in the eastern and western halves of the United States. Today's railroads are thriving businesses.

³³ Ass'n of Am. R.Rs., *A Short History of U.S. Freight Railroads* 3 (2021), <https://www.aar.org/wp-content/uploads/2020/08/AAR-Railroad-Short-History-Fact-Sheet.pdf>.

³⁴ Staggers Rail Act of 1980, Pub. L. 96-448 §§ 201(a), 205(b)(1), 94 Stat. 1895, 1899, 1906 (1980).

³⁵ U.S. Gen. Accounting Office, *supra* note 31, at 30.

³⁶ Ass'n of Am. R.Rs., *Freight Railroads Under Balanced Economic Regulation* 2 (2021), <https://www.aar.org/wp-content/uploads/2020/08/AAR-Railroads-Under-Balanced-Economic-Regulation-Fact-Sheet.pdf>. Under the title "Better Financial Health," the Association of American Railroad's explains that "[r]eturn on investment, which had been falling for decades, was 4.4% in the 1980s, 7% in the 1990s, 8% from 2000 to 2009 and 12% from 2010 to 2019." *Id.*

B. The agency should prioritize pending rulemakings to enhance competition through competitive switching and make rate remedies more accessible to captive shippers.

While railroads were earning reputations as Wall Street darlings, shippers' access to competitive rail service has not improved and their ability to challenge unreasonable rates has deteriorated. The Board has two pending rulemakings to address these challenges: Ex Parte No. 711 (Sub-No. 1), *Reciprocal Switching*, which would promote competition through changes to the Board's competitive-switching rules; and Ex Parte No. 755, *Final Offer Rate Review*, which would make rate challenges more accessible to shippers by providing a new procedural mechanism for challenging rail rates. The Board should focus on completing these rulemakings, which both are at the final-rule stage, instead of considering unnecessary adjustments to how it measures railroad financial health.

The past decade has shown that the process for challenging unreasonable rail rates is generally unworkable. The Stand-Alone Cost methodology for challenging rates has been "too costly, too time consuming, and too unpredictable," especially for carload traffic.³⁷ While the Board has attempted to make rate review more accessible by adopting simplified methodologies, rate challenges under these methodologies are still too costly and complex.³⁸ Because of the high costs and

³⁷ *Total Petrochemicals & Refining USA, Inc. v. CSX Transp.*, NOR 42121, slip op. at 48 (STB served Sept. 14, 2016) (Begeman, Comm'r, dissenting).

³⁸ *See Final Offer Rate Review*, EP 755, slip op. at 2-4 (STB served Sept. 12, 2019).

complexity, few cases have been brought under these simplified methodologies, the last one nearly a decade ago.³⁹

Since many shippers lack an accessible mechanism for challenging unreasonable rail rates, the Board should expedite the completion of its Final Offer Rate Review (FORR) rulemaking. Prioritizing the rule would also be consistent with Congress's 2015 directive to the Board to establish simplified and expedited methods for determining the reasonableness of challenged rates.⁴⁰

In addition to lacking meaningful access to rate challenges, shippers have not seen improved access to competition. A key mechanism for accessing competition is competitive switching, which involves an incumbent carrier transporting a captive shipper's traffic to the nearest interchange point, where it switches the traffic to a competing carrier for a switching fee. A 1986 decision by the Interstate Commerce Commission effectively severed access to competitive switching by finding that relief under the Commission's then new competitive-switching rules required a finding that the incumbent carrier "has engaged or is likely to engage in conduct that is contrary to the rail transportation policy or is otherwise anticompetitive."⁴¹ Three years later, the agency stated that relief under the current standard "is available

³⁹ Surface Transp. Bd., *Rail Rate Cases at the STB*, <https://prod.stb.gov/wp-content/uploads/Rate-Case-List-11-19-2019.pdf> (last visited May 17, 2021).

⁴⁰ 49 U.S.C. § 10701(d)(3). In contrast, Congress has not issued a similar directive to revise the revenue-adequacy methodology despite multiple Board proceedings over the past few decades to review the methodology.

⁴¹ *Midtec Paper Corp. v. Chicago & N.W. Transp. Co.*, 3 I.C.C. 2d 171, 181 (1986).

for the classical categories of competitive abuse: foreclosure; refusal to deal; price squeeze; or any other recognizable form of monopolization or predation.”⁴² But in an industry with few participants, even fewer competitors, and high barriers to entry, there is no need for railroads to engage in such behavior to exert market power. This set the bar for competitive switching so high that only a handful of cases were ever filed, and none was successful.

The Board has proposed to make competitive switching more accessible in docket Ex Parte No. 711 (Sub-No. 1) by revising the standards for obtaining competitive switching so they do not effectively bar relief. Unfortunately, its efforts have stalled—the rulemaking proceeding has been dormant since the Board issued a proposed rule and received comments approximately 5 years ago.⁴³

Moving forward with issuing a final rule in Ex Parte No. 711 (Sub-No. 1) would not only enhance access to competitive switching, but also fulfill Congress’s intent “to allow, to the maximum extent possible, competition and the demand for services to establish reasonable rates for transportation by rail.”⁴⁴ Joint Carriers acknowledge that the Rail Transportation Policy (RTP) at 49 U.S.C. § 10101 reflects Congress’s intent “that competition be recognized as the best control on the ability of railroads to raise rates.”⁴⁵ The RTP also contains other pro-competition objectives

⁴² *Vista Chem. Co. v. Atchison, T. & S.F. Ry.*, 5 I.C.C. 2d 331, 335 (1989).

⁴³ *See Reciprocal Switching*, EP 711 (Sub-No. 1) (STB served July 27, 2016).

⁴⁴ 49 U.S.C. § 10101(1).

⁴⁵ (Pet. 9-10.)

that would be promoted through greater accessibility to competitive switching, including: minimizing Federal regulatory control over rail transportation,⁴⁶ ensuring effective competition and coordination between carriers,⁴⁷ reducing barriers to entry,⁴⁸ prohibiting predatory pricing and practices,⁴⁹ and avoiding undue concentrations of market power.⁵⁰ Competitive switching enhances competition by maximizing the route distance over which a second rail carrier can compete to transport traffic and, in some instances, permits competition to occur where it otherwise would be entirely foreclosed by the incumbent carrier's long-haul rights under the statute.⁵¹ It also can help address service issues by enabling traffic to avoid portions of the incumbent carrier's line where the problems exist.

The Board thus should direct its resources to completing the FORR and competitive-switching rulemakings instead of launching a new proceeding to redefine the standard of revenue adequacy. There is no rational justification for the Board to raise the already conservatively high revenue-adequacy bar for a financially thriving rail industry.

⁴⁶ 49 U.S.C. § 10101(2).

⁴⁷ 49 U.S.C. § 10101(4).

⁴⁸ 49 U.S.C. § 10101(7).

⁴⁹ 49 U.S.C. § 10101(12).

⁵⁰ *Id.*

⁵¹ Reciprocal switching is an express exception to a carrier's long-haul rights. *See* 49 U.S.C. § 10705(a)(2)(A).

III. The Comparison Proposal is inconsistent with the 49 U.S.C. 10704(a)(2) statutory factors for determining revenue adequacy.

The Joint Carriers tout the Comparison Proposal as providing a more accurate measure of whether a railroad is earning a “reasonable and economic profit or return (or both)” and can “rais[e] needed equity capital.”⁵² In their view, a railroad cannot satisfy these revenue-adequacy factors unless it is more profitable than the median S&P 500 firm.⁵³ But tying revenue adequacy to the profitability of the median S&P 500 firm would transform revenue adequacy into a standard of superstar financial health that half the firms in the S&P 500 (less railroads, financials, and real estate firms)—a collection of top-performing and highly valued firms—would be unable to attain.

The flaws with the Comparison Proposal do not end with the absurd results it would produce. The Comparison Proposal assumes that a “reasonable and economic profit or return (or both)” is an economic profit above zero.⁵⁴ This not only ignores the plain language of this statutory revenue-adequacy factor, but it also would allow railroads to produce higher returns than necessary to cover investors’ opportunity costs (i.e., what they could earn in other investments, adjusted for risk). Additionally, Joint Carriers have designed the Comparison Proposal to measure market power,⁵⁵ which is not required under the statutory revenue-adequacy factors

⁵² (Pet. 24.) *See* 49 U.S.C. § 10704(a)(2).

⁵³ (Pet. 28-29, 31-32.)

⁵⁴ (Pet. 27-28.)

⁵⁵ (Pet. 32.)

and is inconsistent with how Congress has addressed market power elsewhere in the ICC Termination Act of 1995 (ICCTA).⁵⁶

A. Comparing a railroad’s profitability to that of the median S&P 500 firm, or any other threshold firm, has no bearing on whether the railroad achieves the statutory definition of revenue adequacy and would produce erroneous results.

The profitability of the median S&P 500 firm, or any other firm, is an irrelevant and inaccurate measure of revenue adequacy. It has no basis in the statutory definition of revenue adequacy, which looks to promote a financially sustainable railroad industry rather than transform railroads into leading firms. And it is not economically justified, overlooking that railroads compete for capital with *all* firms based on whether they earn their cost of capital and that a firm’s profitability is highly dependent on its industry.

1. Congress defined revenue adequacy as whether a railroad can attract sufficient capital, not whether it is more profitable than half the S&P 500.

Nowhere did Congress suggest that railroads should outperform any firm, much less half the S&P500, to be revenue adequate. Congress defined the revenue-adequacy standard as whether a railroad could earn a reasonable and economic profit or return sufficient to attract necessary capital to maintain its operations. Specifically, it directed the Board to establish revenue levels that are “adequate, under honest, economical, and efficient management, for the infrastructure and investment needed to meet the present and future demand for rail services and to

⁵⁶ ICC Termination Act of 1995, Pub. L. 104-88, 109 Stat. 803 (1995).

cover total operating expenses, including depreciation and obsolescence, plus a reasonable and economic profit or return (or both) on capital employed in the business.”⁵⁷ It clarified that these revenue levels must “provide a flow of net income plus depreciation adequate to support prudent capital outlays, assure repayment of a reasonable level of debt, and permit the raising of needed equity capital, and cover the effects of inflation.”⁵⁸ It also stated that these revenue levels must “attract and retain capital in amounts adequate to provide a sound transportation system in the United States.”⁵⁹

The point of establishing the revenue-adequacy standard was not to make railroads leading firms. Congress instead established the revenue-adequacy standard to help railroads achieve financial sustainability after being under severe financial distress leading into the 1970s. And Congress’s description of revenue adequacy recognizes that the key to a financially sustainable railroad industry is being able to attract sufficient capital investment, not to be a financial superstar among all firms.

Despite the clear intent of Congress to promote financial sustainability through the revenue-adequacy standard, the Comparison Proposal would transform revenue adequacy into a measure of whether railroads are top financial performers. Under the Comparison Proposal, railroads would have to earn economic profits

⁵⁷ 49 U.S.C. § 10704(a)(2).

⁵⁸ 49 U.S.C. § 10704(a)(2)(A).

⁵⁹ 49 U.S.C. § 10704(a)(2)(B).

exceeding half the S&P500—a grouping of some of the most successful firms—to be deemed revenue adequate. That is like telling a high school student that she is not in adequate physical health unless she can outrun half the varsity cross-country team.

2. The median S&P 500 firm, or any other threshold firm, is an irrelevant benchmark for determining whether a railroad can compete for capital.

Railroads and other firms do not raise needed equity capital on the basis of whether they are more profitable than other firms, let alone the median S&P 500 firm. As Mr. Stewart explains, “railroads, like any other company, compete for capital against *all* other firms in the global market.”⁶⁰ Firms “win” this competition and raise needed capital by earning their cost of capital.⁶¹

A key economic principle is that a firm can attract sufficient investment if it produces returns that meet or exceed what an investor can reasonably expect to earn elsewhere, adjusted for risk. Mr. Stewart explains that investors will make capital available for *all* investments that will earn at least the same return as a risk-free investment plus a premium to compensate for added investment risk.⁶² As investment risk goes up, investors expect to earn a higher return commensurate with what they would earn from investments of similar risk.⁶³ So, an investment

⁶⁰ Stewart V.S. 27.

⁶¹ *Id.*

⁶² *Id.* at 27-28.

⁶³ *Id.* at 28.

can attract all the equity capital it needs by producing a return equivalent to what investors could expect to earn from other investments of similar risk.

This principle of capital allocation is captured by using a firm's cost of capital as a measure of whether it can attract necessary equity investment. Mr. Stewart explains that the Capital Asset Pricing Model (CAPM), which the Board uses to determine the railroad industry's cost of equity capital, accounts for what investors could reasonably earn from other similarly risky investments.⁶⁴ Specifically, it calculates the risk premium by using the returns that investors could reasonably expect to earn above the risk-free return by investing in the stock market, and adjusts those returns to account for the difference between market risk and the risk of the investment.⁶⁵ Thus, a railroad that is earning its cost of capital is also earning what investors could reasonably expect to earn by investing in other investments of similar risk or by investing in riskier investments and incurring the costs of such additional risk. To put it another way, an investor that invests in a railroad that earns its cost of capital would not expect to earn higher returns elsewhere, when accounting for risk.

Certainly, some firms regularly produce returns in excess of their cost of capital. But this does not mean that firms that just earn their cost of capital are

⁶⁴ *Id.* at 28, 30.

⁶⁵ *Id.* at 28, 30; *Railroad Cost of Capital—2019*, EP 558 (Sub-No. 23), slip op. at 7 (STB served Aug. 5, 2020). The Board uses the S&P 500 index as a proxy for the market and makes a risk adjustment reflecting the difference in risk between Class I railroads and the broader market. *Railroad Cost of Capital—2019*, EP 558 (Sub-No. 23), slip op. at 7-10 (STB served Aug. 5, 2020).

unable to attract and retain sufficient investment. These firms are still able to provide returns that are at least equivalent to what an investor could expect from the broader market.

Additionally, Joint Carriers' claim that a comparison to the median S&P 500 firm's profitability is justified because railroads and S&P 500 firms are large firms is irrelevant to whether railroads can raise needed equity capital. As Mr. Stewart explains, investors can combine investments to achieve a specific risk-return profile.⁶⁶ An investor thus may compare a railroad with a pool of other firms and bonds that do not have any common characteristics. Adopting a simplification that railroads compete for capital only with the large firms in the S&P 500 ignores this economic reality. Simply stated, "[t]here is no economic justification to compare railroads against other large companies."⁶⁷ Railroads can compete effectively for capital with other large firms if they earn no more than *their* cost of capital.

3. The profitability of the median S&P 500 firm or any other threshold firm has no bearing on whether a railroad is earning a reasonable profit or return.

Joint Carriers claim that comparing railroad profitability to that of the median S&P 500 firm gives effect to the "reasonable and economic profit or return" element of revenue adequacy because "[t]he median S&P Differential . . . will capture . . . the normal and reasonable economic profit enjoyed by other unregulated

⁶⁶ Stewart V.S. 28-29.

⁶⁷ *Id.* at 29.

companies in competitive markets.”⁶⁸ But nothing about the median S&P 500 firm’s profitability, or that of any other threshold firm, is normal or reasonable for any other firm, much less a railroad.

A firm’s profitability is highly correlated to its industry. Mr. Stewart explains that “industry is a crucial factor, typically the single most important factor, in determining a company’s ROI potential.”⁶⁹ Firms in industries that have highly differentiated products or services, rapid growth, patent protection, brand equity, high up-front costs and low incremental costs leading to a first-strike advantage, or network effects from the aggregation of data and consumer interest, or that involve algorithms or software, are inherently more profitable and earn higher ROI’s than those participating in mature, slow-growth businesses that provide commodity products and services with little differentiation in an environment of intense price rivalry or those whose returns are regulated.⁷⁰ Thus, no wonder that freight railroads, which are mature, slow-growth businesses, provide a commodity service with little differentiation, and are partially regulated, have low profits compared to that of the median S&P 500 firm and most other firms in the S&P 500.⁷¹ So, the profits of the median S&P 500 firm will always be elusive for railroads as well as firms in many other industries.

⁶⁸ (Pet. 32.)

⁶⁹ Stewart V.S. 31.

⁷⁰ *Id.* at 34.

⁷¹ *See id.*

Railroads also lack the structural attributes necessary to consistently generate the high returns on investment earned by many S&P 500 firms. Mr. Stewart explains that knowledge-intensive industries, which involve R&D, brands, software, and algorithms, are increasingly becoming more profitable than heavy industry, like railroads.⁷² According to one study, “margins are being squeezed in capital-intensive industries, where operational efficiency has become crucial.”⁷³ This study also observes that labor-intensive industries have relatively low profit margins.⁷⁴ On these profitability attributes—knowledge intensity, capital intensity, and labor intensity—the study ranks the transportation sector in the top quartile for labor intensity, second quartile for capital intensity, and bottom quartile for knowledge intensity,⁷⁵ which is a concoction for lower profitability.

Another factor placing railroads at a profitability disadvantage relative to the S&P 500 is their lack of significant foreign sales. Mr. Stewart explains that foreign sales “can enhance profitability and ROI by helping companies to expand scale and cover fixed costs and to propel learning and knowledge transfer.”⁷⁶ He also observes

⁷² *Id.* at 35-36.

⁷³ McKinsey & Co., *Playing to Win: The New Global Competition for Corporate Profits* (2015), https://www.mckinsey.com/~media/mckinsey/business%20functions/strategy%20and%20corporate%20finance/our%20insights/the%20new%20global%20competition%20for%20corporate%20profits/mgi%20global%20competition_full%20report_sep%202015.ashx.

⁷⁴ *Id.* at 6-7.

⁷⁵ *Id.* at 7.

⁷⁶ Stewart V.S. 37.

that foreign sales accounted for 29% of S&P 500 revenues in 2019, although only 2% of these revenues were from Canada and Mexico.⁷⁷ For the industrial sector, which Joint Carriers suggest as a fallback comparison for railroads, the foreign-sales percentage was approximately 44% in 2018.⁷⁸ In contrast, of the publicly traded U.S. railroads (excluding operating entities of CN and CP), only UP and KCS have foreign sales, amounting to 11% and 47% of their sales, respectively.⁷⁹ And these foreign sales were limited to Mexico, where KCS has a significant rail network.⁸⁰ This relative absence of foreign sales outside of North America places railroads at a profitability disadvantage to other S&P 500 firms.

Additionally, because the S&P 500 is a constantly updated list of high-performing and high-potential firms, the profitability of the median S&P 500 firm poorly represents the typical or expected profitability of firms in highly competitive markets. S&P Dow Jones Indices LLC, which maintains the S&P 500, touts the index as covering “leading companies from leading industries.”⁸¹ In his verified statement, Mr. Stewart describes the S&P 500 as a collection of “winners in the

⁷⁷ *Id.*

⁷⁸ *Id.* at 37-38.

⁷⁹ *Id.* at 37.

⁸⁰ *Id.*

⁸¹ S&P Dow Jones Indices LLC, *S&P 500* 1, <https://www.spglobal.com/spdji/en/documents/additional-material/sp-500-brochure.pdf> (last visited May 17, 2021) (“The S&P 500 does not simply contain the 500 largest stocks; rather, it covers leading companies from leading industries.”).

business environment.”⁸² He further explains that, because the index is limited to winning firms, “it overstates the returns that can be expected from firms operating in competitive markets.”⁸³

Four times a year, the S&P 500’s Index Committee looks at replacing firms.⁸⁴ Mr. Stewart explains that firms that have been recently cut from the index (other than firms cut because they were acquired) either were facing significant performance challenges or were performing well, but not as well as their competition.⁸⁵ Their replacements were in knowledge-intensive, intangible-asset rich, new-economy sectors, and thus had a high potential for earning high returns.⁸⁶

Over time, this churn of firms positions the S&P 500 as an index that is hard for even professional investors to beat.⁸⁷ Mr. Stewart observes in his verified statement that the makeup of the S&P 500 has shifted dramatically over past decades as old-economy firms have been replaced by new-economy firms with greater potential.⁸⁸ Firms in healthcare and information-technology sectors, both

⁸² Stewart V.S. 39.

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.* at 39-43.

⁸⁶ *Id.* at 43.

⁸⁷ Anu R. Ganti & Craig J. Lazzara, S&P Dow Jones Indices LLC, *Style Bias and Active Performance* 2 (2021), <https://www.spglobal.com/spdji/en/documents/research/research-style-bias-and-active-performance.pdf>

⁸⁸ Stewart V.S. 43.

highly profitable, have increased from 33 firms in 1970 to 130 today.⁸⁹ Over the same period, firms in mining and metals, energy, and industrials sectors, which have low or moderate profitability, have declined from 233 firms to 99.⁹⁰ Today's S&P 500 index thus says little about the normal and reasonable profits that should be expected from railroads.

4. If Joint Carriers' criticism of the Board's use of book values is correct, comparing railroad profitability to the median S&P 500 firm or any other firm would result in a massive error.

Joint Carriers claim that the Comparison Proposal is necessary to mitigate the alleged error caused by the Board's use of book values instead of replacement costs to calculate return on investment when determining revenue adequacy.⁹¹ But even if the Joint Carriers are correct about the error (which they are not, as explained below in Part IV.A), the Comparison Proposal does not correct for it and, at worst, compounds it.

Joint Carriers claim that the error occurs because accounting rates of return, which are based on book values, are not probative of economic rates of return.⁹² According to their experts, this arises because, "depending on the characteristics of a particular firm, the difference between accounting rates of return and its economic rate of return can be very large and can be either positive or negative."⁹³ Given this

⁸⁹ *Id.* at 43-44.

⁹⁰ *Id.*

⁹¹ (Pet. 3-4, 24, 39.)

⁹² (Pet. at 16.)

⁹³ (Murphy & Zmijewski V.S. 45, Sept. 1, 2020.)

allegedly wild inaccuracy, two firms with the same accounting profits may have completely different economic profits, one being positive and the other negative. Thus, comparing the accounting profits of two firms would do nothing to eliminate the alleged measurement error arising from the use of accounting returns. As Mr. Stewart observes, it would just compound the measurement error of both firms, resulting in a massive error.⁹⁴

To borrow from Joint Carriers' thermometer example,⁹⁵ Joint Carriers are essentially proposing that the Board can determine whether Washington, D.C., is warmer than another city, like Chicago, by taking their temperatures using a thermometer with errors that "can be very large and can be either positive or negative"⁹⁶ and comparing them. But if the thermometer is as wildly inaccurate as they describe, it might show that Chicago is warmer than Washington on a day when Washington is actually warmer than Chicago. And the next day, without any change in actual air temperature of each city, the thermometer may show Washington being excessively warm compared to Chicago. If Chairman Oberman were to use this method to determine what to pack on his trips between Chicago and Washington, he might show up at the Board's office in flip flops and a t-shirt on a day when the Potomac River is frozen solid.

⁹⁴ Stewart V.S. 26.

⁹⁵ (Pet. 31.)

⁹⁶ (Murphy & Zmijewski V.S. 45.)

5. The Comparison Proposal inherently overstates the ROI of the median S&P 500 firm.

As Joint Carriers recognize, applying the Board's ROI formula to S&P 500 firms would result in overstated ROIs and make the Comparison Proposal unworkable because the formula does not capture the substantial investment that many S&P 500 firms have in non-goodwill intangible assets.⁹⁷ The Joint Carriers have proposed a "correction"⁹⁸ to ROI to address the investment in these assets, which Mr. Stewart agrees is appropriate.⁹⁹ But this is only the tip of the iceberg of necessary adjustments. The very need for so many adjustments exemplifies Mr. Stewart's overarching point that the S&P 500 simply is not an appropriate comparison group.¹⁰⁰

The Joint Carriers' adjustment for non-goodwill intangible assets addresses only a portion of the investment in these assets. The problem arises from how accountants record investments in non-goodwill intangible assets. As explained by Joint Carriers' experts, accountants record a firm's investments in intangible assets only when the firm acquires them from another company.¹⁰¹ But the vast majority of non-goodwill intangible assets are self-created by firms rather than acquired.¹⁰²

⁹⁷ (Pet. 35.)

⁹⁸ (Pet. 35.)

⁹⁹ Stewart V.S. 45.

¹⁰⁰ *Id.*

¹⁰¹ (Murphy & Zmijewski V.S. 59 n.98.)

¹⁰² Stewart V.S. 4, 46.

For those non-goodwill intangible assets, accountants expense the investment.¹⁰³ So reported investments in non-goodwill intangible assets will continue to understate actual investments in these assets even after making the adjustments that the Joint Carriers propose, especially for the high-tech, brand-rich firms that pervade the S&P 500.¹⁰⁴

As Mr. Stewart explains, relying on the investment in non-goodwill intangible assets reported in accounting records, which Joint Carriers appear to do, ignores spending on intangibles that could be expected to bring future benefits by contributing to revenues and profits.¹⁰⁵ For example, it ignores research and development expenditures that may generate patents and their associated returns or breakthrough innovations that others cannot quickly replicate.¹⁰⁶ It also ignores spending on advertising to develop and maintain consumer brands.¹⁰⁷

The result is an inaccurate portrait of the profitability of many S&P 500 firms, especially the most profitable firms. As explained above, the makeup of the S&P 500 has shifted toward firms in knowledge-intensive industries. Not only are firms in these industries among the most profitable in the S&P 500, but they also rely heavily on R&D, advertising, and other non-goodwill intangible assets, like

¹⁰³ (Murphy & Zmijewski V.S. n.98.)

¹⁰⁴ Stewart V.S. 45.

¹⁰⁵ Stewart V.S. 46.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.* at 47.

software, films, copyrights, and trademarks, that are self-generated.¹⁰⁸ Even after applying the Joint Carriers' proposed correction, these and any other firms having self-generated non-goodwill intangible assets will still have overstated ROIs.

Myriad additional corrections are necessary to calculate ROIs that properly reflect investment in self-generated non-goodwill intangible assets.¹⁰⁹ As Mr. Stewart explains, some industries have unique accounting methods for non-goodwill intangible assets.¹¹⁰ The need to correct the Board's ROI formula to address non-goodwill intangible assets, which railroads typically do not have, and the large number of corrections underscore that S&P 500 firms are not a relevant benchmark for railroads.

6. The Comparison Proposal cannot be salvaged by using the Industrials sector as a fallback benchmark.

Joint Carriers' experts have provided the S&P 500 Industrials sector group as an alternative comparison group, noting that the results of a comparison to this group "would be similar to that of the main S&P 500 group."¹¹¹ But as Mr. Stewart explains, use of the Industrials sector in the Comparison Proposal is subject to the same criticisms as use of the broader S&P 500.¹¹²

¹⁰⁸ *Id.* at 45.

¹⁰⁹ *Id.* at 48.

¹¹⁰ *Id.* at 47.

¹¹¹ (Joint Carriers' Resp. to Replies 11-12, Oct. 13, 2020.)

¹¹² Stewart V.S. 48.

Mr. Stewart explains that the Industrials sector contains multiple distinct industries that are different from and inherently more profitable than railroads.¹¹³ For example, the Industrials sector includes aerospace and defense firms, construction-engineering firms, and research and consulting firms.¹¹⁴ As explained above, profitability is highly dependent on industry sector, and lumping railroads with these and other unrelated Industrials sub-sectors results in an unreasonable profitability expectation.

Mr. Stewart also analyzed the structural profitability attributes of firms in the Industrials sector, finding that Industrials outside transportation firms contain attributes much more likely to translate to higher profitability compared to railroads and, in fact, generate higher profitability.¹¹⁵ Specifically, using financial data for Industrials firms, he measured three attributes shown to be correlated to profitability: intellectual capital (higher intellectual capital indicates higher profitability), plant intensity (lower plant intensity correlates to higher profitability), and global breadth (higher revenues from outside the U.S. indicates attributes associated with higher profitability).¹¹⁶ Non-transportation Industrials firms showed higher intellectual capital, lower plant intensity, and greater global

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Id.* at 48-50.

¹¹⁶ *Id.* at 48-49.

reach than transportation firms, all indicators of higher profitability.¹¹⁷ Thus, non-transportation Industrials firms possess profitability attributes that give them an advantage over transportation firms and prevent a fair profitability comparison.¹¹⁸

B. The Comparison Proposal imposes an economic profit requirement that is not in the statute.

Joint Carriers claim that their Comparison Proposal gives effect to the “reasonable and economic profit or return” statutory language because the median S&P Differential “captures . . . [a] reasonable economic profit,”¹¹⁹ which they define as an “economic profit” above zero.¹²⁰ But Congress did not define revenue adequacy as requiring a positive “economic profit.” Instead, it stated that the Board’s revenue-adequacy standard must allow railroads to earn “a reasonable and economic profit *or* return (*or both*).”¹²¹

Recognizing that the plain language of the revenue-adequacy definition does not require a positive economic profit is important because, as Mr. Stewart explains, the term “economic profit” is different from accounting profit and, in economic parlance, an “economic profit” greater than zero is inefficient.¹²² It is nonsense to contend that Congress intended to establish a revenue-adequacy standard that is

¹¹⁷ *Id.* at 49-50.

¹¹⁸ *See id.* at 50.

¹¹⁹ (Pet. 32.)

¹²⁰ (Pet. 27-28.)

¹²¹ 49 U.S.C. § 10704(a)(2) (emphasis added).

¹²² Stewart V.S. 10-11, 13.

inefficient by requiring an “economic profit” greater than zero, especially when the statute dictates that revenue adequacy is to be determined “under honest, economical, and *efficient* management”¹²³ Moreover, the statute states that the required level of revenue adequacy should “support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital” and “attract and retain capital in amounts adequate to provide a sound transportation system in the United States.”¹²⁴ As Mr. Stewart further explains, a firm that earns exactly zero “economic profit” by definition has satisfied all of these indicators of revenue adequacy.¹²⁵ Thus, there is no rational justification for arguing that railroad “economic profit” must be greater than zero to be revenue adequate.

C. The Comparison Proposal attempts to measure the rail industry’s market power instead of its ability to raise capital.

The Comparison Proposal attempts to transform the revenue-adequacy determination from a measure of a railroad’s ability to attract capital to a measure of a railroad’s market power. This transformation has no basis in the statutory revenue-adequacy factors, which focus on whether a railroad can attract and retain necessary capital. And it conflicts with Congress’s design of the broader ICCTA, which addresses market power through other mechanisms.

¹²³ 49 U.S.C. § 10704(a)(2) (emphasis added).

¹²⁴ 49 U.S.C. § 10704(a)(2)(A) & (B).

¹²⁵ Stewart V.S. 13.

Joint Carriers’ economic witnesses describe the Comparison Proposal as solving “how to evaluate whether railroads’ rate of return exceeds their cost of capital by an amount that suggests *a failure of competition* rather than the normal variation of rates of return expected in a competitive marketplace.”¹²⁶ Their theory behind the Comparison Proposal is that “to understand whether railroads are earning a return on invested capital that is indicative of at least the potential for rates to be *unconstrained by competition*, it is necessary to benchmark any revenue adequacy measure adopted by the Board against corresponding measures we observe for firms operating under competitive conditions.”¹²⁷ The witnesses select the median S&P 500 firm as the revenue-adequacy benchmark claiming that, “[i]f the railroads earn a rate of return net of cost of capital no higher than the average or median S&P firm, then there would be no presumption that railroads are earning abnormal returns and can set rates *without constraint from competition . . .*.”¹²⁸

None of the factors in Congress’s revenue-adequacy definition supports setting the revenue-adequacy threshold at a level indicative of a potential abuse of market power. The definition describes the revenue-adequacy threshold as the revenue level sufficient to cover operating costs, allow for needed infrastructure and investment, and provide a reasonable and economic profit or return (or both).¹²⁹ It

¹²⁶ (Murphy & Zmijewski V.S. 30 (emphasis added).)

¹²⁷ (Murphy & Zmijewski V.S. 32 (emphasis added).)

¹²⁸ (Murphy & Zmijewski V.S. 32 (emphasis added).)

¹²⁹ 49 U.S.C. § 10704(a)(2).

also explains that this revenue level “should . . . permit the raising of needed equity capital . . . and attract and retain capital in amounts adequate to provide a sound transportation system.”¹³⁰ The thrust of this definition is that railroads are revenue adequate if they earn the profits or returns necessary to attract and retain necessary capital. An abuse of market power is irrelevant to this inquiry.

Congress’s decision to omit references to market power and competition in its definition of revenue adequacy cannot be ignored. The Supreme Court has recognized that, “[w]here Congress includes language in one section of a statute, but omits it in another section of the same Act, it is generally presumed that Congress acted intentionally and purposefully in the disparate inclusion or exclusion.”¹³¹ When Congress enacted the definition of revenue adequacy in the Railroad Revitalization and Regulatory Reform Act, it simultaneously enacted the RTP, which expressly directs the Board to consider competition when establishing reasonable rates for rail transportation, to ensure effective competition, and to maintain reasonable rates absent effective competition.¹³² The RTP also identifies a policy of the government “to avoid undue concentrations of market power.”¹³³ The broader ICCTA also contains provisions expressly directing the Board to consider “competition” and “anticompetitive effects” when determining whether to regulate a

¹³⁰ 49 U.S.C. § 10704(a)(2)(A)-(B).

¹³¹ *Russello v. United States*, 464 U.S. 16, 23 (1983).

¹³² 49 U.S.C. § 10101(1), (4), (6).

¹³³ 49 U.S.C. § 10101(12).

rail rate;¹³⁴ authorizing agreements or combinations for pooling or division of traffic, services, or earnings;¹³⁵ and approving consolidations, mergers, and acquisitions of control involving rail carriers.¹³⁶ It also expressly directs the Board to consider “market power” when exempting rail carrier transportation from regulation.¹³⁷ Congress certainly knew how to require the Board to consider competition and market power when exercising its regulatory authority. Congress’s decision not to include market power or competition as a factor in revenue adequacy makes clear that it did not intend for revenue adequacy to be set at a level that reflects a failure of competition.

Joint Carriers’ focus upon revenue adequacy as a measure of market power appears to be in response to calls for the Board to develop standards for applying the revenue-adequacy constraint in *Coal Rate Guidelines*, which describes revenue adequacy as a constraint upon the degree to which a railroad may exercise its market power to engage in differential pricing.¹³⁸ As revenue adequacy pertains to rate regulation, it is not a measure of market power or competitive failure. The existence of market power or competitive failure is evaluated through the market-dominance determination in rate cases, not the annual revenue-adequacy determination.

¹³⁴ 49 U.S.C. § 10707(b).

¹³⁵ 49 U.S.C. § 11322(a)(2).

¹³⁶ 49 U.S.C. § 11324(b)(5), (d)(1).

¹³⁷ 49 U.S.C. § 10502(a)(2)(B).

¹³⁸ *Coal Rate Guidelines, Nationwide*, 1 I.C.C. 2d 520, 535-36 (1985).

At bottom, setting the revenue-adequacy threshold at a level corresponding to a potential abuse of market power would transform the Board's annual revenue-adequacy into a measure of market power, which Congress never intended.

IV. The Board's current revenue-adequacy methodology is conservative.

Joint Carriers have based the Comparison Proposal on the false assertion that the Board's current revenue-adequacy methodology overstates whether railroads are earning adequate revenues.¹³⁹ In reality, however, the Board's current methodology is conservative and provides ample assurance that the statutory revenue-adequacy factors are achieved.

A. The use of replacement costs is neither necessary nor appropriate.

Joint Carriers criticize the Board's use of book values instead of replacement costs when calculating railroad ROIs for revenue-adequacy purposes as "overstat[ing] railroad ROIs (and thus revenue adequacy)"¹⁴⁰ and causing ROIs to "often [be] uninformative about a firm's ability to attract capital in the future."¹⁴¹ But this ignores the fact that book values reflect replacement costs if and when assets are actually replaced or new additions are made.¹⁴² Thus, using book values avoids modulating regulatory protections afforded to railroads based on shifting winds of replacement costs that may never be incurred. And it allows railroads to

¹³⁹ (Pet. 5.)

¹⁴⁰ (Pet. 16.)

¹⁴¹ (Pet. 30.)

¹⁴² Stewart V.S. 20.

generate revenue levels sufficient to cover the costs of current and future investments and provide a competitive return to investors, which is all that revenue adequacy requires.

As an initial matter, using replacement costs to calculate ROI is unnecessary to allow railroads to earn a return on future investments that is sufficient to attract capital. Mr. Stewart explains that “all that is required to maintain the health of the industry and to attract capital for the investments is for the railroads to be able to cover the replacement cost of the assets *that they actually replace or that are new additions.*”¹⁴³ Since book value reflects replacement costs when an asset is actually replaced or added, and since the replacement cost is recovered through depreciation charges deducted against future earnings, the Board’s use of a book-value ROI to calculate revenue adequacy assures railroads and their investors that railroads *will be allowed*—but not *guaranteed*—to earn a return on future investments that is competitive and permits raising needed equity capital.

Additionally, the notion that an accurate assessment of ROI versus the cost of capital can only be obtained if all assets are marked from book value to replacement cost is incorrect and inappropriate in the context of revenue adequacy. Mr. Stewart explains that the key difference between book value and replacement costs is that replacement costs reflect inflation, general and real.¹⁴⁴ Mr. Stewart also explains that general inflation—an increase in prices of all goods and services

¹⁴³ *Id.* at 16.

¹⁴⁴ *Id.* at 15.

due to a change in monetary supply—effectively washes out in a proper replacement-cost ROI calculation because, alongside the increase in the investment base due to general inflation, the appreciation in existing assets from general inflation is recognized as a holding gain that is added to returns.¹⁴⁵ Accounting for this holding gain is necessary because, as Mr. Stewart explains, the cost of capital that the STB uses to judge ROI includes an inflation premium that represents investors’ expected compensation for inflation.¹⁴⁶ Bottom line, the difference between book value and replacement costs due to general inflation likely has only a marginal impact on the ROI spread versus the cost of capital.

To the extent any difference between book value and replacement costs arises from real inflation, using replacement costs to calculate ROI would be inappropriate. Real inflation, which is a price change relative to prices of all other goods and services, occurs in response to an imbalance between supply and demand.¹⁴⁷ If replacement costs increase due to real inflation, railroad ROIs computed on the replacement cost of the assets would fall in relation to their cost of capital. In the context of revenue adequacy, this effectively gives railroads the freedom to generate returns on increases in replacement costs that are unpredictable, likely temporary, and may never actually be incurred. As Mr. Stewart explains, this would provide railroads “a massive windfall at the expense of

¹⁴⁵ *Id.* at 18-20.

¹⁴⁶ *Id.* at 19.

¹⁴⁷ *Id.* at 15.

their customers”¹⁴⁸ and could encourage railroads to replace existing assets with new assets regardless of whether it is economically sensible.¹⁴⁹

Real inflation can also cause the use of replacement costs to have negative consequences for railroads that are inconsistent with the goals of revenue adequacy. If replacement costs decrease due to real inflation, railroad ROIs would increase in relation to their cost of capital and the revenue-adequacy standard would afford railroads less protection to earn a return that covers their original cost. Mr. Stewart explains that this could result in railroads not being able to cover the debt they incurred to finance an asset,¹⁵⁰ which is inconsistent with the goal of assisting carriers to achieve revenue levels that “assure the repayment of a reasonable level of debt.”¹⁵¹

Replacement costs may also differ from book values due to differences in depreciation that are unrelated to inflation. But accounting for these differences is unnecessary and inappropriate. As Mr. Stewart explains, even if book depreciation is inaccurate, the Board’s revenue-adequacy standard still would allow railroads to recover the full cost of an investment plus a return on the investment equal to the railroad industry cost of capital.¹⁵² Thus, should a railroad continue to use an asset

¹⁴⁸ *Id.* at 16.

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* at 17.

¹⁵¹ 49 U.S.C. § 10704(a)(2)(A).

¹⁵² Stewart V.S. 20-21, 23.

after it has been fully depreciated, any returns from that asset would be an unexpected windfall for the railroad and completely unnecessary to maintain its financial health.¹⁵³ Conversely, if an asset does not produce an ROI that is at least equal to the railroad-industry COC (i.e., actual depreciation exceeds book depreciation), the use of book depreciation allows the railroad to make up the difference by exercising its market power through an appropriate level of differential pricing without regulatory intervention.¹⁵⁴

In sum, using book values to calculate ROI ensures that railroads will be allowed to earn a return on future investments that Mr. Stewart describes as “sufficient to cover all costs, including the opportunity cost of capital, and thus to attract capital for new investments that are economically warranted to maintain the health of the rail system.”¹⁵⁵

B. The current methodology advances all the factors of revenue adequacy under 49 U.S.C. § 10704(a)(2).

Joint Carriers claim that the Board’s revenue-adequacy measurement, which looks at whether a railroad’s ROI is at least equal to the railroad industry cost of capital, “fails to effectively reflect” whether railroads are earning revenues “sufficient to: i) allow for infrastructure and investment needed to meet present and future demand for rail services; ii) cover total operating expenses, including

¹⁵³ *Id.* at 24.

¹⁵⁴ *Id.*

¹⁵⁵ *Id.* at 23.

depreciation; and iii) provide for a reasonable and economic profit or return (or both) on capital employed in business.”¹⁵⁶ But the railroad industry’s cost of capital identifies the revenue requirements necessary to satisfy each of these revenue-adequacy factors under 49 U.S.C. § 10704(a)(2). It also represents the profitability that investors reasonably expect of their investments and, thus, is a profit level that will “permit the raising of needed equity capital” and “attract and retain capital in amounts adequate to provide a sound transportation system.”¹⁵⁷

First, the cost of capital allows for a railroad to cover its “total operating expenses, including depreciation and obsolescence.”¹⁵⁸ As Mr. Stewart explains in his verified statement, because a railroad’s costs are subtracted from its revenues when calculating its return on investment, a railroad cannot earn its cost of capital without covering all its costs, including operating costs, depreciation, and taxes.¹⁵⁹

Second, the cost of capital also allows for “infrastructure and investment needed to meet present and future demand for rail services.”¹⁶⁰ As a railroad replaces assets or adds new assets, the replacement cost of those assets is capitalized in the railroad’s investment base.¹⁶¹ Using a cost-of-capital standard for

¹⁵⁶ (Pet. 27 n.55.)

¹⁵⁷ 49 U.S.C. § 10704(a)(2)(A)-(B).

¹⁵⁸ *See* 49 U.S.C. § 10704(a)(2).

¹⁵⁹ Stewart V.S. 6-8.

¹⁶⁰ *See* 49 U.S.C. § 10704(a)(2).

¹⁶¹ *See* Stewart V.S. 20 (explaining that book accounting uses replacement costs for new asset acquisitions).

revenue adequacy allows a railroad to earn a return on each investment at least equal to the rail industry cost of capital.¹⁶² Additionally, it allows railroads to recover their initial investment through depreciation, which is deducted from returns over the life of each asset.¹⁶³ The cost-of-capital standard thus allows railroads to recover the cost of their current and future investments in infrastructure and assets plus generate a return on these investments equal to the cost of capital.

Third, as Mr. Stewart shows, a railroad that earns its cost of capital also can repay its debts and cover interest expense.¹⁶⁴ The interest cost is a component in the overall cost of capital (along with the estimated cost of equity capital); thus, covering the cost of capital generates profits more than sufficient to pay the interest on debts.¹⁶⁵ Also, the principal on loans is repaid from depreciation, which is a non-cash charged deducted from returns.¹⁶⁶ Therefore, any firm that earns an ROI equal to its COC will be able to service its debts and attract additional loans for investment purposes.¹⁶⁷

¹⁶² *Id.*

¹⁶³ *Id.* at 23.

¹⁶⁴ *Id.* at 9, 10.

¹⁶⁵ *Id.* at 6-8

¹⁶⁶ *Id.* at 7.

¹⁶⁷ *Id.* at 8, 10, 14.

Fourth, the cost of capital represents a “reasonable and economic profit or return (or both)”¹⁶⁸ that is sufficient to “raise needed equity capital”¹⁶⁹ and “attract and retain investment in amounts adequate to provide a sound transportation system.”¹⁷⁰ As Mr. Stewart explains, an economic profit is profit net the opportunity cost of capital.¹⁷¹ When economic profit is zero, a firm is providing an ROI equal to its COC¹⁷² and thus “covering all of its costs, including operating costs, depreciation and taxes, and also the cost of giving its investors—its debtors and shareholders alike—a fully competitive return on their investment.”¹⁷³ In other words, “[a] breakeven economic profit is the tautological definition of ‘revenue adequacy.’”¹⁷⁴

When a firm is earning a breakeven economic profit (i.e. $ROI = COC$), it can attract and retain necessary capital. The cost of capital, by definition, is the rate of return that investors could expect to earn on other equally risky investments. If a firm is earning this threshold return, investors are willing to provide additional capital to the firm because they cannot expect to earn higher returns by investing elsewhere.¹⁷⁵ $ROI = COC$ is thus the definition of a fully competitive business.¹⁷⁶

¹⁶⁸ See 49 U.S.C. § 10704(a)(2).

¹⁶⁹ See 49 U.S.C. § 10704(a)(2)(A).

¹⁷⁰ See 49 U.S.C. § 10704(a)(2)(B).

¹⁷¹ Stewart V.S. 8.

¹⁷² *Id.* at 8-9.

¹⁷³ *Id.* at 8.

¹⁷⁴ *Id.*

¹⁷⁵ *Id.* at 29-31.

¹⁷⁶ *Id.* at 28-29.

The CAPM model that the Board uses to measure the railroad-industry cost of capital correctly recognizes the need for investments to be competitive on a risk-adjusted basis. The cost of capital is based on where a firm falls along the risk-return continuum defined by the return of a risk-free investment and the return of the market of all risky securities.¹⁷⁷ As investment risk increases, the compensation for risk increases at the same rate that returns increase between a risk-free investment and the market.¹⁷⁸ So, a firm in a steady business with less risk than the market would only have to produce returns between the risk-free return and market return, and a company operating in a cyclical business with a stock riskier than the market would have to generate above market returns. Earning any less than this amount would encourage investors to move their money elsewhere. Earning greater returns is unnecessary to attract capital because investors cannot expect to earn greater returns from other investments at the same risk level.

Another way to think of this is that, when a railroad earns its cost of capital, it provides an adequate return on equity to its shareholders. As Mr. Stewart explains, railroad cost of capital is a weighted average of the cost of equity (i.e., the cost of capital from the perspective of equity investors) and the cost of debt (i.e., the interest expense to compensate debt holders).¹⁷⁹ Thus, a railroad that generates a

¹⁷⁷ *Id.* at 28.

¹⁷⁸ *Id.* at 28, 30.

¹⁷⁹ *Id.* at 6-7.

return on investment equal to its cost of capital covers both its cost of debt and its cost of equity and, thus, its cost of capital.¹⁸⁰

The Board's use of the railroad-industry cost of capital also assures investors that railroads will be allowed to preserve investor wealth without regulatory intervention by the Board. Mr. Stewart explains that wealth is preserved when the intrinsic value of an investment is equal to the capital money put into the investment.¹⁸¹ Where a firm's net operating profits after taxes equals its capital charge (i.e., its current level of capital multiplied by its cost of capital), the firm's intrinsic value is equal to the current investment in the firm.¹⁸² To put it differently, a firm whose $ROI = COC$ will have an intrinsic value equal to investment in the firm, enabling investors to recover their investment when they sell their shares and to earn their cost of capital while invested in the firm.¹⁸³

At bottom, a railroad that is revenue adequate under the Board's current standard, which reflects a breakeven economic profit, is able to cover its costs, provide for infrastructure and investment, preserve the value of investments in the railroad, and generate a return for investors that is competitive with the return that they could obtain elsewhere, adjusted for risk. As the Interstate Commerce Commission recognized when it adopted the standard, using the cost of capital to

¹⁸⁰ *Id.* at 10.

¹⁸¹ *Id.* at 9-10.

¹⁸² *Id.*

¹⁸³ *Id.*

measure the adequacy of railroad returns “is widely agreed to be the minimum necessary to attract and maintain capital in the railroad, or any other, industry,”¹⁸⁴ and “[t]his is a standard principle of economics.”¹⁸⁵ While investors may be happier if the railroad generates higher returns, no reasonable investor would turn its nose up at the returns that this standard allows railroads to generate.

C. The current methodology overstates the cost of capital.

When calculating the cost of capital for revenue-adequacy determinations, the Board uses historic market returns reflecting a bygone era of heightened performance. The result is an elevated cost-of-capital figure that allows a railroad to earn a return on equity that is higher than what the investment community would consider as the railroad’s true cost of equity capital. This adds a layer of conservatism to the Board’s revenue-adequacy determinations and further undermines the Joint Carriers’ claims of inaccuracy as justification for the Comparison Proposal.

The cost of capital that the Board uses in its revenue-adequacy methodology is a weighted average based on the cost of debt and cost of equity of the railroad industry.¹⁸⁶ To arrive at the cost of equity, the Board adds the rate of return offered by a 20-year U.S. Treasury Bond, called the risk-free rate, to the return that the

¹⁸⁴ *Standards for R.R. Revenue Adequacy*, 364 I.C.C. 803, 809 (1981).

¹⁸⁵ *Standards for R.R. Revenue Adequacy*, 364 I.C.C. 803, 809 n.5 (1981).

¹⁸⁶ *Railroad Cost of Capital—2019*, EP 558 (Sub-No. 23), slip op. at 14 (STB served Aug. 5, 2020).

equity market produces in excess of the risk-free rate, called the Market Risk Premium, after adjusting the Market Risk Premium for the difference in risk between the railroad industry and the market.¹⁸⁷ The market return used to calculate the Market Risk Premium is the average return of the S&P 500 dating back to 1926.¹⁸⁸

The Board's use of historic stock-market performance overstates expected market performance, resulting in an inflated Market Risk Premium. As Mr. Stewart explains, the market produced unusually high returns in the past due to several factors including: a reduction in trading and transaction costs, and an increase in transparency; declining interest rates; the advantage that U.S. firms held in the aftermath of World War II decimating large economies outside the United States; and investors' use of a lower Market Risk Premium today than in 1926, partially due to an unexpectedly rapid advance in wealth and economic wellbeing.¹⁸⁹

Mr. Stewart estimates that the Market Risk Premium that the Board used for 2019 overstates the cost of equity by 3.15%, resulting in an overstated cost of capital of at least 2%.¹⁹⁰ He explains that Institutional Shareholder Services, which is a leading provider of corporate governance and responsible investment solutions,

¹⁸⁷ *Id.* at 7.

¹⁸⁸ *Id.*

¹⁸⁹ Stewart V.S. 58-59.

¹⁹⁰ *Id.* at 57.

market intelligence, and fund services, uses a Market Risk Premium of 4% rather than the 7.15% that the Board used.¹⁹¹ The Market Risk Premium is in line with the 5% Market Risk Premium that Western Coal Traffic League suggested for 2019 based on a recommendation by Duff & Phelps.¹⁹²

The Board's use of an overstated Market Risk Premium unnecessarily raises the bar for revenue adequacy, which ultimately allows railroads to differentially price their captive traffic over and above what is necessary to earn a reasonable and economic profit or return that is sufficient to attract and retain necessary capital for current and future rail service.

D. The results of the current methodology are consistent with valid supplemental indicators of revenue adequacy.

A comparison of the results of the Board's revenue-adequacy determinations to other indicators of financial health confirm that the Board's determinations are accurate, if not favorable to the railroads.

As Joint Shippers explained in their Reply to the Petition, filed on September 20, 2020, real-world financial data shows that railroads have had ample access to capital for decades, even when most Class I railroads were not revenue adequate under the Board's measure. Joint Carriers dispute this, claiming that use of stock prices and similar financial data cannot be relied upon to determine revenue

¹⁹¹ *Id.*

¹⁹² *Railroad Cost of Capital—2019*, EP 558 (Sub-No. 23), slip op. at 8 (STB served Aug. 5, 2020).

adequacy.¹⁹³ They also claimed that evidence showing railroads are able to raise capital does not prove revenue adequacy.¹⁹⁴ But, while real world financial data and evidence showing that railroads are attracting investment may not be sufficient on their own to prove revenue adequacy, they can corroborate a finding that a railroad is revenue adequate.

According to Mr. Stewart, rising stock prices would corroborate a finding that railroads are revenue adequate.¹⁹⁵ He explains that stock prices react to changes in the spread between ROI and COC, rising when investors foresee a higher ROI and falling when they foresee a lower ROI.¹⁹⁶ Thus, the Board's determinations that railroads are revenue adequate are probably accurate if the railroads have rising stock prices, which all railroads have had over the past decade.

Similarly, cash distributions in the form of dividends or stock buybacks can validate revenue adequacy findings when viewed in the proper context. As Mr. Stewart explains, whether a firm can distribute cash and earn an ROI that is at least equal to its cost of capital depends on the growth rate of its earnings and rate of reinvestment.¹⁹⁷ A railroad that is growing its earnings while, at the same time, reinvesting significant amounts of profits in its business and making capital

¹⁹³ (Joint Carriers' Resp. to Replies 7-8.)

¹⁹⁴ (Joint Carriers' Resp. to Replies 8-9.)

¹⁹⁵ Stewart V.S. 53.

¹⁹⁶ *Id.*

¹⁹⁷ *Id.* at 54.

distributions is likely to have a high ROI.¹⁹⁸ Conversely, a railroad that is not reinvesting large amounts and has low growth probably has a low ROI.¹⁹⁹

Applying these principles to railroad financial metrics supports recent findings of revenue adequacy. Mr. Stewart explains that railroad Total Shareholder Return, which is the compound average return from dividend yield and capital appreciation, has been 15-20% per year over the 10 years ending 2019, which is strong.²⁰⁰ Over the same period, railroads maintained high levels of capital spending, earned healthy levels of Free Cash Flow—profits in excess of the capital invested in the business each year—and distributed billions in cash to investors via dividends and stock buybacks.²⁰¹ Because these metrics show that railroads were able to invest aggressively while still generating surplus cash to distribute, they corroborate recent findings that railroads are revenue adequate.²⁰²

V. Conclusion.

Comparing railroads' profitability to that of the median S&P 500 firm or any other benchmark has no bearing on whether they can compete for capital and are otherwise revenue adequate. Moreover, the Board's current revenue-adequacy methodology is conservative, appropriately accounts for future investment needs of railroads, and produces results that are consistent with supplemental financial

¹⁹⁸ *Id.* at 54-55.

¹⁹⁹ *Id.*

²⁰⁰ *Id.* at 56.

²⁰¹ *Id.*

²⁰² *Id.*

indicators of revenue adequacy. The Board should have confidence that its current revenue-adequacy methodology provides ample protection for railroad financial needs, consistent with promoting a safe and efficient rail transportation system. For these and the other reasons expressed in these comments, Joint Shippers urge the Board not to disturb its current revenue-adequacy methodology and, instead, focus on issuing final rules in its Final Offer Rate Review and competitive-switching proceedings.

Respectfully submitted,

/s/ Jason D. Tutrone

Jeffrey O. Moreno
Karyn A. Booth
Jason D. Tutrone
Thompson Hine LLP
1919 M Street, NW Suite 700
Washington, D.C. 20036
(202) 331-8800
Jeff.Moreno@ThompsonHine.com
Karyn.Booth@ThompsonHine.com
Jason.Tutrone@ThompsonHine.com

Counsel for:

American Chemistry Council
Corn Refiners Association
The Fertilizer Institute
The National Industrial Transportation
League

Thomas W. Wilcox
Law Office of Thomas W. Wilcox, LLC
1629 K. Street, NW Suite 300
Washington D.C. 20006
(202) 508-1065
tom@twilcoxlaw.com

Counsel for:

National Grain and Feed Association

Michael McBride
Van Ness Feldman LLP
1050 Thomas Jefferson St., NW
Washington, D.C. 20007
(202) 298-1800
mfm@vnf.com

Counsel for:

The Chlorine Institute

Rob Benedict
Vice President, Petrochemicals and
Midstream
American Fuel & Petrochemical
Manufacturers
1800 M Street NW, Suite 900 North
Washington, DC 20036
(202) 457-0480
RBenedict@afpm.org

Dated: May 17, 2021

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

Ex Parte No. 766

**JOINT PETITION FOR RULEMAKING TO MODERNIZE ANNUAL
REVENUE ADEQUACY DETERMINATIONS**

VERIFIED STATEMENT OF

BENNETT STEWART

MAY 17, 2021

TABLE OF CONTENTS

	Page
I. INTRODUCTION AND SUMMARY.....	1
A. Credentials	1
B. Assignment	2
C. Summary of Conclusions.....	3
II. THE STATUTORY DEFINITION OF REVENUE ADEQUACY IS CONSISTENT WITH MAINTAINING ROI = COC	5
A. Any Company that Earns an ROI = COC Can Cover All Its Costs.....	6
B. Adequate Economic Profit Translates into ROI Adequacy.....	8
C. Adequate Economic Profit Translates into Return on Equity (“ROE”) Adequacy.....	9
D. Revenue Adequacy Is Also Reflected in a Firm’s Intrinsic Value	9
E. ROI = COC Guarantees Debt Repayment.....	10
F. Break-Even Economic Profit Is a Sensible Rule to Judge Revenue Adequacy.....	10
III. REPLACEMENT COSTS ARE NEITHER NECESSARY NOR APPROPRIATE TO THE CALCULATION OF ROI.	14
A. The Difference Between Replacement Costs and Book Values Is Inflation.	15
1. The Impact of Real Price Changes on ROI.....	15
2. The Impact of General Price-Level Inflation on ROI.....	18
3. Inflation Summary	20
B. ROI = COC Preserves the Value of Investments and Guarantees Access to Capital Even When Using Book Values to Calculate ROI. ..	20
C. The Investment in, and Returns Due to, Fully Depreciated Assets Are Fully Realized in Prior Periods.....	23
IV. THERE IS NO NEED FOR, OR SENSE IN, JUDGING REVENUE ADEQUACY BASED UPON WHETHER THE RAILROADS ARE EARNING AN ROI – COC SPREAD THAT IS COMMENSURATE WITH THE ROI – COC SPREAD EARNED BY OTHER LARGE COMPANIES.	25
A. The S&P 500 Is Not A Relevant Benchmark Group.....	26
1. Railroads Must Compete for Capital Against All Firms.....	27
2. Company Profitability Is Determined by Its Industry.....	31

3.	The S&P 500 Median ROI – COC Spread, or Any Other Percentile, Is an Irrelevant Benchmark	34
4.	Railroads Lack the Structural Attributes that Enable High ROIs	35
5.	Many S&P 500 Companies Have Significant Foreign Sales, But Railroads Do Not.	37
6.	The S&P 500 Is a Culled Group of the Most Profitable and Valuable Companies	38
7.	S&P 500 Sectors Rotate Over Time	43
8.	Conclusion: The S&P 500 Index Is Not Relevant.....	44
B.	The M&Z Adjustments for Non-Goodwill Intangible Assets Are Incomplete	44
1.	The M&Z Adjustments Prove that the S&P 500 Is a Meaningless Benchmark Group	44
2.	M&Z Do Not Account for Home-Grown Intangible Assets	45
C.	The Industrial Sector Also is Not a Relevant Benchmark for the Railroads.....	48
V.	FINANCIAL METRICS ARE LEGITIMATE SUPPLEMENTAL INDICATORS OF THE FINANCIAL HEALTH OF THE RAILROAD INDUSTRY.....	51
A.	Raising and Investing Capital Is a Sign of Financial Health	51
B.	Stock Prices and Shareholder Returns Are Valid Supplemental Indicators of Revenue Adequacy.....	53
C.	Cash Distributions Are a Reliable Indicator Once Put in Context	54
D.	Updated Railroad Statistics Support Revenue Adequacy	56
E.	The Current Measure of Revenue Adequacy Sets the Bar “Conservatively High” Because the Cost of Capital the STB Is Using May Be Too High.....	57
VI.	SUMMARY AND CONCLUSION	60

I. INTRODUCTION AND SUMMARY

A. Credentials

My name is Bennett Stewart. Over the past 40 years, I have been at the forefront of the practical applications of economic profit under the name of EVA, or economic value added, a valuation and management framework that I developed and which *Fortune* dubbed “the real key to creating wealth.” EVA was adopted by hundreds of companies globally following publication of my 1992 book, *The Quest for Value*, which was the first to present EVA and advocate its use.

I was a principal founder and Senior Partner of Stern Stewart & Co., the firm that first defined EVA and put it on the map, starting in the 1980s. I formed EVA Dimensions in 2006 to enhance EVA with software and data bases and valuation analytics.

In 2018, EVA Dimensions was sold to Institutional Shareholder Services (“ISS”), which is the global leader in corporate governance ratings and analysis. Over the succeeding two-and-a-half years, I guided the integration of EVA into ISS’s proxy research, pay-for-performance assessment, corporate analytical solutions, and equity research services. Importantly, I defined the four key EVA ratio metrics that ISS is using as a supplement to Total Shareholder Return (“TSR”) to judge the quality of corporate performance and executive pay alignment.

I also am the inventor of PRVit (for the “Performance-Risk-Valuation investment technology”), an EVA-based stock rating model that has gained a wide following and that ISS licenses to institutional investors and professional equity analysts.

The latest generation of EVA, which includes a powerful ratio-based analytical framework, is chronicled in my book, *Best Practice EVA*, published in 2013.

I currently am CEO of Stewart Consulting Service, a one-man boutique for all things EVA-related, including presentations to boards and senior management teams that want to know more about how to derive value from EVA, and designing and implementing EVA-based incentive plans. My CV is attached to this Verified Statement in Appendix A.

B. Assignment

I have been asked by a group of trade associations¹ to review and critique the methodology developed by Petitioners’² expert witnesses, Professors Kevin Murphy and Mark Zmijewski (“M&Z”), to modify how the Surface Transportation Board (“STB” or “Board”) determines the “revenue adequacy” of the freight rail industry. M&Z submitted their proposed methodology in a Verified Statement attached to a “Joint Petition for Rulemaking” that Petitioners filed with the STB on September 1, 2020 (“M&Z VS”).

Specifically, I have been asked to address the following questions:

1. Whether the Board’s current methodology for determining that a railroad is revenue adequate when its Return on Investment (“ROI”) equals the industry Cost-of-Capital (“COC”), which I abbreviate hereafter as “ROI = COC,” makes economic sense and is consistent with the statutory definition of revenue adequacy at 49 U.S.C. § 10704(a)(2)?
2. Whether the substitution of replacement costs for accounting book values in the ROI calculation is necessary or appropriate to measure revenue adequacy?
3. Whether the M&Z proposal to determine revenue adequacy based upon a benchmarking methodology that compares the financial performance of the railroads to the financial performance of selected S&P 500 companies makes economic sense and is consistent with the statutory definition of revenue adequacy?
4. Whether metrics used by financial markets to make investment decisions are appropriate indicators of revenue adequacy in the rail industry?

I address each of those questions in Parts II through V of my testimony below.

¹ Those trade associations are comprised of the American Chemistry Council, the American Fuel and Petrochemical Manufacturers, The Chlorine Institute, the Corn Refiners Association, The Fertilizer Institute, the National Grain and Feed Association, and The National Industrial Transportation League.

² Petitioners are Canadian National Railway, Norfolk Southern Railway and Union Pacific Railroad.

C. Summary of Conclusions

Based upon my experience in the world of financial markets and analysis of both the Board's current method of determining revenue adequacy and the M&Z proposed method, I have reached the following conclusions:

1. The Board's current method of determining the revenue adequacy of railroads achieves the stated goals in the statute. Any company that earns $ROI = COC$ will cover all its operating costs, including taxes and depreciation, as well as generate an acceptable return on the capital tied up in its business. By definition, $ROI = COC$ means that a firm is earning its cost of equity and repaying all of its debt. $ROI = COC$ constitutes a breakeven "economic profit," which is distinct from accounting profit because it deducts the opportunity cost of using equity capital, which is a cost that is completely ignored in the computation of accounting profits. An $ROI > COC$ generates a surplus for investors that is an economically inefficient result. The statute requires revenue "adequacy," not superiority.
2. It is neither necessary nor appropriate to substitute replacement costs for book values when calculating ROI in the revenue adequacy determination. The entire predicate for replacing the current revenue adequacy methodology with the M&Z proposal is that the current $ROI = COC$ methodology is inaccurate because ROI is based upon the book values of assets rather than their replacement costs. That predicate is wrong.
 - Replacement costs are not required to attract new investment. As railroads acquire new assets at current prices and those assets enter into capital, and assuming $ROI = COC$ is maintained, they will be able to increase their revenues and profits to cover the cost of acquiring and financing those new assets, as the statute requires. In contrast, substituting replacement costs for book values could motivate railroads to replace existing assets with new assets regardless of whether that is an economically sensible thing to do and could generate unjustified windfalls. Thus, so long as $ROI = COC$ is used to judge revenue adequacy, a new investment in a period automatically translates into an ability to earn revenues and profits *in future periods* that are fully competitive and commensurate with investor expectations.
 - Differences between accounting depreciation and economic depreciation do not justify the use of replacement costs. The investment in and returns due to fully depreciated assets that remain in the investment base already have been fully realized by the retrospective application of

the ROI = COC standard over the accounting depreciation period. Any return on those assets over a longer period is a windfall that is not necessary to guarantee financial health or access to capital. Moreover, any adjustments for under-depreciated assets must be netted against adjustments for over-depreciated assets and would be rife for debate and error.

3. There is no economic justification for determining revenue adequacy by comparing the ROI – COC spread of railroads against the median ROI – COC spread of selected S&P 500 companies. As observed in my first two conclusions, the Board already is using the proper measure of revenue adequacy to capture the statutory standards fully and accurately, and thus, no change is warranted. In contrast, the M&Z proposal is arbitrary, generates absurd results, and is economically meaningless.

- Neither the S&P 500 nor any other group of firms is an appropriate benchmark. Railroads compete for capital against all firms, not just the elite firms of the S&P 500. The M&Z proposal would irrationally and arbitrarily determine a railroad to be revenue inadequate unless its ROI – COC spread exceeds that of half of this elite group. But the rail industry lacks the structural attributes that enable most S&P 500 firms to earn high ROIs. M&Z's alternative comparison to just the S&P Industrials firms similarly is inappropriate because railroads also lack the structural attributes of most firms in that group. There is no reason to think that the profitability enjoyed by firms in either group has any relevance for setting a profitability standard that investors require from a railroad.
- Significant adjustments to the ROIs of most S&P 500 firms would be required to render an apples-to-apples comparison with railroad ROIs. As M&Z acknowledge, it is necessary to add non-goodwill intangibles to the capital of many S&P 500 firms before measuring their ROIs to avoid significantly overstating their ROIs vis-à-vis railroads. This is because non-goodwill intangibles are the factors most responsible for high ROIs among many S&P 500 firms but have no impact upon railroad ROIs. But the M&Z adjustments only capture investments in non-goodwill intangibles that are acquired from another company, not when they are self-created. The fact that most non-goodwill intangibles are self-created, not acquired, means that the M&Z adjustments fall woefully short of establishing ROIs that are comparable with the rail industry. The required adjustments are innumerable, vary by industry, and are subject to debate over how to accurately account for them. The very need for so many adjustments, moreover, is confirmation that S&P 500

firms operate in businesses with production factors and success factors that are distinctly different from the railroads, thus rendering the S&P 500 irrelevant as a comparison group for determining railroad revenue adequacy.

4. The metrics used by financial markets to make investment decisions confirm the revenue adequacy of the rail industry.

- Applying the M&Z proposal would mean that the Class I railroads are far from being revenue adequate, which is contrary to observable financial market metrics. Over the 10 years ending in 2019, Total Shareholder Return has been 15-20% per annum for each Class I railroad. Over that same period, the railroads have maintained a healthy rate of capital spending and had a strong positive free cash flow from which they have paid dividends and repurchased stock. M&Z assert that such financial metrics are uninformative, irrelevant, and inconclusive. But, when railroads are generating $ROI = COC$, *and their stock prices are rising*, the combination should be considered even more persuasive evidence that the industry is financially healthy. In addition, when a company is investing, growing, and experiencing a rising stock price and attractive return for its investors, then the distribution of cash can also be taken as a reliable supplemental indicator of its financial health.
- Because the Board's measure of rail industry COC overstates the market risk premium, railroads are more revenue adequate than the current ROI – COC spread indicates.

II. THE STATUTORY DEFINITION OF REVENUE ADEQUACY IS CONSISTENT WITH MAINTAINING $ROI = COC$

Congress has instructed the STB to annually assess the revenue adequacy of railroads as codified at 49 U.S.C. § 10704(a)(2) (*italics added*):

(2) The Board shall maintain and revise as necessary standards and procedures for establishing revenue levels for rail carriers providing transportation subject to its jurisdiction under this part that are adequate, under honest, economical, and efficient management, for the infrastructure and investment needed to meet the present and future demand for rail services *to cover total operating expenses, including depreciation and obsolescence, plus a reasonable and economic profit or return (or both) on capital employed in the*

business. The Board shall make an adequate and continuing effort to assist those carriers in attaining revenue levels prescribed under this paragraph.

Revenue levels established under this paragraph should—(A) provide a flow of net income plus depreciation adequate to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital, and cover the effects of inflation; and (B) attract and retain capital in amounts adequate to provide a sound transportation system in the United States.

The Board has defined a railroad to be revenue adequate in a year if $ROI = COC$. In my view this determination of revenue adequacy meets the requirements set forth at 49 U.S.C. § 10704(a)(2) and is well grounded in economic theory.

A. Any Company that Earns an $ROI = COC$ Can Cover All Its Costs

As a purely mathematical matter, a company that generates a return on its investment base that is equal to its cost of capital will automatically cover all its operating costs, including taxes and the depreciation of its wasting assets, as well as generate a perfectly acceptable return on the capital tied up in its business.

An example can help to show this. Suppose a company has invested \$100 in capital in its business, consisting of \$20 in working capital and \$80 in the net book value of its property, plant and equipment (“PPE”). Assume further that the PPE net book value is the difference between a gross book value of \$160 and \$80 in accumulated depreciation. Suppose the capital is financed by a combination of \$40 in debt and \$60 in equity, including retained earnings. Assume the debt has an average interest charge of 3% after tax, and that the cost of equity appropriate to the firm is 8%, representing a fair premium over government bond yields to compensate shareholders for risk. The firm’s weighted average cost of capital therefore is 6%, as shown in the table below:

Working Capital	\$20
Net PPE	\$80
Gross PPE	\$160
- Accumulated Depreciation	\$80
Capital	\$100

	1	2	3=1x2/100
Debt	\$ 40	3%	1.2%
Equity	\$ 60	8%	4.8%
Capital	\$ 100		6.0%

Suppose the firm incurs cash operating costs of \$84, pays tax at a 25% rate, and registers a depreciation charge of \$8 by virtue of recovering the \$160 in gross PPE over an average asset life of 20 years. The firm would have to generate revenues of \$100 to generate an ROI = COC, as presented in the table below:

Revenues	\$100
- Cash Operating Costs	<u>\$84</u>
<i>Gross Margin</i>	16.0%
EBITDA	\$16
- Depreciation	<u>\$8</u>
EBIT	\$8
Tax @ 25%	<u>\$2</u>
NOPAT	\$6
Capital Charge 6% x \$100	<u>\$6</u>
Economic Profit (EVA)	\$0

With \$100 in revenues and cash operating costs of \$84, the firm's earnings before interest, taxes, depreciation, and amortization ("EBITDA") is \$16 and the EBITDA margin is 16%. EBIT is \$8 after deducting \$8 of depreciation. Taxes are \$2 at a 25% rate. The \$6 remainder is Net Operating Profit After Taxes, or NOPAT.

Economic profit, or EVA, for “economic value added,” as I call it, is generally understood to be the profit measured net of the opportunity cost of capital.³ More formally, economic profit can be defined as NOPAT less a capital charge one computes by multiplying the firm’s cost of capital times the amount of capital tied up in its business. The capital charge represents the NOPAT required to just meet the investors’ return expectations and fairly compensate them for bearing risk.

In the example, the capital charge is \$6, computed by multiplying the \$100 of capital times the 6% cost of capital, and as a result, and by design, EVA is zero. The firm is earning a NOPAT of \$6 and must earn a NOPAT of \$6 to meet expected returns. With zero EVA, the firm is covering all of its costs, including operating costs, depreciation and taxes, and also the cost of giving its investors – its debt holders and shareholders alike – a fully competitive return on their investment. A breakeven economic profit thus is the tautological definition of “revenue adequacy.”

B. Adequate Economic Profit Translates into ROI Adequacy

Economic profit is a function of a firm’s ROI. As shown in the table below, the \$6 NOPAT the firm earns represents a 6% return on its \$100 in capital. The 6% ROI just matches the firm’s 6% cost of capital. Its ROI – COC spread is thus 0%, which directly ties to its economic profit. The reason is that a firm’s economic profit may also be computed as the ROI – COC spread it is earning multiplied by the amount of capital that is earning the spread. Economic profit, in other words, is the dollar spread between ROI and COC.

NOPAT	\$6.0
Capital	<u>\$100</u>
Return on Capital (ROI)	6.0%
Cost of Capital	<u>6.0%</u>
ROI - COC	0.0%
x Capital	<u>\$100</u>
Economic Profit (EVA)	\$0.0

³ An economic profit is the difference between the revenue a business has received from its outputs and the opportunity costs of its inputs; cited in A Dictionary of Economics (5 ed.), 2017, Oxford University Press, by Nigar Hashimzade, Gareth Myles, and John Black.

A breakeven or zero economic profit thus implies and requires that $ROI = COC$, and vice versa. A firm is incapable of earning zero economic profits without earning a positive and attractive ROI that matches its cost of capital.

C. Adequate Economic Profit Translates into Return on Equity (“ROE”) Adequacy

The adequacy of $ROI = COC$ also can be demonstrated in terms of the firm’s return on equity. ROE is net income divided by the firm’s equity capital, where the net income available to the shareholders is the NOPAT generated in the business minus the after-tax interest expense paid to the debt holders. In the example, the interest on the firm’s debt of \$40 at an after-tax interest rate of 3% is \$1.20, which leaves a net income of \$4.80. Divide that by the firm’s \$60 in equity capital, and the firm’s return on equity is 8%, matching the firm’s 8% cost of equity (“COE”).

NOPAT	\$6.0
- Interest Expense After Tax	\$1.2
Net Income	\$4.8
Equity	\$60
Return on Equity	8%

Zero economic profit thus also implies and requires that a firm’s ROE will equal the cost of its equity capital.

D. Revenue Adequacy Is Also Reflected in a Firm’s Intrinsic Value

The intrinsic value of a firm’s core business, ignoring its future growth opportunities for simplicity, is determined by capitalizing its current NOPAT profits by the firm’s weighted average cost of capital, to wit:

$$\text{Intrinsic Value} = \text{NOPAT} / \text{COC}$$

NOPAT is the cash flow generated in operations, net of the charge for depreciation. NOPAT, in other words, is the sustainable amount of cash flow that could be distributed each year to investors while maintaining the asset base.

In the foregoing example, NOPAT is \$6, COC is 6%, and thus the firm's intrinsic value is \$100:

$$\text{Intrinsic Value} = \$6/6\% = \$100$$

If an investor pays \$100 for the firm *in toto*, and the firm earns and distributes \$6 in NOPAT each year, the investor always earns a 6% return on the value paid, which (by assumption) is precisely the return required to compensate the investor for bearing the riskiness of the investment.

In other words, if ROI = COC and economic profits break even, investors would be willing to pay a market value for the business that is equal to the capital tied up in the business. In that way the investors' wealth is preserved – they can always recoup their investment by selling their shares for intrinsic value – and they are guaranteed to earn the risk-adjusted return they are seeking on the price they pay, each year.

E. ROI = COC Guarantees Debt Repayment

If a firm that breaks even on EVA can return the money that shareholders have invested and a cost of equity return on top of that, as has been demonstrated, then the firm also must be able to repay the principal on its debt and cover the interest, too, for the simple reason that shareholders are paid after lenders are paid. Lenders take great pains to write loan covenants that assure they have a priority access to the firm's cash flows. That being the case, so long as a breakeven EVA firm takes care of the shareholders who stand at the back of the cash flow line, it is assured of catering to those lenders and other claimants that stand ahead in the line.

F. Break-Even Economic Profit Is a Sensible Rule to Judge Revenue Adequacy

It can appear, as a matter of semantics, that an "economic profit" as referred to in the statute must be positive, or else it would be a loss. Indeed, the Petitioners cite definitions of economic profit as referring to the profit *in excess of* a charge for capital, with the suggestion that an economic profit cannot be zero or negative. That is incorrect, however. Economic profit is a term of art that refers to a special way to

compute profit that stands in contrast to the profit computed according to accounting principles. It is not necessarily positive.

In the economics and accounting literature, and in common practice, economic profit is defined to be the income that remains after deducting the opportunity cost of all resources used in the business, which is how it was originally defined by the renowned English economist, Alfred Marshall, who in 1890 wrote: “What remains of his [the owner’s] profits after deducting interest on his capital at the current rate may be called his earnings of undertaking or management.”⁴ Economic profit is thus distinct from accounting profit because it deducts the opportunity cost of using equity capital, which is a cost that is completely ignored in the computation of accounting profits.

In practical terms, and as has been shown, economic profit is defined as NOPAT less a capital charge one computes by multiplying a firm’s invested capital by its overall or weighted-average cost of capital. To continue the example that I introduced in Parts II.A. through D. above:

$$\text{Economic Profit (or EVA)} = \text{NOPAT} - \text{a Capital Charge}$$

$$\text{Economic Profit (or EVA)} = \text{NOPAT} - \text{COC} \times \text{Capital}$$

$$\text{Economic Profit (or EVA)} = \$6 - 6\% \times \$100 = \$0$$

McKinsey & Co., also gives this same definition to economic profit in their classic textbook on measuring and managing the value of businesses.⁵

$$\begin{aligned} \text{Economic Profit} &= \text{NOPLAT} - \text{Capital} \\ &= \text{NOPLAT} - (\text{Invested Capital} \times \text{WACC}) \end{aligned}$$

NOPLAT, or Net Operating Profit Less Actual Taxes, is conceptually identical to NOPAT, and WACC, for weighted average cost of capital, is synonymous with COC.

⁴ Alfred Marshall, *Principles of Economics*, vol. 1 (New York: MacMillan, 1890), pg. 142.

⁵ *Valuation: Measuring and Managing the Value of Companies* (3rd Edition), (John Wiley & Sons, Inc, 2000), pg. 144.

Economic profit is simply the result of the calculation formula. Economic profit is negative when a company is unable to generate an operating profit sufficient to cover the overall required return on its capital, as is the case in many mature, slow growth or declining businesses. Economic profit also can be, and often is, zero or very close to it, especially in highly competitive businesses marked by undifferentiated and un-evolving products and services in fragmented markets characterized by intense price rivalry.

While investors are willing to support a firm that earns $ROI = COC$, they would be happier, of course, and willing to pay an even higher value, if ROI was greater than COC . But the statute does not require the railroads to generate a surplus profit and a surfeit of value. Only “adequacy” is required. Financial health is the goal, not super-star athleticism. Let’s examine the consequences of condoning $ROI > COC$.

	Adequate	Surplus
Revenues	\$100	\$102
- Cash Operating Costs	<u>\$84</u>	<u>\$84</u>
<i>Gross Margin</i>	16.0%	17.6%
EBITDA	\$16	\$18
- Depreciation	<u>\$8</u>	<u>\$8</u>
EBIT	\$8	\$10
Tax @ 25%	<u>\$2</u>	<u>\$2.5</u>
NOPAT	\$6	\$7.5
Capital Charge 6% x \$100	<u>\$6</u>	<u>\$6</u>
Economic Profit (EVA)	\$0	\$1.5
NOPAT	\$6.0	\$7.5
- Interest Expense After Tax	\$1.2	\$1.2
Net Income	\$4.8	\$6.3
Equity	\$60	\$60
Return on Equity	8%	10.5%
NOPAT	\$6.0	\$7.5
Capital	<u>\$100</u>	<u>\$100</u>
Return on Capital (ROI)	6.0%	7.5%
Cost of Capital	<u>6.0%</u>	<u>6.0%</u>
ROI - COC	0.0%	1.5%
x Capital	<u>\$100</u>	<u>\$100</u>
Economic Profit (EVA)	\$0.0	\$1.5

Referring to the “Surplus” column on the right, suppose that a railroad with market dominance can exert price power and raise revenues from \$100 to \$102 for exactly

the same bundle of services, with all other costs and capital remaining the same. The results are:

1. NOPAT increases from \$6 to \$7.5
2. ROI increases from 6% to 7.5%; $\text{ROI} > \text{COC}$
3. ROE increases from 8% to 10.5%; $\text{ROE} > \text{COE}$
4. Economic profit is positive and increases from \$0 to \$1.5
5. The firm's intrinsic value increases from \$100 (\$6/6%) to \$125 (\$7.5/6%)
6. Investors realize a windfall; they put or left \$100 in the business and will now realize \$125 in intrinsic value

For the firm's shareholders, this is a blessing. They will realize returns above what they could expect to earn on other equally risky investments. They will benefit from an expansion in their wealth, and not just merely preserving it.

But the shareholders' gains come at the expense of economic efficiency and fairness. The railroad has unjustifiably raised prices by 2%. It is unjustified because the price exceeds the all-in long run cost of providing the service. The price increase will be borne as a deadweight loss by the shippers and their shareholders, employees, and customers. If the price increase is fully passed on in the prices that the shippers' charge, for example, then their customers will be forced to pay higher prices for what they buy and to curtail purchases to some degree, both of which will feed back into lower profits and lower wages and less employment at the shippers.

Finally, judging that revenues are adequate if $\text{ROI} = \text{COC}$ is not the same as mandating that railroad returns be regulated. Railroads could earn $\text{ROI} > \text{COC}$ if that is the result of innovation and productivity gains, but not if it is the result of exploiting market dominance. That so, there are no adverse incentives or distorted decisions induced by judging revenue adequacy by $\text{ROI} = \text{COC}$. It is vitally important, therefore, that the STB does not permit the railroads to exert market power to raise prices when doing so would generate $\text{ROI} > \text{COC}$.

In sum, the term “economic profit” as commonly understood and used in business practice does not denote a result that is necessarily positive in any degree. The Board is perfectly justified in judging a business to be financially adequate if $ROI = COC$ and economic profits are zero because a firm that breaks even on economic profit implies all the following conclusions:

1. $ROI = COC$ (return on investment = cost of capital)
2. $ROE = COE$ (return on equity = cost of equity)
3. Revenues are adequate to cover all cash operating costs, the periodic depreciation of the assets, taxes, and a profit that provides a fully-acceptable, market-competitive, risk-adjusted return on capital and return on equity
4. The firm’s EBITDA and EBITDA Margin are positive and fully competitive
5. The firm’s cash flow from operations is (more than) sufficient to retire the debt that has been raised to finance the acquisition of its business assets
6. The intrinsic market value of the business = the net book value of the capital invested in the business, and thus, owner wealth is preserved, by definition
7. The firm has access to additional capital to meet customer needs

Thus, defining revenue adequacy as earning $ROI = COC$, which is the equivalent of zero economic profit, is fully consistent with the statutory requirements for revenue adequacy.

III. REPLACEMENT COSTS ARE NEITHER NECESSARY NOR APPROPRIATE TO THE CALCULATION OF ROI.

Petitioners have asserted that, because the railroads’ assets and capital are carried by accountants at historical depreciated costs and not current replacement costs, which are thought to be much higher, their ROIs are fundamentally

overstated.⁶ (Petition, pp. 16, 25) They then assert that this overstatement will make it more difficult for railroads to attract and retain capital. (*Id.*, p. 17) Neither assertion is accurate.

A. The Difference Between Replacement Costs and Book Values Is Inflation.

The principal reason for using replacement costs instead of book values is to account for inflation. When talking about inflation, it is useful to divide it into two parts. The first component is the increase in the overall price level, as indicated by the consumer price index (“CPI”), Personal Consumption Expenditure (“PCE”) index, or gross national product (“GNP”) deflator. This is the general increase in prices due to an expansion in the money supply above the growth in economic output. This price increase built into all prices, including the prices paid to replace railroad assets. The second component is the real price change, the change in the price relative to other goods and services in an absolute sense. The following formula links these two parts:

$$\text{Nominal Price Inflation} = \text{General Inflation Rate} + \text{Real Inflation Rate}$$

If, for example, the replacement cost of assets increases by 5% when general price inflation was 3%, then the real price increase was 2%. This is the increase that would occur absent any general inflation. Let’s consider these two effects upon ROI in sequence.

1. The Impact of Real Price Changes on ROI

The real cost of replacing railroad assets changes with supply and demand conditions in the markets for making the assets. For example, assume there is an increase in demand for rail shipping services, which raises the demand among railroads to acquire additional rail assets. Then, in the short term and before capacity can adjust, the real cost of acquiring rail assets increases.

Should this unpredicted and likely temporary increase in the real price of acquiring new rail assets be applied to re-price all the assets that a railroad currently

⁶ Notably, although M&Z assert that historical depreciated costs may produce an inaccurate ROI, they do not assert that the inaccuracy necessarily will overstate ROI, as Petitioners assert. (M&Z V.S., ¶¶ 46 n. 38, 58).

owns, as would happen if replacement cost were applied across the board? Certainly not. That would provide the railroads with a massive windfall at the expense of their customers. By hiking the entire asset base to current replacement cost, and maintaining $ROI = COC$ as the revenue adequacy standard, the railroads would be able to raise prices across the board and earn, absent regulatory intervention, a massive increase in profit that is unwarranted by economic theory.

In fact, *all that is required to maintain the health of the industry and to continue to attract capital for the investments is for the railroads to be able to cover the replacement cost of the assets that they actually replace or that are new additions, and not the entire asset base.* As the railroads acquire new assets at current prices and those assets enter capital, and assuming $ROI = COC$ is maintained, they will be able to increase their revenues and profits to cover the cost of acquiring and financing those new assets, as the statute requires, and without handing the railroads a windfall for the repricing of all their assets, which is unnecessary and ill-advised.

McKinsey & Co. agrees, noting⁷:

The replacement cost approach values the plants at the cost to replace them today. We disagree with the replacement cost approach for the simple reason that assets do not have to be and may never be replaced. It may be economically justifiable to continue to use an old asset even though the cost of replacing it with new equipment may outweigh the higher profits that the new asset will eventually generate.

Ironically, then, should the STB apply replacement costs to the assets, the railroads could be motivated to replace existing assets with new assets regardless of whether that is an economically sensible thing to do.

Consider also what would happen if real replacement costs decrease. Assume the companies that manufacture railroad equipment achieve productivity gains, and that they pass the gains on, at least in part, into lower prices for rail equipment, meaning the replacement costs decrease. If the lower replacement costs for new rail

⁷ "Valuation," McKinsey & Co., 3rd edition, 2000, John Wiley & Sons, page 184.

assets were used to reprice the railroads' entire asset base, the Carriers would be unable to earn an appropriate return on what they originally paid for the assets even though such carriers would be deemed revenue adequate under this standard. Asset values could be expropriated by regulatory intervention that forces the railroads to lower prices and earn less profit to maintain $ROI = COC$ on the marked-down asset base. In an extreme case, the railroads might not be able to repay the debts that were incurred to finance the legacy asset base.

In conclusion, so long as the goals are to ensure (1) there is no expropriation of the value of prior investments or windfall and (2) the railroads can access incremental capital at current prices to meet emerging market needs, then the revenue standard of $ROI = COC$ on the net book value of the asset base is a perfectly suitable formula. Let's consider a simple example of this.

Suppose a railroad invests \$100 in new assets in a period. Assuming it has a cost of capital of 6%, the railroad will be entitled to earn NOPAT profit of \$6 on that investment. Assuming, as in the prior example, an income tax rate of 25%, an asset depreciation life of 20 years, which is equivalent to an annual depreciation charge of \$5, and a gross margin of 16%, the railroad would be permitted to increase its revenues in an amount of \$81 without raising any presumption of monopoly pricing.

	Adequate
Revenues	\$81
- Cash Operating Costs	<u>\$68</u>
<i>Gross Margin</i>	16.0%
EBITDA	\$13
- Depreciation	<u>\$5</u>
EBIT	\$8
Tax @ 25%	<u>\$2</u>
NOPAT	\$6
Capital Charge 6% x \$100	<u>\$6</u>
Economic Profit (EVA)	\$0

Thus, so long as $ROI = COC$ is used to judge revenue adequacy, a new investment in a period automatically translates into an ability to earn revenues and profits *in future periods* that are fully competitive and commensurate with investor expectations. The rule correctly connects new investments with future performance opportunities.

2. The Impact of General Price-Level Inflation on ROI.

Let's now examine the case where there is equilibrium in the markets for railroad equipment, meaning there is no change in real replacement costs, but there is an increase in the general price level, commonly called inflation. The cumulative effect of inflation over time will lead to the reported net book value of assets to be understated in terms of their value in the currency of the day. As the Petitioners allege, this will lead to an overstatement of ROI. Current profits are being compared to historical asset bases.

However, offsetting this, an properly computed ROI based on replacement costs would have to include the gain in the net asset value due to inflation as part of the return. Whatever the net book value of the assets would be without inflation will be greater with inflation. The difference – the appreciation due to inflation – is a holding gain that must be factored into NOPAT and into the computation of the ROI.

If, for example, the net depreciated book value of the assets at the beginning of the year was \$100, and inflation was 2% during the year, then those same assets would be worth \$102 at the end of the period (ignoring depreciation). Therefore, a holding gain of \$2 would need to be included in NOPAT and factored into ROI and the computation of economic profits. As a technical matter, the appropriate accounting entry is to credit earnings, i.e., increase NOPAT, to reflect the inflationary holding gain on the assets, and then to debit, or to increase, the corresponding PPE assets to bring them up to current inflated cost.

There are three ways to think about why it is sensible to include the inflation gain in the return:

1. The assets have appreciated in value due to general inflation.
2. It is more accurate, however, to say that assets of unchanged value, that have maintained the same real value, are simply worth more in terms of a currency that has decreased in value; what is recorded is not so much a holding gain as a currency loss.
3. But, it is most accurate to say that, whatever profits the assets could be expected to generate absent inflation will be larger when repriced and expressed in terms of the current currency value; it is not the asset values that are being repriced; it is the profits and cash flows that the

assets can be expected to generate that are being repriced and that produce a gain from holding the assets.

Stated succinctly, the correct way to compute the ROI in the face of general price level inflation is (i) to assume that the entire net depreciated asset base is sold at the end of the year for its book value restated in current monetary terms, (ii) to record the year-over-year inflation gain from holding the assets as part of profits and as part of the return, and (iii) then to assume the proceeds are used to re-purchase the assets at the year-end monetary values, stepping them up to establish the base for computing the return in the next year.

Including the holding gain in ROI is also justified by and consistent with the inclusion of an inflation premium in the cost of capital. Investors understandably want to keep pace with inflation and earn a real return in true purchasing power terms. Accordingly, the cost of capital that the STB applies to judge ROI includes an expected compensation for inflation, called the Fisher effect after the economist Irving Fisher who first noted that the interest rates we observe and the costs of capital we compute, called nominal rates, are based on a real return rate plus expected inflation:

$$\text{Cost of Capital} = \text{Real Cost of Capital} + \text{Inflation}$$

The inflation rate that enters the COC is the general economy-wide rate, a CPI or CPE rate, not an asset specific rate, because investors want to maintain their general purchasing power across all available goods and services. They are not, for example, specifically interested in acquiring or keeping pace with railroad assets. Thus, if we are to properly compare ROIs with costs of capital that incorporate an inflation premium, the company's NOPAT and its ROI must include the holding gains on the assets that are due to general inflation.

The foregoing adjustments to ROI and COC are not being made to the STB's revenue adequacy calculation, nor do I advocate for it. I am simply observing that the understatement of the book value asset base compared to replacement cost is offset by the exclusion of the inflationary holding gains on the assets. It is not *a priori* obvious the direction of the net impact. Moreover, the Petitioners have not provided evidence about the net impact of these offsetting errors.

3. Inflation Summary

As has been discussed, the inflation rate in the replacement cost of any asset can be divided into two components, first, a real price change relative to other goods and services and a second change due to a reduction in the purchasing power of the currency, commonly called inflation. Real price changes should not factor into an across-the-board adjustment for the replacement cost of railroad assets. Doing so would create windfall gains or losses when judging ROI versus COC and it might encourage the railroads to prematurely replace assets.

The correct incentive for management decisions, and an appropriate basis for judging revenue adequacy, is maintained so long as $ROI = COC$ on the depreciated net book value of assets because, as assets are replaced or new assets are acquired for expansion, the assets enter the accounting book value at their current replacement costs at that time. Replacement cost should be used for new asset acquisitions, not to revisit and adjust the historical value of assets. But this is what conventional book accounting already does.

If general inflation were to be recognized in the asset base, the inflationary gain realized in the period must also be included in NOPAT and factored into ROI. Because the inflation gains are not being included, any ROI overstatement is much less than it appears to be and may be non-existent. No evidence has been submitted to prove that any modification to how the Board calculates revenue adequacy is warranted.

B. ROI = COC Preserves the Value of Investments and Guarantees Access to Capital Even When Using Book Values to Calculate ROI.

So long as a firm continues to generate $ROI = COC$, investors are assured that any new investments they put into the firm and that add to the firm's capital base will be rewarded with a fully-competitive return on the investment and recognized with a market value that is equal to the invested capital, thus preserving the owners' wealth. As a result, any firm that maintains $ROI = COC$ is always guaranteed to have access to capital on favorable terms. This is true even when using depreciated book values to calculate ROI.

The following example demonstrates this point. Assume a railroad makes an investment of \$1,000 that has a depreciable life of 32 years (a typical average

depreciation rate for rail assets). Book depreciation is thus \$31.25 per year (\$1,000/32). The cash profits that could be earned in each period while maintaining the ROI - COC standard, assuming COC = 6%, are computed according to the following formula:

$$\text{Cash profit} = \text{COC} \times \text{Book Net Assets (beg of year)} + \text{Depreciation}$$

For example, in year 1, the computation is:

$$\begin{aligned} \text{Cash profit} &= \text{COC} \times \text{Book Net Assets (beg of year)} + \text{Depreciation} \\ \$91.25 &= 6\% \times \$1000 + \$31.25 \end{aligned}$$

In year two:

$$\begin{aligned} \text{Cash profit} &= \text{COC} \times \text{Book Net Assets (beg of year)} + \text{Depreciation} \\ \$89.38 &= 6\% \times (\$1000 - \$31.25) + \$31.25 \end{aligned}$$

The cash profit is projected to decline as the asset ages, which is sensible. As assets age, they tend to lose their technological edge and may require more maintenance and downtime. Even if the cash flows do not deteriorate in this exact stepwise pattern, the notion of a declining cash profit trend is realistic.

NOPAT is computed in each period as the projected cash profit less the \$31.25 in depreciation (taxes are ignored for simplicity).

ROI is computed by dividing the forecasted NOPAT by the net assets, or capital, outstanding at the beginning of the period. The result is that ROI is 6% in each period, and the ROI – COC spread is 0.0%, maintaining the standard for revenue adequacy.

Importantly, the present value of the projected cash profit (which is the Free Cash Flow because no new investment is forecast in the example), discounted at the 6% cost of capital, is \$1,000. The investors' wealth is thus preserved. They recover the value of the capital they have invested, and they also earn a 6% return on their capital each year, commensurate with the opportunity cost of the capital.

The year-by-year projection of the key data points is presented in the tables below:⁸

Years 1 – 10:

1 IRR	6%										
2 Depr Life (yrs)	32										
3 Year		1	2	3	4	5	6	7	8	9	10
4 Cash Flow		\$91	\$89	\$88	\$86	\$84	\$82	\$80	\$78	\$76	\$74
5 PV Factor		0.943	0.890	0.840	0.792	0.747	0.705	0.665	0.627	0.592	0.558
6 Present Value	\$1,000	\$86.08	\$79.54	\$73.47	\$67.82	\$62.58	\$57.72	\$53.20	\$49.02	\$45.13	\$41.53
7 Gross PPE		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
8 Acc Dep		\$31	\$63	\$94	\$125	\$156	\$188	\$219	\$250	\$281	\$313
9 Net PPE		\$969	\$938	\$906	\$875	\$844	\$813	\$781	\$750	\$719	\$688
10 Depreciation		\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25
11 NOPAT		\$60	\$58	\$56	\$54	\$53	\$51	\$49	\$47	\$45	\$43
12 Capital (BOY)		\$1,000	\$969	\$938	\$906	\$875	\$844	\$813	\$781	\$750	\$719
13 ROI		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
14 COC		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
15 ROI - COC		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Years 11– 21:

1 IRR	6%											
2 Depr Life (yrs)	32											
3 Year		11	12	13	14	15	16	17	18	19	20	21
4 Cash Flow		\$73	\$71	\$69	\$67	\$65	\$63	\$61	\$59	\$58	\$56	\$54
5 PV Factor		0.527	0.497	0.469	0.442	0.417	0.394	0.371	0.350	0.331	0.312	0.294
6 Present Value	\$1,000	\$38.19	\$35.10	\$32.23	\$29.58	\$27.12	\$24.85	\$22.75	\$20.80	\$19.00	\$17.34	\$15.81
7 Gross PPE		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
8 Acc Dep		\$344	\$375	\$406	\$438	\$469	\$500	\$531	\$563	\$594	\$625	\$656
9 Net PPE		\$656	\$625	\$594	\$563	\$531	\$500	\$469	\$438	\$406	\$375	\$344
10 Depreciation		\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25
11 NOPAT		\$41	\$39	\$38	\$36	\$34	\$32	\$30	\$28	\$26	\$24	\$23
12 Capital (BOY)		\$688	\$656	\$625	\$594	\$563	\$531	\$500	\$469	\$438	\$406	\$375
13 ROI		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
14 COC		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
15 ROI - COC		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

⁸ See electronic work paper “ROI Guaranteed for New Investments.xlsx”

Years 21– 32:

1 IRR		6%										
2 Depr Life (yrs)		32										
3 Year		22	23	24	25	26	27	28	29	30	31	32
4 Cash Flow		\$52	\$50	\$48	\$46	\$44	\$43	\$41	\$39	\$37	\$35	\$33
5 PV Factor		0.278	0.262	0.247	0.233	0.220	0.207	0.196	0.185	0.174	0.164	0.155
6 Present Value	\$1,000	\$14.40	\$13.09	\$11.89	\$10.78	\$9.75	\$8.81	\$7.95	\$7.15	\$6.42	\$5.75	\$5.13
7 Gross PPE		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
8 Acc Dep		\$688	\$719	\$750	\$781	\$813	\$844	\$875	\$906	\$938	\$969	\$1,000
9 Net PPE		\$313	\$281	\$250	\$219	\$188	\$156	\$125	\$94	\$63	\$31	\$0
10 Depreciation		\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25	\$31.25
11 NOPAT		\$21	\$19	\$17	\$15	\$13	\$11	\$9	\$8	\$6	\$4	\$2
12 Capital (BOY)		\$344	\$313	\$281	\$250	\$219	\$188	\$156	\$125	\$94	\$63	\$31
13 ROI		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
14 COC		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
15 ROI - COC		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The foregoing example demonstrates that applying the Board’s current measure of $ROI = COC$ to judge revenue adequacy guarantees the railroads will be able to generate cash flows sufficient to cover all costs, including the opportunity cost of the capital, and thus to attract capital for new investments that are economically warranted to maintain the health of the railroad system.

C. The Investment in, and Returns Due to, Fully Depreciated Assets Are Fully Realized in Prior Periods

M&Z identify differences between accounting depreciation and economic depreciation as one reason why an accounting-based ROI is an inappropriate determinant of revenue adequacy. (M&Z V.S., ¶¶ 44-45) This distinction, however, does not undermine the ability of the current revenue adequacy standard to accurately assess the ability of railroads to attract and retain capital.

Book depreciation fully recovers the investments in assets over an assumed life. Even if the assumed life is inaccurate, railroads still will fully recover the investment in the assets via the annual depreciation charges, and if $ROI = COC$ is maintained as the standard to judge revenue adequacy, railroads also will be able to earn a fully-sufficient return each year on the capital that has not yet been recouped through prior depreciation charges without triggering regulatory scrutiny.

Assets that still contribute cash flows after they have been fully depreciated represent an unexpected windfall for the railroads. The cash flows from those assets are not necessary for the railroads to maintain the financial health of the industry.

Also consider the opposite case. If railroads make an investment that falls short of earning $ROI = COC$ over the assumed depreciable life, so that, in effect, the book depreciation understated the actual economic depreciation, the shortfall in the return (*i.e.*, revenue inadequacy) would permit the railroads to differentially price and earn more profits elsewhere in the system without triggering regulatory scrutiny.

Thus, if the STB elects to make an allowance for over-depreciated assets, to be fair and consistent, it would also have to make an offsetting adjustment for the assets that are under-depreciated. This is not a serious proposal but is only intended to demonstrate the one-sided nature of the arguments that have been advanced by the Petitioners.

By maintaining the $ROI = COC$ standard, railroads effectively could be challenged to offset the windfall cash flows from the extended asset lives of fully depreciated assets with rate constraints on captive traffic. They would be motivated to disgorge the windfall through lower and fairer rates, thus returning a surplus that is rightfully due to their customers and promoting more shipping activity in support of the economy.

Regardless, the impact of the extended cash flows derived from fully depreciated assets is apt to be minor in the aggregate. Continuing the example from the preceding section, if one assumes that the cash flows generated in the last year of the assumed depreciable life (the 32nd year) persist for another 8 years, in effect extending the economic life of the cash profit to 40 years from 32 years, or 25% longer, the present value of the additional cash flows at the 6% COC rate is \$30, or a 3% increase in present value on top of the \$1,000 investment.

Any attempt to fold fully depreciated assets into the capital base used to compute ROI is thus inappropriate for three reasons:

1. The investment in and returns due to those assets already have been fully realized by the retrospective application of the $ROI = COC$ standard. Any extended return on those assets is a windfall that is not necessary to

guarantee financial health or access to capital. The windfall rightly belongs to the shippers and to the economy at large.

2. The present value of making such adjustments prospectively is apt to be *de minimis* because the additional present value accrues only after an average depreciable life of 32 years has been exceeded.
3. Any adjustment is apt to be rife with estimation errors and an unnecessary source of ongoing debate. For example, to be fair and consistent, the STB would have to make an offsetting adjustment for assets that have been over-depreciated and that failed to recoup the original investment value.

IV. THERE IS NO NEED FOR, OR SENSE IN, JUDGING REVENUE ADEQUACY BASED UPON WHETHER THE RAILROADS ARE EARNING AN ROI – COC SPREAD THAT IS COMMENSURATE WITH THE ROI – COC SPREAD EARNED BY OTHER LARGE COMPANIES.

The Petitioners are advocating that the STB adopt a new methodology for judging the revenue adequacy of railroads. Specifically, the Petitioners' expert witnesses, M&Z, argue for the adoption of a benchmarking methodology because it is alleged to "mitigate the limitations and inaccuracies of accounting rates of return as estimates of the cost of capital:"

82. Economic research has shown that the limitations and inaccuracies of accounting-based rates of return make it difficult, and some say impossible, to draw any inferences about economic rates of return based on accounting rates of return. To the extent it is necessary to use accounting rates of return in comparison to the cost of capital to assess financial performance, using the proposed benchmarking methodology mitigates the limitations and inaccuracies of accounting rates of return as estimates of the cost of capital. (M&Z VS, ¶ 82)

In other words, M&Z claim that the benchmarking proposal is needed because accounting rates of return are poor estimates of economic rates of return, which was a finding M&Z took great pains to document:

46. A common finding, as expressed by Fisher and McGowan (1983), is that the difference between accounting rates of return and economic rates of return can be very large: "the theoretical effects are not so small that they can be neglected in practice. Indeed, they are very large"

They also concluded that the sign of the difference (error) depends on the characteristics of the company: “the accounting rate of return depends crucially on the time shape of benefits [cash flows], and the effect of growth on the accounting rate of return also depends on that time shape. In particular, it is not true that rapidly growing firms tend to understate their profits and slowly growing firms tend to overstate them. The effect can go the other way.” (M&Z VS, ¶ 46) (footnotes omitted)

Remarkably, M&Z simply assert that the benchmarking methodology they propose mitigates the measurement errors in accounting rates of return without advancing any arguments or offering any evidence in support of that contention. Indeed, given the inaccuracies they insist are prevalent in accounting returns, and that the size and even direction of the distortions are claimed to be unfathomable, **it is irrational for them to maintain that comparing ROIs measured with error with other ROIs also measured in error would result in anything but a massive error.**

In Parts II and III above, I have explained why the M&Z criticisms of using accounting rates of return to determine railroad revenue adequacy are misplaced and, thus, their predicate for proposing an alternative methodology is inaccurate. Nevertheless, even if the Board were to accept the legitimacy of the M&Z criticisms, in this Part IV, I address multiple deficiencies in the M&Z proposal to replace the Board’s sensible approach to determining revenue adequacy with a new methodology that benchmarks the spread of ROI – COC for the rail industry against the median spread for selected S&P 500 companies.

A. The S&P 500 Is Not A Relevant Benchmark Group

M&Z argue in favor of establishing a safe harbor ROI - COC spread for the railroads that is equal to the median ROI - COC spread earned by S&P 500 companies excluding railroads, financial institutions, and real estate companies (the “S&P 500” benchmarking group):

32. In order to understand whether railroads are earning a return on invested capital that is indicative of at least the potential for rates to be unconstrained by competition, it is necessary to benchmark any revenue adequacy measure adopted by the Board against corresponding

measures we observe for firms operating under competitive conditions. We propose below in Part IV that the firms included in the S&P 500 stock market index, which are the 500 large companies listed on U.S. stock exchanges designed to represent the U.S. stock market, exclusive of any railroad companies, provide a benchmark for evaluating whether revenue adequacy measures using accounting data indicate that railroads are unusually profitable. The firms whose stock is included in the index are large firms that compete with railroads for capital, including many customers of the railroads. (M&Z VS, ¶ 32)

Using the median firm in the S&P 500 to represent a profitability benchmark for the railroads is incorrect on several counts.

1. Railroads Must Compete for Capital Against All Firms

M&Z contend that the S&P 500 is a relevant benchmark group because it consists of other large firms against which the railroads compete for capital. In fact, the railroads, like any other company, compete for capital with *all* other firms in the global market and with the funding requirements of fiscal deficits.⁹

As a matter of mathematical balance, the amount of money that companies can invest is limited to the amount of household savings and corporate retained earnings (less the amount used to finance government deficits). There is thus a unique interest rate that equates the supply of savings from people and firms, which rises as interest rates increase and saving is rewarded, with the amount of money that companies can profitably invest, which decreases as interest rates and the cost of capital rise.¹⁰ That rate, reflecting the marginal opportunity cost of capital, establishes the key threshold to allocate capital and to judge corporate profitability. It is a rate set in the market to balance the supply of and demand for capital *in the aggregate*. That rate is also, by definition, the ROI provided by marginally acceptable investment projects. See the breakout box, “The Market Mechanism for Allocating Capital,” for greater elaboration.

⁹ The supply of capital is also augmented by the funds imported through running a trade deficit.

¹⁰ Technically, the available savings for investment is net of the funding of fiscal and trade deficits.

The Capital Asset Pricing Model, or CAPM, which the Board uses to determine the cost of equity capital, is simply an extension of this idea. It adjusts the universal, market-set threshold rate for the risk of specific companies and investments. CAPM starts with the prevailing rate of return on long-term US government bonds as a proxy for the return available from a risk-free investment, one in which the payback of principal and interest is virtually certain. A second point corresponds to an investment in the broad market, in principle, in all risky investments. Investors establish a required premium for bearing that additional risk, commonly called the “market risk premium,” or MRP, which is the extra annual rate of return required to induce investors to bear the market risk compared to a safe investment in government bonds.

All stocks are priced relative to those two points. An investor that buys low-risk food stocks, such as Campbell Soup or McCormick, only bears about half the risk of an investment in the broad market portfolio (a “beta” of 0.5), and accordingly, a risk-premium of half the MRP is acceptable. The stocks of many hi-tech companies, like NVIDIA, whose fortunes are closely tied to the economy and which have high fixed costs due to specialized resources, typically exhibit risk that is 50% greater than the market, and thus require a return premium 50% greater than the MRP. The CAPM formula expresses this:

$$\text{Required Return (or cost of equity)} = \text{Risk-Free Government Return} + \text{Beta} \times \text{MRP}$$

The formula governing risk and expected return is linear. It charts a straight line not as a matter of convenience, but as a consequence of arbitrage. It is derived from the idea that investors could match the risk and expected return of food stocks by putting half their money into the risky market and half into safe government bonds, and that investors could arbitrage the expected risk and return from purchasing \$100 of NVIDIA stock by allocating \$100 of their money plus \$50 borrowed on the margin to invest \$150 in the market, which gives them \$150 worth of risk and expected return per a \$100 investment, or a beta of 1.5. In similar fashion, any stock anywhere along the risk spectrum can be replicated through some combination of borrowing or lending at a fixed rate and investing in the market.

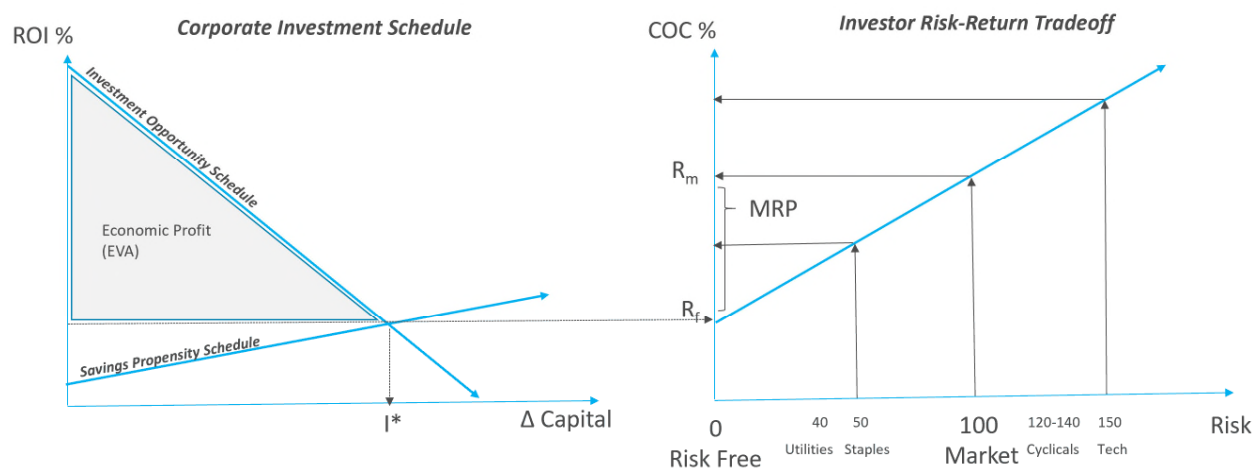
The competition for capital that determines COC is thus not limited to other firms of closely matching characteristics, because investors can always repackage a pool of securities to duplicate the risk return profile of individual stocks. Food stocks

compete with high-tech stocks for capital, indeed with all other stocks, once an allowance is made for their different risk characteristics. Thus, the comparison of ROI to COC, which embodies the appropriate required return for the risk, is the relevant benchmarking comparison from the perspective of the capital markets. It is all the benchmarking that is required for assessing revenue adequacy, as I have demonstrated in the preceding sections. There is no economic justification to compare railroads against other large companies.

The Market Mechanism for Allocating Capital

Our economic system is grounded in allowing free-market forces to determine the optimal allocation of capital. Two schedules explain how investors are induced to bring capital to the market and how the market allocates capital to its most promising uses.

The schedule at left (below) plots return on investment versus the amount of capital saved and invested in a period. The “Savings Propensity Schedule” rises as interest rates rise, as savers are induced to postpone consumption and invest more of their income for future returns. The downward sloping line, labelled the “Investment Opportunity Schedule,” represents the potential ROIs on company investment projects, assuming those projects are ranked from best to worst, from the investments with the highest ROI potential to the lowest. This schedule is refreshed each period as technology advances and as population and income grow.



The intersection of those schedules simultaneously determines the interest rate that will induce the exact supply of savings to come to the market that is needed to fund all worthwhile projects, denoted by I^* , which are the ones that make economic sense and that will earn at least the threshold return. If a company ends up making an investment that is expected to earn less than that breakeven return, it is in principle denying funds to projects that would be expected to earn the threshold return. The result is slower economic growth and a reduction in per capital income compared to an optimal allocation. The market discourages that. The penalty for misallocating capital is a stock price that trades at a discount to the investment (and the potential for shareholder activism).

The schedule at right converts that base, threshold return into a full array of equivalent interest rates that adjust for risk. This is the so-called “Capital Asset Pricing Model.” It starts with two points. First, by taking essentially no risk, an investor can still expect to earn a return by investing in safe government bonds, denoted as R_f , for the “risk-free rate.” A typical proxy is the 10-year U.S. government bond yield, currently about 1.5%. The second point is the return expected from investing in the market, in principle, in all risky securities, denoted by R_m , for the expected market return. Investors in the market expect to earn an additional return above the risk-free return to compensate for bearing the additional risk. The extra required return is called MRP, for Market Risk Premium. MRP cannot be known with precision, but available techniques make it possible to determine a realistic estimate (generally held to be between 4% and 6%).

All other investments can be scaled to the market. Basic foods and household staples equities only exhibit about half the risk of an investment in the market and accordingly, half the MRP is appropriate compensation. The stocks of hi-tech firms like NVIDIA, a maker of chips for computer graphics, data mining and AI, on the other hand, tend to exacerbate market swings, exhibiting typically 50% more risk, and hence, a risk premium 50% greater than the MRP is required to induce investors to buy the shares at no less than book value.

All the costs of capital on the risk-return tradeoff schedule are essentially the same cost. They are all effectively the market-set threshold return from the left schedule adjusted for the degree of risk in the companies and in their investment projects charted on the right schedule. When that base, threshold return, as adjusted for risk, i.e., the cost of capital, is carried back into the left schedule, the definition of economic profit emerges.

Economic profit, or EVA, is the upper left triangle. It is the product of the ROI – COC spread on each project, times the amount of capital invested in each project, summed over all projects.¹¹ For a company, it is its overall average ROI - COC spread, times its overall capital base. It is the NOPAT profit earned minus the NOPAT profit required to cover the opportunity cost of the firm's capital, which also equals the expected ROI on the marginally acceptable investment projects across all firms. In this way the global perspective of the capital markets is brought into the management of individual companies and the evaluation of their performance.

2. Company Profitability Is Determined by Its Industry

As discussed above, COC is the appropriate profitability benchmark for any company. Companies that earn COC are meeting the appropriate required return as set in the global market for capital against all other firms and available investment opportunities. The comparison to COC asks whether a company is at least equaling the return on the marginally acceptable project across the global portfolio of investment opportunities on a risk-adjusted basis. The Board need look no further to determine revenue adequacy than $\text{ROI} = \text{COC}$. Benchmarking $\text{ROI} - \text{COC}$ against the $\text{ROI} - \text{COC}$ spread of S&P 500 companies has no merit or economic justification.

Even setting aside this crucial qualification, the median S&P 500 firm would still not qualify as an appropriate profitability benchmark for railroads. That is because the S&P 500 is comprised of stocks from many industries, and industry is a crucial factor, typically the single most important factor, in determining a company's ROI potential. This is illustrated in a study by McKinsey, the consultancy, that estimated the average economic profit for 2,393 of the largest non-financial global firms by revenue over the 2010 to 2014 period, a five-year period that could be deemed "normal" as it encompasses the period after the recovery from the deep recession in 2008-09 and before the more recent (pre-Covid) boom times.¹² Their conclusions are as follows:

¹¹ In fact, EVA, or economic profit, can be negative, when $\text{ROI} < \text{COC}$. The upper left triangle is an idealization assuming all accepted projects generate $\text{ROI} \geq \text{COC}$.

¹² Strategy Beyond the Hockey Stick, McKinsey & Company, 2018, John Wiley & Sons.

1. “Market Forces are Pretty Efficient...The average company in our sample generates returns that exceed the cost of capital by 2%.¹³”
2. “The role of industry in [determining a company’s economic profit] is so substantial you’d rather be an average company in a great industry than a great company in an average industry.”¹⁴
3. The trend in your industry’s [economic profit] is the single most important of all 10 attributes [in determining whether your company is able to increase its economic profit].¹⁵

The McKinsey study demonstrates that, across a large sample of global firms, the average company’s ROI – COC spread is 2%, which is significantly less than the 9% ROI – COC spread that M&Z document as the median for S&P 500 companies over the 2006-2019 period.

There are several reasons for this. For one, McKinsey computes economic profit and ROI by making a different set of adjustments to reported financials that produce an ROI that more accurately reflects the firms’ true economic profitability.¹⁶

¹³ *Id.*, pages 45-46.

¹⁴ *Id.*, page 51.

¹⁵ *Id.*, page 101.

¹⁶ The major adjustments that McKinsey makes to compute ROI and economic profit are to:

1. Exclude excess cash (above 2% of sales) from capital, and remove interest and investment income from earnings
2. Deconsolidate financing subsidiaries
3. Remove non-operating assets, such as pension fund assets, tax loss carryforwards, excess real estate and discontinued operations, from capital
4. Include goodwill and acquired intangibles in capital
5. Capitalize operating leases in capital, add the imputed interest in rents to earnings
6. Capitalize and amortize R&D
7. Eliminate one-time charges, and gains and losses, from earnings
8. Convert accrual bookkeeping reserves to cash flow
9. Include deferred tax liabilities (due to normal operations) in capital
10. Adjust taxes to reflect cash payments (by backing the increase in deferred tax liabilities due to normal operations from earnings)

Compared to the STB ROI, the adjustments will tend to produce an ROI that is more comparable and accurate across a diverse group of companies. The tax adjustments, items 9 and 10, are similar to the adjustments that M&Z propose in computing an adjusted ROI that more closely approximates a cash-on-cash yield (the only difference is that the McKinsey adjustments are more sophisticated in removing

The McKinsey study also encompasses a larger number of firms drawn from a global pool, which is more representative of the outcomes generated in competitive markets than is the S&P 500. Given this evidence, even if the STB acceded to the view that some ROI - COC spread should be factored into the revenue adequacy determination, any benchmark over a 2% spread is clearly uncalled for (even assuming, which is doubtful, that the STB could implement a practical procedure to measure ROI across the S&P 500 with reasonable accuracy).

McKinsey also documents a well-known phenomenon. Industry matters, a lot. The profitability of an individual company is heavily influenced by the structural characteristics of the industry sector in which it operates. To demonstrate this, McKinsey presents a so-called Power Curve, shown below, which plots the average annual economic profit earned by sub-industry groups (excluding financials).

the tax impact of unusual items and non-operating activities). The other adjustments will also tend to produce lower ROIs for acquisitive firms (because of the inclusion of goodwill), for firms that rely on off-balance-sheet leases, and for mature, R&D intense firms that have accumulated a significant base of R&D capital. For other firms, the impact is indeterminate.

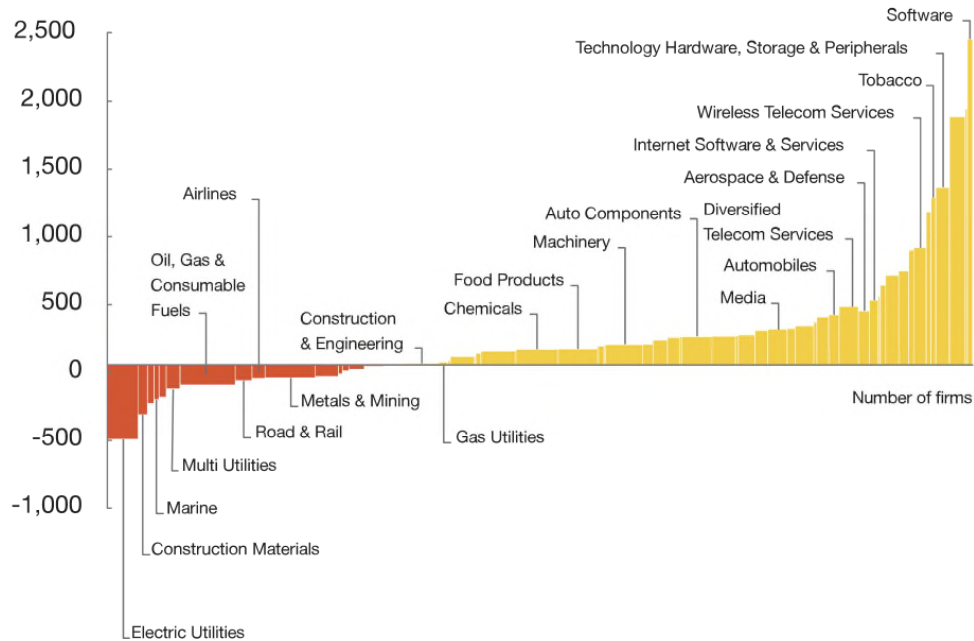
“Valuation,” McKinsey & Co., 5th edition, 2010, John Wiley & Sons, pages 131-161.

The industry Power Curve

Industries also have a Power Curve—where you play really matters

Average annual economic profit of firms within each industry, 2010–14

\$ Millions, N=2,393



Source: Is your strategy good enough to move you up on the power curve? By Martin Hirt, Leader of McKinsey's Global Strategy & Corporate Finance Practice; <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-strategy-and-corporate-finance-blog/is-your-strategy-good-enough-to-move-you-up-on-the-power-curve>.

It is evident that ROI varies massively by industry, and that the firms that participate in industries that have highly differentiated products or services, rapid growth, patent protection, brand equity, high-up front costs and low incremental costs leading to a first strike advantage, or that are grounded in algorithms and software or with network effects from the aggregation of data and consumer interest, are inherently more profitable and earn higher ROI's than those participating in mature, slow growing businesses that provide commodity products and services with little differentiation in an environment of intense price rivalry (or those whose returns are regulated).

3. The S&P 500 Median ROI – COC Spread, or Any Other Percentile, Is an Irrelevant Benchmark

Considering the prominent role of industry in determining ROI, a proposal to use the median ROI - COC spread for the S&P 500 firms, which contains a

distribution of companies across almost all business sectors, as a profitability target for the railroads makes no sense. There is no reason to think that the profitability enjoyed by Software firms, Tech firms, Wireless Telecoms, Internet Software and Service providers, Media and Pharma and Medical Care companies, for example, would have any relevance for setting an expected profitability standard for a railroad. Yet those firms are heavily represented in the S&P 500.

Moreover, and for the same reason, there is no logic to choosing any other percentile among the S&P 500. To use the 10th or 25th percentile S&P 500 firm as a profitability threshold for the railroads, for example, is arbitrary, indefensible, and irrelevant.

4. Railroads Lack the Structural Attributes that Enable High ROIs

In a separate study, published in September 2015, McKinsey analyzed more than 28,000 firms around the world, each with more than \$200 million in annual revenue. The sample included nearly 17,000 publicly listed firms and 11,400 privately held firms across 42 countries and 18 sectors. The research covered the period from 1980 to 2013 to examine long-run trends.¹⁷

McKinsey documented a general uptrend in corporate profitability, but also observed:

The benefits of this corporate boom [increasingly higher ROIs across the board] have not been shared evenly. **Profits are increasingly shifting from heavy industry to idea-intensive sectors that revolve around R&D, brands, software, and algorithms.** Sectors such as pharmaceuticals, media, finance, and information technology have the highest margins. They are developing a winner-take-all dynamic, with a wide gap between the most profitable firms and everyone else.

¹⁷ “Playing to Win: The New Global Competition for Corporate Profits.” McKinsey Global Institute, September, 2015.
https://www.mckinsey.com/~media/mckinsey/business%20functions/strategy%20and%20corporate%20finance/our%20insights/the%20new%20global%20competition%20for%20corporate%20profits/mgi%20global%20competition_full%20report_sep%202015.ashx

Meanwhile, margins are being squeezed in capital-intensive industries, where operational efficiency has become critical.

McKinsey also provided a table, shown below, depicting their assessment of the degree to which each of 18 main business sectors are knowledge intensive, labor intensive, or capital intensive. Pharma and Medical Devices companies, for example, are rated in the highest quartile of knowledge intensity, lowest in labor intensity, and medium in capital intensity. Those are precisely the attributes that enable firms to earn high ROIs in the modern economy.

Transportation firms, by contrast, are rated in the top quartile in labor intensity, second quartile in capital intensity, and in the lowest quartile in knowledge intensity. These are precisely the structural attributes that inhibit firms from earning anything more than just a basic, commodity rate of return.

<div> <div>Top quartile</div> <div>Second quartile</div> <div>Third quartile</div> <div>Bottom quartile</div> </div>						Profitability
Group	Sector archetype	Selected sectors	Know- ledge intensity	Labor intensity	Capital intensity	Average profit margin NOPLAT over sales, %
Idea- intensive goods and services	Intellectual property-intensive	Pharma/medical devices				19.8
	Technology- intensive	Technology hardware				7.8
		IT and business services				11.7
		Media				12.4
Labor- intensive consumer goods and services	Local consumer- facing	Consumer discre- tionary products				5.0
		Consumer staples				9.3
		Hospitality services				8.5
		Health-care services				3.9
		Retail				3.5
Capital- intensive goods and services	Capital goods	Construction				4.4
		Automobiles				5.4
		Machinery				6.8
		Processing				6.6
	Infrastructure	Transportation				6.0
		Telecom				13.4
		Utilities				8.5
		Extraction				5.8

This second McKinsey study provides powerful evidence and additional confirmation that industry matters a lot, and that railroads lack the structural attributes that would enable them to earn high ROI's absent an unwarranted exercise of market power. It

confirms that using the median ROI of the S&P 500, or indeed any percentile of any index, to establish a profitability threshold for the railroads is entirely off the mark.

5. Many S&P 500 Companies Have Significant Foreign Sales, But Railroads Do Not.

The absence of foreign sales is another indication the railroads are inherently mismatched to the S&P 500. Foreign Sales can enhance profitability and ROI by helping companies to expand scale and cover fixed costs and to propel learning and knowledge transfer.

Goldman Sachs reports that foreign sales accounted for 29% of the \$12 trillion aggregate S&P 500 revenues in 2019, down from 30% in 2018, and the lowest level in 10 years. Goldman Sachs found that about 12% of revenues were derived from Europe, Middle East, and Africa, while 9% of sales were sourced from the Asia-Pacific region. Only 2% of revenues stemmed from Canada and Mexico combined.¹⁸

According to S&P Dow Jones Indices, and as shown in the table below, the total foreign sales of the S&P 500 companies in 2018, the last year for which data could be located, was nearly 43%, and was 57% among information technology companies.¹⁹ By contrast, the percentage of foreign sales in 2019 was 0% for CSX and Norfolk Southern, 11% for Union Pacific, and 47% for Kansas City Southern²⁰, and all foreign sales of those companies were from Mexico. The percentage for Canadian National and Canadian Pacific was 32% and 27%, respectively, considering sales in the U.S. as “foreign.”²¹ In sum, all Class 1 railroad revenues are restricted to North America

¹⁸ S&P Dow Jones Indices Press Release: S&P 500 companies' non-US revenue share hits 10-year low – Goldman Sachs: <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/s-p-500-companies-non-us-revenue-share-hits-10-year-low-8211-goldman-sachs-59094991>.

¹⁹ S&P 500® 2018: Global Sales Year in Review: [20180816-sp-500-global-sales-2017.pdf \(spglobal.com\)](https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/s-p-500-global-sales-2018-year-in-review-8211-goldman-sachs-59094991); Due to incomplete reporting, the aggregate data does not permit simple foreign representation or sector analysis. For the purposes of this report, S&P reduced the pool to issues that have reported full foreign sales, and for which foreign sales represent between 15% and 85% of total sales, stating that “this is the best [available] approximation of the true aggregate values.”

²⁰ As a wholly owned Berkshire Hathaway company, BNSF doesn’t report its percentage of foreign sales. Management states, however, that the firm “only operates in North America” (<https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/overseas.html>)

²¹ All foreign sales data from ISS. See electronic work paper “Industrial Benchmark Comparison with Transportation Companies.xlsx,” Cells K67-73.

(and generally, just the U.S. and Canada (except Kansas City Southern and, to some extent, Union Pacific, in Mexico)), and thus they are unable to realize the benefits of a global reach.

Exhibit 5: Foreign Sales as a Percentage of Total Sector Sales						
SECTOR	2018 (%)	2017 (%)	2016 (%)	2015 (%)	2014 (%)	2013 (%)
Consumer Discretionary	34.00	34.07	35.05	37.43	41.36	40.96
Consumer Staples	32.65	32.53	33.67	34.95	39.14	39.79
Energy	51.28	54.06	58.88	57.88	56.23	54.64
Financials	30.08	31.20	30.81	31.13	31.21	32.31
Health Care	38.52	38.16	37.41	37.42	50.25	51.28
Industrials	43.75	44.57	44.89	44.86	46.17	45.91
Information Technology	58.19	56.85	57.15	57.78	59.39	56.60
Materials	56.82	52.71	53.03	53.47	54.54	54.45
Real Estate	-	-	-	-	-	-
Communication Services	44.74	-	-	-	-	-
Utilities	-	-	-	-	-	-
Total Non-U.S. (15%-85%)	42.90	42.65	43.16	44.35	47.82	46.29

Source: S&P Dow Jones Indices LLC from data provided by S&P Global Market Intelligence. Data as of July 2019. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

6. The S&P 500 Is a Culled Group of the Most Profitable and Valuable Companies

Another concern with using the S&P 500 companies as a benchmark is that the company list is constantly refined to discharge firms with flagging fortunes and dwindling ROIs to replace them with up-and-coming stars. According to a brochure S&P Dow Jones Indices distributes to tout the S&P 500, “The S&P 500 does not simply contain the 500 largest stocks; rather, it covers leading companies from leading industries.”²² By design, it is populated with the most profitable firms in the most attractive industries, which makes it unrepresentative of the profitability norms to be expected in competitive markets considering all the companies that compete.

Consider, for example, that Pets.com and Webvan, two highflying Dot.Com stocks that declared bankruptcy, never made it into the S&P 500, but successful on-line firms, like Amazon and Facebook, did. The S&P 500 just features the winners in the business environment. It ignores all the capital investments and ROI losses

²² S&P Dow Jones Indices, S&P 500 explanatory brochure: [sp-500-brochure.pdf \(spglobal.com\)](http://spglobal.com/sp-500-brochure.pdf).

from start-up firms that never made it to scale. It thus overstates the returns that can be expected from firms operating in competitive markets.

Imagine that following a careful selection process, a college admits an academically promising class of students, but after the freshman year, some do not make the grade and drop out. They are replaced in the sophomore year by a group of seemingly qualified students. But again, some students drop out after the sophomore and junior years. By the time the seniors graduate, their academic scores are not representative of all the students who matriculated. The same is true for the S&P 500.

Membership in the S&P 500 is determined by a Standard & Poor's U.S. Index Committee, which makes changes four times a year, in March, June, September, and December. To qualify as a candidate for admission to the index, a company must currently have an unadjusted market cap of at least \$8.2 billion and at least four consecutive quarters of positive earnings. As soon as a company starts to lose money or its market value slips, it can be reviewed and often is removed. According to Kirk Spano, a money manager and financial columnist, "The S&P 500 has criteria for inclusion that aid in booting unprofitable shrinking companies off the index."²³

To illustrate, let's chronicle the changes in the Index in 2020. In September 2020, S&P announced a decision to cut 4 companies from the index:

1. Kohl's Corporation: a department store retail chain that as of February 2013 was the largest department store chain in the United States, with 1,158 locations, with stores in every U.S. state except Hawaii.
2. Helmerich & Payne, Inc.: an oil and gas contract drilling company.
3. Coty Inc.: a multinational beauty company, whose stock is down 85% since it acquired 43 beauty brands, including Cover Girl, from Procter & Gamble in 2015 for \$12.5 billion in a deal that saddled Coty with non-goodwill intangibles and debt, hampered innovation and other growth initiatives, led to losses and write-downs, and caused the company to vastly underperform most of its peers.

²³ [4 Oil Stocks About To Be Kicked Off The S&P 500 | Seeking Alpha](https://seekingalpha.com/article/4338219-4-oil-stocks-to-be-kicked-off-s-and-p-500)
(<https://seekingalpha.com/article/4338219-4-oil-stocks-to-be-kicked-off-s-and-p-500>).

4. H&R Block: a service firm that prepares tax returns through approximately 12,000 retail tax offices staffed by tax professionals worldwide, and in the process of shifting into consumer tax software and online tax preparation.

S&P simultaneously announced the addition of 4 replacement companies:

1. Teradyne, Inc.: an automatic test equipment designer and manufacturer that helps electronics companies such as Samsung, Qualcomm, Intel, Analog Devices, Texas Instruments and IBM to bring products to market faster with automated test solutions and collaborative robotics.
2. Catalent, Inc.: a global provider of delivery technologies, development, drug manufacturing, biologics, gene therapies and consumer health products that employs approximately 2,400 scientists and technicians.
3. Etsy: an American e-commerce website platform focused on handmade or vintage items and craft supplies.
4. West Pharmaceutical Services, Inc: a designer and manufacturer of injectable pharmaceutical packaging and delivery systems.

In December, 2020, S&P announced two other changes in the Index for the year: Tesla, the electric vehicle innovator, was added, and Apartment Investment and Management, an investor in, and manager of, apartment buildings, was deleted after it spun off a REIT.

Stock prices tell a similar story. As seen in the accompanying charts²⁴, the deleted firms experienced sharp declines in market value over 5 years before their dismissal while the firm's added to the Index appreciated handsomely, a sign that investors foresee robust profits and lofty ROIs in the years ahead.

²⁴ Source: Google Finance

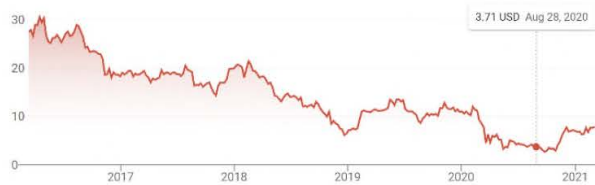
Market Summary > Coty Inc

7.82 USD

-0.0050 (0.064%) ↓

Closed: Mar 5, 4:08 PM EST -Disclaimer
After hours 7.89 +0.070 (0.90%)

1 day 5 days 1 month 6 months ytd 1 year 5 years max



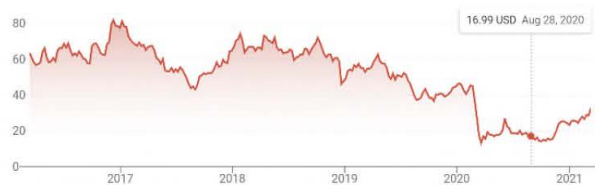
Market Summary > Helmerich & Payne, Inc.

32.44 USD

+3.62 (12.56%) ↑

Mar 5, 4:00 PM EST -Disclaimer

1 day 5 days 1 month 6 months ytd 1 year 5 years max



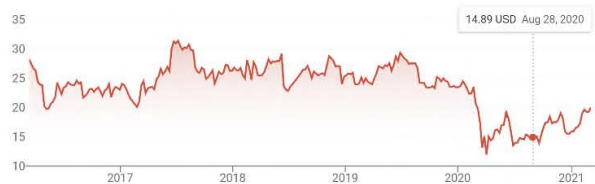
Market Summary > H & R Block Inc

19.91 USD

+0.33 (1.69%) ↑

Mar 5, 4:00 PM EST -Disclaimer

1 day 5 days 1 month 6 months ytd 1 year 5 years max



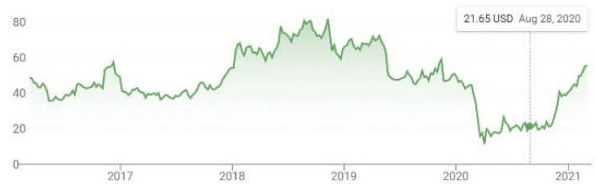
Market Summary > Kohl's Corporation

55.59 USD

+0.89 (1.63%) ↑

Mar 5, 4:00 PM EST -Disclaimer

1 day 5 days 1 month 6 months ytd 1 year 5 years max



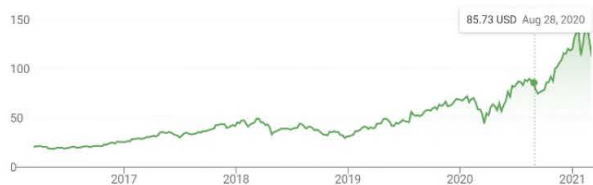
Market Summary > Teradyne, Inc.

113.90 USD

-0.070 (0.061%) ↓

Closed: Mar 5, 4:06 PM EST -Disclaimer
After hours 113.90 0.00 (0.00%)

1 day 5 days 1 month 6 months ytd 1 year 5 years max



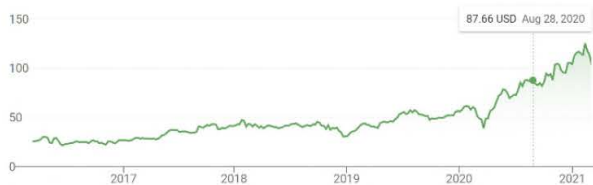
Market Summary > Catalant Inc

104.55 USD

+1.47 (1.43%) ↑

Mar 5, 4:03 PM EST -Disclaimer

1 day 5 days 1 month 6 months ytd 1 year 5 years max



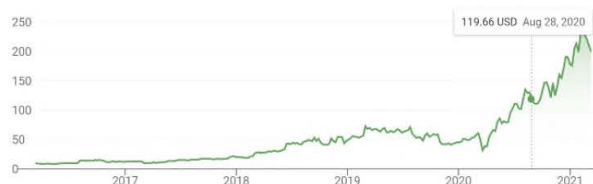
Market Summary > Etsy Inc

200.30 USD

+2.20 (1.11%) ↑

Closed: Mar 5, 4:06 PM EST -Disclaimer
After hours 200.30 0.00 (0.00%)

1 day 5 days 1 month 6 months ytd 1 year 5 years max



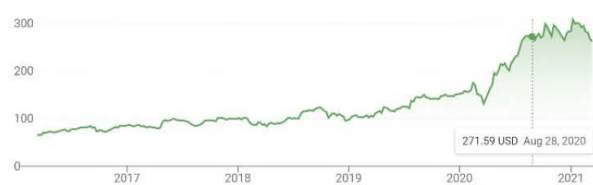
Market Summary > West Pharmaceutical Services Inc.

262.40 USD

+5.11 (1.99%) ↑

Mar 5, 4:04 PM EST -Disclaimer

1 day 5 days 1 month 6 months ytd 1 year 5 years max



Market Summary > Apartment Investment and Management Co

4.82 USD

+0.050 (1.05%) ↑

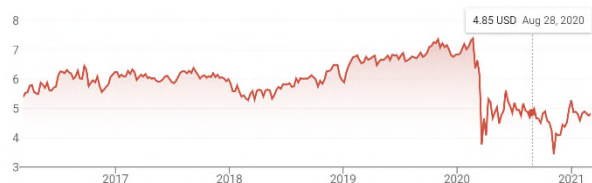
Closed: Mar 5, 4:03 PM EST · Disclaimer

After hours 4.78 -0.040 (0.83%)

NYSE: AIV

+ Follow

1 day 5 days 1 month 6 months ytd 1 year 5 years max



Market Summary > Tesla Inc

597.95 USD

-23.49 (3.78%) ↓

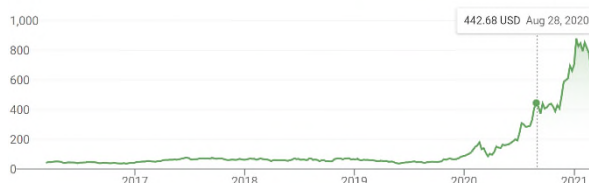
Closed: Mar 5, 4:16 PM EST · Disclaimer

After hours 595.00 -2.95 (0.49%)

NASDAQ: TSLA

+ Follow

1 day 5 days 1 month 6 months ytd 1 year 5 years max



In sum, the subtractions are in hard-asset businesses such as department stores and fossil fuels that are shrinking or else a firm like Coty that is suffering from a massive acquisition overpayment. The table below displays the 2019 ROIs as computed by M&Z per the STB formula and by M&Z's proposed modified ROI formula, and the COCs, of the exiting firms.

	ROI per STB	ROI per M&Z	COC
Kohls'	8.1%	7.8%	6.6%
Coty	36.7%	4.1%	8.3%
Helmerich & Payne	0.1%	0.8%	7.2%
H&R Block	64.6%	22.2%	7.8%

Kohl's ROI is barely above its COC, and certainly not up to snuff with the ROI of ETSY, which operates from clicks, an internet platform, bypassing the bricks.

By rights, as a brand-rich, established name company, Coty should be in the S&P 500. S&P discharged it from the list because its ROI became abysmal after accounting for the exorbitant prices paid for the brands it bought.

Helmerich and Payne generates the lowest ROI of the lot, a victim of the current surplus in fossil fuels and the emerging shift to alternatives.

H&R Block is highly profitable, but not compared to its closest competitor, Intuit, an S&P 500 firm that has a massive head start on an internet-based model for tax returns and small business accounting with its TurboTax and Quickbooks software tools. Intuit's ROI in 2019 was 222.2% per the STB methodology and 172.8% per M&Z, versus a COC of 9.2%. Once again, it's out with the old-economy-style business and in with the new.

Indeed, the companies added this past year are all in knowledge-based, intangible-asset rich, new-economy sectors, operating in high-tech, medical care, and emerging internet platforms. Tesla is intellect on wheels. The swap undoubtedly increased the ROI of the S&P 500 companies, and by design.

7. S&P 500 Sectors Rotate Over Time

The changes to the S&P 500 in any one year are not material as a statistical matter, but over time they are. The tendency for S&P to cull weak performers to make way for rising stars has accumulated in a shift from old economy to new economy businesses, as is evident in the table below, which displays the number of companies in the S&P 500 by sector.

Industry	1970	1980	1990	2000	2010	2015	2019
Communication Services	24	31	37	34	23	24	26
Consumer Discretionary	68	65	74	75	67	73	64
Consumer Staples	65	52	44	35	41	36	33
Diversified Mining & Metals	20	17	13	7	1	0	0
Energy	51	51	44	42	44	41	29
Financials	30	49	60	73	65	65	67
Health Care	17	32	40	52	53	58	62
Industrials	162	142	107	67	59	67	70
Information Technology	16	22	39	68	67	62	68
Materials	20	24	26	30	29	27	26
Real Estate	11	7	4	0	17	24	32
Utilities	31	22	29	29	32	28	28

Source: History of Companies and Industries Listed on the S&P 500, by Caleb Finch, posted October 3, 2019, <https://www.qad.com/blog/2019/10/sp-500-companies-over-time>²⁵

²⁵ See electronic work paper "Changes in the S&P500.xlsx"

The share of Health Care and Information Technology companies in the Index increased from a combined total of 33 companies in 1970 to 130 companies today, while Mining and Metals, Energy and Industrials shrank from 233 companies to 99. Among Industrials, only 70 firms are in the S&P 500 today compared to 162 in 1970.

8. Conclusion: The S&P 500 Index Is Not Relevant

In conclusion, the S&P Index Committee is determined that the S&P 500 represent not just the largest firms, but the most profitable ones. Their policies and practices replace firms and sectors that are losing share in ROI and market value with those on the vanguard of ROI and market value. This is an important additional reason why the S&P 500 Index companies are unsuited to establish an objective benchmark for judging the revenue adequacy of the railroads.

B. The M&Z Adjustments for Non-Goodwill Intangible Assets Are Incomplete

1. The M&Z Adjustments Prove that the S&P 500 Is a Meaningless Benchmark Group

M&Z correctly observe that the formula the STB applies to measure the ROI of railroads is not suitable to measure ROI across the S&P 500. In addition to making an adjustment for taxes, which I will not address,²⁶ M&Z advocate adding non-goodwill intangibles to capital before ROI is measured.

A-7. This adjustment has no meaningful effect on railroads' ROICs because railroads do not have substantial investments in non-goodwill intangible assets. However, this adjustment can have a meaningful effect on the ROIC of other S&P 500 companies who have substantial investments in non-goodwill intangible assets.⁹⁸

⁹⁸ Examples of non-goodwill intangible assets include assets such as patents, copyrights, trademarks, computer software, licenses, films, and import quotas. Accounting rules generally require companies to expense

²⁶ McKinsey also makes adjustments for deferred taxes, but its adjustments are more sophisticated than those proposed by M&Z. See note 16, above.

– as opposed to capitalize – expenditures that result in such assets but require companies to record the value of non-goodwill intangible assets when they acquire another company. (M&Z VS, Ex. A, ¶ A-7)

M&Z claim that this adjustment makes for more meaningful comparisons between railroad performance and that of other firms.

It does, but by proposing the adjustment, the Petitioners are conceding my main point, which is that the S&P 500 is not a meaningful reference group for the railroads. The very fact that the formula to compute the ROI for railroads does not translate to the S&P 500 is a tacit admission that the companies on that list are not a relevant benchmark group for the railroads. The ROI adjustment is proposed because the business models of many of the S&P 500 firms depend on creating, nurturing and leveraging non-goodwill intangibles, which are factors known to generate the potential for high ROIs. The fact that the adjustment for non-goodwill intangibles makes no difference to the railroads is because the railroad business is not knowledge intensive, as McKinsey put it. The business does not rely on intellectual capital in any marked respect, and yet, intellectual capital is the key factor enabling companies to earn high ROIs.

2. M&Z Do Not Account for Home-Grown Intangible Assets

M&Z's proposal to add non-goodwill intangibles to capital is correct as far as it goes but does not go far enough. As M&Z note:

Footnote 98. Accounting rules generally require companies to expense – as opposed to capitalize – expenditures that result in such assets but require companies to record the value of non-goodwill intangible assets when they acquire another company. (M&Z VS, Ex. A, ¶ A-7)

Accountants only recognize investments in non-goodwill intangibles when they are acquired from another company, but not when they are self-created. As a result, the capital invested in many high tech, brand rich companies is understated and their ROI's are overstated even when they do not make acquisitions, a phenomena that is widely recognized by financial analysts (as well as economists):

The deficiencies of intangible asset accounting are well known. The problem is that most intangibles are self-generated rather than purchased and the majority of these are not recognized in the balance sheet. Valuable intangibles that have ongoing use in the business, and that will contribute to future profits, are essentially ignored in financial reporting and any amount spent on creating or enhancing these assets is immediately expensed.

The Footnote Analyst²⁷

Authors, Steve Cooper and Dennis Jullens²⁸

Consider, for example, a hi-tech firm that is spending \$100 a year on research and development. Under accounting rules, the R&D expenditure is expensed. It is immediately deducted as a charge to earnings and does not make an appearance in balance-sheet capital. But from an economic perspective, capital represents all money spent in a period that could be expected to bring in future benefits by contributing to revenues and profits in subsequent periods, which is patently the case with R&D expenditures, many of which generate returns that are protected by patents or that result in breakthrough innovations that others cannot quickly replicate.

To illustrate, suppose the true economic life and payoff period of the company's R&D spending (not strictly as a matter of the spending in just one period, but as a chain of connected and coordinated investments over time) is five years (it would be longer for pharma and biotech companies or for blockbuster movies). Suppose further that the firm is in a steady state and spends the same \$100 each year on research. Then, under reported accounting, the firm expenses the \$100 in R&D each year and

²⁷ <https://www.footnotesanalyst.com/intangible-asset-accounting-and-the-value-false-negative/>

²⁸ Steve Cooper was a board member of the International Accounting Standards Board from 2007 to 2017. The IASB is the body that sets International Financial Reporting Standards (IFRS). He continues to be actively involved in financial reporting. Prior to his time at the IASB, he spent 11 years as head of UBS's Valuation and Accounting Research team.

Dennis Jullens teaches financial accounting, equity analysis and equity valuation at Amsterdam Business School, University of Amsterdam. He moved to academia in 2012 after 12 years in equity research at UBS, mostly in the Valuation and Accounting team. He also has been involved in accounting standard setting, being a past member of advisory committees for the IASB and EFRAG – a body that supports the European Commission.

no investment appears on its balance sheet. ROI measured off the firm's reported accounting balance sheet thus materially overstates its true ROI.

An alternative view, which corresponds to better representation of economic reality, is to add the \$100 in research outlays to the firm's balance sheet as a form of intangible capital and then to write off the investment over 5 years by charging \$20 a year to the earnings. The same thing happens the next year so that, in a steady state, the firm ends up writing off or amortizing a total of \$100 a year, which consists of \$20 from each of the past 5 years, so that its earnings, its NOPAT, would be the same as if it had expensed the R&D. The income charge is \$100 either way.

The balance sheet, though, is a different story. If the research investment is written off over five years, and is replenished each year, the net capital investment on the balance sheet will be \$250 in steady state ($5 \text{ years life}/2 * \$100 \text{ annual spending}$). It will be, on average, half-way through its life, so half remains on the books (once the accumulated amortization is deducted). With NOPAT the same, but capital higher, the resulting ROI is lower. Just as ROI decreased when M&Z folded in acquired non-goodwill intangibles, the same effect occurs when a company treats its own investments in R&D and brands the same as those it acquires. The ROI is not only lower; it is more accurate. It is more aligned to an internal rate of return calculation whereby an initial cash outlay for research is treated as the up-front investment that is followed by a series of cash inflows.

Once again, this adjustment will have no impact on the railroads or other basic commodity businesses that do not invest in R&D. But it would significantly diminish the ROIs measured for modern economy firms. It would render a more accurate portrait of corporate profitability, but, at the expense of more complexity in the calculation.

A fair and accurate ROI would also need to account for the advertising spending to create and nurture consumer brands and the leased assets of retailers, for example, as capital, too.

Consider also that many oil and gas firms use successful efforts accounting. Only the cost of drilling wells that lead to oil discoveries are capitalized and the unsuccessful efforts are expensed. As with R&D, this can lead to an understatement of the total capital that must be invested to produce energy. Full cost accounting,

whereby the total invested in all wells is capitalized and amortized over the lives of the successful wells, produces a more accurate estimate of the true ROI. Yet M&Z did not propose to address this.

The list of potential adjustments is overwhelming and could be a continuing source of disagreement. But this is the can of worms that is opened when one attempts to accurately measure the performance across the entire spectrum of businesses and use that as a benchmark. The Board should be very hesitant to leap into this abyss.

C. The Industrial Sector Also is Not a Relevant Benchmark for the Railroads

M&Z have offered the Industrial sector as a fallback benchmark group while noting that their conclusions about profitability would not change as a result of using Industrial companies as the benchmark instead of the S&P 500. That is true, but only because the Industrial group is subject to the same criticisms as the S&P 500, namely, that the Industrial sector also consists of distinct subsectors that are different from and inherently more profitable than the railroads.

The indexes lump all transportation companies, including the railroads, with many other businesses to form the Industrial sector. The other businesses include Aerospace and Defense, Construction Engineering, Electrical Components Manufacturing, Human Resources and Employment Services, Industrial Machinery, Research and Consulting Services, and Trading Companies, for example. Common sense dictates that the railroads have little in common with such businesses. In fact, it is a mere convenience to lump the railroads with these industrial firms. There is no compelling economic logic behind it.

I have employed three financial metrics to verify that transport companies, and railroads in particular, are distinctly different from other industrial firms.

1. The first is a measure of **intellectual capital**, measured by the sum of R&D and advertising expense as a percent of sales. The higher it is, the more knowledge-based, brand rich a company is deemed to be, which are known sources of value creation.
2. The second is a measure of **plant intensity**. It is the sum of depreciation expense and the cost of capital multiplied by the firm's average net PPE (property plant and equipment), expressed as percent of sales, where leased

assets are also treated as owned in this calculation. The larger the ratio, the more plant intensive a company is; the lower the ratio, the more a firm's business is service-oriented, which is a known success factor in the modern economy, as McKinsey has noted, for instance.

3. The third is **global breadth**, measured as the revenues derived outside the US as a percent of total revenues. The bigger the ratio, the more global reach a firm has, which enhances its ability to scale, to arbitrage markets, and to capitalize on its know-how.

The table below²⁹ compares these 2019 annual data metrics for three groups: 1. Industrials ex Transportation companies, 2. Transportation companies³⁰ ex the Railroads (essentially, airlines and trucking companies), and 3. the Railroads:

²⁹ Data Sources: ROI and COC data from M&Z; fundamental data from ISS. See electronic work paper "Industrials Benchmark Comparison with Transportation Companies.xlsx"

³⁰ Transportation companies, as here defined, exclude the three Air Freight and Logistics companies in the S&P 500, which are shown below:

<u>Company Name</u>	R&D + Advert % of Sales	Rent Chrg: Net PP&E % of Sales	Foreign Rev % of Sales	STB ROI	M&Z Adjusted ROI	COC	STB ROI- COC	M&Z Adj ROI-COC
C H ROBINSON WORLDWIDE INC	0.0%	1.1%	14.26	96.8%	65.0%	9.0%	87.8%	56.0%
EXPEDITORS INTL WASH INC	0.0%	2.8%	72.56	37.2%	36.2%	8.9%	28.4%	27.3%
UNITED PARCEL SERVICE INC	0.0%	8.6%	21.33	21.8%	17.8%	9.0%	12.8%	8.8%

CH Robinson and Expeditors International offer transportation logistics services. They arrange and manage transportation without doing much of it. Their business models and added value are heavily IT dependent, and are light on physical capital, which makes them distinctly different from the railroads and other transportation companies, not only in the structural characteristics of their business models, but in their inherent profitability. They are also much more global in orientation. UPS, on the other hand, is much more comparable to a railroad, but because I excluded all Air Freight and Logistics companies from the "Transportation" group and instead categorized them with other Industrials, I treated UPS the same for consistency.

	R&D + Advert % of Sales	Rent Chrg: Net PP&E % of Sales	Foreign Rev % of Sales	STB ROI	M&Z Adjusted ROI	COC	STB ROI- COC	M&Z Adj ROI-COC
Median								
Industrials ex Transportation	2.5%	4%	39%	44.6%	26.6%	9.1%	34.3%	18.3%
Transportation ex Railroad	0.6%	20%	12%	15.1%	12.8%	11.4%	3.7%	1.4%
Railroads	0.0%	33%	11%					
Average								
Industrials ex Transportation	2.5%	5%	38%	54.6%	29.5%	9.1%	42.4%	20.4%
Transportation ex Railroad	0.5%	17%	15%	16.4%	14.5%	10.6%	5.7%	3.9%
Railroads	0.0%	33%	17%					

Industrials ex Transportation firms deploy more intellectual capital. Their median combined R&D and ad spend runs at 2.5% of sales; the median spend is only 0.6% for Transport companies ex Railroads and is 0.0% for the Railroads.

Industrials ex Transportation firms are much lighter on PPE capital. Their median PPE intensity ratio is 4% of sales, compared with 20% for Transports ex Railroads and 33% for railroads. The railroads are massively PPE intensive, while the typical Industrial firm these days is much more services oriented.

Industrials ex Transportation firms have a far greater global reach. Their percentage of revenues derived from foreign markets is 39% compared to 12% and 11%, respectively. Even the 11% figure for the railroads is misleadingly high, because substantially all revenues are derived from the U.S., Canada, and Mexico, one continent³¹.

These structural industry differences, as expected, account for significant differences in profitability. The median M&Z adjusted ROI – COC spread is 18.3% for the Industrials ex Transportation companies and is only 1.4% for the Industrials ex Railroads (the data for the Railroads was not furnished in the M&Z file). Simply put, the Industrials outside the Transportation firms deploy much more intellectual capital and much less physical capital and are much more globally diversified. As a result of these comparative advantages, those firms are inherently capable of earning higher ROIs.

³¹ To compute the foreign revenues percent, the U.S. sales of the Canadian railroads were considered “foreign” revenues.

It is no more appropriate, therefore, to refer to the Industrial sector to establish a profitability benchmark for the railroads than it is to refer to the S&P 500.

V. FINANCIAL METRICS ARE LEGITIMATE SUPPLEMENTAL INDICATORS OF THE FINANCIAL HEALTH OF THE RAILROAD INDUSTRY.

In the “Reply of Joint Shippers” filed in this docket on September 21, 2020, the Joint Shippers referenced several financial metrics which indicate the rail industry is financially healthy and attractive, and has been able to raise capital and generate attractive returns for investors, even during times when ROI was judged less than COC by the STB. The Joint Shippers did not propose to use those metrics to replace the standard for judging revenue adequacy based on $ROI = COC$; rather, only to confirm the validity of that definition and its inherently conservative nature.

In their reply filed on October 13, 2020, the Petitioners presented a Verified Statement from M&Z (M&Z Reply VS) to support their claim that such financial metrics are uninformative, irrelevant, and inconclusive, and hence, should be ignored. In this section, I explain how those financial metrics helpfully confirm and supplement the $ROI = COC$ measure of revenue adequacy.

A. Raising and Investing Capital Is a Sign of Financial Health

In their October testimony, M&Z assert that a demonstrated ability to invest capital is not determinative of revenue adequacy:

- Observing a railroad making incremental investments that have expected economic returns greater than its cost of capital is not informative about whether the railroad’s expected economic return on its *total* invested capital exceeds its cost of capital... (M&Z Reply VS, ¶ 15) (*italics in original*)

This is a true statement, but inapplicable. First, as noted, the Joint Shippers never stated or proposed that the demonstrated ability to raise capital for individual projects would be used to define revenue adequacy. Nor did the Joint Shippers assert that an ability to raise capital for individual projects proves that $ROI > COC$ for the totality of invested capital. M&Z have set up a straw man to attack.

M&Z's own initial testimony in the Petition for Rulemaking refutes their case:

25. The proper economic rationale for evaluating whether a railroad is revenue adequate is to determine whether it can raise the funds necessary for financial health and growth in the long term. (M&Z VS, ¶ 25)

The opposite also is true. If the railroads are able to raise the funds necessary for financial health and growth over the long-run, which is the evidence that the Joint Shipper's submitted, then the railroads must of necessity be "revenue adequate" as is intended, *no matter which specific technique has been used as a proxy for determining revenue adequacy.*

M&Z dismiss the evidence as inapt on the grounds that the ability to raise capital does not comport with their proposed definition of revenue adequacy, to wit, that the ROI – COC spreads of the railroads must be comparable to that of other large firms, i.e. to the S&P 500 median. They write: "In order to compete for capital, the railroads' risk-adjusted expected returns must be comparable to that of companies with which the railroads compete for capital. Otherwise, investors will invest elsewhere." (M&Z VS, ¶ 10)

A demonstrated fact that the railroads have raised capital must indicate that their prospective ROI's on incremental capital are not less than COC, for even M&Z admit that, to raise capital, a firm must be able to earn attractive risk-adjusted returns relative to the firm's cost of capital. The evidence of capital raising is therefore a relevant supplemental indicator of revenue adequacy.

M&Z, of course, are setting too high a standard. Their postulate of revenue adequacy is incorrect. As I have shown in Parts II and III above, so long as a firm earns an ROI = COC, and is able to maintain ROI = COC with new investments that enter into its capital base, it will be able to cover all of its costs, including a fair return, and will be able to attract capital. It does not have to earn an ROI – COC spread in line with the median of large firms to attract capital. It just must earn ROI = COC to be fully competitive on a risk-adjusted basis. And once that is understood to be the correct definition of revenue adequacy, then the evidence that the railroads have been able to raise capital is in fact additional confirmation that the ROI = COC standard is legitimate.

M&Z attempt to dismiss the evidence because it does not comport with their alternative definition of revenue adequacy. But it is their alternative that should be dismissed, not the evidence.

B. Stock Prices and Shareholder Returns Are Valid Supplemental Indicators of Revenue Adequacy

M&Z attempt to discount the relevance of stock prices by constructing an example of a railroad that initially is earning its cost of capital and is able to replace its assets as they become fully depreciated, but that subsequently suffers a loss in profits that reduces its ROI below its COC, leading to a sharp drop in its stock price and an inability to replace its assets. Specifically, they note:

19. Investors who owned the railroad before the decline in expected financial performance incurred a loss of \$200 million (\$500 million – \$300 million) or 40%. The actual (observed) return to the investors of -40% is not informative about whether the railroad’s expected economic return on its total invested capital exceeds its cost of capital, because the investors’ actual return is based on the *changes* in the railroad’s expected financial performance and not the *level* of its expected financial performance. (M&Z Reply VS, ¶ 19) (emphasis in original)

It is true that stock prices react to unanticipated changes in performance, but the prices are reacting to changes *in ROI versus COC*. A stock price that is falling is a sign that the market foresees a lower ROI – COC spread, and a rising stock price tells us the market is projecting a higher ROI – COC spread than was previously thought possible. How then can a rising stock price ever be a bad sign? How is it not always a good sign, an indication the financial health of the company is improving? It is counter-intuitive to assert that rising stock prices cannot be taken as a cause for celebration and a manifestation of the improving health of the industry.

Joint Shippers are not suggesting the stock price evidence is conclusive on its own, nor are they advocating using stock price performance to supplant the ROI = COC standard, as M&Z imply. Rather, when the railroads are observed to be generating ROI = COC, *and their stock prices are rising*, the combination should be considered even more persuasive evidence that the industry is financially healthy

and revenues are fully adequate than either factor taken in isolation. It's worth noting the stock price performance, and not just to ignore it.

C. Cash Distributions Are a Reliable Indicator Once Put in Context

M&Z also dismiss the relevance of dividends and stock buy-backs as supplemental indicators of revenue adequacy. Their critique may be justified in some circumstances, but not those of the rail industry.

Some firms can distribute a cash bounty because they are highly profitable and generate so much cash from operations that they can cover all worthwhile investments and leave a remainder to pay out. But firms that are contracting, such as department store chains, can also pay out a lot of cash because they are liquidating their capital. The distribution of cash must be put into context.

The following math formula governs cash distributions:

$$\text{Growth} = \text{ROI} \times \text{Investment Spending Rate}$$

It says that the growth rate in a firm's earnings, specifically in its NOPAT profits, is equal to the return on investment the firm earns times its Investment Spending Rate, which is the percent of its earnings that are plowed back and reinvested into the business. If the Investment Rate is below 100%, a firm has surplus earnings to pay out. If it is above 100%, it will be unable to distribute cash but will have to raise it instead. Here are four examples:

	Growth =	ROI	x	Investment Spending Rate
Firm 1	10% =	10%	x	100%
Firm 2	10% =	20%	x	50%
Firm 3	2% =	5%	x	40%
Firm 4	20% =	15%	x	133%

Firm #1 is growing earnings at a 10% rate by plowing back all its earnings to fund projects that earn a 10% ROI.

Firm #2, because it is earning a 20% ROI and generating more cash from operations, can attain the same growth by reinvesting half its earnings back into the business, with the remainder available for distribution. In this case, holding growth constant, the ability to distribute more cash is equivalent to demonstrating that a higher return on investment is being earned in the business.

Firm #3 is typical of a department store chain. With an abysmal and unattractive ROI, and facing surplus retailing capacity, the firm is so restraining investments and closing stores that it generates positive cash flow net of investment. With meagre growth prospects in the business, investors want their money back, not to pour more in, and the firm is accommodating them. In this case the distribution of cash is an admission of failure, not success.

Firm #4 is a highly profitable “growth stock,” a firm with such an abundance of attractive investment options that it is not only investing all its earnings but is tapping the markets for additional capital to invest. It is growing very rapidly by pouring a great heap of money into projects with $ROI > COC$. Notably, and crucially, its economic profits are positive and rapidly expanding, which gives it the highest valuation of the companies shown here. Yet, for all that, it is importing capital, not paying it out. Cash distribution is, in effect, negative. But the cash flow deficit is not a sign of weakness, but of financial strength, signaling that it is a highly attractive haven for new money flows.

In sum, the distribution of cash, viewed in isolation, is not a reliable indicator of ROI versus COC. But when a company is investing, growing, and experiencing a rising stock price and attractive return for its investors, then the distribution of cash can also be taken as a reliable supplemental indicator of its financial health. These are the characteristics that were cited for the railroads

D. Updated Railroad Statistics Support Revenue Adequacy

The table below, covering the five-year period from 2014-2019 and the ten-year period from 2009 to 2019, provides supplemental evidence of revenue adequacy across the Class I railroads.³²

	5 Year TSR	10 Year TSR	5 Year Cum Cap Ex	10 year Cum Cap Ex	5 Year Cum FCF	10 Year Cum FCF	5 Year Cum Dividends	10 Year Cum Dividends	5 Year Cum Buyback	10 Year Cum Buyback
Burlington Northern Santa Fe *	NM	NM	\$19,522	\$38,034	\$27,346	\$14,613	\$20,950	\$37,039	NM	NM
Canadian National Railway **	9.8%	17.0%	\$11,852	\$20,761	\$12,803	\$25,588	\$4,802	\$7,978	\$7,552	\$13,888
Canadian Pacific **	9.2%	20.6%	\$5,555	\$11,037	\$6,524	\$10,290	\$1,229	\$2,292	\$4,896	\$6,666
CSX	16.9%	18.4%	\$10,402	\$21,627	\$14,689	\$24,072	\$3,588	\$6,227	\$11,874	\$16,494
Kansas City Southern	6.1%	17.6%	\$3,296	\$6,395	\$2,201	\$2,835	\$724	\$1,028	\$1,791	\$1,791
Norfolk Southern	14.5%	16.5%	\$9,965	\$19,925	\$12,837	\$20,815	\$3,904	\$6,942	\$7,770	\$12,917
Union Pacific	11.1%	21.3%	\$18,283	\$35,521	\$34,448	\$50,849	\$10,664	\$16,520	\$24,612	\$34,196

Currency: U.S. Dollar; Scale: Millions; Source ISS

* As a wholly-owned Subsidiary of Berkshire Hathaway Burlington Northern Santa Fe does not have a stock price and nor does it record stock buybacks

** Canadian \$ converted to US \$ at prevailing rates

Total Shareholder Return, or TSR, measured as the compound average return from dividend yield and capital appreciation, was 15-20% per annum over the 10 year interval ending 2019. Over the five years ending 2019, the median TSR was 10.5%, lower, but still positive in all cases and quite attractive.

The railroads maintained a comprehensively healthy rate of capital spending over both the ten-year and five-year intervals, with no sign of slowing down. The most recent five-year cumulative spending is very near to half of the ten-year sum, if not generally a little more, in all cases.

Free Cash Flow, or FCF, which is the NOPAT profits earned in the year less the year-over-year change in capital employed in the business, was strongly positive. The railroads are more than self-sufficient in funding their growth.

Thus, they can invest aggressively in maintaining and expanding their businesses while still generating a surplus cash flow to pay generous dividends and to repurchase their shares and return massive amounts of capital to investors. For example, Union Pacific alone paid out over \$35 billion to its investors over the five years ending in 2019!

³² See electronic work paper "Updated Railroad Metrics.xlsx"

These updated statistics confirm the impressive financial health of the Class I railroads and buttress the argument that the existing ROI = COC standard is in no danger of overstating revenue adequacy and, as I address in the next section, more than likely understates the current degree of revenue adequacy.

**E. The Current Measure of Revenue Adequacy Sets the Bar
“Conservatively High” Because the Cost of Capital the STB Is
Using May Be Too High**

If the STB’s estimate of the cost of capital is too high, then it also overstates both the railroads’ revenue adequacy needs and the amount of differential pricing that is necessary to ensure a financially sound carrier at the expense of fairness and economic efficiency. The STB determines the cost of equity capital using the standard Capital Asset Pricing Model Formula:

$$\text{Cost of Equity} = \text{Risk-Free Rate} + \text{Beta} \times \text{Market Risk Premium}$$

While each component could be debated, the Market Risk Premium, or MRP, is the most subjective and, thus, the most likely reason the cost of capital is overstated. Unlike the Risk-Free Rate, MRP is not directly observable as an interest rate, and unlike Beta, it is not subject to a given statistical formula. In principle, MRP represents the rate of return that investors could expect to earn by investing in the stock market compared to the prevailing risk-free return available from investing in the bond market. A variety of techniques have emerged to estimate it, but none can claim to be definitive and generally accepted.

The MRP that the STB is using, and which M&Z also used in their empirical work, appears to be excessively high. For example, the STB used an MRP of 7.15% in 2019. For reference, ISS, the global corporate governance authority which purchased the EVA data base and estimation technique from me in 2018, uses an MRP of 4%. Assuming a Beta of 1.0, for example, the difference produces a 3.15% overstated cost of equity, which might be 75% weighted in the capital structure (leaving 25% as debt), for at least a 2% overstatement of the weighted average cost of capital. If revenue adequacy is judged strictly by ROI = COC, as I advocate, reducing COC by 2% would also reduce the ROI that the Board assumes is needed to promote a safe and efficient rail transportation system by 2%.

The difference is significant. Why the gap? I have not been able to examine all the details behind the 7.15% MRP that STB uses, but based on my experience and knowledge I can offer the following observations:

1. It is common to estimate MRP by the cumulative difference between S&P 500 returns and the returns from government bonds or T-bills dating back to 1926, which is the first full year when financial data exists at the Center for Research in Security Prices at the University of Chicago (www.crsp.org). But over that span, four factors artificially and unsustainably inflated the returns in the US stock market:
 - a. **Decreased Trading Costs:** a stock price tends to discount the present value of future trading and transaction costs. As those costs decreased, stock prices and returns increased, thus increasing the observed spread of stock market returns over bond market returns. Trading costs are now so low that further decreases are unlikely.
 - b. **Declining Interest Rates:** Today, interest rates are near an all-time low, and are lower than in 1926. The long-run secular decline in rates decreased the cost of capital from then to now, also raising stock prices and returns in a manner that is unrepeatable going forward.
 - c. **Survivor Bias:** The S&P 500 reflects the returns for US companies, which were the best positioned to weather the trauma of WW II. The historical MRPs measured for countries like Britain, France, and Germany were much lower as virtually their total stock of wealth was wiped out.
 - d. **Reduction in MRP:** In economic theory, investors' risk aversion decreases as their wealth increases and they can afford to lose more, and as their time horizons for investing increase as life spans grow longer. If, as seems likely, investors are discounting stocks with a lower MRP today than they applied in 1926, in other words, that they are now willing to pay generally higher multiples now than in 1926, then stock prices have unexpectedly increased over the interval in a one-time transition that is unlikely to continue. The MRP can only go so low.

Ironically, and counterintuitively, then, as the expected, forward looking MRP declines, the backward looking measured MRP increases. An unrealistically high historical MRP estimate like 7.15% can be a sign that the expected prospective MRP has declined.

For all these reasons, the realized returns from the S&P 500 since 1926 are not likely to be repeated looking forward. Estimates of the MRP based upon long run historical returns are apt to overstate the true cost of capital. Yet the STB uses a variant of this technique.

2. A second popular technique looks at the realized stock market spread over bond returns over a shorter and more recent interval, such as the past ten or twenty years. These techniques are highly suspect for the following reasons:
 - a. The tradeoff of using only more recent data is the loss of statistical significance. There simply are not enough observations to harvest the signal from the noise, to extract the mean from the variance in the return data.
 - b. The statistical unreliability increases when the economic conditions have changed, as they have. There has been a steady secular decrease in interest rates over the past 40 years, from double digits to near zero, leading to an unsustainable inflation in returns and MRP over that time frame. Interest rates are now so low that there is no more powder left to propel a continued inflation in prices.
 - c. The Yale economist Robert Schiller has documented a long-run tendency for the market to revert to the mean, to migrate back to a more normal value. When the eponymous Schiller P/E (shown below; <https://www.multpl.com/shiller-pe>), which is the value of the S&P 500 divided by the inflation adjusted 10-year average trailing earnings of the S&P 500 companies, is high, as it is now, subsequent stock market returns tend to be lower than normal (and vice versa), which is another indication that the forward looking MRP is apt to be overstated by the recent past stock market performance.



3. Another class of estimation technique is based on computing the discount rate that converts security analyst forecast estimates to the current S&P 500 value. Others are based on surveying the sentiment of influential investors. These techniques tend to produce more realistic estimates of 4-6%.

McKinsey provides another data point. After reviewing many of the available techniques to estimate MRP, McKinsey concludes:

No matter how we annualize excess returns, group the aggregation windows, or simulate estimators, the excess returns on U.S. stocks over government bonds generally falls between 5 and 6 percent.³³

But again, even this conclusion is predicated on taking historical returns at face value and not accounting for the artificial and unsustainable inflation in the historical returns, which is a reason that I and ISS advocate using a 4% MRP.

In sum, the MRP the STB is using and, thus, the cost of capital it is applying to judge ROI is apt to be materially inflated. This is another reason why the current method to assess revenue adequacy by $ROI = COC$ results in a “conservatively high” bar to attaining revenue adequacy.

VI. SUMMARY AND CONCLUSION

To conclude, the Surface Transportation Board should continue to judge revenue adequacy by $ROI = COC$. A company that maintains $ROI = COC$ is meeting its economic mission at a minimum. It is perfectly able to cover all of its costs, fund growth, repay its debts, attract investors and provide them with a competitive return on their investment, and trade for a market value that preserves the value of the owner’s investments in the business.

In addition, substituting replacement costs for book values is unnecessary and undesirable for determining revenue adequacy. Maintaining $ROI = COC$ guarantees an attractive return on the investments that are made to replace assets or to expand

³³ “Valuation,” McKinsey & Co., 5th edition, 2010, John Wiley & Sons, page 241

the business. Such investments would enter the books at their current replacement costs as they are acquired.

As such, there is no need for the Board to devise a replacement methodology for determining revenue adequacy. But if there were such a need, the Petitioners' proposed S&P 500 benchmarking approach is economically meaningless and inappropriate. Moreover, the adjustments that are proposed in an attempt to render an apples-to-apples comparison between the ROI's of railroads and the S&P 500 firms are inadequate, and any attempt to make further adjustments would open a bottomless "Pandora's Box" of issues that only serve to illustrate why an S&P 500 comparison is baseless.

Finally, all my conclusions are confirmed by, and consistent with, the metrics by which the financial markets evaluate whether to invest their capital in railroads. All Class I railroads had very strong Total Shareholder Returns and free cash flow over the past decade while at the same time they made significant capital investments, paid dividends, and repurchased stock. Those metrics plainly demonstrate the ability of the railroads to fulfill each of the factors that comprise the statutory definition of revenue adequacy. If there is anything to criticize about the Board's application of the $ROI = COC$ standard, it is the Board's *overstatement* of COC, rather than an *understatement* of ROI, that warrants correcting because it has created a conservatively high bar for obtaining revenue adequacy.

VERIFICATION

I, Bennett Stewart, 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 "Bennett Stewart". The signature is written in a cursive, flowing style.

Bennett Stewart

Exhibit A

Curriculum Vita of Bennett Stewart

Overview:

Over the past 40 years, Bennett Stewart has been at the forefront of the practical applications of economic profit under the name of EVA, or economic value added, a valuation and management framework that he developed and which Fortune dubbed “the real key to creating wealth.” EVA was adopted by hundreds of companies globally following publication of his 1992 book, *The Quest for Value*, which was the first to present EVA and advocate its use.

Bennett was one of the principal founders and Senior Partner of Stern Stewart & Co., the firm that first defined EVA and put it on the map, starting in the 1980s. Bennett formed EVA Dimensions in 2006 to enhance EVA with software and data bases and valuation analytics.

In 2018, EVA Dimensions was sold to ISS, the global leader in corporate governance ratings and analysis. Over the next two-and-a-half years, Bennett guided the integration of EVA into ISS’ proxy research, pay-for-performance assessment, corporate analytical solutions, and equity research services. Importantly, Bennett defined the four key EVA ratio metrics that ISS is using as a supplement to Total Shareholder Return (“TSR”) to judge the quality of corporate performance and executive pay alignment.

Bennett also is the inventor of PRVit (for the “Performance-Risk-Valuation investment technology”), an EVA-based stock rating model that has gained a wide following and which ISS licenses to institutional investors and professional equity analysts.

The latest generation of EVA, which includes a powerful ratio-based analytical framework, is chronicled in his book, *Best Practice EVA*, published in 2013.

Bennett currently serves as CEO of Stewart Consulting Service, a one-man boutique for all things EVA-related, including presentations to boards and senior management teams that want to know more about how to derive value from EVA, and designing and implementing EVA-based incentive plans.

Education:

BSE (Electrical Engineering), Princeton University, 1974, Cum Laude

MBA, University of Chicago, 1976

Positions

Credit Trainee and Analyst, The Chase Manhattan Bank (July 1976 – July 1977)

Vice President, Chase Financial Policy (July 1977 – October 1992), the corporate financial consulting arm of the Chase Manhattan Bank

Senior Partner, Stern Stewart & Co. (Nov 1992 – Mar 2006), a consulting firm that developed EVA as a corporate system for value-based management and incentive compensation, and that assisted hundreds of companies globally to adopt it, including Coca-Cola, Eli Lilly, Monsanto, Pemex, Siemens, and Sony, for example

CEO, EVA Dimensions (Mar 2006 – Feb 2018), a company spun out of Stern Stewart to develop and market software tools and data bases to enhance the corporate applications of EVA in performance reporting and benchmarking, decision analysis, and valuations, including acquisitions

Senior Advisor, ISS (Feb 2018 – Jul 2020), responsible for integrating EVA into the ISS suite of services following the acquisition of EVA Dimensions by ISS (formerly Institutional Shareholder Services), the global leader in corporate governance analytics and data

CEO, Stewart Consulting Services (Aug 2020 to present), offering services in the practical applications of the concept of economic profit under the name of EVA, for economic value added.

Books

The Quest for Value: A Guide for Senior Managers, HarperBusiness, 1992 (792 pages)

"Bennett Stewart's book is a notable example of what we at Chicago have always believed: Nothing is more practical than good theory. His neatly chosen, real-world illustrations bring the basic concepts of finance vividly to life. The book can be read with profit (and enjoyment) by anyone with an interest in corporate finance, from beginning student to senior executive."

Merton H. Miller, Robert R. McCormick Distinguished Service Professor, Graduate School of Business, The University of Chicago, 1990 Nobel Prize winner

Best Practice EVA: The Definitive Guide to Measuring and Maximizing Shareholder Value, John Wiley & Sons, 2013 (311 pages)

“This is the best-ever guide to using EVA—the most valuable and important corporate finance tool of the past thirty years”

Geoff Colvin, Senior Editor at Large, *Fortune*

Publications

THE MOTIVES AND METHODS OF CORPORATE RESTRUCTURING

by Bennett Stewart and David M. Glassman, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 1
NUMBER 1, SPRING 1988**

THE MOTIVES AND METHODS OF CORPORATE RESTRUCTURING: PART II

by Bennett Stewart and David M. Glassman, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 1
NUMBER 2, SUMMER 1988**

MARKET MYTHS

by Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 2,
NUMBER 3, FALL 1989**

ANNOUNCING THE STERN STEWART PERFORMANCE 1,000: A NEW WAY OF VIEWING CORPORATE AMERICA

by Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 3
NUMBER 2, SUMMER 1990**

REMAKING THE PUBLIC CORPORATION FROM WITHIN

by Bennett Stewart, Stern Stewart & Co.

**HARVARD BUSINESS REVIEW, VOLUME 90, NUMBER 4, JULY-AUGUST
1990**

SIMULATING OWNERSHIP FOR LINE MANAGERS

by Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 3,
NUMBER 3, FALL 1990**

EVA: FACT AND FANTASY

by Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 7
NUMBER 2, SUMMER 1994**

THE EVA FINANCIAL MANAGEMENT SYSTEM

by Joel M. Stern, Bennett Stewart, and Donald H. Chew, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 8,
NUMBER 2, SUMMER 1995**

THE EVA REVOLUTION

by Al Ehrbar and Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 12,
NUMBER 2, SUMMER 1999**

HOW TO FIX ACCOUNTING—

MEASURE AND REPORT ECONOMIC PROFIT

by Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 15,
NUMBER 3, SPRING 2003**

CHAMPIONS OF PROFITABLE GROWTH

by Bennett Stewart, Stern Stewart & Co.

HARVARD BUSINESS REVIEW, JULY-AUGUST 2004

THE *REAL* REASONS ENRON FAILED

by Bennett Stewart, Stern Stewart & Co.

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 18,
NUMBER 2, SPRING 2006**

EVA MOMENTUM:

THE ONE RATIO THAT TELLS THE WHOLE STORY

by Bennett Stewart, EVA Dimensions

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 21,
NUMBER 2, Spring 2009**

WHAT DETERMINES TSR

by Bennett Stewart, EVA Dimensions

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 26,
NUMBER 1, WINTER 2014**

**EVA, NOT EBITDA: A NEW FINANCIAL PARADIGM FOR PRIVATE EQUITY
FIRMS**

by Bennett Stewart, Senior Advisor, ISS

**THE JOURNAL OF APPLIED CORPORATE FINANCE, VOLUME 3,
NUMBER 13, SUMMER 2019**

Memorandum and articles published by ISS and available at The ISS EVA Resource Center (<https://www.issgovernance.com/solutions/iss-analytics/iss-eva-resource-center/>)

- Rightsizing the EVA Way in the COVID Economy
- A Case of Mistaken Identify: Correcting the Record on EVA
- EVA, Not EBITDA – a Better Measure of Investment Value
- The Four Key EVA Performance Ratios
- The Link Between EVA and TSR
- The EVA Measurement Formula: A Primer on Economic Value Added (EVA)
- Using EVA in Pay-for-Performance Analysis