

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

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JOINT PETITION FOR RULEMAKING –)	
ANNUAL REVENUE ADEQUACY)	Ex Parte No. 766
DETERMINATIONS)	
)	

**OPENING COMMENTS OF
THE WESTERN COAL TRAFFIC LEAGUE
AND SEMINOLE ELECTRIC COOPERATIVE, INC.**

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The Western Coal Traffic League (“WCTL”) and Seminole Electric Cooperative, Inc. (“Seminole”), submit these Opening Comments in response to the request of the Surface Transportation Board (“Board”) for public input as set out in its Decision served December 30, 2020 in the captioned proceeding (the “*Dec. 30 Decision*”). These Comments include the Verified Statement of Dr. James E. Hodder, Emeritus Professor of Finance at the Wisconsin School of Business (“Hodder VS”).

For the reasons explained below and in Dr. Hodder’s Statement, the Board should discontinue this proceeding without further regulatory action.

INTRODUCTION AND SUMMARY

As WCTL demonstrated in its September 21, 2020 Reply (“WCTL Reply”) to the Joint Petition For Rulemaking (“Joint Petition”) filed by Union Pacific Railroad Company, Norfolk Southern Railway Company, and the U.S. rail operating subsidiaries of Canadian National Railway Company (“CN”) (collectively, “Joint Carriers”), the Joint Carriers’ proposal to change the Board’s methodology for making annual determinations

of revenue adequacy under 49 U.S.C. § 10704(a)(3) is a transparent and result-oriented effort to ensure that neither they nor any other Class I railroad can be found to be revenue adequate, and thereby have their rates or rate increases on movements over which they possess market dominance immunized from scrutiny under the Revenue Adequacy Constraint of the *Coal Rate Guidelines*.¹ WCTL showed that their proposal is at its heart, and by its sponsors' own admission, an attempted end run around the Board's consistent (and proper) rejection of the railroad industry's repeated requests to use their various versions of "replacement costs" to measure the carriers' investment to assess revenue adequacy, a methodological change that would have accomplished the same result. *See* WCTL Reply at 12-14.

Notwithstanding the clear case for rejection of the Joint Carriers' proposal made by WCTL and other parties that likewise replied in opposition, the *Dec. 30 Decision* opened a proceeding to consider elements of the proposal. While characterized as a "rulemaking proceeding," no specific new rules or changes to existing rules or established guidelines have been proposed. Rather, the *Dec. 30 Decision* seeks public input on a set of questions related to the Joint Carriers' proposal. Herein, WCTL and Seminole provide their responses to those questions.

It is appropriate to note as a threshold matter that the Joint Carriers have not complied with the *Dec. 30 Decision*. That decision directed the Joint Carriers to file

¹ *Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d 520 (1985), *aff'd sub nom. Consolidated Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987).

workpapers for their proposal, and the Board reiterated that directive in its later order served February 4, 2021. The Joint Carriers still have not complied with the Board's directive. They belatedly produced underlying proprietary Compustat figures, but not the full data that would have enabled alternate calculations, or identification of which data they chose to utilize and which they elected to discard.² Furthermore, they submitted cost of capital figures from Duff & Phelps only for 2019, and summary figures for the earlier years (2006-2018), again without the detail needed to verify the Joint Carriers' very complicated and data-intensive calculations or develop alternative calculations. The Joint Carriers' actions are especially troublesome because the Board has previously directed railroads not to rely on proprietary data, especially in rulemakings involving matters such as the cost of capital.³ Under the circumstances, the Board would be fully justified in terminating the proceeding for this reason alone.

Even if the Joint Carriers had submitted all of their proprietary data, or more appropriately, relied on publicly-available data, their proposal still could not be adopted for multiple independent reasons. First, their underlying thesis, that railroads will be unable to attract and/or retain needed capital unless they achieve a return on their investment that covers not only their own cost of capital, but also the premium above the

² The excluded data includes total assets and net earnings, which would facilitate a more meaningful ROIC analysis for some of the firms, and deferred tax assets, which may offset deferred tax liabilities. Hodder VS at 23, and 24 n.30.

³ *E.g., Railroad Cost of Capital - 2006*, EP 558 (Sub-No. 10) (STB served April 15, 2008), at 7 ("... WCTL complains that AAR has relied on a proprietary data source. . . This is disconcerting. It now appears that the relevant index ... is not publicly available at all We ... reject the AAR's reliance on a proprietary data source.").

cost of capital enjoyed by the median firm in the S&P 500 on its equivalent investment,⁴ does not advance – and in fact departs substantially from – the governing statutory standards for determining revenue adequacy.

Second, the Joint Carriers’ thesis lacks basic economic plausibility. It ignores, among other things, how the values of investment increase to reflect premium returns, so as to neutralize so-called excessive returns. Hodder VS at 4-11. It further posits that firms that earn less than the posited premium will cease to remain viable, and will have their capital siphoned off to the firms that do earn premiums, when there is no supporting evidence for that proposition, and abundant evidence to the contrary. Their underlying methodology also produces absurdly high returns on so-called investment for many firms, in large part by ignoring major elements of their investments, assets, and other means (in other words, the investment denominator) that are needed to produce those returns. *Id.* at 11-36. It also flies in the face of the actions and statements of railroad investors. In short, it is a fundamentally flawed and biased proposal that should not receive any further consideration from the Board. *Id.* at 36-38.

The Joint Carriers also propose to eliminate the adjustment for deferred tax liabilities from the investment base used to measure revenue adequacy. The basis for that

⁴ The Joint Carriers’ proposal comes with some additional qualifiers. First, they exclude real estate and financial firms, perhaps because their returns are too low to help the Joint Carriers’ cause. Second, investment is expanded to include amortizable intangibles (but not goodwill), perhaps to make the results for some firms appear more plausible, although the effort does not succeed, as explained *infra*. In addition, the Joint Carriers urge the exclusion (so-called flow through) of the offset for deferred tax liabilities.

adjustment remains just as valid as when the Interstate Commerce Commission (“ICC” or “Commission”) adopted it in *Standards for Railroad Revenue Adequacy*, 3 I.C.C.2d 261 (1986), *aff’d sub nom. Consol. Rail Corp. v. U.S.*, 855 F.2d 78, 93 (3rd Cir. 1988). The adjustment reflects the fact that deferred tax liabilities represent costs that railroads do not have to pay until later, if at all, and how the resulting savings reduce their revenue needs. To compensate firms for dollars that they have not paid is to provide them with an unneeded and unwarranted return on their subsidy or non-investment at the expense of their captive customers. Hodder VS at 34-35. For that reason, the offset for deferred tax liabilities remains the norm in the regulation of other industries, such as utilities, with captive customers. The protection of captive customers is an essential Board function under 49 U.S.C. § 10701(d)(1). The treatment of deferred tax liabilities has not changed under generally accepted accounting principles (“GAAP”), and the continued offset for deferred tax liabilities is essential for an accurate assessment of whether the railroads are achieving adequate revenues. To do as the Joint Carriers request is to determine that they are entitled to recover in advance on amounts that they have not paid or invested.

IDENTITY AND INTEREST

WCTL is a voluntary association formed in 1976, whose regular membership consists of utility shippers of coal mined west of the Mississippi River. WCTL members⁵ currently ship by rail, receive, and pay freight charges on more than 90 million tons of coal each year. Many WCTL members are dependent on a single railroad

⁵ The members of WCTL are listed in Attachment 1 hereto.

for the transportation and/or delivery of their essential coal fuels, and look to the Board and its regulatory regime to constrain monopoly pricing practices by their serving railroads. WCTL is the only organization whose primary purpose is protecting and advancing the interests of rail-dependent coal shippers.

Consistent with its mission, WCTL has been a leading participant in every proceeding before the Board and its ICC predecessor concerning railroad revenue adequacy and its role in rail rate regulation since before the enactment of the *Staggers Rail Act of 1980*, from Ex Parte No. 338, *Standards and Procedures for the Establishment of Adequate Railroad Revenue Levels* (1978), through Ex Parte No. 722, *Railroad Revenue Adequacy* (2014) (“Ex Parte No. 722”), and Ex Parte No. 761, *Hearing On Revenue Adequacy* (2019) (“Ex Parte No. 761”). WCTL also has participated in every STB proceeding related to the annual determinations of the railroad industry cost of capital and individual railroad revenue adequacy for over the past fifteen years, and was a key party to the proceedings leading to adoption of the *Coal Rate Guidelines* and its Revenue Adequacy Constraint.

Seminole is a not-for-profit electric generation and transmission cooperative organized under the Rural Electric Cooperative Law of Florida (Fla. Stat. § 425). Seminole’s primary purpose is to supply reliable and competitively priced wholesale electric power and energy to its nine member not-for-profit, rural distribution

cooperatives.⁶ Seminole’s wholesale service to its Members is utilized to provide retail electric service to approximately 1.8 million people and businesses in parts of 42 Florida counties. Seminole’s power supply portfolio includes owned generation, capacity and energy acquired through purchased power agreements with other utilities and independent power producers, and power purchased from renewable energy facilities such as waste-to-energy, landfill gas-to-energy, solar, and biomass facilities. In 2020, Seminole’s kWh sales to its Members were approximately 15.6 billion kWh.

Like WCTL, Seminole has a strong interest in revenue adequacy findings that give a realistic depiction of the financial health of the railroad industry and in the operation of a meaningful and effective Revenue Adequacy Constraint against unreasonable railroad rates.

COMMENTS

As summarized by the Board in the *Dec. 30 Decision*, the Joint Carriers seek to make two radical changes in the agency’s revenue adequacy rules: (1) determine a railroad’s revenue adequacy based on whether its return on investment exceeds the industry cost of capital by *more* than the return on investment for the median firm in a subset of the S&P 500 exceeds *its* cost of capital (the “Comparison Proposal”); and (2) reverse the current exclusion of deferred taxes from the railroads’ investment base when

⁶ Seminole’s rural distribution cooperative members are: Central Florida Electric Cooperative; Clay Electric Cooperative; Glades Electric Cooperative; Peace River Electric Cooperative; SECO Energy; Suwannee Valley Electric Cooperative; Talquin Electric Cooperative; Tri-County Electric Cooperative; and Withlacoochee River Electric Cooperative (collectively, “Members”).

determining rates of return. *Dec. 30 Decision* at 1-2. As part of the Comparison Proposal, the Joint Carriers would include “non-goodwill intangible assets” in both the railroads’ and the S&P 500 firms’ investment bases. *Id.* In the *Dec. 30 Decision*, the Board invited comments “on the issues raised in the [Joint Carriers’] petition generally” as well as on two (2) general and (4) specific questions. *Id.* at 3.

The WCTL Reply to the Joint Carriers’ initial September 1, 2020 Petition addressed the issues presented therein generally, and WCTL and Seminole incorporate WCTL’s Reply here for the Board’s favorable consideration. In these Opening Comments, WCTL and Seminole will focus on the individual questions posed in the *Dec. 30 Decision*.

A. THE JOINT CARRIERS’ PROPOSALS DO NOT ADVANCE THE COMPONENTS OF 49 U.S.C. SECTION 10704(a)(2)

The first general consideration posed by the *Dec. 30 Decision* is “in which ways do each of the Joint Carriers’ proposals advance or fail to advance each of the components of 49 U.S.C. § 10704(a)(2)?”. *Id.* at 3. As WCTL explained in its Reply, the Joint Carriers’ proposals rest on a false premise: that revenue adequacy serves as a barometer of market power abuse and/or an indicator of excessive profits. *See* WCTL Reply at 5-7. To the contrary, as a rate constraint, revenue adequacy only plays a role in circumstances where a railroad’s market power already has been proven under 49 U.S.C. § 10707, and is limited in application to rates on individual movements that are brought before the Board on formal complaint under the *Coal Rate Guidelines*. The Joint

Carriers' Comparison Proposal in particular is incompatible with both the statutory definition of revenue adequacy and its regulatory purpose.

The enumerated components of Section 10704(a)(2) all focus on an individual railroad's ability to earn sufficient revenue to cover all of its costs (including inflation), repay its incurred debt, support necessary investments, and produce a "reasonable economic profit or return" on capital employed by that carrier in conducting its business. "[R]easonable economic profit or return" is fairly read as referring to earning its cost of capital on its investments, in addition to covering its operating costs and expenses.⁷ In terms of the kinds of measure called for by the statute, the ICC long ago identified the standard that the agency has adhered to – and the railroads consistently supported – for decades:

We recognize that the act calls for a "fair, reasonable and economic profit or return," and that a rate of return on investment equal to the cost of capital is ordinarily a good measure of such a return.

⁷ Return on investment and the cost of capital are not GAAP cost components, and the Board is directed to utilize and rely on GAAP to the maximum extent practicable. 49 U.S.C. §§ 11142 and 11161. Relying on embedded/GAAP costs and the current cost of capital provides a level of financial return sufficient to attract and retain capital, as the Railroad Accounting Principles Board ("RAPB") properly found. "[T]he industrywide cost of capital rate ... represents the return required to attract and retain capital necessary for the provision of a sound rail transportation system in the United States." RAPB, Final Report (Sept. 1, 1987), Vol. 2, at 59. "[A] historical-cost asset base requires the use of a nominal cost-of-capital rate to account for inflation in capital costs.... The RAPB considered current market value and historical cost [meaning GAAP valuation] as the basis for asset valuation. It selected historical cost net of accumulated depreciation." *Id.* at 60 (footnotes omitted).

Standards and Procedures for the Establishment of Adequate Railroad Revenue Levels, Ex Parte No. 338, 359 I.C.C. 270, 273 (1978). The ICC similarly and properly recognized a few years later that “[t]he cost of capital is, by definition, the rate at which the market values investment funds.” *Standards for Railroad Revenue Adequacy*, Ex Parte No. 393, 364 I.C.C. 803, 809 (1981)

The statute makes no mention of the earnings of other, unrelated firms in vastly different industries, and the language of the statute references only “reasonable,” “needed,” and “adequate” revenues and returns. Nothing in § 10704(a)(2) invokes the policing of excessive profits, a subjective comparison to the profits or returns realized by non-railroad firms, or a railroad’s entitlement to a premium on its rate of return over the cost of attracting capital.

In addition to mischaracterizing the role of the revenue adequacy determination in the rate regulatory regime, the Joint Carriers in their initial Petition purported to justify their Comparison Proposal as consistent with § 10704(a)(2)(A)’s reference to the “raising of needed equity capital,” arguing that since railroads must compete with other firms for investment dollars, they cannot be considered revenue adequate until their rates of return on investment in excess of the cost of capital rival the high-performing companies listed in the S&P 500. *See, e.g.*, Joint Petition at 3. This also is a false paradigm that rests on defective economics and highlights the disparity between the Joint Carriers’ Comparison Proposal and the statutory elements of § 10704(a).

As the ICC found in 1978 and the Board has confirmed repeatedly since, if a carrier is earning a return on investment equal to the cost of capital, it has met the

measure of an attractive investment target. *Standards for Railroad Revenue Adequacy*, 364 I.C.C. at 809. “[T]he industry-wide cost-of-capital is the standard against which ROI generally is compared to determine revenue adequacy. As such, it represents the return required to attract and retain capital necessary for the provision of a sound rail transportation system in the United States.” RAPB, Final Report, Vol. 2, at 59; Hodder VS at 3-4, 10, 37. A firm that is able to earn its cost of capital on a long-term basis should have no difficulties attracting or, in the railroads’ case, retaining the capital reasonably needed for its operations.⁸ The calculation of the railroad cost of capital, in turn, already reflects how railroads need to compete with other investments to attract investment. Hodder VS at 5-6. The level of competition is explicit in the calculation of the inputs to the Capital Asset Pricing Model (“CAPM”), where the cost of capital for railroads will differ from that of other firms only by virtue of risk, and implicit in the operation of the Multi-Stage Discounted Cash Flow model (“MSDCF”). *Id.* at 5 n.5.⁹

The defective economics on which the Comparison Proposal is premised are addressed *infra*. For now, it is sufficient to note that the Board’s predecessor previously rejected an attempt by a shipper to base railroad capital needs on something other than the railroad cost of capital. *Omaha Public Power Dist. v. Burlington Northern R.R. Co.*, 3 I.C.C.2d 123, 147-48 (1986). In that case, the complainant shipper proposed

⁸ The Class I railroads have not issued new equity in decades, and most have instead been engaged in buying back substantial portions of their own shares, in addition to paying dividends.

⁹ Assuming that the MSDCF is properly configured and works soundly, which WCTL has repeatedly shown is not the case with the Board’s MSDCF.

to calculate the stand-alone railroad's cost of capital based on that of the traffic group, a group of coal-burning electric utilities. The defendant railroad opposed the approach, and the ICC rejected the shipper's effort. The ICC found that "[c]apital costs, to the extent they differ from firm to firm and industry to industry, do so largely on the evaluation of risk," and that "[b]ecause railroading is a very unique undertaking, involving enormous capital investments ... the risk factor in the cost of railroad capital is likely to differ from that of other industries." *Id.* at 147. The Joint Carriers are proposing to do what that shipper was prohibited from doing, plus add an illusory and otherwise inappropriate return. The Joint Carriers' argument cannot be reconciled with the outcome in *Omaha Public Power District*.

The same defects attach to the Joint Carriers' proposal with respect to deferred taxes. The ability to defer taxes constitutes a major benefit for railroads, and the benefit endures so long as the railroads continue to make capital expenditures and there is bonus depreciation, or the equivalent. The deferred taxes function as an interest-free loan or subsidy, and the railroads do not need a return on this non-investment in order to satisfy the § 10704(a)(2) criteria. *Hodder VS* at 34-35.

In short, the Joint Carriers' proposal cannot be reconciled with the statutory language of 49 U.S.C. § 10704(a)(2), or any of the prior precedents construing the provision.

B. IMPROVEMENTS TO THE CURRENT REVENUE ADEQUACY METHODOLOGY CAN AND SHOULD BE MADE IN OTHER PROCEEDINGS

The second general consideration raised by the Board in its *Dec. 30*

Decision is whether “there are other ways in which the Board’s current procedures could be modified” to better comport with Section 10704(a)(2)’s statutory goals. *Id.* at 4.

WCTL and Seminole submit that there indeed are ways in which the STB can improve its revenue adequacy guidelines. However, those improvements, which WCTL previously has recommended, can and should be adopted in other proceedings after appropriate notice and public comment. The instant docket is not needed and should not be used for that purpose.

To summarize, the existing revenue adequacy methodology should be modified in two (2) ways. First, as WCTL proposed in its Joint Opening Comments in *Ex Parte No. 722* (at 19-23), and further advanced in *Ex Parte No. 761*, the Board should move on from sole reliance on the return on investment/cost of capital test and return to consideration of other financial indicators in the revenue adequacy determination, including funds flow analysis, operating ratios, return on shareholders’ equity, and market-to-book ratios, among others. These indicators would be used as a check on the ROI/COC test, to ensure that a financially robust railroad would not be categorized as revenue inadequate, and vice versa.

Second, the Board should revise its method for determining the rail industry cost of capital to rely on the Capital Asset Pricing Model with a current market risk premium, rather than a hybrid CAPM/Multi-Stage DCF approach with a historic market

risk premium, which fails to correlate with current conditions and does not accurately reflect the opportunity cost of capital in today's market. These revisions were addressed in detail by WCTL most recently in Ex Parte No. 664 (Sub-No. 4), *Revisions to the Board's Methodology for Determining the Railroad Industry's Cost of Capital*.

C. THE JOINT CARRIERS' COMPARISON PROPOSAL IS FATALLY FLAWED

The first specific question posed by the Board in *Dec. 30 Decision* asks why using the median S&P 500 firm's return on investment premium over its cost of capital is an appropriate benchmark for a railroad's revenue adequacy, as opposed to relying on S&P 500 returns for firms in different percentiles; whether the Joint Carriers' proposal assumes that a firm below the median does not earn adequate revenues; and why that assumption is appropriate or inappropriate. *Id.* at 4.

1. NO PREMIUM IS NEEDED, AND EVEN THE BOTTOM S&P 500 FIRMS ARE LIKELY TO BE VERY SUCCESSFUL

WCTL and Seminole respectfully submit that the "median" S&P 500 firm's return is not an appropriate benchmark, because *no* determination of railroad revenue adequacy that relies on a comparison to unrelated firms' premium returns on investment is a valid approach under the governing statute or general economics. No explicit comparison is needed, nor is any premium over the cost of capital. Hodder VS at 10 (premium over cost of capital benchmark "is not an objective evaluation of the firm's ability to attract needed capital"), 37 ("estimation exercise undertaken in the Railroad Proposal is thus irrelevant as well as unnecessary").

Furthermore, there is no reason to presume that the bottom firm in the S&P 500 is necessarily earning an inadequate return on its investment or is unable to attract and retain needed capital. All things being equal, any firm in the S&P 500 is likely to be a successful firm in terms of having achieved a large capitalization and profitability (as it may be defined for its segment). *Id.* at 16 n.24.¹⁰ For that matter, firms not in the S&P 500 also may be very successful, and may have returns on various measures of investment or invested capital greater or less than those in the S&P 500. The Comparison Proposal is simply a mechanism to immunize rates from review under the Revenue Adequacy Constraint adopted over thirty-five years ago in *Coal Rate Guidelines*.

Agency precedent discussed *supra* makes clear that nothing in 49 U.S.C. § 10704(a)(2) supports a need for railroads to earn any premium return above their cost of capital in order to be deemed revenue adequate, and there is no logical correlation between the relevant statutory components and such a premium. Indeed, it has not been established that such a premium (assuming it were properly calculated) even is determinative *per se* of whether a firm is included in the S&P 500, which makes a comparison of returns in excess of the cost of capital in any percentile further irrelevant to a railroad's revenue adequacy. "The Railroad Proposal's idea that firms need to earn a

¹⁰ "To be eligible for S&P 500 index inclusion, a company should be a U.S. company, have a market capitalization of at least USD 11.8 billion, be highly liquid, have a public float of at least 10% of its shares outstanding, and its most recent quarter's earnings and the sum of its trailing four consecutive quarters' earnings must be positive." <https://www.spglobal.com/spdji/en/documents/additional-material/sp-500-brochure.pdf>. Of course, some firms in the S&P 500 may fail to remain profitable over time, and these or other S&P 500 firms may go bankrupt or otherwise founder over time.

premium over their cost of capital in order to attract funds for capital investments is seriously misguided.” Hodder VS at 4-5.

2. THE FOCUS ON THE PREMIUM RETURN IS FUNDAMENTALLY MISGUIDED.

The unsoundness of the Joint Carriers’ focus on the premium over the so-called cost of capital is addressed at length by Dr. Hodder in his Verified Statement, included as Attachment 2. He first explains that the concept of a premium return over the cost of capital rests on a misconception. The cost of capital reflects the return that investors expect the firm to achieve, and is reflected in the price of the shares and its market capitalization. Hodder VS at 5. A firm that enjoys or is expected to enjoy a premium return over its cost of capital likely is to command a premium valuation in the marketplace. *Id.* at 6.

Dr. Hodder further illustrates how premium returns will result in premium prices, and how a relatively modest premium return will have a large impact on the firm value. *Id.* at 6-10. This operation of the market is fatal to the Comparison Proposal’s central thesis. Investor dollars are not destined to flow from firms with sub-premium returns to firms with premium returns. Firms with premium returns will enjoy market premiums, and the market will balance at prices that provide equivalent returns to investors. “If a firm is expected to earn a premium above its cost of capital, the firm’s value should increase to the point where it just earns its cost of capital on the now larger firm value.” *Id.* at 6. “Market value adjusts so that the new expected earnings rate of

return matches the cost of capital.” *Id.* at 8, 10-11.¹¹ To give a simplified example, if there are two otherwise identical firms, valuation is based on return on investment, and the second firm has double the return of the first, that firm should trade at twice the price. Investors will obtain the same return from, and should be indifferent between, buying or holding two shares of the first firm or one of the second. It follows that the first firm will not fare better by investing in the second firm at the premium price, rather than investing in its own operations. The Joint Carriers’ “competition for capital” notion is illusory.

3. THE PREMIUM RETURNS PRESENTED BY THE JOINT CARRIERS LACK BASIC PLAUSIBILITY

Dr. Hodder also reviews the calculations performed by Joint Carriers’ retained experts, Drs. Murphy and Zmijewski, to the extent that it is possible without full access to the proprietary data that they utilized. Dr. Hodder explains that the costs of capital that they derived have some plausibility and internal consistency, but the returns on investment values they calculate do not. Hodder VS at 12-13. For example, over 29% of the 5467 entries that have estimated returns¹² exceed 50%, 600 have estimates that exceed 100%, and the maximum ROI estimate exceeds 22,000%. *Id.* at 14.

¹¹ Drs. Murphy and Zmijewski actually illustrate this principle, but only in describing how the market price adjusts downwards in response to diminished returns, even those below the cost of capital, such that new investors will expect to receive an equivalent return. Murphy Zmijewski Supplemental VS (Oct. 13, 2020), at 11-12.

¹² Some entries do not have ROI estimates because eligible investment would be zero or less. Hodder VS at 28-29 & nn.41-42. As explained *infra*, negative investment appears to result from the exclusion of some investment and the application of the Board’s adjustments for working capital and/or deferred tax liabilities.

Figures of this magnitude lack basic plausibility. To highlight the implausibility, he contrasts the overall annual compound growth rate in the S&P 500 index from 2006 through 2019, which is 7.03%, with the hypothetical growth rate of 67.3% for the average firm (not the median firm) depicted in the Murphy/Zmijewski analysis. *Id.* at 15-19. A 67% annual growth rate is not realistically sustainable for a single firm of any size and maturity, much less for the average firm within the S&P 500, and it does not represent a reasonable target for investment or investment grading, when the overall S&P 500 has achieved a growth rate little over one-tenth of that level. *Id.* at 16-19.

In short, the premium returns that the Joint Carriers seek to establish as the return on investment benchmark lack basic plausibility.

**4. THE IMPLAUSIBLY HIGH INVESTMENT RETURNS
RESULT FROM APPLYING INVESTMENT
DENOMINATOR MEASURES THAT ARE APPROPRIATE
FOR RAILROADS, BUT NOT FOR MANY OTHER TYPES
OF FIRMS**

Dr. Hodder further explains how the high returns appear to be a function of low investment denominators. In essence, Drs. Murphy and Zmijewski have taken an investment methodology that was developed specifically for railroads, where it makes sense and functions appropriately, and then exported it to very different types of firms, generating very perverse results. Hodder VS at 20-36.

Railroads have very high allocations of their assets to Property Plant & Equipment (“PP&E”), those assets are regularly renewed through significant capital expenditures, and the bonus depreciation on those capital expenditures result in

significant deferred tax liabilities that reduce the outlays needed for those investments. *Id.* at 33, 35. In addition, railroads have little in the way of goodwill¹³ or amortizable intangibles, little in the way of research and development expense, and a modest adjustment for working capital. That formula will not work properly when applied to other firms, such as those that lack substantial PP&E, or that rely on large investments in goodwill or other assets that are not recognized under GAAP. Other firms may avoid PP&E because they supply nonphysical services, or they are able to outsource PP&E-intensive activities. Still other firms may develop and rely on intellectual property or market share through research and development, or other operating losses that are not capitalized, and thus do not show up as balance sheet assets unless the firm is acquired by another company at a premium, in which case the premium might get applied to goodwill. Excluding goodwill from the investment denominator increases the size of the returns, but ignores a key factor in how many of those firms achieved their revenues and incomes in the first place. *Id.* at 31-34.

The exclusion of those other assets and investments can cause other elements of the Board's formula to produce distortions. For example, the working capital adjustment normally has a relatively modest impact when viewed against the totality of a firm's assets. However, if goodwill is eliminated and the firm has modest PP&E, then the working capital can cause the net assets to be quite low, resulting in a high return

¹³ The one notable exception is BNSF, where Berkshire Hathaway Inc. was willing to pay more than the fair value of assets for the remainder of the railroad. Hodder VS at 32 & n.44.

percentage. In some cases, the working capital adjustment will exceed the value of the included investment, causing the firm to have negative net investment and thus be excluded from the rankings. *Id.* at 23-31. The deferred tax adjustment can have a similar impact. *Id.* at 24-28, 34-35.

The bottom line is that the Joint Carriers have not shown that the returns they identify are realistic; rather, only that there are good reasons not to apply the Board's methodology to other types of firms. But there is no reason to embark on that "irrelevant as well as unnecessary" exercise in the first place. *Id.* at 37.

5. THE RAILROADS HAVE HAD NO DIFFICULTY ATTRACTING CAPITAL FROM SOPHISTICATED INVESTORS

If the Joint Carriers and their experts were correct in their analysis, no one, especially a sophisticated investor, would ever want to invest in railroads because there are far superior returns to be had elsewhere. However, there is no real-world evidence that what the Joint Carriers and their experts depict as the paltry returns of the railroads have in any way impeded their ability to attract and retain capital. To the contrary, there is abundant evidence that the railroads have been able to attract and retain investment from highly sophisticated investors that are well-acquainted with the sorts of investment opportunities that the Joint Carrier depict as offering superior returns.

The largest stockholder in CN, is Bill Gates and his controlled entities.

<https://www.barrons.com/articles/bill-gates-seat-train-canadian-national-51616794293>

(March 27, 2021). Mr. Gates, reported (pre-divorce) to be the fourth wealthiest

individual in the world,¹⁴ is obviously someone well-acquainted with the types of companies that are able to generate large returns with modest PP&E, which are the sorts of firms that the Joint Carriers posit would siphon funds from railroads.¹⁵ Yet, he is CN's single largest stockholder.

Further evidence of the unsoundness of the Joint Carriers' thesis is the stated willingness of CN itself to pay \$30 billion, plus assume \$4 billion in debt, to acquire KCS, which remains revenue inadequate under the Board's measure of revenue adequacy. Furthermore, CN is not the only suitor for KCS, demonstrating that a return on investment in excess of the Board's cost of capital is not a prerequisite for attracting railroad investment.

Another notable railroad investor is Warren Buffet, reported to be the fifth richest person in the world.¹⁶ Not only is he controlling stockholder of Berkshire Hathaway, the owner of BNSF, but his firm also is a substantial holder of other companies, including Apple, which has a very high return on investment under the Murphy/Zmijewski analysis. Berkshire and Mr. Buffett can invest in almost any type of enterprise, but have chosen to invest in BNSF and have expressed no dissatisfaction about that choice. To the contrary, Mr. Buffett's most recent letter to his fellow

¹⁴ *E.g.*, <https://www.visualcapitalist.com/richest-people-in-the-world-2021/>.

¹⁵ The Joint Carriers data shows that Microsoft in 2019 had a ROIC of 86.1%, an Adjusted ROIC of 57.4%, and a cost of capital of 9.6%. Microsoft's ROIC and Adjusted ROIC both exceeded 100% in 2006-2013.

¹⁶ *E.g.*, <https://www.visualcapitalist.com/richest-people-in-the-world-2021/>.

stockholders noted the attractiveness of investments that offer returns on limited investment, but also stressed the attractiveness of companies like BNSF:

Our leadership in fixed-asset ownership, I should add, does not, in itself, signal an investment triumph. The best results occur at companies that require minimal assets to conduct high-margin businesses – and offer goods or services that will expand their sales volume with only minor needs for additional capital. We, in fact, own a few of these exceptional businesses, but they are relatively small and, at best, grow slowly.

Asset-heavy companies, however, can be good investments. Indeed, we are delighted with our two giants – BNSF and BHE: In 2011, Berkshire's first full year of BNSF ownership, the two companies had combined earnings of \$4.2 billion. In 2020, a tough year for many businesses, the pair earned \$8.3 billion. BNSF and BHE will require major capital expenditures for decades to come. The good news is that both are likely to deliver appropriate returns on the incremental investment.¹⁷

Notably, Berkshire Hathaway also recently has offered to invest \$8.3 billion to eliminate Texas's recent power problems going forward, conditioned upon receiving the same 9.3% rate of return that regulated Texas utilities/generators are allowed to earn.¹⁸ That 9.3% reflects the return on equity component, not the lower weighted average cost of capital that includes debt, and Texas utilities are not assured to

¹⁷ Warren Buffett 2020 Letter to Berkshire Hathaway shareholders at 13 (Feb. 27, 2021), <https://www.berkshirehathaway.com/letters/2020ltr.pdf>.

¹⁸ E.g., <https://www.wsj.com/articles/berkshire-hathaway-offers-to-spend-8-3-billion-on-emergency-power-plants-in-texas-11616699446?page=1>.

receive the target return.¹⁹ Furthermore, the established practice in Texas, as elsewhere, is to reduce the amount of utility investment by the amount of deferred tax liabilities.²⁰ The 9.3% rate of return does not reflect the type of premium that Joint Carriers posit is essential to attract investment, *i.e.*, it reflects the cost of (equity) capital, without any premium. Nonetheless, Berkshire Hathaway and Mr. Buffett are willing to commit a large amount of capital to realize that return. Another company made a similar proposal, premised upon a slightly lower 9% return.²¹ It should be clear that railroads do not require the return premiums that the Joint Carriers claim are necessary to attract investment.

The Joint Carriers' approach finds no support in basic economic and financial market theory, and it is contradicted by the recent actions of prominent railroad investors, including the largest shareholder of the largest Joint Carrier.

D. THERE IS NO MERIT IN LOOKING FOR AN ALTERNATIVE "COMPARISON GROUP"

The Board's second specific question related to the Joint Carriers' Comparison Proposal asked whether looking at a "different comparison group" among

¹⁹ *E.g.*, <https://www.aep.com/Assets/docs/investors/09-30-20ROEand12-31-19RateBaseforallJurisdictions.pdf>.

²⁰ The Texas PUC specifies the deduction from the rate base of "(i) accumulated reserve for deferred federal income taxes" in <https://www.puc.texas.gov/agency/rulesnlaws/subrules/electric/25.231/25.231.pdf>.

²¹ <https://www.reuters.com/business/energy/starwood-energy-group-proposes-8-bln-investment-texas-power-infrastructure-2021-04-23/#:~:text=Starwood%20proposed%20building%20new%20natural,according%20to%20a%20Reuters%20analysis>.

the S&P 500 firms would provide an “appropriate benchmark” for assessing railroad revenue adequacy. *Dec. 30 Decision* at 4. Since there is no need for any premium return to attract railroad investment, and since any premium would be neutralized by a premium price, there is no need to consider a different group of non-railroad firms to serve as the comparison group. *Hodder VS* at 36-38.

The focus of the governing statute is on an individual railroad’s ability to cover its costs and attract necessary capital to meet its own investment requirements, not on that ability relative to another, unrelated firm’s own costs and capital needs. *Id.* at 4. As explained *supra*, the competition for capital argument cannot otherwise justify the Joint Carriers’ Comparison Proposal. *Hodder VS* at 37 (“comparing railroad ROI estimates to those for non-railroads doesn’t address the issue of how to improve the railroad estimation approach”). The competitive nature of the capital markets means that each firm will achieve a market capitalization that reflects its relative degree of success, such that each investment presents equivalent value and opportunity.²² The fact that one or more firms in the S&P 500, which as the WCTL Reply noted represents the most profitable companies in the nation,²³ might score higher on some selected – and contrived – scale is meaningless to the questions posed by Section 10704(a)(2): whether a

²² To the extent one wants to isolate differences in the cost of capital for individual firms, the established mechanism for doing so is the beta component of the Capital Asset Pricing Model.

²³ WCTL Reply at 12-13. Therein, it also was shown that by their own admission, the Joint Carriers’ proposals were a result-oriented attempt to replicate the outcome of a shift to the use of the railroads’ version of “replacement costs” in determining each railroad’s investment base under the Board’s existing methodology.

particular railroad is sufficiently profitable to cover its costs and attract the capital necessary to maintain, restore, and expand its transportation capability. As WCTL showed in *Ex Parte No. 722*, the Class I railroads for the most part have achieved that goal consistently for more than a decade.²⁴

In the few regulatory circumstances where the Board and its predecessor have sought to identify appropriate “comparison groups,” such as enforcing the once-preeminent anti-discrimination prohibition in what is now 49 U.S.C. § 10741, or applying the “RV/C_{COMP}” component of the Board’s “Three Benchmark” rules in *Simplified Standards for Rail Rate Cases*, *Ex Parte No. 646* (Sub-No. 1) (STB served Sept. 5, 2007), *aff’d sub nom. CSX Transp., Inc. v. Surface Transportation Board*, 568 F.3d 236 (D.C. Cir. 2009), the agency and reviewing courts have emphasized the importance of finding meaningful *similarities* between or among members of a proposed group in order to have a valid comparison.²⁵ Whether one looks to S&P 500 Industrials, groupings of railroad customers, or some other S&P 500 subset, there is too much diversity in terms of capital intensity, market role and share, investment strategy, business planning, regulatory treatment (or not), etc., to permit a relevant comparison for purposes of the standards of

²⁴ *WCTL Ex Parte No. 722* at 9-13, 17-20.

²⁵ *See Nueces County Navigation District No. 1 v. Abilene & Southern Ry. Co.*, 364 I.C.C. 269, 270 (1980) (“similarity or disparity in transportation conditions, continues to be our primary consideration [under § 10741]”); *cf. Seaboard Coast Line R.R. v. United States*, 724 F.2d 1482, 1489-90 (11th Cir. 1984) (§ 10741). *See E.I. Dupont de Nemours and Co. v. CSX Transp., Inc.*, NOR 42099 (STB served June 30, 2008), at 9-11 (Three Benchmark).

Section 10704(a)(2), which focus solely on individual railroads' capabilities to cover costs and attract capital. Hodder VS at 33.

For example, the S&P Industrials include airlines, as well as companies such as Dun & Bradstreet, Robert Half, Boeing, Equifax, HIS Markit, 3M, Lockheed-Martin, Northrup Grumman, Rockwell, Raytheon, and Trane, among many others. Their diversity in terms of PP&E intensity, market share, regulatory oversight (or lack thereof), and other key factors is broad, and notably, their or their managements' performance are not recognized by the Class I railroads in determining their own executives' management evaluations and associated compensation.²⁶

The same is true of a group comprised of S&P 500 members that usually are railroad customers. *See Dec. 30 Decision* at 4. The initial selection of prospective customers would have to differentiate between those that enjoyed meaningful measures of market power and those whose arenas were more competitive, as the former might show higher returns vis-à-vis capital assets and thereby reinforce the railroads' existing dominance over their captive shippers, which is the very scenario that the *Guidelines'* Revenue Adequacy Constraint is intended to address. It also is likely that for a given S&P 500 firm, there may be product or service lines that fall into both camps, in ways that bear no relation to an individual railroad's mix of captive and competitive traffic.

²⁶ *See WCTL Ex Parte No. 722*, V.S. Levine at 6-7; *see also* Hodder VS at 29-30 (discussed firms designated GICS 20 (Industrials)).

These and other qualitative differences reflected in the S&P 500 generally should be disqualifying in any consideration of a valid “comparison group.”

Significantly, the ICC squarely rejected the attempt of a shipper to have the cost of capital for the stand-alone railroad based on the lower costs of capital of its shipper group. *Omaha Public Power Dist.*, 3 I.C.C.2d at 147-48. The ICC explained that “[c]apital costs, to the extent they differ from firm to firm and industry to industry, do so largely on the evaluation of risk,” and that “[b]ecause railroading is a very unique undertaking, involving enormous capital investments ... the risk factor in the cost of railroad capital is likely to differ from that of other industries.” *Id.* at 147. There is no reason to base the revenue adequate return level for railroads on the basis of what some other group of firms operating in different sectors is able to achieve.

In sum, the flaw in the Joint Carriers’ Comparison Proposal is that it would assess the adequacy of a railroad’s return on investment by comparing it to premium returns achieved by unrelated companies with vastly different investment bases and capital costs, contrary to the directives in Section 10704(a)(2). No premium is appropriate, and that flaw cannot be corrected by changing the composition of the group of unrelated firms used for the purported comparison. At best, the exercise might identify firms that may be over or underpriced based on various ratios. That may be a useful exercise for investors, but it is not the Board’s function, and it is not an exercise appropriate for determining revenue adequacy.

**E. THE CHANGING COMPOSITION OF THE S&P 500
EMPHASIZES THE FLAWS IN THE COMPARISON
PROPOSAL**

The Board's final specific question related to the Joint Carriers'

Comparison Proposal focuses on the regularly changing composition of the S&P 500, and asks whether those changes "pose a problem with respect to the Joint Carriers' proposed methodology." *Dec. 30 Decision* at 4. WCTL and Seminole submit that while the shifting nature of membership in the S&P 500 further highlights the invalidity of the Comparison Proposal from the standpoint of proper implementation of 49 U.S.C. § 10704(a)(2), it is not the principal "problem."

In its *Dec. 30 Decision*, the Board referred to a company's removal from the S&P 500 if its market capitalization falls below a certain level. However, composition changes also come about as a result of a company "growing into" the S&P 500 through increased earnings and market share (*e.g.*, Tesla), or through mergers between listed firms, private equity buyouts, and bankruptcies, all of which can open up new membership spots. These changes are a negatively complicating factor if one seeks to identify a supposedly appropriate "comparison group" to measure premium returns over capital costs, but the larger points are that: (1) ROIC premiums, at least as calculated by the Joint Carriers, are not a driving factor for inclusion in the S&P 500, and (2) such premiums have no bearing on whether a firm can attract and retain needed capital for the reasons previously stated. "[T]he suggestion that a return premium (a substantial one in the Railroad Proposal) above a firm's cost of capital was necessary to have access to adequate funding ... is financial nonsense...". Hodder VS at 37.

As shown *supra*, the Comparison Proposal is invalid as a measure of railroad revenue adequacy because 49 U.S.C. § 10704(a)(2) directs the Board to assess whether an individual railroad’s earnings are sufficient to cover *its* costs, service *its* debt, and attract adequate capital to meet *its* needs for rail system investment and sustainability, not whether a carrier’s return on investment matches that of a composite of unrelated firms selected for their premium earnings and growth potential. The Board and its predecessor determined – with court approval and (until very recently) consistent and forceful railroad industry support – that measuring a railroad’s return on net investment against the rail industry’s cost of capital was the most appropriate approach to meeting the statutory mandate. While WCTL and others have demonstrated that there are ways in which that methodology can be improved, the Comparison Proposal is nothing more than a creative ruse to avoid application of the *Guidelines*’ Revenue Adequacy Constraint, altogether now that multiple Class I railroads have reached the goal of Section 10704(a)(2) on a sustained basis. The shifting nature of the S&P 500 membership is but another reason why the Comparison Proposal should be rejected.

F. THE BOARD’S CURRENT TREATMENT OF DEFERRED TAXES FOR REVENUE ADEQUACY PURPOSES REMAINS VALID

The Board’s current treatment of deferred taxes for revenue adequacy purposes – referred to as the “utility method” in *Dec. 30 Decision* – remains as valid today as when the Board’s predecessor first adopted it in *Standards for Railroad Revenue Adequacy*, 3 I.C.C.2d 261 (1986) (“*Standards*”), *aff’d sub nom. Consol. Rail Corp. v.*

United States, 855 F.2d 78 (3d Cir. 1988). Now, as then, it conforms to GAAP and allows for a more accurate determination of railroad profitability. *Standards*, 3 I.C.C.2d at 272-75. The Joint Carriers’ proposal to change the Board’s approach to the “flow-through” method is as result-oriented as their Comparison Proposal: the former would artificially inflate a railroad’s investment base, while the latter improperly increases the ROIC target return, leaving every Class I railroad well below the threshold for revenue adequacy. The WCTL Reply addressed in detail and rebutted each of the Joint Carriers’ arguments in favor of their “flow-through” model, and WCTL and Seminole incorporate WCTL’s previous points by reference.²⁷ Herein, WCTL and Seminole respond to each of the specific questions raised by the Board in *Dec. 30 Decision*.

In *Standards*, the ICC recognized that “revenue adequacy has significance primarily in terms of the effect it can have on railroad rates on captive traffic.” 3 I.C.C.2d at 273. Consistent with that finding, the agency observed that “because captive shippers are subject to the same degree of market power as the customers of other regulated utilities, it seems appropriate that the railroads be evaluated in the same manner as such utilities in their dealings with captive shippers.” *Id.* The analogy remains just as true today. The principal, practical regulatory effect of a carrier’s achieving revenue adequacy is to restrict its ability to continue to differentially price its captive customers under the *Guidelines*, 1 I.C.C.2d at 535. *See also Standards*, 3 I.C.C.2d at 273. Indeed, it is the prospect that the Board is prepared to implement the *Guidelines*’ Revenue

²⁷ WCTL Reply at 14-21.

Adequacy Constraint that prompted the Joint Carriers' proposal in the first place.²⁸

Captive rail shippers and regulated utility customers both continue to exist in substantial numbers, even if the latter population is significantly larger. As for the railroads, there now are fewer Class I carriers than there were in 1986, and those that remain are considerably larger, which if anything exacerbates the need for effective captive shipper rate protections. The ICC's original customer analogy and reasoning for adopting the so-called "utility method" of treating deferred tax liability remain valid.

Likewise, there have been no relevant, intervening changes in GAAP that would upend the ICC's conclusion that excluding accumulated deferred tax reserves from a railroad's investment base for revenue adequacy purposes is more consistent with GAAP than the Joint Carriers' "flow-through" approach, which the agency specifically rejected in *Standards*. While it is true that the Board may not be strictly compelled by law to follow GAAP in every circumstance under its jurisdiction, 49 U.S.C. § 11142 directs the agency to do so "[t]o the maximum extent possible," and to administer its responsibilities under the governing statute (including § 10704) accordingly. Absent a fundamental overhaul of the corporate tax system, railroads will generate new deferred tax liabilities and associated tax benefits as they continually invest in their system infrastructure, which the Joint Carriers' proposal would ignore. The Railroad Accounting Principles Board's 1987 Final Report provided an apt and still-valid summary:

²⁸ *Id.* at 14, n. 22.

Unlike debt and equity sources of funds, deferred tax credits are a zero cost source of funds. Since the purpose of a revenue adequacy determination is to ascertain whether a railroad entity is earning revenues sufficient to attract and retain capital, that portion of the investment base which is financed through deferred taxes should not be included in the [return on investment].

Railroad Accounting Principles, Final Report, Vol. 2 (September 1, 1987), at 59. *See also* WCTL Reply at 15-16. Mr. Buffett also has championed the utility of deferred taxes as a zero-cost source of capital. For example, The Berkshire Hathaway Owner’s Manual, available at <https://www.berkshirehathaway.com/owners.html>, explains that “Deferred tax liabilities bear no interest.... [T]hey are liabilities without covenants or due dates attached to them. In effect, they give us the benefit of debt – an ability to have more assets working for us – but saddle us with none of its drawbacks.”

The long-established treatment of deferred tax liability continues to provide a more accurate picture of railroad profitability than the approach promoted by the Joint Carriers. Deferred taxes offset funds that railroads otherwise would need to raise through debt or in equity markets in order to make planned and necessary capital expenditures. In this respect, they are the equivalent of interest-free loans from U.S. taxpayers or, as Dr. Hodder explains, an implicit subsidy. Hodder VS at 35. They ensure that railroads across the board will pay taxes at a lower rate than the statutory rate, as WCTL showed last year,²⁹ something that the “flow-through” model also fails to recognize. As the Chairman of Berkshire Hathaway Inc. – parent of BNSF Railway – noted following the

²⁹ *See* WCTL Reply at 15-16.

2017 federal corporate tax cut legislation, deferred tax funds represent a source of investment capital that is low or no-cost, and very low-risk. *See* Berkshire Hathaway Inc., Annual Report for 2017 at 3, 20. *See also*, WCTL Reply at 16-17. These funds are real, and continuously renew and grow, and as such should be recognized as contributing to a railroad's profitability, not ignored with the consequence that the same carrier's financial health is artificially discounted. The Joint Carriers' proposal would ignore the palpable benefits of deferred tax liabilities, allow them to earn a return on the subsidy they receive from taxpayers at the expense of captive customers, and present a diminished view of railroad profitability that artificially would push the Class I carriers farther away from revenue adequacy, just as the Comparison Proposal would do.

The Joint Carriers and their experts claim that changing corporate tax rates are a reason to use the flow-through method and cease treating deferred taxes as an offset to associated investment. However, that is no reason to depart from the utility method. The value of the deferral may increase or decrease, but it is unlikely to disappear, especially as the railroads continue making capital expenditures and there is bonus or otherwise accelerated depreciation in excess of that allowed under GAAP. Removing the adjustment for deferred taxes is to ignore the substantial benefits of a zero-cost loan, one that frees up funds for other purposes and that reduces the effective cost of the asset investments. Indeed, GAAP and the Board's revenue adequacy and costing determinations relying on all sorts of other estimates that may prove to need revision, *e.g.*, an asset may be impaired, an environmental liability may be overlooked, an account may go bad, etc. In all those instances, one makes an appropriate estimate at the time and

an adjustment, if and when one is needed. Deferred tax liabilities should receive similar treatment, particularly since changes in the corporate marginal tax rates remain infrequent.

CONCLUSION

The changes in the Board's approach to determining railroad revenue adequacy that have been proposed by the Joint Carriers and are summarized in *Dec. 30 Decision* would improperly bias the Board's annual determinations under 49 U.S.C. Section 10704(a)(3), and effectively nullify the Revenue Adequacy Constraint under the *Guidelines* for years to come. Based on the foregoing, the accompanying Verified Statement of James Hodder, and WCTL's Reply to the Joint Carriers' September 1, 2020 Joint Petition for Rulemaking, the Board should discontinue this proceeding without further regulatory action.

Respectfully submitted,

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Dated: May 17, 2021

**MEMBERS OF
WESTERN COAL TRAFFIC LEAGUE**

Ameren Missouri

Arizona Electric Power Cooperative, Inc.

CLECO Corporation

CPS Energy

Entergy Services, Inc.

Evergy, Inc.

Lower Colorado River Authority

MidAmerican Energy Company

Minnesota Power

Nebraska Public Power District

Western Fuels Association, Inc.

**VERIFIED STATEMENT
OF
JAMES E. HODDER**

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

**VERIFIED STATEMENT
OF
JAMES E. HODDER**

I. Introduction

My name is James E. Hodder. I am an Emeritus Professor at the University of Wisconsin-Madison, where I was the Charles and Laura Albright Professor of Finance in the Wisconsin School of Business from 1992-2012. After retiring from my teaching post, I was an Economic Fellow at the U.S. Securities Exchange Commission (“SEC”) in Washington D.C. during 2013-2014. Subsequently, I consulted for the SEC during 2015-2017. I am also the Principal of a consulting firm, 5 Lakes Financial Research, LLC. My address is 100 E. Huron #4904, Chicago, Illinois, 60611.

While at the Wisconsin School of Business, I served as Chair of its Finance Department during 2004-2008 and 2011-2012. From 1978 to 1992, I served on the faculty of Stanford University, where I received my Ph.D. in Economics in 1979. My other academic degrees are a Bachelor of Science in Industrial Engineering from Stanford University, a Master of Business Administration from the University of Michigan, and a Master’s of Arts in Economics from the University of California (Berkeley).

At Wisconsin, I taught Corporate Finance at the graduate level as well as corporate-oriented courses on Financial Policy and on Multinational Business Finance at both graduate and undergraduate levels. In addition, I taught several courses on options and other derivative securities. At Stanford, most of my teaching was in corporate finance with a particular focus on valuing manufacturing and technology investments.

Substantial portions of my research and publications have addressed the subjects of investment evaluation and discounting. A key aspect of those subjects is the firm or project cost of capital, including appropriate risk and inflation adjustments. Another substantial portion of my research has addressed corporate capital structure.

I previously have submitted testimony to the Surface Transportation Board (“Board”) in several coal rate cases: on behalf of Wisconsin Power & Light in its case against Union Pacific Railroad Company, on behalf of PPL Montana in its case against Burlington Northern and Santa Fe Railway Company, on behalf of the Western Fuels Association and the Basin Electric Power Cooperative in their case against BNSF Railway Company, and on behalf of AEP Texas North Company in its case against BNSF Railway Company. I also provided testimony to the Board on several occasions on behalf of the Western Coal Traffic League (“WCTL”) in connection with Ex Parte No. 664, Methodology to be Employed in Determining the Railroad Industry’s Cost of Capital, as well as with Ex Parte No. 664 (Sub-No. 1), Use of a Multi-Stage Discounted Cash Flow Methodology in Determining the Railroad Industry’s Cost of Capital. My participation included a Verified Statement in December 2006, a Public Hearing in February 2007, a Verified Statement in September 2007, a Reply Verified Statement in October 2007, a

Public Hearing in December 2007, a Verified Statement in April 2008, and a Verified Statement in August 2013. A copy of my detailed curriculum vitae is included herewith as Appendix A.

In the current instance, I have been asked by counsel for WCTL and Seminole Electric Cooperative, Inc. to provide comments in response to the Board's Decision served on December 30, 2020 ("December 30 Decision") concerning the Joint Petition for Rulemaking to Modernize Annual Revenue Adequacy Determinations ("Railroad Proposal") filed in Ex Parte No. 766 on September 1, 2020 by Union Pacific Railroad Company, Norfolk Southern Railway Company, and the U.S. rail operating affiliates of Canadian National Railway Company. In particular, I have been asked to respond to the Verified Statements from Professors Kevin M. Murphy and Mark E. Zmijewski, as well as their spreadsheets with data and calculations submitted in support of the Railroad Proposal.

In the next section, I discuss why a firm's cost of capital is an appropriate benchmark for evaluating its economic earnings performance. That section uses a simple Discounted Cash Flow ("DCF") model to illustrate how even a modest increase in expected earnings can dramatically increase a firm's value when its cost of capital (discount rate) remains constant. Hence, targeting an economic earnings rate that exceeds the cost of capital is basically an attempt to increase the firm's share price. However, that strategy does not increase the firm's ability to obtain funding for capital investments in an efficient financial market. Section III points out that a large portion of the accounting return estimates over 2006-2019 introduced to support the Railroad Proposal are implausibly high. Even averages of those return estimates across firms are so large that they would cause massive dividend payout rates and/or share price increases that are totally inconsistent with what has actually occurred. Section IV examines some of the

accounting return estimates in more detail to see why they are so high. Basically, they are high because an estimation procedure that was tailored for railroads is a poor fit for many non-railroad firms. Finally, Section V provides concluding comments that indicate the Railroad Proposal was not well thought out and should not be pursued by the Board.

II. Cost of Capital, Expected Earnings, and Firm Value

Under 49 U.S.C. § 10704(a), the Board is to make an annual determination whether rail carriers are earning adequate revenues, in particular, revenues sufficient to “attract and retain capital in amounts adequate to provide a sound transportation system in the United States.” The Board describes its long-established procedure for assessing revenue adequacy in the December 30 Decision as “a railroad is considered revenue adequate under 49 U.S.C. § 10704(a) if it achieves a rate of return on net investment (ROI) equal to at least the current cost of capital for the railroad industry.”¹ In my view, that general procedure is reasonable and appropriate; however, I would advocate added attention to implementation issues.² The Railroad Proposal’s

¹ Second paragraph, first page of the December 30 Decision.

² Specifically, it may also be appropriate to take additional factors into account. If the Board is going to rely on only a comparison of the ROI to the cost of capital, it becomes very important that the cost of capital be estimated accurately. I have previously expressed concerns with the Board’s Multi-Stage Discounted Cash Flow model (“MSDCF”) and with the Board’s use in the Capital Asset Pricing Model (“CAPM”) of a very long-term estimate for the market risk premium that may not properly reflect current market conditions. I will not repeat those criticisms here.

idea that firms need to earn a premium over their cost of capital in order to attract funds for capital investments is seriously misguided.

The Railroad Proposal ignores the fact that a firm's cost of capital represents what investors expect/require that firm to earn.³ If it appears the firm will earn more than (previously) expected, its stock price should increase *ceteris paribus* (other things unchanged) until the return on its now larger market value matches its cost of capital.⁴ That gain in market value benefits shareholders, and perhaps employees with incentive compensation tied to the firm's share price or a related proxy for market value. It is in no sense necessary for a firm to attract and retain adequate capital.

It is important to be clear that this line of analysis is holding firm risk characteristics constant as well as the risk-free rate, the market price of risk, etc. A firm's cost of capital is a market-determined measure of expected performance for an investment. That cost of capital is determined by the investment's risk characteristics as well as market conditions⁵, which include the supply and demand for investible funds as well as risk characteristics of alternative potential investments.

³ Indeed, this relationship provides the foundation for a Discounted Cash Flow cost of equity calculation in that the cost of capital is the discount rate at which the projected cash flows equal the market value of an all-equity firm.

⁴ If it seems the firm will earn less than expected, the process works in the opposite direction with a loss in market value.

⁵ Those considerations are explicit in the CAPM, but only implicit in a DCF model for estimating the cost of equity.

The set of alternative potential investments is global and vast. Just within the U.S., the range of potential investments is staggering. In addition to listed shares and corporate bonds, there are government bonds (local, state, federal), agency bonds, commercial paper, commodities, derivative securities, mortgage-backed securities, partnerships, personal loans, private funds (hedge funds, venture capital, private equity, etc.), real estate (an individual could even consider a home as an investment), small business ventures, etc. The S&P 500 is a relatively small portion of the universe of potential investments; and its risk characteristics, etc. are only part of what determines a firm's cost of capital. Furthermore, consumption is an alternative to savings/investment.

Investor responses to changing risk and return characteristics across the set of potential investments are what determines a firm's cost of capital, or that of other entities. In effect, financial competition determines market values and costs of capital. If a firm is expected to earn a premium above its cost of capital, the firm's value should increase to the point where it just earns its cost of capital on the now larger firm value.⁶

⁶ To be clear, this statement describes a situation where investors as a group "expect" the firm to earn a premium; and the share price responds to that expectation immediately. One could think of an alternative situation where individuals have differing expectations and undertake trades that offset each other with no price movement. There is a statement in the Executive Summary (page 5) of the Railroad Proposal that "Investors ... are naturally inclined to seek out options where they expect to earn more than the cost of capital." That is a description of individual behavior; however, that behavior succeeds only when other investors have not already identified the same attractive investment. Otherwise, its price has already moved to eliminate the potential to earn more than the cost of capital.

With the cost of capital held constant, how much the firm's market value changes depends on whether the "excess earnings" (a positive amount implies exceeding expectations) is a one-time event, or whether it is anticipated to continue and at what level. To see how this works, consider a simple example analogous to one described by Murphy and Zmijewski in their Supplemental Verified Statement.⁷ A firm invests \$500 million in its operations (its only investment), and those operations are expected to generate annual cash flows of \$50 million paid out to investors in perpetuity.⁸ The firm's cost of capital is 10%, which does not change over time.⁹ In this situation, the value of the firm is the Present Value ("PV") of the annual \$50 million cash flows discounted at 10%, which equals the invested amount of \$500 million. That is,

$$(1) \quad PV = \frac{\$50 \text{ million}}{0.10} = \$500 \text{ million}$$

Now suppose that it suddenly turns out that the firm is expected to have annual earnings of \$75 million, instead of the original \$50 million annually.¹⁰ That is, it has excess annual

⁷ Beginning on page 10 of the Supplemental Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski, dated October 13, 2020.

⁸ In their example, the firm is a railroad; but the basic financial principals apply for firms generally.

⁹ They do not specify whether this is a Weighted Cost of Capital ("WACC"), but that is consistent with their example. Alternatively, it could be simply the cost of equity for an all-equity firm.

¹⁰ Perhaps the firm has hired a brilliant new CEO or had a technological breakthrough that will greatly enhance its manufacturing productivity.

earnings of \$25 million. If these excess earnings are expected to be perpetual, the firm value increases to \$750 million. That calculation is,

$$(2) \quad PV = \frac{\$50 \text{ million}}{0.10} + \frac{\$25 \text{ million}}{0.10} = \$500 \text{ million} + \$250 \text{ million} = \$750 \text{ million}$$

In equation (2), the excess earnings are shown and evaluated separately from the original \$50 million annual earnings. In addition to clearly indicating the value of the excess earnings, evaluating them separately can be helpful for a variety of reasons. For example, one could use a different discount rate for the excess earnings if they have differing risk characteristics from the original expected cash flows. To keep things simple, I have assumed that it is appropriate to also discount the excess earnings at 10%.

Note that the 50% increase in firm value was driven by a relatively modest increase in expected annual earnings. The original estimate was \$50 million of annual earnings, or 10% of the \$500 million investment. The earnings estimate then increased to 15% of the \$500 million investment. So, a 5% difference (15% - 10%) in the expected earnings rate can have a very large value impact, particularly when it is a perpetual or long term increase. Also note that the enhanced earnings (\$75 million annually) represent a 10% return on the enhanced firm value of \$750 million. Market value adjusts so that the new expected earnings rate of return matches the cost of capital.

To explore the situation further, let's assume that the \$25 million excess earnings will last for just the next three years. The firm's value will still increase due to the excess earnings, and we can do the calculation as follows:

$$(3) \quad PV = \frac{\$50 \text{ million}}{0.10} + \frac{\$25 \text{ Million}}{1.10} + \frac{\$25 \text{ million}}{(1.10)^2} + \frac{\$25 \text{ million}}{(1.10)^3}$$

$$= \$500 \text{ million} + \$22.7 \text{ million} + 20.7 \text{ million} + \$18.8 \text{ million} = \$562.2 \text{ million}$$

The first term in equation (3) is the original firm value of \$500 million, and we have three added terms due to the three years of excess earnings.¹¹ Note that the value of the firm has still increased substantially, although less than when the excess earnings were perpetual.

As a practical matter, the perpetuity assumption yields a very simple calculation for obtaining an approximate value in a situation that is expected to last a long time, but not forever. For example, \$25 million of excess earnings for 30 years discounted at 10% has a Present Value of \$235.7 million. That is a straightforward calculation with a financial calculator but not something most people could do in their head. In that example, the perpetuity shortcut yields a result that is approximately 6% more than the 30-year Present Value.

The above example of a firm's investment and earnings is simplified, but it illustrates some important points. A firm's value depends on how its expected annual earnings as a percentage of invested capital compares with its cost of capital. If the expected annual earnings rate exceeds the cost of capital, the firm's value rises immediately. Furthermore, a modest difference between the expected annual earnings percentage and the cost of capital (5% in our

¹¹ To be clear, the first \$25 Million of excess earnings is modeled as arriving at the end of year one. Consequently, its Present Value at time zero (beginning of year one) is only \$22.7 million after discounting at a rate of 10%.

example) can have a large impact on the firm's value if that percentage difference is expected to last a long time.

Relating this example to the current discussion of revenue adequacy measurement, cost of capital is being estimated by a WACC; and the expected annual earnings rate is the economic analogue of what the Board labels ROI.¹² In other words, WACC and ROI are estimates of the respective underlying economic variables, cost of capital and expected annual earnings rate. Since the Board undertakes an annual Revenue Adequacy measurement, the WACC and ROI estimates in that process are for a specified year. Those estimates will presumably change over time rather than being constants in a perpetual model. Nevertheless, those annual estimates can provide insight into how investors may be viewing a firm's prospects in the longer term.

It is definitely the case that market values will adjust (*ceteris paribus*) to reflect investor assessment as to whether the firm's economic earnings rate (now and in the future) matches its cost of capital. In other words, the cost of capital provides a benchmark for assessing the adequacy of a firm's earnings; and the Board is attempting to replicate that process. Investors may use different estimation procedures than the Board, but the cost of capital is clearly the appropriate benchmark. Having a procedure that targets an earnings rate exceeding that benchmark (as in the Railroad Proposal) appears designed to pump up the firm's share price, and is not an objective evaluation of the firm's ability to attract needed capital. While an enhanced share price would presumably be appreciated by those owning firm shares (or with compensation

¹² In their Verified Statements and spreadsheets, Professors Murphy and Zmijewski use the terminology return on invested capital ("ROIC") to refer to what the Board labels ROI. I will use the Board's ROI label.

tied to share-price performance), an increased share price is not necessary to attract funds for needed capital investments. Indeed, the assumption in the Murphy and Zmijewski example (as well as my related model above) is that the cash flow paid out to shareholders is already “net of any required investment to maintain productive capacity.”¹³

III. Plausible and Implausible Estimates

Realistically, one would expect appropriate WACC and ROI estimates to fluctuate over time and to differ more or less all the time; however, most of those differences should be small. Otherwise, we should see large stock price swings -- that is, if investors believe the estimates. Occasionally, something really good or bad might generate a substantial difference between ROI and the firm’s cost of capital. During the “Great Recession” in 2009, one would not be surprised to see firms have a bad year. For example, the Board found that no Class I railroad earned the industry average cost of capital of 10.43% in 2009.¹⁴ It is also possible to have a great year, but 10 times expectations? That’s what a ROI of 100% implies when the cost of capital is 10% and the firm was expected to earn its cost of capital.

¹³ From footnote 31 of the Murphy and Zmijewski Supplemental Verified Statement, op. cit.

¹⁴ The Board’s decision is available at:
[https://www.stb.gov/decisions/readingroom.nsf/UNID/B5CC8049EBCD3D42852577D700574CB1/\\$file/41189.pdf](https://www.stb.gov/decisions/readingroom.nsf/UNID/B5CC8049EBCD3D42852577D700574CB1/$file/41189.pdf)

Looking at estimates of WACC and ROI values in the “Supporting Spreadsheet” for the Railroad Proposal, one can use an eyeball test to see that the WACC estimates are at least roughly plausible, but many of the ROI estimates are not.¹⁵

That Supporting Spreadsheet has 5684 firm-year entries, all with a WACC estimate.¹⁶ Those estimates range from 5.0% to 25.5%; however, only 6 entries are above 20%.¹⁷ So, 99.9% of those WACC estimates are between 5% and 20%. The median is 9.6%, the average is 9.8%, and 81.5% of the estimates are between 7% and 13% -- that is, $10\% \pm 3\%$. So, 10% seems like a reasonable number to use for a cost of capital in examples where we are trying to get a broad overview of the analysis supporting the Railroad Proposal. Moreover, the range of WACC

¹⁵ I use Supporting Spreadsheet to refer in particular to Tab 1 of the Excel file labeled Supporting Data that was included with the Ex Parte 766 Errata filed by the three railroads on February 10, 2021. Tab 1 is described as S&P 500 Companies Excluding Railroads, Financial Institutions and Real Estate Companies (2006-2019). That Supporting Spreadsheet contains ROI values (labeled ROIC in the spreadsheet) and WACC estimates but not the data underlying the ROI calculations.

¹⁶ Each firm-year entry is a row of data for the firm in that particular year. There is also a spreadsheet with Compustat Data and calculations (“Compustat Spreadsheet”) which is the only spreadsheet in an Excel file with the title EP766_ROIC_Adjusted_ROIC_2006_2019. The Compustat Spreadsheet contains the data and calculations of ROI values by firm-year. In addition to the 5684 firm-year entries mentioned above, the Compustat Spreadsheet also includes an additional 1255 rows of data relating to firms with either GICS 40 (Financials) or GICS 60 (Real Estate) sector designations. Inclusion of those additional rows seems to be inadvertent since firms from those GICS sectors were explicitly excluded from the Railroad Proposal comparison. Consequently, that additional data was not considered in my analysis.

¹⁷ See JEH Work Papers: WACC Analysis.

values is modest; and the order of magnitude for any errors in those estimates is probably not more than a few percentage points.¹⁸

When one looks at ROI estimates in that spreadsheet, the situation is very different. The existence and number of extremely large ROI estimates suggests measurement problems. Annual ROI estimates exceeding 10,000% do not seem plausible. Indeed, estimates exceeding 100% (and there are several hundred) seem less than credible. Think about our example calculations above. A 10% cost of capital (analogous to WACC) with 5% excess earnings (\$25 million) would be comparable to a ROI of 15%; and that modest percentage of excess earnings had a major impact on firm valuation when the excess was expected to last a long time. The point is that even a modest difference (e.g., 5%) between ROI and WACC can have a large impact on firm value if investors believe those estimates.

Suppose the ROI were 25% (2.5 times the original expectation). With a 10% cost of capital and the perpetuity assumption, the firm's value goes up from \$500 million to \$1.25 billion. What about an ROI of 50% (5 times the original expectation)? Maintaining our other assumptions (the excess earnings are perpetual and a 10% cost of capital), the firm's value goes up to \$2.5 billion from the original \$500 million. These calculations illustrate mathematical

¹⁸ In recent years, the Board's cost of capital values have generally been on the higher side of 10%. It appears the Railroad Proposal uses MSDCF values for non-railroads based on broad GICS classifications, which may reflect a relatively large and varied sample for the second stage (which uses a simple average of the growth rates from the first stage). For the railroads, the Board uses a sample of only three or four railroads. The larger sample may mitigate potential issues with MSDCF growth rate estimates. The Board's MSDCF values have generally been higher than its CAPM values, whereas one would like to see those estimates being very close to each other and presenting a good cross-check on the accuracy of input assumptions.

Present Value implications of upward jumps in projected earnings. If such earnings increase by a multiple (e.g., 5 times the original expectation), the Present Value increases by that same multiple. As we saw previously, the perpetuity assumption is a simplification that will result in an approximation for a long-term, but not perpetual shift in projected earnings. However, such a long-term increase in expected earnings by a multiple of 5 still will result in a Present Value increase close to a multiple of 5.

As mentioned earlier, the Supporting Spreadsheet has 5684 firm-year entries. Only 5467 of those have ROI estimates (there are 217 blanks).¹⁹ Over 29% of those ROI estimates are above 50%, with well over 600 estimates above 100%.²⁰ The maximum ROI estimate is over 22,000%. Perhaps many of those high ROI estimates are viewed as short-term, even one-time blips, by investors. Even so, we should see enormous increases in the associated firm values, massive dividend rates, or both. The actual data for S&P 500 firms, however, does not reflect that.

Think about our simple example with a \$500 million firm expected to earn \$50 million this year with an ROI matching its 10% cost of capital. What happens if it instead earns \$250 million (50% of its \$500 million initial value), and this is a one-time event with \$200 million of excess earnings. The effect of those excess earnings on firm value depends on when investors learn the “good news” and how much of the excess earnings is paid out to shareholders this

¹⁹ Regarding missing ROI values, see Footnote 90 on page 57 in the Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski, dated September 1, 2020.

²⁰ See JEH Work Papers: Table 2 ROI by GICS.

year.²¹ Suppose that the full \$200 million (as well as the originally expected \$50 million) is paid out as a year-end dividend to shareholders, and they don't learn about their good fortune until the payout has been made. The happy shareholders receive an enormous 50% dividend, and the firm's share price remains unchanged (because it was a one-time event and fully paid out). Does anybody remember such a dividend payment by an S&P 500 firm?²²

To be somewhat more realistic, what happens if investors find out about the extra \$200 million before the payout date? When they find out, the firm's value will jump up by the then Present Value of the \$200 million to be received at year end. Then when the payout date is reached, the firm's value will drop due to the \$200 million being paid out.²³ I can't recall hearing of such extreme yo-yo behavior in a S&P 500 firm's share value. However, that is what one should expect in an efficient financial market, using the Railroad Proposal's analytics. A

²¹ When analyzing the effects of major cash flows that occur just once in the current year, the timing of that cash flow can be quite important. With expected long-term cash flows, it is the long-term aspect which is the major driver of Present Value effects.

²² During 2006-2019, the S&P 500 annual dividend yield (averaged across firms) ranged between 1.8% and 3.1%.

²³ If only part of the \$200 million is paid out, the firm's share value declines by that smaller payout; and the year-end firm value will be the original \$500 million plus the retained excess earnings. If all of the \$200 million were retained, the year-end firm value would be \$700 million (a 40% increase from the original \$500 million).

believable 50% ROI for a S&P 500 firm should be an infrequent event, not something that occurs almost 30% of the time.²⁴

Instead of just saying that the Supporting Spreadsheet contains many surprisingly large ROI estimates, we could examine the implied payouts and share value growth for each of the firms in that spreadsheet. We could then compare those results with observed payouts and share value increases for the same firms to assess the reasonableness of the ROI estimates. However, there are approximately 400 firms (not always the same ones) for each of the 14 years in the sample, resulting in 5684 firm-year entries. Instead of undertaking that full-blown exercise, we can get a broad sense of the situation by examining implied value growth and payouts for a hypothetical average firm from the sample and comparing it to payouts and share value growth for the S&P 500 index.²⁵

Let's begin by looking at Table 1 below and the first year of the sample, 2006. The 2006 average ROI is 52.1% for the 398 firms with ROI estimates in the Supporting Spreadsheet. The analysis we just went through for a simplified example of a firm with 50% earnings should be a rather good guideline to what the potential price and payout effects would look like with a 52.1% ROI (the 2006 average). For the S&P 500 index, the actual 2006 price increase was 13.6% (an

²⁴ It is worth remembering that these are not startup firms which might have several very large value increases during their early lives. The firms in the S&P 500 are large, roughly speaking the 500 largest firms in the U.S.

²⁵ That comparison will not be perfect since the S&P 500 index is a value-weighted average for approximately 500 firms; but using annual averages across about 400 firms, we should have a reasonable comparison.

above-average yearly return); and the dividend yield was 1.8%. That does not look like what one would expect from a 52.1% earnings rate, if it was real.²⁶

Table 1

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Firms in Sample	405	401	409	415	413	414	413	412	410	408	402	393	395	394
Firms with ROI	398	395	402	405	402	401	397	395	392	383	371	368	378	380
Average ROI	52.1%	48.4%	52.6%	48.6%	72.0%	164.6%	114.1%	109.7%	97.6%	84.8%	76.5%	56.9%	75.0%	64.4%
S&P 500 Info.														
Price Change	13.6%	3.5%	-38.5%	23.5%	12.8%	0.0%	13.4%	29.6%	11.4%	-0.7%	9.5%	19.4%	-6.2%	28.9%
Dividend Yield	1.8%	1.9%	3.1%	2.0%	1.8%	2.1%	2.2%	1.9%	1.9%	2.1%	2.0%	1.8%	2.1%	1.8%
For sorts and calculations, see JEH Work Papers: Table 1 ROI Analysis.														
See also the Work Paper: S&P 500 Prices & Dividends														

²⁶ In recent years, share buybacks have become a relatively popular alternative to dividends as a payout mechanism. In order to absorb the rest of the 52.1% average ROI in 2006, the average buyback in that year would have needed to be $52.1\% - 13.6\% - 1.8\% = 36.7\%$ of firm value. That does not seem plausible to me.

There is a recent press release from S&P Dow Jones Indices on March 24, 2021 that has share buyback data for the S&P 500 during 2016 -2019. The average share buyback as a percentage of market value for firms in the S&P 500 was 2.8% in 2016, 2.3% in 2017, 3.8% in 2018, and 2.7% in 2019. These percentages are similar in magnitude to the annual dividend yields and not nearly big enough to absorb the difference between the large average ROI estimates in Table 1 and the S&P 500 index price changes plus dividend yields for the same years. The title of the press release with that data is “S&P 500 Buybacks Increase 28.2% in Q4 2020 from Q3 2020; Full Year 2020 down 28.7% from 2019.” It is available at:

<https://www.spglobal.com/spdji/en/documents/index-news-and-announcements/20210324-sp-500-buyback-q4-2020.pdf>

Also recall that in the simplified example just discussed, we limited the impact by assuming the 50% earnings rate was a one-year blip, and that firm earnings would return to match the 10% cost of capital thereafter. If we thought that the 52.1% ROI in 2006 was not just a one-year blip, we should see a larger share price increase for 2006 that reflects the Present Value of increased earnings in future years as well as retained earnings for 2006. In summary, the 52.1% average ROI estimate for 2006 implies a payout rate and/or an index price increase that dramatically differs from what actually occurred.

How about the other years (2007 – 2019) in the spreadsheet? In Table 1, the 52.1% in 2006 turns out to be one of the smaller average ROI values. In fact, the smallest is 48.4% in 2007. The ROI estimates in 2008 and 2009 are also at roughly 50%. So, what we just said about 2006 will apply to 2007 - 2009.

Let's summarize what we know about firm value in response to a (roughly) 50% expected earnings rate using our simple DCF approach with a constant 10% cost of capital. Our hypothetical average firm could choose to pay out all its expected earnings, resulting in a payout rate that far exceeds what we actually observe. If the earnings increase is expected to continue, we should also see an enormous and immediate share price increase as well as continuing huge payout rates in subsequent years.²⁷ To complete the picture, consider the opposite situation,

²⁷ If the expected earnings increase were perpetual, we should see an immediate five-fold jump in firm value, which clearly didn't happen. If the earnings increase were expected to last just three years, the firm value should still almost double; and that would occur immediately. Subsequently, the firm value would decline back to the original amount as the excess earnings were paid out over those three years.

where the firm does not pay out any of its excess earnings (paying out only its cost of capital). The firm value starts at \$500 million on which it earns \$250 million during the first year. It pays out \$50 million covering its cost of capital, retains \$200 million, and is worth \$700 million at the end of the first year. If it was expected that the firm would not be able to earn at least 10% (its cost of capital) on the retained \$200 million, retaining those funds would be economically inefficient and irritating to its shareholders. So, it seems reasonable to assume the firm expects to earn at least 10% on its now \$700 million value. A tougher question is whether it will still be able to earn 50% on that \$700 million during the next year. If it is able to do so, its earnings for that year would be \$350 million. It then pays out \$70 million to cover its cost of capital and retains \$280 million. Adding that \$280 million to \$700 million, the firm is now worth \$980 million. The firm's value has almost doubled in just two years. Again, we would have enormous valuation growth that we do not see in the data for the S&P 500.

After 2009, the average ROI estimates in Table 1 are even larger. From 2011 – 2014, they are around 100% or more. If one wanted to repeat the above summary with 100% expected earnings growth, the results get even more ridiculous and disconnected from reality. The big picture is that the ROI estimates in the Supporting Spreadsheet are unreasonably large. Moreover, this is true not just for the largest values but even for the average value across all firms in a given year.²⁸ That is true for all years in the sample.

²⁸ The Railroad Proposal advocates the use of comparisons with the S&P 500 median (ROI – WACC), perhaps recognizing the implausibility of the numerous very high ROI estimates that drive up the average ROI. The problem with that approach is that having a very large portion of inaccurate estimates in the sample suggests that the median is also not reliable.

Another way to see that many of these ROI estimates are unreasonably high is to consider the MSDCF procedure for estimating a firm's cost of capital. That procedure calculates a discount rate (cost of capital) that equates the Present Value for a set of projected future cash flows to that firm's current market value. Most of the ROI estimates in the Supporting Spreadsheet are much higher than the cost of capital estimates for the same firms. That indicates those ROI estimates are wildly inconsistent with the projected cash flows in the MSDCF calculations and/or with the firms' current stock prices. That is just another way of seeing that the ROI values in the Supporting Spreadsheet are out-of-touch with reality.

IV. Why are the ROI Estimates so High?

The previous section indicates many ROI measurements in the Supporting Spreadsheet are absurdly high. The approach generating those high values is based on the Board's procedure for measuring ROI at railroads, but it is not an appropriate approach for a variety of other firms. In this section, I will identify at least some of the issues causing the unreasonably high ROI values.

Frequently, a useful place to start trying to understand strange results is by examining outliers. Apple Inc. has the highest ROI estimate in the Supporting Spreadsheet at 22,811.2% for the year 2011.²⁹ Furthermore, Apple has numerous very high ROI estimates across other years in that spreadsheet, including 3 of the top 10 ROI values across all firms and years. Those three values are all above 6000%. Apple also has the 11th highest ROI estimate at 4713.6% for 2013

²⁹ See JEH Work Papers: Top 25 ROI Values.

as well as the 17th highest at 1886.9% in 2010. Having a large number of incredibly high ROI estimates suggests that there are structural characteristics of Apple's financial reporting that are driving the high results.

Apple's Global Industry Classification Standard (GICS) code is 45, which is Information Technology. The Supporting Spreadsheet has 922 firm-year entries (rows) with that code, and those entries have an average ROI value of 148.9%. Such a high average value suggests that exploring the firm-year entries for GICS 45 could also provide added insights on ROI estimation issues. Sorting those entries by ROI value, it turns out that Apple has the five highest values (mentioned above) for GICS code 45.³⁰ The next seven highest ROI estimates for that GICS code are for Mastercard Inc. (two of those estimates are among the "Top 25" for the entire spreadsheet). In fact, all twelve of the Mastercard ROI estimates are very high, with the minimum being 409.3% and an average of 963.8%.³¹ Again, observing several very high ROI values suggests that structural characteristics of Mastercard are driving those results.

Among the Top 25 ROI values for the entire Supporting Spreadsheet, ten are from GICS 35 (Health Care): United Health Group (4 observations), Celgene Corp. (2 observations in the top 5), Endo International PLC, Pfizer Inc., Coventry Health Care Inc., and Anthem Inc. It appears that there are characteristics of health care firms that result in high ROI values using the Board's estimation procedure. It may not be surprising that a procedure tailored to estimate ROI for railroads does not fit a firm that is largely in the health insurance business, such as United

³⁰ See JEH Work Papers: GICS 45 Top ROI Firms.

³¹ See JEH Work Papers: Mastercard ROI.

Health Group. However, we also see pharmaceutical manufacturers in the Top 25 ROI values: Celgene (now a subsidiary of Bristol-Myers Squibb), Endo International, and Pfizer.

Table 2

GICS	Sector	# of Rows	ROI Distribution Info					
			Max	AVE	Above 100%	Above 50%	Above 25%	Blank
10	Energy	525	51.2%	10.4%	0	2	55	
15	Materials	403	106.2%	23.0%	1	20	161	
20	Industrials	823	2442.0%	56.0%	58	191	528	32
25	Consumer Discretionary	955	6200.2%	54.7%	78	158	433	25
30	Consumer Staples	530	559.7%	55.9%	46	191	377	18
35	Health Care	799	11899.0%	158.7%	167	398	623	55
45	Information Technology	922	22811.2%	148.9%	237	504	696	63
50	Communication Services	303	11005.4%	174.2%	85	137	188	24
55	Utilities	424	133.3%	9.5%	1	1	2	
Totals		5684			673	1602	3063	217
Percent Adj. for Blanks		5467			12.3%	29.3%	56.0%	
For sorts and calculations, see JEH Work Papers: Table 2 ROI by GICS								

Table 2 provides information on the overall ROI values by GICS code. Three of those GICS codes have average ROI values around 150% or higher, and maximum ROI estimates above 10,000%. We have already spotted GICS 35 (Health Care) and GICS 45 (Information Technology) as industries where there seem to be characteristics that generate high ROI estimates in the Railroad Proposal. The third code with very high average and maximum ROI values is GICS 50 (Communication Services). There are four observations from GICS 50 in the Top 25 ROI values, including three from Discovery Inc. and one from ViacomCBS. The rest of

the Top 25 includes two observations each from GICS 20 (Industrials) and GICS 25 (Consumer Discretionary). Both those GICS codes have average ROI values above 50%, as does GICS 30 (Consumer Staples).

It is useful to examine the formula for the ROI calculations submitted with the Railroad Proposal presented on page 57 of the Murphy and Zmijewski Verified Statement. The numerator in that formula has Earnings Before Interest and Taxes (“EBIT”) minus Taxes with an adjustment for taxes on the firm’s Non-operating Income. In the Compustat Spreadsheet, that numerator value is referred to as “After-Tax Unlevered Earnings.” The denominator in that ROI formula contains the average of beginning and year-end values for the combination of Property, Plant and Equipment (“PPE”) plus Inventory plus a Working Capital Allowance minus the firm’s Net Deferred Tax Liability. That denominator value is referred to as “Tax Adjusted Net Investment Base.”³² The tax adjusted aspect of the calculation apparently refers to subtracting the average Net Deferred Tax Liabilities. In what follows, it will sometimes be useful to refer to (PPE + Inventory + Working Capital Allowance) as the “Investment Base.”

Unfortunately, the Compustat data that the three railroads submitted does not contain some useful basic information such as a firm’s Total Assets and Net Income. To obtain such information, I utilized Form 10-K reports for selected firms and focused on the year 2012 rather than the full 2006 – 2019 time series of information. The idea is to use a relatively small set of observations to identify estimation issues that likely permeate the whole fourteen-year sample.

³² In the Compustat Spreadsheet, this item is referred to as “Average Reproduced STB Investment.”

The year 2012 was selected because it is in the middle of the time frame for supporting data, and it has a relatively large average ROI value of 114.1%.

For 2012, Apple's ROI estimate was 11454.1% (third highest in the Top 25).³³ From the Compustat Spreadsheet, the firm's After-Tax Unlevered Earnings were \$ 41,406.8 million, and its Tax Adjusted Net Investment Base was \$ 361.5 million. When one divides the very much larger \$41,406.8 million by \$361.5 million, the ROI estimates does come out to be an astronomical 11454%. The mathematics works, but the result is logically unreasonable. As a reality check, Apple's share price increase for its 2012 fiscal year was 66.9% -- a great return but nowhere near 11454%.³⁴

From Apple's 2012 10-K report, the firm's Net Income that year was \$41,733 million, which is very close to the After-Tax Unlevered Earnings figure (only 0.8% difference). The numerator in the ROI estimate looks quite reasonable, but how is it plausible that Apple could generate over \$41 billion of Net Income with a relatively tiny \$361.5 million denominator? The firm's 2012 average (PPE + Inventory) was \$12,398 million and its Working Capital Allowance was zero. Thus, Apple's average Investment Base in 2012 was \$12,398 million. For 2012, the firm also had average Deferred Tax Liabilities of \$12,036.5, which almost completely offsets the firm's average Investment Base and leaves only \$361.5 million as the Tax Adjusted Net

³³ This is actually a fiscal year estimate (rather than calendar year), since Apple's accounting reports are for its fiscal year, which ends on the last Saturday in September.

³⁴ Apple shares opened at \$14.28 on 9/26/2011 and closed on 9/28/2012 at \$23.83.

Investment Base. It is worth noting that the vast majority (98%) of Apple's 2012 average Deferred Tax Liabilities were due to "Unremitted earnings of foreign subsidiaries."³⁵

To provide some important perspective, Apple's Total Assets at the end of 2012 were \$176,064 million, up from \$116,371 million at the end of 2011. In other words, the firm's average Total Assets for 2012 were \$146,217.5 million, which indicates an average (PPE + Inventory) of only 8.5% relative to average Total Assets. For a bit more detail, 2012 year-end PPE was \$15,452 million (8.8% of Total Assets) up from \$7777 million (6.7% of Total Assets) at the end of 2011. As a comparison, Union Pacific's PPE was 89.7% of Total Assets at the end of 2012.³⁶

The 2012 Mastercard ROI estimate in the Supporting Spreadsheet is 948.5%. As another reality check, Mastercard's share price increased by 27.7% during 2012.³⁷ The Compustat Spreadsheet also shows zero Inventory and zero Working Capital Allowance for Mastercard during 2008 - 2019. Consequently, the firm's 2012 average Investment Base is simply the average PPE for that year of \$460.5 million. The Compustat Spreadsheet also indicates a 2012 average Deferred Tax Liability of \$166.5 million for Mastercard, resulting in a Tax Adjusted Net Investment Base of \$294 million. Mastercard's 2102 After-Tax Unlevered Earnings were

³⁵ See page 62 of Apple's 2012 Form 10-K. One can also note on that same page that Apple had substantial Deferred Tax Assets, which apparently were not considered in the spreadsheet calculation.

³⁶ Scaling with a firm's Total Assets allows us to make reasonable comparisons for firms of differing size. Also, see JEH Work Papers 5 RRs Analysis 2012 regarding Union Pacific.

³⁷ Mastercard shares opened at \$37.84 on 1/3/2012 and closed at \$48.31 on 12/28/2012.

\$2788.6 million, which almost matches its 2012 Net Income of \$2758 million. We have a reasonable-looking numerator in the ROI calculation; but again, a small Investment Base with a partial offset from Deferred Tax Liabilities results in a huge calculated ROI.³⁸ For a bit more detail, Mastercard's 2012 year-end PPE was \$472 million (3.8% of Total Assets), up slightly from \$449 million (which was 4.2% of Total Assets) at the end of 2011.

It is not surprising that Mastercard has a relatively small PPE position and apparently does not report any inventory. This is not a large manufacturing or transportation firm. The company processes financial transactions (credit, debit, and prepaid cards, etc.) on a payments network as well as providing related services to its customers. The 2012 PPE of \$472 million presumably includes a few buildings plus computers and related electronic equipment. However, the firm did have Current Assets, representing 75.1% of Total Assets in 2012. The Current Assets include slightly over \$2 billion in Cash and Cash Equivalents as well as almost \$3 billion in Investment Securities plus Accounts Receivable (\$925 million) and a variety of other current asset positions.

Does the firm really need all that Cash, Investment Securities, and overall level of Current Assets? Perhaps not; but if they do need that level of Current Assets, it represents a capital investment in the business. Absent better information, my inclination is to believe that the firm's management knows what they are doing and that leaving all those Current Assets out

³⁸ The Compustat Spreadsheet indicates no Deferred Tax Liabilities for Mastercard during 2008 - 2011; however, its ROI estimates during those years ranged from 409.3% to 612.0%. Those four ROI estimates are unreasonably large but not due to Deferred Tax Liabilities shrinking the denominator in the ROI calculation.

of the calculation is inappropriately inflating the ROI estimate. To get a sense of how much that is altering the ROI estimate, the average Current Assets position in 2012 was \$8549 million. Adding \$8549 million to the Tax Adjusted Net Investment Base (\$294 million) would have decreased the estimated ROI to 31.5 %.³⁹ We again have a situation where a procedure tailored to measure a railroad's ROI generates an implausibly high ROI for a firm with a different structure. This time, the firm has no inventory as well as a small PPE with zero Working Capital Allowance. The firm's Current Assets representing 75% of its Total Assets also signals there may be situations where a cash-heavy financial structure is a rational business decision that should not be excluded from ROI calculations.

There are a variety of industries and numerous firms that will also have relatively small PPE values and no inventory. Think about consulting firms, which appear under several different GICS codes, including GICS 20 (Industrials). Mastercard was part of GICS 45 (Information Technology), and presumably the firm is within the IT Services Industry (but the GICS 45 code doesn't provide that detail). What about the Software Industry, also within GICS 45? Does it seem likely that software firms would have small PPE and no inventory? Yes, Adobe Inc. had zero Inventory and PPE equal to 6.7% of Total Assets, while its 2012 ROI estimate was 145.5%. In the Compustat Spreadsheet, Oracle Corp. has 2012 PPE equal to 3.7% and Inventory equaling 0.3% of Total Assets, with a ROI of 278.7%.⁴⁰ Microsoft Corp. had

³⁹ \$2788.6 million divided by \$8843 million equals 31.5%.

⁴⁰ The Oracle values presented in the Compustat Spreadsheet for 2012 conform to those in Oracle's Form 10-K for its fiscal year ending May 31, 2013.

Inventory equal to 0.9% and PPE equaling 6.8% of its fiscal year 2012 Total Assets. Microsoft's 2012 ROI estimate was 180.1%, which is somewhat above its average ROI for 2006 – 2019 of 152.7%.

GICS 35 (Health Care) is another area where there appear to be ROI estimation problems. As mentioned previously, United Health Group makes 4 appearances in the Top 25 ROI values across the entire Supporting Spreadsheet. Its 2012 ROI estimate at 1324% is the lowest of those appearances. The firm is primarily a health insurer; and it should not be a surprise that it has no inventory as well as 2012 PPE at 4.9% of Total Assets. Also in GICS 35 (Health Care), Pfizer is another one of the Top 25 and an interesting case, both because it is a major pharmaceutical manufacturer and because it has no 2012 ROI value in the Supporting Spreadsheet. That ROI value is blank because it would have been a negative number, since Pfizer's average Deferred Tax Liabilities exceed its average Investment Base in the Compustat Spreadsheet calculations.⁴¹ It is noteworthy that Pfizer had \$14.5 billion of PPE and \$7.1 billion of Inventory as well as a Working Capital Allowance of \$2.0 billion in 2012 – clearly a major manufacturing operation. However, that PPE was only 7.8 % of Pfizer's 2012 Total Assets, and Inventory was 3.8% of those Total Assets.

Pfizer also has blank ROI values for 2013 – 2017, because its average Deferred Tax Liabilities exceed its average Investment Base in each of those years. In fact, there are many blank ROI values in the Supporting Spreadsheet, and it appears that all of them are due to a

⁴¹ Regarding that missing ROI value, see the first sentence of Footnote 90 on page 57 in the Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski.

firm's average Deferred Tax Liabilities exceeding its average Investment Base.⁴² Seeing a negative value for ROI (instead of a blank) would have been a strong signal that there was a major problem with the calculation. In this case, it is not a missing data issue but a clear indication that there is a problem with using a procedure tailored for estimating a railroad's ROI on a firm with a different structure.

As mentioned above, Discovery Inc. from GICS 50 (Communication Services) made three appearances in the Top 25. In 2012, its ROI estimate was 11005.4%. The firm had no Inventory, PPE in 2012 was 3.0% of Total Assets, and average Deferred Tax Liabilities almost fully offset its average Investment Base to produce that huge ROI figure. Booking Holdings Inc. made two appearances in the Top 25 and is the only representative there from GICS 25 (Consumer Discretionary). In 2012, that firm was named priceline.com Inc.; and it had an ROI estimate of 1085.0%. The firm had no Inventory, PPE in 2012 was 1.4% of Total Assets, and average Deferred Tax Liabilities offset slightly over 40% of its Investment Base to produce that very large ROI figure. GICS 20 (Industrials) has two firms that appear in the Top 25, Equifax Inc. and Versik Analytics Inc. Versik Analytics doesn't appear in the Supporting Spreadsheet until 2015, so we can't analyze its 2012 data. Equifax had a blank ROI value in 2012. The firm

⁴² Footnote 90 of the Murphy and Zmijewski Verified Statement indicates that if EBIT is missing the ROI value is also "set to be empty." Other than firms from GICS 40 (Financials) and GICS 60 (Real Estate), which were explicitly excluded from the Railroad Proposal, the only entry I found in the Compustat Spreadsheet fitting that description was Kraft Heinz Co. for 2013. That firm-year entry was apparently excluded from the Supporting Spreadsheet for the Railroad Proposal.

had no Inventory, PPE in 2012 was 6.3% of Total Assets, and average Deferred Tax Liabilities more than offset its average Investment Base.

Thus far, we have been looking at firms which all had very high ROI values; and there is a pronounced pattern of very small PPE to Total Asset percentages. Most of those firms reported no Inventory and the rest had relatively small amounts (less than 1% of Total Assets, except for Pfizer at 3.8%). Some of these firms also had a zero Working Capital Allowance. In terms of PPE, Apple had the largest with 8.8%; and percentages at the other firms ranged down to a tiny 1.4% for Booking Holdings. These figures are for 2012, but it is reasonable to expect that pattern to hold up for other years, at least for firms with very high ROI estimates.

Let's take a closer look at firms designated with GICS 20 (Industrials), which the Railroad Proposal suggests as an alternative to the larger set of S&P 500 firms. We know that some firms from GICS 20 have very high ROI estimates in some years. For 2016, both Equifax (ROI 2442.0%) and Verisk Analytics (ROI 1698.9%) were in the Top 25 for the entire Supporting Spreadsheet. So, there are apparent estimation issues for firms within GICS 20 as well. For 2012, there are three firms with blank ROI values (including Equifax as discussed above).⁴³ The 2012 Top 5 ROI values for GICS 20 are: Dun & Bradstreet (390.6%), C.H. Robinson Worldwide (115.6%), Stanley Black & Decker (79.6%), Trane Technologies (78.7%), and Robert Half International (64.0%).

One might reasonably ask why Dun & Bradstreet and Robert Half are considered industrial firms. Even labeling C.H. Robinson as an industrial firm seems like a stretch. The

⁴³ See JEH Work Papers: 2012 GICS 20 ROI.

answer to such questions is that GICS 20 (Industrials) is a very broad umbrella, which includes not only manufacturers but also engineering firms, trading companies, printing firms, environmental services, office services & supplies, security services, human resource & employment services, research & consulting firms, and logistics as well as a range of transportation firms. It would be reasonable to think that many of those categories had firms with relatively low PPE/Total Assets.

Not surprisingly, Dun & Bradstreet had 2012 PPE at 2% of Total Assets and no reported Inventory. The Compustat Spreadsheet indicates that C.H. Robinson also does not report any Inventory, and its PPE/Total Assets was 5.3% in 2012. Robert Half also shows no Inventory but 7.8% PPE/Total Assets in 2012. Stanley Black & Decker as well as Trane Technologies (named Ingersoll-Rand PLC in 2012) seem like substantial manufacturing operations. However, their 2012 PPE/Total Asset percentages are still relatively modest at 8.4% and 8.9%, respectively. Their 2012 Inventories were respectively 8.3% and 7.1% of Total Assets.

Let's examine some GICS 20 firms that do not have huge ROI estimates for 2012. Jacobs Engineering Group (ROI 35.3%) had no reported Inventory in the Compustat Spreadsheet and PPE/Total Assets of 4.8%. Honeywell International (ROI 31.7%) had PPE/Total Assets of 11.9% and Inventory at 10.1% of its Total Assets. Caterpillar Inc. (ROI 24.4%) reported its PPE/Total Assets was 18.4% with Inventory at 17.4% of Total Assets. Jacobs provides engineering and construction services, which is consistent with relatively small PPE and no reported Inventory. Such firms are part of GICS 20, but they have very different asset structures from a railroad. Honeywell and Caterpillar are major manufacturing firms, but also have much lower PPE/Total Assets than a railroad.

There are currently 5 Class I railroads that file Form 10-K reports.⁴⁴ In 2012, the percentage of PPE/Total Assets for those 5 railroads ranged from 84.8 % to 89.7% with the exception of BNSF at 69.5%. If the BNSF Total Assets were adjusted to exclude Goodwill, its PPE percentage would be 87.5%.⁴⁵ It seems reasonable to characterize railroads as having a very large fraction of Total Assets allocated to PPE. Among the non-railroad firms where we have calculated that ratio, only Honeywell (11.9%) and Caterpillar (18.4%) had values exceeding 10%, which is dramatically below the 85% - 90% that seems typical for railroads. Moreover, our calculations identified several major manufacturing firms below 10% and a variety of firms below 5% that were mostly non-manufacturing; although, some of those firms were categorized as GICS 20 (Industrials).

A small to modest PPE/Total Asset percentage seems to be a major reason why the Board's approach for measuring a railroad's ROI does not fit the structure of many other firms. Deferred Tax Liabilities were a factor in the large or blank ROI estimates for some firms we examined; however, that result is driven by small PPE values leading to small Investment Base values, which can be offset by Deferred Tax Liabilities that are also relatively small. To provide perspective, the 5 railroads with 10-K reports had an average Deferred Tax Liability/Total Assets of 25.4% in 2012, when their average PPE/Total Assets was 83.5% (using BNSF at its unadjusted 69.5%). In that same year, average inventory was 1.2% and average Working Capital

⁴⁴ Burlington Northern Santa Fe, LLC ("BNSF"), CSX Corporation, Kansas City Southern, Norfolk Southern Corporation, and Union Pacific Corporation.

⁴⁵ The other four railroads do not indicate any Goodwill for 2012 on their balance sheets.

Allowance was 0.4% of Total Assets for those 5 railroads. In other words, railroad PPE is by far the largest part of its Investment Base, and much larger than Deferred Tax Liabilities. With that structure, the Board's approach of subtracting Deferred Tax Liabilities in the ROI calculation is reasonable. However, that subtraction can be problematic with firms where PPE is a small fraction of Total Assets. Once again, the asset structure is a reason the Board's ROI calculation procedure does not work appropriately for probably many of the firms in the S&P 500.

It seems worth reflecting on how firms with relatively small PPE can generate substantial revenues. Consider consulting firms. Their major assets are human capital and reputation, neither of which appear on balance sheets as PPE. For some firms, brand recognition is crucial. Again, that won't appear on a balance sheet as PPE. For a high-tech firm such as Apple, human capital, reputation, and brand recognition can all be major assets that are not on the balance sheet. In addition, R&D at high-tech firms can be a critical driver of future revenues (as well as enhancing human capital and reputation). The accounting approach of expensing R&D rather than treating it as an asset is a well-known issue for estimating ROI and related return measures.⁴⁶ This is much less of an issue for a railroad's ROI as compared to a high-tech firm, of which there are many in the S&P 500.

In recent years, outsourcing has become an important strategy for many U.S. firms. Apple is almost a poster child for outsourcing manufacturing, which greatly reduces its need for

⁴⁶ For example, see the discussion in Aswath Damodaran, "Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications," NYU Stern School of Business, July 2007. That paper is available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1105499

PPE. Many of the firms in the Supporting Spreadsheet are multinational corporations (“MNCs”) with large off-shore revenues. Many of those MNCs, including Apple, have created structures which allowed them to shield substantial portions of their off-shore income from U.S. taxes, at least prior to the 2017 U.S. tax code changes. Again, we have an important characteristic that doesn’t align with the domestic railroad industry.

Many S&P 500 firms have grown in part via mergers and acquisitions that resulted in substantial Goodwill (difference between the acquisition price and fair value of the acquired assets) on their balance sheets. There are challenging questions regarding whether portions of Goodwill should be treated as capital assets in ROI and related calculations.⁴⁷ The only railroad with a substantial amount of Goodwill on its Balance Sheet is BNSF. The decision as to what portion of Goodwill to include in the Investment Base is only relevant for one railroad (and not for every year), but that decision could vary across other non-railroad firms and by year. Moreover, that decision would be important for ROI calculations at many S&P 500 firms.

The impact of Deferred Tax Liabilities in ROI calculations was important in some (but not all) extraordinarily large ROI values for non-railroad firms as well as the numerous (217) missing ROI values for firm-year entries that would have been negative. Such results are a straightforward mathematical phenomenon. With an unchanged numerator, shrinking the denominator increases the size of the fractional result. If the denominator becomes very small, the result becomes enormous (e.g., Apple’s ROI estimates during several years). If the denominator becomes negative, the result also becomes negative. A negative ROI for a firm

⁴⁷ See the discussion in Aswath Damodaran, *ibid.*

with positive income is so ridiculous that the Railroad Proposal eliminated that possibility in its calculation procedures. Even in less extreme situations, subtracting average Deferred Tax Liabilities from the firm's average Investment Base will increase the calculated ROI. That is just how the math works.

For a typical railroad, the mathematical effect of subtracting Deferred Tax Liabilities in the ROI denominator is much less pronounced. That is because the typical railroad's Investment Base/Total Assets is very large and Deferred Tax Liabilities/Total Assets is much smaller. For railroads, there is also a policy issue regarding the treatment of Deferred Tax Liabilities in the ROI calculation that is not relevant for most firms in the S&P 500. The railroads are regulated entities with captive customers. The ability to defer tax payments represents an implicit subsidy, and it is appropriate for the Board to determine how that subsidy should influence rate setting for a regulated railroad. In contrast, firms such as Apple are not so regulated and can structure themselves to exploit tax benefits in ways that would not be possible for a domestic railroad. It is plausible that many unregulated firms in the S&P 500 have evolved their structures in tax-advantageous ways that result in substantial Deferred Tax Liabilities. For such firms, there is no notion that a regulator should determine how the benefits of tax subsidies should influence the firm's pricing. Recognizing this difference between regulated and unregulated firms, it is easy to see that they could naturally evolve to have quite different financial and operating structures. That could result in very different amounts and reasons for having Deferred Tax Liabilities. Consequently, the treatment of Deferred Tax Liabilities that is reasonable for a regulated railroad may make no sense at all for non-railroad firms.

I have identified several reasons why the Board's approach for estimating a railroad's ROI does not fit many non-railroad firms. I have shown how a poor fit can result in calculating an incredibly high and implausible ROI value. Poor fit can also cause more moderate ROI values to be substantially different from they would be with procedures more appropriate to that firm. We have a situation where the mathematics cranks out a result determined by the model and input assumptions. When the model and/or input assumptions do not fit the firm, the output result is going to be inappropriate and should be discarded. The calculation exercise submitted with the Railroad Proposal is not beneficial for determining whether a railroad is earning adequate revenue.

V. Concluding Comments

Frankly, I am surprised that the Railroad Proposal was submitted in the current form. Generating over 5000 mostly inaccurate ROI estimates seems like a major waste of time. It does demonstrate that the Board's ROI estimation procedure doesn't work well in many non-railroad situations. That is not surprising and could have been illustrated with a couple examples. In any case, that exercise does not address accuracy of the Board's ROI calculation procedure for a railroad or whether/how it could be improved. There is apparent concern about whether an accounting-based technique will provide an accurate estimate of economic returns (see Section III of the Murphy and Zmijewski Verified Statement). However, I don't see how generating a large number of blatantly inaccurate ROI estimates for non-railroads addresses that concern.

I was also taken aback by the suggestion that a return premium (a substantial one in the Railroad Proposal) above a firm's cost of capital was necessary to have access to adequate funding. That is financial nonsense, as discussed in Section II of this Verified Statement.

The key issues in assessing revenue adequacy for a railroad are accurately estimating the railroad's cost of capital and its economic earnings rate. Improving the Board's current procedures (WACC and ROI calculation approaches) to provide better estimates of a railroad's cost of capital and economic earnings rate may well be possible. However, comparing railroad ROI estimates to those for non-railroads doesn't address the issue of how to improve the railroad estimation approach. That is particularly true when many of the non-railroads have very different operating and financial characteristics. The estimation exercise undertaken in the Railroad Proposal is thus irrelevant as well as unnecessary.

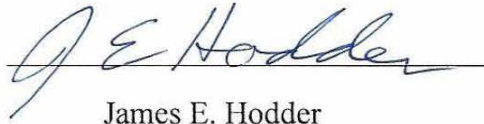
The Board's December 30 Decision poses three questions under a heading of The Comparison Proposal. Those questions seem to imply some credibility for the concept of having a comparison group of non-railroad firms, whether that is based on the S&P 500 or some other group of firms. In my view, that is not a useful idea to pursue. As articulated above, the Board needs an accurate estimate of the railroad's cost of capital. That entails estimating parameters for capital markets in general, but does not involve comparing costs of capital with those for non-railroad firms, and there is no point in doing so. Section IV, above, provides numerous examples of why applying an ROI estimation procedure tailored to railroads does not fit non-railroad firms and generates nonsensical results. Suppose the Board worked to develop a variety of modified procedures that worked reasonably well for estimating ROI values cross a range of non-railroad firms. How does that improve the accuracy of the Board's approach for estimating

railroad ROI values? Perhaps there would be positive learning effects. However, it would seem much more productive to focus on the railroad estimation procedure, rather than trying to figure out a variety of alternatives for firms with other structures.

One of the Board's questions asks about using a premium based on the median estimate of ROI - WACC as opposed to another percentile for the comparison set of S&P 500 firms. As indicated in Section II above, the relevant benchmark is the firm's own cost of capital (estimated by the Board using a WACC). A firm's cost of capital is determined by that firm's characteristics and the characteristics of financial markets generally (a much broader universe than the S&P 500). In the Railroad Proposal, the ROI estimates for the non-railroads contain so many implausible values that the accuracy of whatever percentile is dubious; and those estimates should be discarded. Moreover, targeting a premium above the firm's cost of capital is fundamentally unsound, ignores how that premium will result in a higher share price, and is unnecessary to obtain needed funds. The answer to the Board's question is that the basic approach of the Railroad Proposal is inappropriate and should be dismissed.

VERIFICATION

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

A handwritten signature in blue ink, reading "J E Hodder", written over a horizontal line.

James E. Hodder

Executed on
May 13 2021

Appendix A: Curriculum Vitae

JAMES E. HODDER

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100 E. Huron #4904
Chicago, IL 60611

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Areas of Specialization: Corporate Finance, Derivative Securities, and International Finance

Education:

1967	B.S.	Industrial Engineering, Stanford University
1968	M.B.A.	Business Administration, University of Michigan
1976	M.A.	Economics, University of California (Berkeley)
1979	Ph.D.	Economics, Stanford University

Dissertation: The Hedging of Exposure to Exchange-Rate Movements

Employment:

1968-1969 Sylvania Electronic Systems: Project Administrative Engineer

1969-1973 U.S. Navy: Engineering Duty Officer

1974-1976 Department of Economics, University of California (Berkeley):
Research and Teaching Assistant

1976-1978 Department of Economics, Stanford University: Teaching Assistant and
Instructor

1978-1992 Department of Industrial Engineering and Engineering Management, Stanford
University: Assistant Professor and Associate Professor, Associate Chairman
1987-1988, Ph.D. Program Director 1987-1992

1992-2012 School of Business, University of Wisconsin - Madison: Charles and Laura
Albright Professor of Finance 1992-2012, Director of Quantitative Masters in
Finance (QMF) Program 1995-2004, Department Chair 2004-2008 and 2011-
2012, Emeritus Professor since 2012

2012- 5 Lakes Financial Research: Principal

2013-2014 U.S. Securities Exchange Commission: Economic Fellow

2015-2017 U.S. Securities Exchange Commission: Expert - Financial Economist (part-
time)

Visiting Appointments:

- 1986 Visiting Scholar, Department of Economics, Osaka University -- funded by a fellowship from the Japan Society for the Promotion of Science
- 1990-91 Visiting Associate Professor, School of Business, University of Wisconsin - Madison

Teaching:

Derivative Securities
 Advanced Derivatives
 Contemporary Topics – Hedge Funds
 Corporate Finance
 Fixed Income and Derivative Securities
 Options and Financial Futures
 Ph.D. Seminar: Interest Rate and Credit Risk Models
 Ph.D. Seminar: Risk Management in Financial Institutions
 Multinational Business Finance
 Financial Policy
 Doctoral Seminar in Financial Decisions
 Engineering Economy
 International Economics

Awards:

Outstanding Teacher, Department of Industrial Engineering and Engineering Management, Stanford University, 1981-82 and 1986-87

Lawrence J. Larson Award for Excellence in Teaching, School of Business, University of Wisconsin-Madison, 1999

Wisconsin Idea Fellow, in recognition of extraordinary public service on behalf of the University of Wisconsin, 2004-2005

University Service:

- Stanford: Affiliate Faculty Department of Economics, 1979–1992.
 Fellow of the Northeast Asia – U.S. Forum on International Policy, 1980-1992.
 Faculty Liaison for IEEM Industrial Affiliates Program, 1982-1992.
 School of Engineering Undergraduate Council, 1984-1991.
- Wisconsin: Business School, Subcommittee of the Executive Committee, 1993-1996, 1999-2001 and 2002-2003, Chair 1994-1995.
 Business School Academic Planning Council, 1994 -1998.
 East Asian Studies Faculty, 1994-2012.
 Center for World Affairs and the Global Economy, 1995-2002 and 2008-2012.
 University Social Sciences Divisional Committee, 2002-2004.
 Global Studies Faculty, 2004-2012.
 Business School Operations Committee, 2005-2008.
 University Faculty Senate, 2009-2012.

Publications:

1. "Foreign Investment from the Firm's Perspective," in D. Bonham-Yeaman, ed., Developing Global Corporate Strategies, Academy of International Business and European International Business Association Joint Conference, Barcelona, Spain, December, 1981.
2. "Exposure to Exchange Rate Movements," Journal of International Economics, November, 1982.
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