



## TABLE OF CONTENTS

	Page
SUMMARY.....	1
REPLY COMMENTS .....	6
<b>A. THE BOARD SHOULD CONTINUE TO REJECT THE USE     OF “REPLACEMENT COSTS” FOR REVENUE     ADEQUACY PURPOSES .....</b>	<b>7</b>
1. The Railroads’ Replacement Cost Proposal Is Inconsistent With the Governing Statute .....	7
2. Inherent Flaws In The Replacement Cost Method Preclude Its Use In Determining Railroad Revenue Adequacy .....	10
3. The Railroads Offer No Rational Solutions to the Known Defects in a Replacement Cost Approach.....	15
<b>B. THE COAL RATE GUIDELINES COMPEL IMPLEMENTATION     OF A REVENUE ADEQUACY CONSTRAINT .....</b>	<b>19</b>
1. The Revenue Inadequacy Constraint Is An Essential And Independent Component of Constrained Market Pricing.....	19
2. The Revenue Adequacy Constraint Is Limited to Captive Rail Traffic .....	29
3. Allied Shippers’ Proposed Constraint Is Reasonable and Should be Adopted .....	31
<b>C. STAND-ALONE COST IS A CEILING ON RATES, NOT AN OPTIMAL     MEASURE OF RATE REASONABLENESS.....</b>	<b>35</b>
CONCLUSION.....	42

**BEFORE THE  
SURFACE TRANSPORTATION BOARD**

---

---

	)	
	)	
RAILROAD REVENUE ADEQUACY	)	Ex Parte No. 722
	)	
	)	
	)	

---

---

**JOINT REPLY COMMENTS OF  
THE WESTERN COAL TRAFFIC LEAGUE  
CONSUMERS ENERGY COMPANY  
and  
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION**

The Western Coal Traffic League (“WCTL”), Consumers Energy Company (“Consumers”) and South Mississippi Electric Power Association (“SMEPA”)<sup>1</sup> hereby submit these Joint Reply Comments in the captioned proceeding, in accordance with the Board’s Decision served June 16, 2014.

**SUMMARY**

Allied Shippers’ Opening Comments summarized the obvious and indisputable financial recovery and long-term stability of the major U.S. railroads, and the fulfillment of Congress’ revenue adequacy goals encapsulated in 49 U.S.C. § 10704 (a)(2).<sup>2</sup> Allied Shippers also highlighted the historic disconnect between the railroads’

---

<sup>1</sup> WCTL, Consumers and SMEPA collectively are referred to as “Allied Shippers.”

<sup>2</sup> Joint Opening Comments of The Western Coal Traffic League, Consumers Energy Company and South Mississippi Electric Power Ass’n., September 5, 2014 (“Op. Comments”), at 9-13.

actual financial health and capital attractiveness, and the Board's current, formulaic approach to measuring revenue adequacy, which relies solely on the relationship between a carrier's return on net investment in its system assets and the average rail industry cost of capital. Op. Comments at 17-19, V.S. Levine, at 6-11 and Table 1. Allied Shippers proposed that the Board should address this anomaly by re-introducing funds flow analyses and other, multiple indicators of financial performance into the revenue adequacy determination, to act as a qualitative check on the mathematical results of the current ROI=COC test. *Id.* at 20-23. Allied Shippers also emphasized that whatever action the Board might consider in this proceeding, it should reject *any* proposed changes to its revenue adequacy methodology that would make a railroad appear to be farther away from that goal than it is today. *Id.* at 20.

In response to the Board's specific request for suggestions as to how to implement the Revenue Adequacy Constraint in the *Coal Rate Guidelines*, Allied Shippers proposed a simple approach that is squarely consistent with the *Guidelines*' first priority; *i.e.*, that "captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs."<sup>3</sup> Once a railroad is shown to possess market dominance over a

---

<sup>3</sup> *Coal Rate Guidelines, Nationwide*, 1 I.C.C. 2d 520, 535-36 (1985), *aff'd. sub nom. Consolidated Rail Corp. v. United States*, 812 F. 2d 1444 (1987).

given shipper's traffic *and* is found to be revenue adequate,<sup>4</sup> that railroad should be precluded from increasing the captive shipper's rate beyond actual cost inflation (as measured by the RCAFA), absent very specific proof of additional revenue needs under strictly limited circumstances. Op. Comments at 27-32. Allied Shippers also suggested that the Board should consider examining other elements of the Constrained Market Pricing (CMP) model to determine whether additional modifications should be made to protect captive shippers from unreasonable rates where the serving carrier is revenue adequate, and confirmed that consistent with established precedent, a captive shipper eligible for relief under the Revenue Adequacy Constraint also should be able to seek and obtain greater relief under one of the other CMP constraints, if the relevant evidence so indicated.

In addition to Allied Shippers, other parties and groups representing the interests of other captive rail shippers submitted opening comments in this proceeding. These included the Concerned Shipper Associations (the American Chemistry Council, the Fertilizer Institute, the Chlorine Institute, and the National Industrial Transportation League); Arkansas Electric Cooperative Corporation; the Alliance for Rail Competition; and Olin Corporation. To varying degrees, each of these parties concurred in Allied Shippers' assessment of the robust financial health of the major railroads, and the need for the Board both to recognize the achievement of the goals of 49 U.S.C. § 10704 (a),

---

<sup>4</sup> Allied Shippers proposed that while a railroad's revenue adequacy status should be determined on a case-by-case basis as called for by the *Guidelines*, any carrier whose average return on investment over the most recent four (4) year period exceeded the average industry cost of capital over the same period would be presumed to be revenue adequate for purposes of application of the Constraint. Op. Comments at 24-25.

and to implement meaningfully the Revenue Adequacy Constraint in the *Guidelines* going forward. Some of those parties proposed specific approaches to that task that differ from the Constraint put forward by Allied Shippers, but none of these parties' positions conflict with those of Allied Shippers, and Allied Shippers urge the Board to consider seriously the arguments and policy suggestions advanced by the other shipper representatives.

In stark contrast, the Comments submitted by the Association of American Railroads (AAR) and its largest individual members<sup>5</sup> call upon the Board to ignore and/or remake reality, and re-write the *Coal Rate Guidelines* to *reduce* the measure of rate protections available to captive shippers. Specifically, the voluminous and overlapping submissions by the railroads argue for (1) adoption of the same "replacement cost" approach to calculating a railroad's investment base for revenue adequacy purposes that has been rejected repeatedly by the Board and its predecessor for over thirty (30) years;<sup>6</sup> (2) outright elimination of the Revenue Adequacy Constraint from the *Coal Rate Guidelines*;<sup>7</sup> and (3) elevation of the Stand-Alone Cost (SAC) Constraint to the status of the sole measure of rate reasonableness.<sup>8</sup> Simply put, now that they have achieved revenue adequacy, the railroads want to change the rules so that they again and

---

<sup>5</sup> Individual comments were filed by BNSF Railway ("BNSF"), Union Pacific Railroad ("UP"), Norfolk Southern Railway ("NS") and CSX Transportation, Inc. ("CSXT").

<sup>6</sup> *See, e.g.*, AAR Comments at 39-42; NS Comments at 71-76; CSXT Comments at 1-10.

<sup>7</sup> AAR Comments at 6-15, 21-37; NS Comments at 51-70.

<sup>8</sup> CSXT Comments at 27-32; AAR Comments at 43-46.

perpetually will appear to be revenue *inadequate*, and in any case would never have their captive shipper rates limited by their revenue adequacy status. Predictably, they also threaten the collapse of the rail system and/or the Nation's economy as a whole, if their demands are not met.<sup>9</sup>

These Joint Reply Comments primarily are responsive to the principal arguments advanced by the railroads, none of which is meritorious, and all of which should be rejected by the Board.

First, Allied Shippers show that the same flaws in the purely theoretical "replacement cost" approach that have rendered it impractical as a regulatory tool since 1981 remain as equally disqualifying impediments today. As was the case when the railroads last proposed it in earnest in 2008, their campaign for the use of "replacement costs" actually is a campaign to manipulate the revenue adequacy process, in an effort to ensure that no railroad ever appears to achieve that status, and that no captive shipper can pursue relief from unreasonable rates based on that status.

Second, Allied Shippers show that the court-approved Revenue Adequacy Constraint is an essential component of the *Coal Rate Guidelines*, and the first regulatory limitation on a railroad's ability to differentially discriminate against captive shippers in setting prices for transportation, and cannot simply be ignored as the railroads now would prefer. Further, the specific constraint proposed by Allied Shippers for adoption by the Board is reasonable and appropriate for application to the limited class of rail traffic that would be eligible to use it, and squarely consistent with the court-approved Board

---

<sup>9</sup> See, e.g., UP Comments at 3-6; BNSF Comments at 5-7.

precedent that directly addresses the issue,<sup>10</sup> precedent that remains applicable and determinative on this component of CMP.

Finally, Allied Shippers demonstrate that contrary to the thesis advanced by the railroads, the SAC Constraint represents an *absolute ceiling* on lawful captive rail rates, not an optimal determinant of reasonableness or a “gold standard” that overrides the other constraints under CMP. Like the railroads’ call for the use of “replacement costs,” their erroneous characterization of the SAC Constraint appears intended to keep the prospect of meaningful limits on captive rail rates beyond the reach of all but a very few, large and well-funded shippers.

Allied Shippers’ Reply Comments are supported by the accompanying Verified Statements of Dr. Harvey Levine, and transportation economist and former Director of the ICC’s Office of Economics, Dr. John Hennigan.

### **REPLY COMMENTS**

In their Comments, the AAR and individual Class I railroads propose that the Board should re-write its revenue adequacy rules to ensure that no major railroad appears to be revenue adequate, regardless of its actual financial health or capital attractiveness; and re-write the *Coal Rate Guidelines* to eliminate revenue adequacy entirely as a rate constraint, and force captive shippers to rely exclusively on the SAC test

---

<sup>10</sup> *CF Industries v. Koch Pipeline Company, L.P.*, STB Docket No. 41685 (STB served May 9, 2000), *affirmed, sub nom., CF Industries, Inc. v. Surface Transportation Board*, 255 F. 3d 816 (D.C. Cir. 2001).

for protection from railroad pricing abuse. The Board should reject both calls, and instead adopt the reforms outlined by Allied Shippers in their Opening Comments.

**A. THE BOARD SHOULD CONTINUE TO REJECT  
THE USE OF “REPLACEMENT COSTS” FOR  
REVENUE ADEQUACY PURPOSES**

The railroads in this proceeding reprise their oft-repeated refrain that the Board should use a “replacement cost” approach in calculating a railroad’s investment base for purposes of making revenue adequacy determinations. As in the past, the carriers’ intent is to change the denominator in the Board’s return-on-investment (ROI) ratio so as to lower each railroad’s ROI, and thus make it appear that each railroad is farther away from revenue adequacy, regardless of its actual ability to raise capital. The railroads’ latest effort to move the goal posts is particularly transparent, since all four (4) of the Class I carriers participating in this proceeding are at or already have entered the end zone. However, their case is as meritless today as it was in 2008, when the Board last rejected it.<sup>11</sup>

**1. The Railroads’ Replacement Cost Proposal  
Is Inconsistent With the Governing Statute**

Neither the concept of revenue adequacy nor its role in the Board’s regulation of railroad rates and practices are purely theoretical subjects. To the contrary, revenue adequacy is a particular creation of Congress, and is governed specifically by statute. The railroads’ replacement cost proposal is wholly incompatible with that statute.

---

<sup>11</sup> *Petition of the Association of American Railroads to Institute a Rulemaking Proceeding to Adopt a Replacement Cost Methodology to Determine Railroad Revenue Adequacy*, STB Ex Parte No. 679 (STB served October 24, 2008).

49 U.S.C. § 10704 (a)(2) reads as follows:

The Board shall maintain and revise as necessary standards and procedures for establishing revenue levels for rail carriers providing transportation subject to its jurisdiction under this part that are adequate, under honest, economical, and efficient management, to *cover total operating expenses, including depreciation and obsolescence*, plus a reasonable and economic profit or return (or both) *on capital employed in the business*. The Board shall make an adequate and continuing effort to assist those carriers in attaining revenue levels prescribed under this paragraph. Revenue levels established under this paragraph should –

(A) *provide a flow of net income plus depreciation adequate to support prudent capital outlays, assure the repayment of reasonable level of debt*, permit the raising of needed equity capital, *and cover the effects of inflation*, and

(B) *attract and retain capital in amounts adequate to provide a sound transportation system in the United States*.

(Emphasis supplied). The plain language as crafted by Congress is directed squarely toward actual, historic investments and operations, not speculative, future “replacement” investments.

For example, the statute defines revenue adequacy by reference to the need to “cover total operating expenses, including depreciation and obsolescence,” quantifications which inherently are historic in nature. Similarly, a return “on capital employed in the business” necessarily refers to assets that actually are in use, not those that *might be* placed into service in the future. Likewise, the statute calls for a “flow of net income plus depreciation” that will “assure the repayment of a reasonable level of

debt.” Both “depreciation” and “debt” by definition relate to monies already spent, not funds *expected* to be spent in coming years or decades.

The statute’s focus on “prudent capital outlays,” the generation of funds to “cover the effects of inflation,” and the goal of “attract[ing] and retain[ing] capital in amounts adequate to provide a sound transportation system” also are antithetical to the use of replacement costs to determine revenue adequacy. Return and inflation are easily and precisely measured through application of a nominal cost of capital to an historic investment base,<sup>12</sup> and the adequacy of capital most accurately can be measured when outlays actually are made; *i.e.*, when assets are renewed or replaced. As discussed further *infra*, the replacement cost approach requires all assets to be valued as if they were replaced annually, even if they have long remaining useful lives. An assumption that assets are replaced prematurely is neither “prudent” nor indicative of “honest, economical, and efficient management,” which also are mandates under the governing statute.

In addition to Section 10704(a)(2), the railroads’ campaign for replacement costs conflicts with 49 U.S.C. § 11161, which provides that “[t]o the maximum extent practicable, the Board shall conform [its cost accounting] rules to generally accepted accounting principles.” Generally accepted accounting principles (“GAAP”) call for the use of historic or actual current purchase costs, not replacement costs. The Board itself

---

<sup>12</sup> It should be noted that “historic” is not synonymous with “old” or “outdated.” It is undisputed that the railroads’ capital expenditures routinely exceed their depreciation figures by a wide margin (the carriers’ Comments in this preceding effectively trumpet that fact), so on balance, their assets are growing newer, not older.

affirmed this last year, holding in the context of railroad acquisitions and mergers that while GAAP endorsed the valuation of rail assets at their cost of purchase at the time the assets actually are acquired and are in service, it did not support reliance on replacement costs subsequent to purchase:

Purchase accounting is required by GAAP; replacement cost accounting is not. Purchase accounting requires a *one-time* adjustment to asset values and is triggered by a *company-specific market event* that signals that the book values of that company's assets are under- or overstated relative to their real values. In contrast, replacement cost accounting would need to be applied across the entire industry and would be imposed by a change in accounting philosophy rather than a market event.

(Emphasis in original). *Western Coal Traffic League – Petition for Declaratory Order*, STB Finance Docket No. 35506 (STB served July 25, 2013) at 21.

## **2. Inherent Flaws In The Replacement Cost Method Preclude Its Use in Determining Railroad Revenue Adequacy**

For more than thirty (30) years, the AAR and its principal Class I members have advocated the use of “replacement costs” to value a railroad’s investment base for revenue adequacy purposes. For just as long, the Board and its predecessor rightly have declined, citing numerous defects in the approach that no proponent has ever adequately addressed, including “the challenge of identifying and valuing those rail assets that the railroad will not replace in its current configuration on an annual basis.” *Western Coal Traffic League – Petition for Declaratory Order*, at 21, citing *Ex Parte No. 679*, at 5-6. In its 2008 Decision in *Ex Parte No. 679*, the most recent STB ruling to address the issue

directly, the Board elaborated on these flaws, and noted the concurrence of two (2) other, prominent federal agencies:

Three different federal agencies have already carefully examined the issue of whether and how to use a replacement-cost approach in the revenue adequacy determination. In the 1980s, the ICC conducted an extensive rulemaking proceeding and concluded that three key practical difficulties preclude the use of a replacement-cost approach. The first is the need to estimate the current replacement costs of rail assets, such as bridges, tunnels, land, track, and grading. The second is the need to estimate the ‘real’ cost of capital to avoid double-counting the effects of inflation. And third is the need to identify the rail assets that would not be replaced once they have been fully depreciated, as it would be inappropriate to provide a return on the replacement cost of assets the carriers will not in fact replace. GAO and the RAPB reviewed the same issue, agreed that using a replacement-cost approach instead of a historical-cost approach would be impractical, and echoed the ICC’s conclusion that there was no feasible way to identify and revalue those assets that would not be replaced.

*Id.* at 5.

Throughout their Comments, the AAR and individual railroads urge the “theoretical” merits of their replacement cost approach as reason enough to adopt it outright without curing its defects, or suspend any regulatory actions based on a railroad’s revenue adequacy status until cures are found – or presumably forever, since they are incurable. *See, e.g.*, AAR Comments at 27-30; CSXT Comments at 3-10. However, both the Board and the RAPB previously and specifically rejected the principle that theory should trump practicality when it comes to selecting a regulatory

methodology that by statute is intended to have practical application to the regulated industry sector.<sup>13</sup> As the RAPB summarized:

Despite the theoretical attractiveness of using the current market value of assets with a real cost-of-capital rate, the use of historical cost for assets and a nominal cost-of-capital rate is more practical because of (1) the difficulties of accurately measuring and removing the inflation component from the nominal cost-of-capital rate and (2) the great amount of judgment required to implement the process by which the historical costs of assets for an entire railroad entity are restated.

Final Report, RAPB-Volume 1, at 12.

In its detailed discussion of the application of its Principles to the subject of revenue adequacy, the RAPB explained that replacement cost methods “require preparation or computation of additional information that is either (1) not feasible or (2) not cost effective to obtain for the entire entity,”<sup>14</sup> and went on to catalogue some of the “serious practical problems” that precluded acceptance of a replacement or “market valuation” approach to calculating a railroad’s investment base:

- Unlike most other regulatory applications, revenue adequacy determinations require valuation of the asset base for the entire railroad entity.
- While historical asset valuation may be determined directly from the entity’s regularly maintained accounting records, current market valuation requires identification of the value of the remaining productive capacity of an entity’s assets. This information is not regularly maintained in the entity’s accounting records.

---

<sup>13</sup>*Ex Parte No. 679*, at 5-6.

<sup>14</sup> Final Report, RAPB-Volume 2, at 40-41.

- The revaluation task is complicated by the need to identify and revalue existing assets which will not be replaced. In addition, other assets will not be replaced in kind. Rather, they will incorporate technological changes.
- Depreciation expense associated with current valuation must be derived to reflect the composition and life expectancy of a current cost asset base.
- A reliable real cost-of-capital rate, required in conjunction with a current cost asset base, is difficult to compute accurately....

Final Report, RAPB-Volume 2, at 60-61 (footnote omitted). The RAPB *also* noted the theoretical flaw in the argument (advanced in this case as well by the railroads) that a replacement cost approach conceptually supports a railroad's need to secure adequate capital to make future investments:

One argument favoring current asset valuation is that its use will provide capital adequate to replace the assets of the enterprise. This argument has two underlying assumptions: (1) that funds for reinvestment must be generated internally by the entity (no outside investment can be attracted) and (2) that essentially all assets will be replaced with funds provided from operations in advance of replacement.

The first assumption is not valid if investors can reasonably expect to earn a competitive return. In such cases, funds can be obtained from the capital markets.

The second assumption appears invalid in light of the recent significant railroad activity in writing down impaired assets...[h]ad sufficient funds been provided from operations before the write-down, the railroads would be left with a significant surplus of capital to be invested.

*Id.* at 42-43. In his Opening Verified Statement in this proceeding, Allied Shippers' witness Levine demonstrated both that the Class I railroads today have no difficulty raising outside capital, and that they generate revenues sufficient to allow them to pay generous dividends, buy back stock and retire debt, even as they also maintain robust capex programs. *See* V.S. Levine at 4-5, 11-13.

In their accompanying Verified Statements in this Reply phase, Drs. Levine and Hennigan explain how the methodological, data source and practical defects in the replacement cost approach that led to its rejection by the RAPB in 1987, and repeated rejections by the Board and its predecessor before and since, remain as disqualifying impediments today.

Dr. Harvey Levine, former Vice President of the Economics & Finance Department at the AAR, testifies that any effort to calculate a return on investment based on replacement costs would continue to entail numerous subjective projections and controversial assumptions, and the outcome still "would not be a measure used by the financial community, railroads, other companies and investors; and it would not necessarily be an indicator of capital attractiveness." R.V.S. Levine, at 17. Turning to the most recent, actual example of an investor's evaluation of the capital attractiveness of a railroad – Berkshire Hathaway's acquisition of BNSF – Dr. Levine points out that the acquirer paid a substantial premium "based on analyses of financial indicators relative to other investment opportunities using the same standards used by investors generally, including an accounting ROI," but from all accounts gave no consideration to a return on estimated "replacement costs." *Id.* at 18.

Dr. Levine also explains why the “rental housing” analogy offered by CSXT in support of the replacement cost theory<sup>15</sup> has no real application in the revenue adequacy context. As he points out, the railroad market (unlike the housing market posited by CSXT) is not completely competitive, and the focus of revenue adequacy as a regulatory tool specifically is on that portion of the market that is *not* characterized by effective competition. *Id.* at 16. A more appropriate comparison – which CSXT and the AAR do not make – would be to methods employed by governmental agencies charged with responsibility for setting affordable subsidized rents, or administering rent control policies, for the benefit of those who would be subject to economic hardship if forced to pay “what the market will bear” for a portion of a limited housing stock. In those instances, “current market values” are eschewed in favor of a public policy emphasizing reasonable rental rates.

Dr. Hennigan, Director of the ICC’s Office of Economics when both the current revenue adequacy rules and the *Coal Rate Guidelines* were developed, traces the three decades-long history of the railroad industry’s advocacy for, and the ICC and STB’s consideration and consistent rejection of a replacement cost approach to revenue adequacy. V.S. Hennigan at 7-14. He testifies that while both have commented favorably on the *theory* of replacement costs, the same serious practical flaws have been cited again and again: the difficulty of identifying and valuing these assets that a railroad will not replace; the subjective nature of projections regarding the timing of replacements

---

<sup>15</sup> CSXT Comments at 4. The same point is offered by the AAR’s witness Joseph Kalt.

that *will* be made; and the challenge of developing a “real” cost of capital to use with a replacement cost investment base to avoid double-counting inflation. V. S. Hennigan at 12-14. Dr. Hennigan points out that in this proceeding, the railroads again offer no remedies for these disqualifying defects. *Id.* at 15-16.

### **3. The Railroads Offer No Rational Solutions to the Known Defects in a Replacement Cost Approach**

In 2008, the Board made clear that in light of the extensive consideration and repeated rejection of a replacement cost approach in the past, the railroads would have “a heavy burden of persuasion to show that its proposed approach overcomes [the] practical difficulties.” *Ex Parte No. 679*, at 5. Despite this admonition, the railroads have come to this proceeding without *any* rational solutions to the many, previously identified flaws in the replacement cost method. Instead, they offer a cynical non-solution: since revenue adequacy cannot practically be measured in a manner to their liking, the Board should abandon the task altogether and cease to make use of its revenue adequacy determinations for any purpose. *See* AAR Comments at 41; NS Comments at 71-73; CSXT Comments at 2-3.

The only substantive suggestion of any kind was made by CSXT, which proposed that the Board might calculate replacement values by performing a full stand-alone cost analysis of each railroad’s entire system once every ten (10) years, using an unspecified indexing mechanism to adjust the determined values annually in between decennial re-calculations. *See* CSXT Comments at 24-25. Even CSXT does not appear to take this proposal seriously, however, as it fails entirely to explain, *e.g.*, how the Board

would conduct the SAC analyses without the same multi-year administrative and appellate proceedings that currently characterize actual cases brought under the SAC Constraint; who would pay the costs of the evaluations;<sup>16</sup> how the Board could craft railroad-specific indices to adjust the values each year; and how CSXT's suggested approach differs materially from that which previously was rejected in *Ex Parte No. 679*. *Id.* at 3-4, 5-6. *See also, Western Coal Traffic League – Petition for Declaratory Order*, at 21-22; V.S. Hennigan at 15-16.

In addition to their irrationality in proposing that the Board simply ignore Congressional directives and its own precedents regarding the regulatory role of revenue adequacy, the railroads' arguments on replacement costs fail even to recognize that a change in the asset base valuation method would have to be accompanied by a change in the Board's method for calculating the cost of capital. As the RAPB recognized, the use of any kind of "current asset" valuation in conjunction with the nominal railroad cost of capital that the agency consistently has employed for revenue adequacy purposes would double-count inflation:

Asset valuation cannot be isolated from cost-of-capital rate determination. A current-cost asset base requires either the use of a real cost-of-capital rate or the recognition of capital gains or losses for the period of time in which assets are held. Conversely, a historical-cost asset base requires the use of a nominal cost-of-capital rate to account for inflation in capital

---

<sup>16</sup> In litigation under the SAC Constraint, complainant shippers and defendant railroads expend tens of millions of dollars in presenting their competing versions of SAC for only a *portion* of the railroad's actual system. The kind of evaluation that CSXT suggests could be performed for *every* Class I railroad's *entire* system would be even broader, more contentious, and more expensive.

costs. Since both the asset valuation and the cost-of-capital rate include the impact of inflation, a nominal cost-of-capital rate used in conjunction with a current-cost asset base would result in a double count of inflation in capital costs.

Final Report, RABP-Volume 2 at 60. The RAPB went on to find that a “reliable cost-of-capital rate, required in conjunction with a current cost asset base, is difficult to compute accurately.” *Id.* at 60-61. “Although numerous methods for estimating real cost of capital have been proposed, none appear to provide sufficiently reliable results [cross-reference omitted]. Thus, the calculation of an accurate, stable, real cost of capital appears indefensible.” *Id.* at 41. The cost of capital issue was one of the bases for the RAPB’s *rejection* of replacement cost valuation, as Dr. Hennigan also notes. V.S. Hennigan at 13.

The railroads’ ignorance of the cost of capital double-count problem – which persists through their Comments in this proceeding – helps to lay bare their true motivation in advocating replacement cost valuation: to rig the revenue adequacy methodology to produce results that avoid any additional scrutiny of or constraints on their rates on captive traffic, *regardless* of their having achieved the goals set out in 49 U.S.C. § 10704 (a)(2) on a consistent basis. Further evidence of their goal of artificially writing up the “value” of their investment bases in order to drive down their apparent rates of return appeared in *Western Coal Traffic League – Petition for Declaratory Order*, wherein the Board noted that under GAAP purchase accounting, the “current value” of BNSF’s assets as of the time of its acquisition by Berkshire Hathaway totaled \$21 billion, while the “replacement cost” method advocated by AAR five (5)

years earlier in *Ex Parte No. 679* produced a “value” for revenue adequacy purposes of \$79.9 billion. An even more candid assessment of the railroads’ goals was offered by a railroad financial analyst the last time the AAR and its members advocated a shift to replacement costs:

Preliminary indications are that ROICs would drop into the 2% to 3% range should this adjustment be approved by the STB. It should be noted that the STB seems favorably disposed to approve some sort of adjustment of this type even though most suggest that no other regulatory agency responsible for presiding over another regulated industry has ever utilized a replacement cost adjustment factor. Nonetheless, the ability to use replacement costs in this process would greatly enhance the railroads’ ability to justify additional sizable price increases; the railroads which are already revenue adequate would all of a sudden fall far short of achieving revenue adequacy. In fact, our calculations suggest that the railroads could not be re-regulated on the basis of excess returns (*i.e.*, returns in excess of cost of capital) during the foreseeable future if full replacement costs are used in the calculations of ROIC. Suffice it to say that this would be very bullish for the railroads and their common stocks.<sup>17</sup>

In homage to the supposed “purity” of a replacement cost model, the railroads offer a choice between no action at all where revenue adequacy is concerned, and result-oriented actions that would paint a picture of railroad financial health that is totally at odds with reality. That is a prescription for regulatory nullification, not progress. The Board should reject it.

---

<sup>17</sup> Stiefel-Nicolaus, *Rail Renaissance Remains on Track*, May 27, 2008 at 3 (Exhibit 1 hereto).

**B. THE COAL RATE GUIDELINES  
COMPEL IMPLEMENTATION OF A  
REVENUE ADEQUACY CONSTRAINT**

**1. The Revenue Adequacy Constraint Is An Essential and Independent Component of Constrained Market Pricing**

To read the railroads' collective comments, one could gather the impression either that the Board just recently announced a plan to *add* a Revenue Adequacy Constraint to the *Coal Rate Guidelines*, and was now soliciting public input,<sup>18</sup> or just casually mentioned the concept in 1985 without formulating any parameters, and thereafter ignored it.<sup>19</sup> In fact, as the long line of precedents since adoption of the *Guidelines* shows, The Revenue Adequacy Constraint was an integral and independent component of CMP when that model for railroad rate regulation first was adopted, and has remained so in the 30 years hence, even though it has been invoked only rarely due to the revenue inadequate status of most defendants in maximum rail rate litigation.

As has been cited repeatedly in a variety of contexts, revenue adequacy was designated "the logical first constraint on a carrier's pricing" in the *Guidelines* themselves, was described in substantive and tempered terms, and expressly was made subject to certain criteria. Specifically, as a rate constraint, it was to be used principally to signal the end of a carrier's ability to engage in further differential pricing on captive traffic; it was to be measured "over time" prior to its application; and it should not "be

---

<sup>18</sup> See, e.g., AAR Comments at 20-27; NS Comments at 51-70.

<sup>19</sup> E.g., NS Comments at 28-36; CSXT Comments at 27.

misused to freeze a carrier's rates artificially at the levels used to reach revenue adequacy." 1 I.C.C. 2d at 536.<sup>20</sup> See also, V.S. Hennigan at 18-19.

The Board's predecessor left the details of implementation of the Revenue Adequacy Constraint to future case-by-case adjudication,<sup>21</sup> just as it did with the SAC Constraint,<sup>22</sup> to which the railroads now make no objection. However, in decision after decision since CMP was promulgated, the Board and its predecessor noted the availability and purpose of the Revenue Adequacy Constraint, and its continued and co-equal role under the *Guidelines*. See, e.g., *Bituminous Coal – Hiawatha, UT to Moapa, NV*, 6 I.C.C. 2d 1, 6-17 (1989);<sup>23</sup> *West Texas Utilities Company v. Burlington Northern Railroad Co.*, 1 S.T.B. 638, 655 (1996); *PPL Montana, LLC v. The Burlington Northern and Santa Fe Railway Company*, 6 S.T.B. 286, 291 (2002). Very recently, the Board

---

<sup>20</sup> The ICC also noted a limited exception to the Constraint, and clarified that a revenue inadequate railroad still could be subject to the rate regulation under one of the other components of CMP. 1 I.C.C. 2d at 536 and n. 36.

<sup>21</sup> See 1 I.C.C. 2d at 536 n. 37 ("We will not attempt to decide here what period of time may be sufficiently representative in every case.").

<sup>22</sup> *Id.* at 542-43 ("In view of the many potential variables involved, we cannot prescribe a single precise mathematical formula for developing SAC. Instead, we will identify here the primary factors that must be considered in any SAC presentation and comment on some methods for quantifying them. The exact computation will be left to the parties to make in each case.").

<sup>23</sup> In *Bituminous Coal and Arkansas Power & Light Company v. Burlington Northern Railroad Company, et al.*, 3 I.C.C. 2d 757, 765-777 (1987), the ICC proceeded with evaluations of the challenged rates under the Revenue Adequacy Constraint as well as other components of CMP, before finding that the rates at issue were unreasonably high under the SAC test.

again confirmed the independent status of the Revenue Adequacy Constraint in the CMP regulatory framework:

The revenue adequacy constraint ensures that a captive shipper will ‘not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs.’

*E.I. DuPont de Nemours Co. v. Norfolk Southern Railway Co.*, STB Docket No. 42125 (STB served March 24, 2014) at 20-21, quoting *Coal Rate Guidelines*, 1 I.C.C. 2d at 535-36.

Unable to deny the essential truth of the Revenue Adequacy Constraint as an element of CMP, the railroads endeavor to undermine its status by arguing that the Constraint that was adopted as part of the *Coal Rate Guidelines* differed from a version initially included in the ICC’s 1983 Notice of Proposed Rulemaking,<sup>24</sup> and that the Third Circuit’s affirmance of the *Guidelines* on judicial review did not extend to the Revenue Adequacy Constraint, because “[no] party challenged the revenue adequacy constraint, which was widely viewed as little more than a theoretical possibility” given the revenue inadequate status of the major railroads at the time. AAR Comments at 37.<sup>25</sup> Both claims are flatly wrong.

---

<sup>24</sup> See, e.g., NS Comments at 28-34; AAR Comments at 32-36.

<sup>25</sup> See also, NS Comments at 36 (“[I]ts economic validity has never been reviewed by a court.”).

It is standard administrative procedure for an agency to propose rules or guidelines, solicit and consider public comment, and subsequently issue final rules that may or may not include its previous proposals in the same form that they initially were put forward. The ICC's development of the Revenue Adequacy Constraint in 1983-85 was fully consistent with this practice, as both the agency then and NS now have acknowledged.<sup>26</sup> Interested parties – representing consumers and carriers alike – commented on and critiqued the ICC's 1983 NPRM, and the agency subsequently reached a resolution that was formally announced in a public decision, and was subject to judicial review. That decision modified several of the elements of CMP that originally had been proposed in 1983, including the standards governing “grouping” under the SAC Constraint, and the mechanics of application of the Phasing Constraint. *Coal Rate Guidelines*, 1 I.C.C. 2d at 521, 525 (“While we have retained many aspects of the basic approach, we also have substantially revised and clarified our earlier proposal.”). The claims of AAR, NS and other railroads today – more than 30 years after the fact – that the ICC somehow failed to comply with applicable legal or procedural standards in adopting the Revenue Adequacy Constraint component of the *Coal Rate Guidelines*, such that the Constraint now should be ignored, is an invalid and outdated collateral attack. *See Consolidated Rail Corp*, 812 F. 2d at 1455.

Acknowledging, as they must, that the *Coal Rate Guidelines* – including the Revenue Adequacy Constraint – were affirmed in their entirety by the U.S. Court of

---

<sup>26</sup> *See Coal Rate Guidelines*, 1 I.C.C. 2d at 534-537; NS Comments at 28-33.

Appeals for the Third Circuit, the railroads nonetheless suggest that this Constraint should not be considered as bearing the court's imprimatur (as distinguished from SAC, which they favor) because allegedly no party challenged it,<sup>27</sup> and its "economic validity" was not reviewed.<sup>28</sup> In point of fact, however, it is only *the railroads* that declined to make such a challenge. The Revenue Adequacy Constraint was contested on appeal by *shippers*, and the Third Circuit addressed it directly:

The first constraint [under CMP] is railroad revenue adequacy. In *Bessemer* this court upheld the ICC standard for revenue adequacy—rate of return on net investment equal to the current cost of debt and equity capital. By imposing revenue adequacy as a ceiling, the ICC intends to insure that a captive shipper will 'not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting the current and future service needs.' (Footnote omitted). In other words, when a carrier has achieved revenue adequacy, the rate charged to a captive shipper will be the same as that determined by competition for non-captive shippers.

*Consolidated Rail Corp.*, 812 F. 2d at 1450-51. In specific response to shippers' complaints, the Court proceeded to affirm the ICC's use of revenue adequacy as a valid constraint under CMP:

Some shippers urge that the Final Guidelines are inconsistent with the 4 R and Staggers Acts mandates to protect captive shippers from unreasonable rates, in that they give too much weight to the achievement of revenue adequacy and too little to the interests of shippers. They argue that because no carrier has to date achieved revenue

---

<sup>27</sup> See AAR Comments at 37.

<sup>28</sup> NS Comments at 36.

adequacy, the ICC's first restraint is illusory. In essence this line of argument disputes the soundness of the measure of revenue adequacy (a rate of return on net investment equal to the current cost of debt and equity capital) which this court approved in *Bessemer & Lake Erie R.R. v. I.C.C.*, 691 F.2d 1104 (3d Cir. 1982), *cert. denied*, 462 U.S. 1110, 103 S. Ct. 2463, 77 L.Ed.2d 1340 (1983). For the reasons set forth in *Bessemer*, we are convinced that the ICC's basic approach on revenue adequacy is consistent with the 4 R and Staggers Acts. Even if we were not, we are not free to entertain in this proceeding a collateral attack on the *Bessemer* holding.

*Id.*, 812 F. 2d at 1455.

The appellate record clearly shows that the goal of the railroad industry before the Third Circuit was affirmance of the *Coal Rate Guidelines*, a goal which the industry achieved. Now that the time has arrived for implementation of a rate constraint under these *Guidelines* that they no longer favor, they seek to revise history and diminish the significance of the ICC's "first constraint" against unreasonable pricing by market dominant railroads. However, the Board cannot now ignore what clearly has been a key element of the *Guidelines* for 30 years. The Revenue Adequacy Constraint is an essential and independent component of CMP, and should be fully enforced.

The AAR, CSXT and NS also each argue against implementation of a Revenue Adequacy Constraint on the grounds that if it results in a lower maximum reasonable rate than that indicated by the SAC Constraint, it could offend the internal "cross-subsidy" tests adopted by the Board in *PPL Montana* and *Otter Tail*.<sup>29</sup> See AAR Comments at 38-39, CSXT Comments at 32-33; NS Comments at 66-67. The obvious

---

<sup>29</sup> *Otter Tail Power Co. v. BNSF Ry. Co.*, STB Docket No. 42071 (STB served January 27, 2006).

flaw in this rather circular notion is that it depends entirely on the presumption that the SAC test establishes the *optimal* rate for a movement, rather than – as Professor Baumol affirmed in 1997 – an absolute *ceiling*, below which many rates can be deemed reasonable so long as they are set above incremental cost.<sup>30</sup> The *PPL Montana* and *Otter Tail* constraints apply exclusively to the SAC test,<sup>31</sup> which the Board and the courts have affirmed repeatedly is but one of several independent and co-equal sources of limitations on a railroad’s ability to impose greater differential pricing burdens on captive shippers. *See, e.g., Bituminous Coal*, 6 I.C.C.2d at 6-17. *See also, CF Industries, Inc. v. Surface Transportation Board, supra.* As the D.C. Circuit noted in reviewing the *Coal Rate Guidelines*:

Four constraints are imposed on rail ratemaking for market dominant carriers...

The Final Guidelines provide that the four constraints ‘may be used individually or in combination to analyze whether the rate [increase] is unreasonably high.’

*Consolidated Rail Corp.*, 812 F. 2d at 1450, 1451.

Nothing in the *Guidelines*, the D.C. Circuit’s analysis and affirmation of them, or the many decisions rendered by the Board since their adoption support the proposition that the SAC Constraint should be elevated above the other three (3), independent limitations on captive rail rates. Indeed, if any constraint should be given

---

<sup>30</sup> W.J. Baumol, “Contestable Markets: Application and Their Theoretical Foundation,” *Momigliano Lecture 1997*, at 15 (Exhibit 2 hereto). *See also*, pp. 36-37, *infra*.

<sup>31</sup> *See PPL Montana, LLC*, 6 S.T.B. at 6, quoting *Arizona Electric Power Cooperative v. Burlington Northern & Santa Fe Railway Co., Et Al.*, STB Docket No. 42058 (STB served December 31, 2001) at 6.

preeminence, it is revenue adequacy; as the ICC made clear in 1985, in the context of traffic subject to the agency's regulatory jurisdiction, a revenue adequate railroad is "not entitled to any higher revenues" than those that equate to the revenue adequacy level. *Coal Rate Guidelines*, 1 I.C.C. 2d at 535. If Board consideration of the *PPL Montana* and *Otter Tail* restrictions have a place in this proceeding, Allied Shippers submit that the Board should modify them in cases brought under the SAC Constraint against rates established by a revenue adequate carrier.

In *PPL Montana*, the Board determined that even if the total revenues attributable to traffic moving over a stand-alone railroad system ("SARR") exceeded total SAC for that system (including a return on investment), the complainant would not be entitled to relief if the revenues attributable only to the traffic moving over a defined portion of the system used by the issue traffic did not exceed the total SAC for that portion. 6 S.T.B. at 293-295. In that circumstance, the Board found that the revenues from traffic moving over other portions of the SARR that did not use the facilities needed by the issue traffic would be "cross-subsidizing" the issue traffic. On reconsideration, the Board reiterated that the SAC test proscribes "the recovery of a shipper's attributable costs from other shippers." *PPL Montana*, 6 S.T.B. 752, 757 (on reconsideration). In *Otter Tail*, the Board ruled that if a complainant's SARR passed the threshold test established in *PPL Montana*, but application of the SAC rate relief methodology would leave an identified issue traffic segment with insufficient revenues to meet total SAC for that segment, then the rate relief would be truncated to produce a balance between the attributable revenues and SAC. *Otter Tail, supra*, at 10-11.

The *PPL Montana* and *Otter Tail* limitations contest with previous decisions that emphasized the unified nature of a SARR, and rejected arguments for subdivision of “investments and expenses incurred by all the traffic” on grounds that the SAC test required that “actual total revenues be compared with the total SAC for the hypothetical railroad, ....” *Metropolitan Edison Co. v. Conrail, Et Al.*, 5 I.C.C. 2d 385, 424 (1989). See also, *McCarty Farms, Et Al. v. Burlington Northern Inc.*, 4 I.C.C. 2d 252, 270 (1988). The justification for those limitations rests on the notion that revenues generated by shippers that do not benefit from facilities needed by the issue traffic should not be used to cover the costs of those facilities at the expense of cost coverage for the portion of the SARR that the first group of shippers uses. Where the defendant railroad (whose actual revenues are assumed by the SARR) is revenue inadequate, such a shift can be implied because the defendant railroad faces an overall system revenue shortfall. When the defendant is revenue *adequate*, however, it generates revenues sufficient to cover the costs of *all* parts of its system, including a return on investment, with a surplus. The measure of that surplus has been represented by the Board through a companion of a carrier’s RSAM and RVC>180 ratios.<sup>32</sup>

The Board’s *PPL Montana* and *Otter Tail* decisions preclude or limit rate relief for a captive shipper that already has shown that the SARR’s overall revenues exceed SAC, including a full return on investment. If the rate(s) challenged by the shipper produce revenue-to-variable cost ratios that exceed the defendant railroad’s

---

<sup>32</sup> See *Simplified Standards for Rail Rate Cases*, STB Ex Parte No. 689 (Sub-No. 5) (STB served April 21, 2014) at 2.

RSAM, and that railroad is revenue adequate, it is clear that the captive shipper has over-contributed to the railroad's achievement of that status. Allowing the railroad to retain those excess contributions offends the basic principle behind the Revenue Adequacy Constraint in *Coal Rate Guidelines*. See 1 I.C.C. 2d at 535. Awarding rate relief (at least down to the RSAM level) to a complainant that already had demonstrated that total SARR revenues exceed total SAC serves the *Guidelines*' principle without triggering the justification for an internal cross-subsidy limitation, because no other shipper's traffic is deprived of revenues needed to cover the costs of the facilities that it uses, at current rate levels. Rate relief is supported by the revenue adequate railroad's surplus revenues, not "the recovery of ...costs from other shippers." *PPL Montana*, 6 S.T.B. at 757. Under the *Coal Rate Guidelines*, the proponent of a SARR is entitled to take advantage of profits from all available traffic to the same extent as the incumbent. See 1 I.C.C. 2d at 544. Where the defendant is revenue adequate, there is no shortfall on its system as a whole, and it is unconstrained in the use of system revenues to fully cover costs on all segments of its system. To deprive the SARR of the same opportunity would be contrary to SAC principles. *Id.* at 529.

The Board should consider adopting exceptions to its *PPL Montana* and *Otter Tail* restrictions in cases brought under the SAC Constraint, where the defendant railroad is revenue adequate and the R/VC ratio for the rate at issue exceeds the railroad's most recent RSAM.<sup>33</sup> In such cases, rate relief could be permitted at least down to the

---

<sup>33</sup> The shipper still would have to carry its burden of demonstrating entitlement to relief under the other elements of the SAC test.

RSAM level, provided that the complainant otherwise meets its evidentiary obligation to demonstrate entitlement to such relief. Naturally, shippers also should remain eligible to receive relief under the SAC test below the RSAM level, where the defendant does not otherwise demonstrate “cross-subsidies” of the type identified in *PPL Montana* and *Otter Tail*.

## **2. The Revenue Adequacy Constraint Is Limited to Captive Rail Traffic**

The railroads dedicate an inordinate share of their rhetoric and argument to a concept that is not even at issue in this proceeding: whether a railroad’s revenue adequacy should limit its system-wide pricing discretion.<sup>34</sup> As Allied Shippers foresaw in their Opening Comments (at 16-17), the railroads raise the specter of widespread disruption of the country’s rail network and the arrest of the industry’s evident prosperity, should the Board follow through in this proceeding with the implementation of a reasonable Revenue Adequacy Constraint. The Board should lend no credence to the railroads’ phony alarms.

While the railroad industry made ample and aggressive political use of the Board and its predecessor’s findings of carrier revenue inadequacy in the 1980s and 1990s, application of the Revenue Adequacy Constraint under the *Coal Rate Guidelines* is strictly limited to the defined class of shippers who lack effective transportation

---

<sup>34</sup> See, e.g., AAR Comments at 20 (“Congress viewed the status of railroad adequacy as a goal..., not a ceiling that the regulator might impose on the revenues that a railroad can earn.”); UP Comments at 50 (“A rate constraint designed to limit overall railroad revenues would not advance public policy.”)

alternatives to their serving railroad. Under CMP, when a railroad is revenue *inadequate* it has license to seek a disproportionate share of its revenue needs from these demand inelastic customers. *See* 1 I.C.C. 2d at 526-27. As the ICC went on to hold, however, once the goal of revenue adequacy is achieved, the railroad is “not entitled to any higher revenues.” *Id.* at 535. Critically for this proceeding, that limitation does not apply to the majority of the railroad’s traffic that falls outside the scope of the agency’s jurisdiction. The *Guidelines* clearly provide only that “*captive shippers* should not be required to continue to pay differentially higher rates than other shippers” once revenue adequacy is achieved. 1 I.C.C. 2d. at 535 (emphasis supplied).

The rate increase limitation proposed by Allied Shippers as a Revenue Adequacy Constraint only would apply to shippers that first demonstrate they are subject to market dominance under 49 U.S.C. §10707. Moreover, the remedy follows the *Guidelines*’ model of a prohibition against *further* non-inflationary rate *increases* on *that shipper’s* traffic. Allied Shippers’ proposed Constraint would not compel broad rollbacks of other shippers’ existing rates, or have any impact whatsoever on non-captive or otherwise unregulated traffic. *See* Op. Comments at 26-33. Meaningfully implemented, a proper Revenue Adequacy Constraint would be limited in its scope to the class of traffic that bore the rate burdens under the *Guidelines*’ differential pricing model. The Board should ignore the railroads’ apocalyptic propaganda to the contrary.

### **3. Allied Shippers' Proposed Constraint Is Reasonable and Should be Adopted**

Allied Shippers' proposed limitation on rate increases on captive traffic by revenue adequate railroads<sup>35</sup> meets both of the key elements of the Revenue Adequacy Constraint, as described in the *Coal Rate Guidelines*. First, it gives effect to the "logical first constraint on a carrier's pricing...that its rates not be designed to earn greater revenues than needed to achieve and maintain this 'revenue adequacy' level." 1 I.C.C. 2d at 535. Second, because it would permit rate adjustments to compensate for actual cost inflation, and specifically provable revenue needs that meet the exception noted in the *Guidelines*,<sup>36</sup> Allied Shippers' Revenue Adequacy Constraint respects the principle that a carrier should not have to "continually readjust its rates in an effort to keep its revenues at the precise point of revenue adequacy," and would not "freeze a carrier's rates artificially at the levels used to reach revenue adequacy."<sup>37</sup> Allied Shippers' proposal also is squarely in line with the Board's decision in *CF Industries, Inc.*, the court-approved precedent for implementation of the Revenue Adequacy Constraint under CMP. *See Op. Comments at 28-30.*<sup>38</sup>

NS and the AAR each address the *CF Industries* decisions in their comments. NS mentions it in passing as part of its specious argument that the Third

---

<sup>35</sup> *See Op. Comments at 26-33.*

<sup>36</sup> 1 I.C.C. 2d at 536, n. 30.

<sup>37</sup> 1 I.C.C. 2d at 536.

<sup>38</sup> *See also, PPL Montana, 6 S.T.B. at 291 n. 10.*

Circuit's affirmance of the *Coal Rate Guidelines* in 1987 somehow did not include the Revenue Adequacy Constraint, because the railroad industry elected not to challenge it.<sup>39</sup> The AAR is somewhat more substantive, in that it seeks to distinguish *CF Industries* on the grounds that in that case the complaining shipper "challenged the reasonableness of an across-the-board rate increase for the pipeline system in its entirety," while in the rail context a complainant "focuses on a sub-system of the carrier's network that handles the allegedly market dominant issue traffic." AAR Comments at 42. However, AAR's argument is equally meritless.

The complaining shipper in *CF Industries* – like its counterpart in a typical railroad rate case – challenged a proposed increase in the rate that applied to the transportation service used by that shipper for its own traffic. Since the same rate increases to which the shipper objected had been imposed by the pipeline "to nearly all of its destinations,"<sup>40</sup> the reasonableness of those system-wide increases was an issue. However, the relief sought by the complainant properly was limited to its own traffic, just as is the case in the rail rate complaint context. It also is worthy of note that in upholding the complainant's invocation of the Revenue Adequacy Constraint – which specifically had been imported *from* the rail-based *Coal Rate Guidelines*<sup>41</sup> – in preference to the defendant's SAC presentation in support of higher rates, the Board specifically *rejected*

---

<sup>39</sup> NS Comments at 36, n. 98.

<sup>40</sup> See *CF Industries, Inc.*, 4 S.T.B. at 639.

<sup>41</sup> See 4 S.T.B. at 642-43.

the defendant's claim of the inherent superiority of SAC.<sup>42</sup> AAR now makes the same claim in asking the Board to ignore its *CF Industries* precedent.<sup>43</sup> That claim should be rejected as well.

Elsewhere, both NS<sup>44</sup> and BNSF<sup>45</sup> argue that because a portion of the railroads' dramatic revenue growth over the past decade can be attributed to higher pricing on competitive traffic and/or productivity improvements, a Revenue Adequacy Constraint that limits differential pricing on captive shipments somehow would "punish" the railroads for their success in maximizing revenues from competitive shippers and improving efficiency. However, limiting the extent to which a captive shipper should be required to contribute disproportionately to a railroad's revenue needs by reference to that railroad's pricing of other traffic and efficient allocation of its system resources is *exactly* what Congress has directed the Board to do under the governing statute:

(2) In determining whether a rate established by a rail carrier is reasonable for purposes of this section, the Board shall give due consideration to –

(A) the amount of traffic is transported at revenues which do not contribute to going concern value and the efforts made to minimize such traffic;

---

<sup>42</sup> *CF Industries, Inc. v. Surface Transportation Board*, 255 F. 3d at 827. The Board made this determination some 15 years after the adoption of CMP, after considerable experience adjudicating cases under that methodology.

<sup>43</sup> AAR Comments at 42.

<sup>44</sup> NS Comments at 61.

<sup>45</sup> BNSF Comments at 8.

(B) the amount of traffic which contributes only marginally to fixed costs and the extent to which, if any, rates on such traffic can be changed to maximize the revenues from such traffic; and

(C) the carrier's mix of rail traffic to determine whether one commodity is paying an unreasonable share of the carrier's overall revenues,

recognizing the policy of this part that rail carriers shall earn adequate revenues, as established by the Board under section 10704(a)(2) of this title.

49 U.S.C. § 10701(d)(2). The inter-relationship among enhanced efficiency, revenue growth from non-captive traffic and limits on differential pricing on those movements that lack competitive alternatives, became the core of the "management efficiency" component of CMP:

There are several forms of efficiency. First, one can look at *operating* efficiency. Captive shippers should not be responsible for eliminating any portion of the revenue need shortfall associated with demonstrated operating inefficiencies....

Second, one can look at whether the carrier's *plant* is efficient given the demand for its service....

...A third area of efficiency to be analyzed is a carrier's *pricing* practices. Under CMP, a carrier must charge its competitive traffic as much of the unattributable costs as the demand will permit. It may not cover through differential pricing the portion of its unattributable costs that it could (and should) charge to its competitive traffic.

*Coal Rate Guidelines*, 1 I.C.C. 2d at 537, 539 (emphasis in original).

It also bears noting in this regard that given the relatively limited scope of captive traffic on the rail system, the added revenues resulting from stronger pricing on competitive traffic and improvements in efficiency/productivity will exceed substantially

the prospective rate increases that could be precluded by the Revenue Adequacy Constraint advocated by Allied Shippers. Contrary to NS' lamentations,<sup>46</sup> nothing close to a pass-through of competitive revenues and/or efficiency gains to captive shippers would occur.

**C. STAND-ALONE COST IS A CEILING ON RATES, NOT AN OPTIMAL MEASURE OF RATE REASONABLENESS**

As a corollary to their arguments that the Board should abandon or ignore the Revenue Adequacy Constraint, now that it finally has become relevant to the rate regulation process, the railroads assert that the only test that should be applied to adjudicate the reasonableness of rates on captive traffic is the SAC Constraint.<sup>47</sup> As stated by the AAR:

...SAC should remain the primary methodology for determining the reasonableness of rates set by revenue adequate rail carriers as well as those set by revenue inadequate rail carriers. Just as it does not make economic sense to allow revenue inadequate carriers to charge rates that exceed the SAC maximum, it would not make economic sense to require revenue adequate carriers to charge rates lower than the SAC maximum.

AAR Comments at 43. In essence, the railroads propose conversion of the SAC Constraint from a lawful rate ceiling into a measure of the optimal rate levels for individual market dominant traffic movements, and in the process restrict captive shippers' remedies for rate abuse to an extraordinarily complex, costly and prolonged

---

<sup>46</sup> NS Comments at 61-62.

<sup>47</sup> AAR Comments at 43-47; CSXT Comments at 27-31; NS Comments at 24-27.

process that only the largest and most well-financed consumers could tolerate. The Board should reject this effort to remake the *Coal Rate Guidelines* and achieve a *de facto* deregulation of all but a few captive rail rates.

Among the three (3) principal methodological components of CMP, the SAC test has been invoked most often because (a) until recent years, the major railroads consistently were deemed revenue inadequate by the Board and its predecessor; and (b) no party (public or private) has been able to develop a practical method to implement and apply the Management Efficiency Constraint. The SAC Constraint has risen to prominence by default, not because it is some sort of “gold standard” for establishing fair rates.<sup>48</sup> And there is *no* credible support for the notion that SAC is an optimal pricing tool, as opposed to an absolute ceiling. Indeed, the theoretical progenitor of the test confirmed as much after it had been in use for a dozen years:

We have noted that no firm in a perfectly contestable market will be willing in the long run to supply any product at a price below the incremental cost of that product, because only a price equal to or above the incremental cost of the product will enable the firm to recover the cost that is caused by its decision to supply that product. Consequently, incremental cost becomes the regulatory price floor that the analysis gives us. Similarly, stand-alone cost is the appropriate *ceiling over prices*, according to the analysis, since no price above stand-alone cost can persist for any significant period in a perfectly contestable market. That is so because, by definition, any price above stand-alone cost will attract entrant competitors who will be able to take the business away from the firm with these high prices. To summarize, the contestable markets rule that at least some regulatory agencies have adopted to constrain pricing by firms considered to have market power is

---

<sup>48</sup> CSXT Comments 28.

the following. *No price is allowed to be higher than stand-alone cost and no price is allowed to be lower than incremental cost, but any price in between these two levels is permitted.*

W.J. Baumol, *Momigliano Lecture 1997*, at 14-15 (emphasis supplied). SAC is a “ceiling,” not a fair or necessarily even a reasonable price. V.S. Hennigan, at 22-23.

The proper theoretical role of SAC was understood by the ICC in the *Coal Rate Guidelines*, which acknowledged that a “rate level calculated by the SAC methodology represents the theoretical maximum rate that a railroad could levy on shippers,”<sup>49</sup> and made clear that it was *not* the primary determinant of rate reasonableness:

Although we have described the constraints in CMP separately, they are necessarily interrelated. They represent different means of approaching the same basic issue, *i.e.*, the extent of attributable costs to be covered through differential pricing and the portion that can be charged to the shipper involved...[T]he various constraints in CMP may be used individually or in combination to analyze whether the rate at issue is unreasonably high...

*Coal Rate Guidelines*, 1 I.C.C. 2d at 547-548 (footnote omitted). To the contrary, the ICC identified revenue adequacy as the “logical first constraint,”<sup>50</sup> initially implying that if a carrier’s rates were limited by the Revenue Adequacy Constraint, higher rates could not be justified by resorting to the other methodological tests. That implication then was confirmed in actual rate litigation under CMP. As Allied Shippers pointed out in their

---

<sup>49</sup> 1 I.C.C. 2d at 528.

<sup>50</sup> 1 I.C.C. 2d at 535.

Opening Comments, in *Arkansas Power & Light Company* the ICC acknowledged the defendant's revenue inadequate status, and *then* went on to find the challenged rates unreasonable under the SAC Constraint. *See* 3 I.C.C. 2d at 765-777. Later, in *CF Industries*, however, the Board found the challenged rate increases unlawful under the Revenue Adequacy Constraint, and *rejected* the defendant's showing that they did not violate the SAC test.<sup>51</sup>

This precedential history disposes of AAR's proposed equivalency syllogism, quoted *supra*. While the ICC correctly clarified that rates established by a revenue inadequate railroad still could be found unreasonable under the SAC Constraint,<sup>52</sup> it does *not* follow that a revenue adequate carrier is free to increase a captive shipper's rate *up to* the SAC level if the increase is not "needed to achieve and maintain this 'revenue adequacy' level."<sup>53</sup> As the ICC ruled in 1987 and the Board confirmed earlier this year,<sup>54</sup> "captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary" to maintain revenue adequacy, regardless of the outcome of a SAC analysis. 1 I.C.C. 2d at 535-36. *See also, Notice*, April 2, 2014 at 3. Dr. Hennigan, who was directly involved in the development and promulgation of the *Guidelines* and CMP, confirms this inter-relationship between the two (2) constraints. V.S. Hennigan at 17-21.

---

<sup>51</sup> *CF Industries, Inc. v. Surface Transportation Board*, 255 F. 3d at 827.

<sup>52</sup> 1 I.C.C. 2d at 536.

<sup>53</sup> 1 I.C.C. 2d at 535.

<sup>54</sup> *E.I. DuPont de Nemours Co.*, *supra* at 20-21.

NS advances the position that because a hypothetical transporter under the SAC Constraint is presumed to earn a return on its system assets equal to the average industry cost of capital, SAC “fulfills Congress’s mandate for the Board to consider revenue adequacy in the rate reasonableness process,”<sup>55</sup> and thus makes a separate Revenue Adequacy Constraint unnecessary. However, the ICC in *Coal Rate Guidelines* specifically discussed that feature of the SAC Constraint,<sup>56</sup> even as it declared the revenue adequacy of the *defendant* carrier the “first constraint” on captive rates, under a separate and independent component of CMP. The Board, with full awareness that every SARR would be “revenue adequate,” likewise consistently has acknowledged the independent Revenue Adequacy Constraint in every decision rendered under CMP, up to and including the *E.I. DuPont & DeNemours, Inc.* decision earlier this year. That a hypothetical portion of a railroad system must be revenue adequate in order to comply with the SAC test is not a justification for ignoring a long-established, separate constraint on captive rates established by an actual railroad that actually *is* revenue adequate over its entire system. *See Coal Rate Guidelines*, 1 I.C.C. 2d at 547 (“The revenue adequacy constraint is a limit on the total revenues a carrier can collect...Alternatively, the pool of

---

<sup>55</sup> NS Comments at 26. Elsewhere, NS claims that the ICC previously ruled that a railroad’s revenue adequacy status would not be a determining factor in rate reasonableness proceedings, relying on *Adequacy of Railroad Revenue – 1978 Determination*, 362 I.C.C. 199 (1979). NS Comments at 36. Since the ICC statement in question predated the *Coal Rate Guidelines* by some six (6) years, it has no bearing on the matters at issue in this proceeding.

<sup>56</sup> *See* 1 I.C.C. 2d at 544-45.

unattributable costs to which the shipper must contribute may be determined through a stand-alone cost analysis.”).<sup>57</sup>

The railroads’ aim is to limit captive shippers seeking effective protection from unreasonable rates to use of the SAC Constraint,<sup>58</sup> where railroad defendants enjoy significant advantages through their control over essential evidentiary data; routinely engage in evasive or obstructionist tactics that lengthen the duration and drive up the costs of litigation; and continually campaign for modifications to the SAC Constraint as it is administered that add complexity and uncertainty to the process, such that only a few, well-financed captive shippers can even consider seeking relief. In this regard, CSXT’s complaint that the cost and complexity of rate litigation under the SACT test are due to the “tactics of complainants”<sup>59</sup> is nonsense.

Since the reasonable and straightforward (in retrospect) SAC analysis and decision in 1996 in *West Texas Utilities*, and continuing through to the still-pending *Western Fuels Ass’n*. litigation today,<sup>60</sup> railroad defendants and the AAR have been

---

<sup>57</sup> This and the many other specific descriptions and applications of the Revenue Adequacy Constraint by the ICC, the Board and the courts, as referenced in these Reply Comments, refute CSXT’s claim that the agency in 1985 merely “indicated in very general terms that a ‘revenue adequacy’ constraint might be applied in the future as an alternative way of evaluating rate reasonableness.” CSXT Comments at 27, n. 18.

<sup>58</sup> The Board’s simplified procedures (*e.g.*, the SSAC method and Three-Benchmark model) are available to certain shippers in certain circumstances, but their limits on the extent and duration of relief available also seriously limit their effectiveness.

<sup>59</sup> CSXT Comments at 30.

<sup>60</sup> *Western Fuels Assn, Inc. and Basin Electric Power Cooperative, Inc. v. Burlington Northern and Santa Fe Railway Company*, STB Docket No. 42088, Complaint filed October 19, 2004.

relentless in pursuit of new SAC theories and additional evidentiary layers and burdens designed to complicate the analysis, and push resulting maximum rate levels higher. A *partial* list of the issue areas affected by this campaign include the analysis of so-called “internal cross-subsidies;” revenue allocations for cross-over traffic; SARR routing decisions; the modeling of SARR operating plans; analysis and presentation of traffic and revenue data; “density adjustments” to SARR revenues; and capital return and recovery methodologies. None of these controversies have been initiated by shippers, and *all* make invocation of the SAC Constraint more complex, more costly, and less certain.

It is true that meaningful commitments of time and resources are to be expected where rail rate litigation impacts tens or even hundreds of millions of dollars of commerce.<sup>61</sup> However, a key feature and public benefit of the *Coal Rate Guidelines* CMP approach is that it provides captive shippers with alternative courses to seek rate relief via the three (3), inter-related substantive constraints. Each presents different evidentiary burdens, anticipated litigation costs, and potential measures of relief, but the shipper’s freedom to rationally select which (or which combination) to pursue makes the overall scheme more reasonable. To strip away one of these constraints simply because the railroad industry desires to avoid rate regulation, however, and relegate captive shippers solely to the most costly, complex, time-consuming and, thus, least universally available remedy, would be patently unreasonable, arbitrary and capricious. The SAC Constraint should remain what it was designed to be – one of several methods to set an

---

<sup>61</sup> See NS Comments at 81.

absolute ceiling on captive shipper rates – and not converted into the exclusive measure of rate reasonableness.

### CONCLUSION

For the reasons set forth herein and in Allied Shippers' Opening Comments, the Board should reject the changes to its revenue adequacy rules and *Coal Rate Guidelines* proposed by AAR, BNSF, UP, CSXT and NS, and instead revisit its revenue adequacy methodology, implement the Revenue Adequacy Constraint under CMP and the *Guidelines*, and consider further reforms to CMP in cases involving revenue adequate railroads, in accordance with Allied Shippers' recommendations in this proceeding.

Respectfully submitted,

The Western Coal Traffic League,  
Consumers Energy Company and  
South Mississippi Electric Power  
Association

Of Counsel:

Slover and Loftus LLP  
1224 Seventeenth Street, N.W.  
Washington, D.C. 20036

Dated: November 4, 2014

By: William L. Slover  
Kelvin J. Dowd   
Robert D. Rosenberg  
Slover & Loftus LLP  
1224 Seventeenth St., N.W.  
Washington, D.C. 20036  
(202) 347-7170

*Attorneys & Practitioners*

**EXHIBIT 1**



Railroads

May 27, 2008

## Rail Renaissance Remains on Track; Re-regulation Appears the Greatest Threat

John G. Larkin, CFA	(443) 224-1315	jglarkin@stifel.com
David G. Ross, CFA	(443) 224-1316	dross@stifel.com
Michael J. Baudendistel	(443) 224-1357	baudendm@stifel.com

- The railroads are performing beyond expectations and the future looks bright, in our view. Presumably, the hurdles faced so far in 2008 by the North American rails may be less daunting going forward as fuel prices are unlikely to climb ad infinitum, economic stimuli are likely to eventually produce the desired result, weather will likely improve seasonally, and excess trucking capacity will exit the industry sooner or later. In short, the railroad operating environment has the potential to improve dramatically over the coming months and years, in our view. Solid earnings growth during this challenging period could translate into rather stellar earnings growth in the coming years.
- Surely, there must be a downside or two to this rosy outlook. Some believe that when the economy improves, the railroads will be overwhelmed with traffic and will, once again, clog their networks with surging traffic that will have the net effect of driving down asset utilization, reducing service levels and thus decreasing shippers' propensity to pay additional rate increases, and reducing the rate of EPS growth (if not eliminating EPS growth altogether). Our sense is that the railroads will not succumb to this alluring volume/efficiency trap again. Others discuss the lack of productivity enhancement projects available, at least to the most efficient carriers. In our view, all of the North American railroads are still in a position to reap sizable improvements in margins from productivity and efficiency initiatives.
- If too much future traffic and lack of incremental operational improvements aren't major risks, where is the downside risk to this otherwise compelling railroad investment thesis? The answer, in our view, lies in the complex possibility of economic re-regulation.
- In our view, the fundamental outlook for the railroad industry hasn't been this good since the Union Pacific and the Central Pacific were joined together at Promontory Summit in 1869 to form the nation's first transcontinental railroad. Our favorite high-quality names remain Norfolk Southern (NSC; Buy; \$62.74) and Canadian National (CNI; Buy; \$55.30). Those looking for exceptional operational leverage may wish to consider the shares of Union Pacific (UNP; Buy; \$152.16).

### **The railroads are performing beyond expectations and the future looks bright, in our view.**

Unprecedented fuel price increases (coupled with 45 day lags in fuel surcharge adjustments and some traffic with inadequate fuel price recovery mechanisms), dramatic downturns in the volume of some types of traffic (such as paper products, wood products, steel, and automotive), unusually harsh 1H08 weather (cold temperatures, snow, ice, rain, flooding, mud slides, etc.), and aggressive pricing on the part of struggling truckers have been hurdles cleared relatively easily so far in 2008 by the North American railroads. Presumably, these hurdles may be less daunting going forward as fuel prices are unlikely to climb ad infinitum, economic stimuli are likely to eventually produce the desired result, weather will likely improve seasonally, and excess trucking capacity will exit the industry sooner or later. In short, the railroad operating environment has the potential to improve dramatically over the coming months and years, in our view. Solid earnings growth during this challenging period could transition into rather spectacular earnings growth in the coming years.

### **Surely, there must be a downside or two to this rosy outlook.**

Some believe that when the economy improves, the railroads will be overwhelmed with traffic and will, once again,

clog their networks with surging traffic that will have the net effect of driving down asset utilization, reducing service levels, decreasing shippers' propensity to pay additional rate increases, and reducing the rate of EPS growth (if not eliminating EPS growth altogether). Our sense is that the railroads will not succumb to this alluring volume/efficiency trap again. Investments are still being made to prepare networks for more volume, operating plans are being enhanced, and price is likely to be used as an effective volume regulator in the event of a surge in traffic demand.

Others discuss the lack of productivity enhancement projects available, at least to the most efficient carriers. The argument suggests that certain of the railroads are already operating at peak efficiency. We have never once received the impression from Hunter Harrison (operationally-oriented CEO of Canadian National) or Stephen Tobias (Chief Operating Officer of Norfolk Southern) that they have come close to running out of high yielding cost-reduction or efficiency-enhancing ideas. (Note: Canadian National and Norfolk Southern are generally regarded as the gold standards in the railroad industry with respect to operational efficiency). In our view, all of the North American railroads are still in a position to reap sizable improvements in margins from productivity and efficiency initiatives.

**If too much future traffic and lack of incremental operational improvements aren't major risks, where is the downside risk to this otherwise compelling railroad investment thesis? The answer, in our view, lies in the complex possibility of economic re-regulation.**

In the following paragraphs we discuss the tugs and pulls at play within Washington and at the STB (Surface Transportation Board - the arm of the U.S. Government responsible for ensuring that railroads are providing acceptable service at acceptable prices throughout the United States).

Many shippers that have been subjected to sizable railroad rate increases over the past several years have been lobbying in Washington for economic re-regulation and the elimination of anti-trust exemptions for the railroad industry. Their arguments suggest that rate increases have been astronomical compared to historical rate increases and that, as a result, railroads are earning record profits and, in some cases, earning in excess of their cost of capital. The railroads counter by arguing that they are entitled, on behalf of their shareholders, to earn a rate of return in excess of their cost of capital and that they would de facto eliminate all capital projects aimed at expanding capacity if the industry were to once again become economically regulated. Essentially, the railroads would view themselves as regulated utilities. The railroads further suggest, because of their relative energy and environmental efficiency, that it would be foolish to push re-regulation of the railroads as the less environmentally and energy friendly mode (i.e., trucking) is ill-equipped to handle the incremental tonnage that will be flowing down our logistics pipelines in the coming decades due to increasing highway congestion, deteriorating driver demographics, lack of further productivity-enhancing alternatives, etc. Both camps seem to have support for their respective points of view in Congress. But with a lame duck President and a Congress that is increasingly focused on the November elections, we expect little to come of these concerns and positions over the near term.

In the mean time, the folks at the STB come to work every day without the broad agenda or day-to-day distractions that can, at times, render Congress ineffective. The STB understands its role in preserving and improving an efficient and accessible freight transportation network on behalf of the shippers, receivers, and consumers that drive the economic growth of the United States. The Board is spending significant time thinking through these issues and over the next year or so, several major decisions could be forthcoming out of the STB that will have substantial impact on the viability of the railroad renaissance over the medium- to long-term. One of those decisions is related to a recent STB conclusion to use the Capital Asset Pricing model (CAPM) as the method for determining a railroad's cost of capital. Historically, the STB has used the multi-period dividend discount methodology. The CAPM was advocated by shippers as it tended to reduce the railroad industry's cost of capital (for example, the 2006 cost of capital calculated by CAPM was 9.9% vs. 12.2% which was the 2005 cost of capital calculated under the previous method). Under this new method, the STB determined that Burlington Northern, Norfolk Southern, and Canadian National were revenue adequate (i.e., they earned a return of invested capital in excess of the industry's cost of capital). This is an important determination since the railroads who earn their cost of capital have a tougher time justifying rate increases in front of the STB than those that have yet to become revenue adequate.

The railroads, at the invitation of the STB Commissioners, responded to the new method for calculating cost of capital with a proposal of their own to adjust the denominator in the return on invested capital equation to reflect replacement costs rather than accounting costs, which reflect historical costs, do not account for inflation, and tend to be partially or fully depreciated. The return on invested capital is compared to the industry's cost of capital to determine revenue adequacy. The replacement cost argument suggests that using book value for invested capital overstates the railroads individual returns on capital because the denominator includes assets valued in 1950 +/- dollars that are often fully depreciated. According to the railroads' hypothesis, the older assets need to be revalued to current year dollars in order to properly reflect the true replacement cost of 30 year-old switching locomotives, 50 year-old bridges, 20 year-old freight cars, et cetera. Several weeks ago, the railroads formally responded to the STB's invitation by providing a proposal/mechanism that would adjust the invested capital entry in the return-on-invested capital (ROIC)

equation to reflect asset replacement costs. Preliminary indications are that ROICs would drop into the 2% to 3% range should this adjustment be approved by the STB. It should be noted that the STB seems favorably disposed to approve some sort of adjustment of this type even though most suggest that no other regulatory agency responsible for presiding over another regulated industry has ever utilized a replacement cost adjustment factor. Nonetheless, the ability to use replacement costs in this process would greatly enhance the railroads' ability to justify additional sizable price increases; the railroads which are already revenue adequate would all of a sudden fall far short of achieving revenue adequacy. In fact, our calculations suggest that the railroads could not be re-regulated on the basis of excess returns (i.e., returns in excess of cost of capital) during the foreseeable future if full replacement costs are used in the calculations of ROIC. Suffice it to say that this would be very bullish for the railroads and their common stocks. Presumably, shippers will "scream bloody murder" over this proposal. So far, however, they have been remarkably quiet. The arguments against this proposal certainly will be forthcoming and, as a result, the adoption of this proposal is by no means a slam dunk.

The other process underway at the STB is the \$1 million study being conducted by Christensen Associates on behalf of the STB. The purpose of the study is to determine if the railroads should be economically re-regulated, and if so, how? A November 2008 completion is expected. A primary focus of the study will involve the analysis of shippers that are captive to a single railroad that also, for whatever reason, cannot functionally or economically use trucking or barge transportation. The researchers will endeavor to determine whether or not these captive shippers have paid greater rate increases during the rail renaissance period than have non-captive shippers. If it is determined that captive shippers have absorbed disproportionate price increases, then the study would next explore mechanisms to allow the captive shippers to contest rates before the STB. Many believe that the current process for contesting rates is too expensive, too time consuming, and too cumbersome. Because of the onerous nature of the process, only very large captive shippers can afford to contest what they view as rates that are too high. Attempts at simplifying the process have been made but even the streamlined process seems overly complicated and costly. Any recommendation to allow captive shippers a less onerous method to contest railroad rates could prove to be bearish for the railroad stocks, but might represent a politically acceptable solution that stops short of full economic regulation but also stops railroads from exercising what amounts to monopoly pricing power.

**Investment Conclusions: In our view, the fundamental outlook for the railroad industry hasn't been this good since the Union Pacific and the Central Pacific were joined together at Promontory Summit in 1869 to form the nation's first transcontinental railroad.**

The railroads often emerge as the fuel efficient and environmentally friendly alternative. Incremental capacity can be added without the expenditure of public funds. Many commodities best hauled by the railroads are in great demand both domestically and internationally. Productivity enhancement efforts have shown great progress, but still offer significant promise. Management teams are focused on shareholder value creation and shareholders are endeavoring to keep it that way. Economic re-regulation is the only major hurdle we can see on the horizon, sans an elongated economic depression. With the prospect of a Democrat in the White House for the next four years and the potential for a more dominant Democratic majority in Congress, one might think that the prospects for economic re-regulation are high, especially in light of the large rate increases that railroads have initiated over the past few years, the resulting belly-aching that has come forth from shippers and consumers alike, and the general view that Democrats are anti-big business. However, we believe that even a government controlled by the Democratic Party will be unwilling to totally re-regulate the railroad industry. We expect the fear on the part of the Democrats would be that the railroads would discontinue discretionary capital expenditures, and therefore, would stop adding capacity if the industry was to be re-regulated. A number of major railroad CEOs have stated that they would stop adding incremental capacity if the industry was economically re-regulated. This freezing of railroad capacity would de facto force most incremental freight traffic to the trucking industry and, in turn, onto the highways – which, in many cases, are already capacity challenged (i.e., congested and running beyond their design lives). In addition, the Highway Trust Fund is literally running out of funds to support reconstruction and new capacity. Truckers forced to absorb all incremental volume would likely struggle with accelerating highway congestion, deteriorating driver demographics, rising fuel prices, and stricter federally mandated environmental, safety and security regulations.

Given that pushing all incremental traffic to the capacity challenged trucking industry would be tantamount to running out of freight transportation capacity, we believe Congress and the next President are unlikely to push for railroad re-regulation. Instead, they might actually consider incentives to foster higher levels of capacity enhancing discretionary capital expenditures. We believe an investment tax credit for capital investments focused on capacity expansion is a real possibility. Government funding of components of railway capacity enhancement projects is already starting to flow and could pick up steam over the coming years. Highway connectors to intermodal facilities and improved bridge clearances at highway overpasses are just a couple of examples of how governments (federal, state, and local) can meaningfully contribute to the railroads' capacity expansion efforts.

Where the concept of re-regulation may creep into the picture, in our view, is the development of a streamlined

process to allow captive shippers to contest railroad rates. We recently have an example of a case where Kansas City Power and Light won a rate case vs. Union Pacific that was argued before the Surface Transportation Board. This was the first case ruled in favor of a shipper in our memory and could set the tone for more cases being brought before the STB, especially if the cumbersome, and seemingly overly formal process for filing rate complaints could be streamlined to the point where shippers arguing rate cases won't have to shell out millions for high-priced legal and consulting advice. Even a streamlined process won't derail the railroad renaissance story, in our view. Railroads, however, may have to become more reliant on volume growth and productivity enhancement than on pricing should a shipper-friendly rate case methodology ultimately be put in place by the STB.

Even given the pressures to re-regulate or to at least provide a more efficient process for shippers to contest rates, we remain bullish on the North American railroads. Our favorite high-quality names remain Norfolk Southern (NSC; Buy) and Canadian National (CNI; Buy). Those looking for exceptional operational leverage may wish to consider the shares of Union Pacific (UNP; Buy).

**STIFEL  
NICOLAUS**
**Equity Comps - Transportation**
**Comparative Valuation Matrix**
*(figures in \$US millions, except per share amounts)*

Company name (Ticker)	Rating	Price 5/23/2008	Diluted S/O	Market cap.	Total Debt	Cash & equiv.	TEV <sup>(a)</sup>	Equity value as a multiple of				Enterprise value as a multiple of					Div. Yield	2008E FCF Yld				
								2008E <sup>(b)</sup>	2009E <sup>(b)</sup>	2010E <sup>(b)</sup>	Book value	TTM Revenue	2008E EBITDA	TTM EBITDA	TTM EBITDAR <sup>(c)</sup>	TTM EBIT			TTM ROA	TTM ROE	TTM ROIC	PEG ratio <sup>(d)</sup>
<b>Railroads</b>																						
Burlington Northern Santa Fe (BNI)	Hold	106.14	354.4	37,615.2	8,644.0	525.0	45,734.2	17.8x	15.4x	13.3x	3.4x	2.8x	8.6x	9.2x	8.8x	12.5x	5.8%	17.7%	11.9%	1.14	1.2%	2.5%
Canadian National (CNI)	Buy	55.30	493.6	27,293.8	6,143.0	324.0	33,112.8	15.4x	13.7x	12.0x	2.8x	4.3x	9.2x	9.8x	9.3x	12.1x	7.4%	17.9%	12.6%	0.85	1.6%	2.2%
Canadian Pacific (CP)	Hold	71.30	156.0	11,121.1	4,234.4	69.2	15,286.4	15.7x	13.8x	12.4x	2.1x	3.3x	9.1x	9.8x	9.5x	14.0x	5.6%	13.3%	9.7%	1.18	1.3%	2.4%
CSX Corp. (CSX)	Hold	66.73	419.4	27,989.3	8,210.0	1,639.0	34,560.3	18.5x	15.3x	13.3x	3.2x	3.3x	9.3x	10.7x	10.0x	14.7x	5.0%	14.4%	9.8%	0.96	1.1%	3.1%
Genesee & Wyoming (GWR)	NR	38.17	36.2	1,383.2	258.9	38.7	1,683.4	22.9x	19.5x	17.5x	3.1x	3.2x	NE	13.6x	12.5x	18.7x	5.6%	12.8%	9.1%	1.02	0.0%	NE
Kansas City Southern (KSU)	NR	46.31	99.8	4,621.6	1,819.2	72.5	6,380.7	23.5x	18.2x	14.7x	2.6x	3.6x	NE	11.7x	10.4x	16.7x	3.2%	9.3%	7.3%	1.22	0.0%	NE
Norfolk Southern Corp. (NSC)	Buy	62.74	384.6	24,127.7	6,493.0	364.0	30,256.7	15.4x	13.3x	11.8x	2.5x	3.0x	8.2x	8.4x	8.2x	10.8x	5.6%	15.2%	10.9%	1.03	1.8%	1.9%
Union Pacific (UNP)	Buy	152.16	263.5	40,100.4	8,118.0	827.0	47,391.4	18.2x	14.6x	11.7x	2.6x	2.8x	9.0x	10.0x	9.4x	14.0x	5.0%	12.2%	9.6%	0.97	1.2%	2.1%
<b>Min</b>				1,383.2	258.9	38.7	1,683.4	15.4x	13.3x	11.7x	2.1x	2.8x	8.2x	8.4x	8.2x	10.8x	3.2%	9.3%	7.3%	0.85	0.0%	1.9%
<b>Mean</b>				21,781.5	5,490.1	482.4	26,800.7	18.4x	15.5x	13.3x	2.8x	3.3x	8.9x	10.4x	9.8x	14.2x	5.4%	14.1%	10.1%	1.05	1.0%	2.4%
<b>Mean (Class I Rails only, ex. KSU)</b>				28,041.2	6,973.7	624.7	34,390.3	16.8x	14.4x	12.4x	2.7x	3.3x	8.9x	9.7x	9.2x	13.0x	5.7%	15.1%	10.7%	1.02	1.4%	2.4%
<b>Median</b>				25,710.7	6,318.0	344.0	31,684.7	18.0x	15.0x	12.8x	2.7x	3.2x	9.1x	9.9x	9.5x	14.0x	5.6%	13.8%	9.7%	1.03	1.2%	2.3%
<b>Max</b>				40,100.4	8,644.0	1,639.0	47,391.4	23.5x	19.5x	17.5x	3.4x	4.3x	9.3x	13.6x	12.5x	18.7x	7.4%	17.9%	12.6%	1.22	1.8%	3.1%
<b>Stifel Nicolaus Transportation Average</b>				<b>7,236.9</b>	<b>1,381.8</b>	<b>193.6</b>	<b>8,424.4</b>	<b>20.0x</b>	<b>16.1x</b>	<b>13.7x</b>	<b>3.8x</b>	<b>1.9x</b>	<b>10.7x</b>	<b>8.9x</b>	<b>7.7x</b>	<b>12.7x</b>	<b>7.3%</b>	<b>15.6%</b>	<b>11.7%</b>	<b>1.16</b>	<b>0.8%</b>	<b>5.2%</b>

(a) Total Enterprise Value = Market Capitalization of Equity + Total Debt - Cash + Market Value of Minority Interest

(b) Stifel Nicolaus estimates for those rated and First Call mean estimates for unrated securities

(c) Enterprise value adjusted to include the capitalization of off balance sheet operating leases with lease expense (or rent expense) being added back to EBITDA for the valuation multiple calculation

(d) 2008E P/E divided by First Call mean or Stifel Nicolaus estimated long-term growth rate

Excludes non-recurring items

Calculations may vary due to rounding

Source: Company data, First Call, and Stifel Nicolaus estimates

### Stifel Nicolaus 12-Month Target Price/Fair Value Estimate Matrix

Company	Ticker	Rating	5/23/2008	CY10E EPS <sup>4</sup>	Target Price/Fair Value Estimate P/E multiple <sup>4</sup>	12-Month Target Price/Fair Value Estimate	Potential% upside over coming 12 months
Quality Distribution	QLTY	Hold	\$3.99	\$0.70	8.0x	\$6	50.4%
Saia, Inc.	SAIA	Buy	\$13.67	\$1.95	10.0x	\$20	46.3%
Con-way Inc	CNW	Buy	\$45.65	\$4.85	12.5x	\$61	33.6%
Trailer Bridge, Inc.	TRBR	Buy	\$6.76	\$0.80	11.0x	\$9	33.1%
Old Dominion Freight Line	ODFL	Buy	\$28.06	\$2.75	13.0x	\$36	28.3%
American Commercial Lines	ACLI	Buy	\$15.27	\$1.40	13.5x	\$19	24.4%
Pacer International, Inc.	PACR	Buy	\$20.41	\$2.10	12.0x	\$25	22.5%
FedEx Corp. <sup>(2)</sup>	FDX	Buy	\$86.83	\$8.28	12.5x	\$104	19.8%
Union Pacific Corp.	UNP	Buy	\$152.16	\$13.00	14.0x	\$182	19.6%
Norfolk Southern Corp.	NSC	Buy	\$62.74	\$5.30	14.0x	\$74	17.9%
United Parcel Service	UPS	Hold	\$67.02	\$5.20	15.0x	\$78	16.4%
Canadian National Railway	CNI	Buy	\$55.30	\$4.60	14.0x	\$64	15.7%
Vitrans Corp.	VTNC	Hold	\$14.79	\$1.90	9.0x	\$17	14.9%
Arkansas Best Corp.	ABFS	Hold	\$36.94	\$3.75	11.0x	\$41	11.0%
Werner Enterprises	WERN	Hold	\$18.16	\$1.40	14.0x	\$20	10.1%
Hub Group, Inc.	HUBG	Hold	\$32.73	\$2.10	17.0x	\$36	10.0%
Canadian Pacific Railway	CP	Hold	\$71.30	\$5.75	13.5x	\$78	9.4%
Heartland Express <sup>(3)</sup>	HTLD	Hold	\$15.09	\$0.93	15.0x	\$16	6.0%
Burlington Northern Santa Fe	BNI	Hold	\$106.14	\$8.00	14.0x	\$112	5.5%
J.B. Hunt Transport Svcs.	JBHT	Hold	\$33.22	\$2.33	15.0x	\$35	5.4%
CSX Corp.	CSX	Hold	\$66.73	\$5.00	14.0x	\$70	4.9%
Ryder System	R	Hold	\$70.31	\$5.80	12.0x	\$70	-0.4%
Forward Air Corp.	FWRD	Hold	\$33.57	\$2.22	15.0x	\$33	-0.8%
Landstar System	LSTR	Hold	\$51.36	\$2.80	18.0x	\$50	-2.6%
Celadon Group <sup>(1)</sup>	CLDN	Hold	\$10.29	\$0.87	11.0x	\$10	-2.8%
Kirby Corp.	KEX	Hold	\$56.35	\$3.50	15.5x	\$54	-4.2%
Universal Truckload Svcs	UACL	Hold	\$23.01	\$1.60	14.0x	\$22	-4.4%
C.H. Robinson Worldwide	CHRW	Hold	\$62.38	\$2.85	20.0x	\$57	-8.6%
Marten Transport	MRTN	Hold	\$16.69	\$1.00	14.0x	\$14	-16.1%
Knight Transportation	KNX	Hold	\$17.17	\$0.94	15.0x	\$14	-18.5%
YRC Worldwide	YRCW	Sell	\$16.55	\$1.00	9.0x	\$9	-45.6%

(1) CLDN is on June 30 fiscal year

(2) FedEx is on May 31 fiscal year

(3) Heartland target price is \$16.00 or 15.0x \$0.95 plus \$2.03 cash per share

Source: Stifel Nicolaus estimates



John Larkin, CFA / jglarkin@stifel.com  
 David Ross, CFA / dross@stifel.com  
 Mike Baudendistel / mbauden@stifel.com

Canadian National Railway Company Income Statement - Stifel Nicolaus

(figures in \$CAN millions, except per share amounts)

Fiscal Year End December 31	2007										2008				2009							
	2001A <sup>1,2</sup>	2002A <sup>4</sup>	2003A <sup>4</sup>	2004A	2005A	2006A <sup>6,7</sup>	1QA	2QA <sup>8</sup>	3QA <sup>8</sup>	4QA <sup>10</sup>	2007A	1QA <sup>11</sup>	2QE	3QE	4QE	2008E	1QE	2QE	3QE	4QE	2009E	2010E
<b>Operating Revenues</b>	923	1,102	1,058	1,074	1,093	1,171	303	300	317	306	1,226	319	317	340	321	1,297	338	336	357	338	1,369	1,438
Petroleum and chemicals	5.2%	19.4%	-4.0%	1.5%	1.8%	7.1%	3.8%	6.8%	6.4%	2.0%	4.7%	5.3%	5.6%	7.1%	5.0%	5.8%	6.1%	6.1%	5.0%	5.0%	5.5%	5.0%
Metals and minerals	458	521	527	713	777	835	198	225	208	195	826	205	246	225	203	878	217	261	236	213	927	974
Forest products	1,088	1,323	1,284	1,493	1,742	1,747	410	414	392	336	1,186	335	9.2%	8.2%	4.0%	1,423	333	399	385	353	1,470	1,544
Coal	338	326	261	284	324	370	89	99	99	98	385	99	107	110	109	425	105	114	116	115	449	472
Grain and fertilizers	1,161	986	938	1,061	1,118	1,258	309	322	330	350	1,311	340	345	353	375	1,413	361	366	375	398	1,499	1,575
Intermodal	969	1,052	1,101	1,117	1,252	1,394	313	346	361	362	1,382	351	381	398	384	1,514	374	407	424	409	1,614	1,696
Automotive	520	591	525	510	487	479	132	142	114	116	504	116	133	107	115	470	121	138	111	119	489	514
Other items	195	209	190	296	653	675	152	179	202	178	711	167	184	208	183	743	172	190	214	189	765	788
<b>Total Operating Revenues</b>	5,652	6,110	5,884	6,548	7,446	7,929	1,906	2,027	2,023	1,941	7,897	1,927	2,101	2,108	2,029	8,165	2,021	2,210	2,219	2,133	8,582	9,000
<b>Operating Expenses</b>	1,535	1,717	1,698	1,819	1,856	1,823	485	430	446	340	1,701	461	464	465	457	1,847	526	502	500	480	2,008	2,082
Labor and fringe benefits	535	778	703	746	993	1,027	276	263	247	259	1,045	285	220	221	212	938	242	232	232	223	929	963
Purchased services and material	532	584	554	598	627	650	171	168	165	173	677	175	175	175	168	694	192	184	184	177	737	765
Depreciation and amortization	484	459	469	528	730	892	219	249	251	307	1,026	310	292	292	293	1,187	305	293	294	308	1,201	1,246
Fuel	309	346	293	244	192	198	66	62	59	60	247	64	45	45	44	198	50	48	48	46	191	198
Equipment rents	157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operating taxes	205	356	390	445	424	309	128	44	87	66	325	109	100	100	74	382	110	105	105	77	397	412
Casualty and other	3,872	4,240	4,107	4,380	4,822	4,899	1,345	1,216	1,255	1,205	5,021	1,404	1,296	1,298	1,248	5,246	1,425	1,363	1,362	1,312	5,462	5,666
Operating Ratio	68.5%	69.4%	69.8%	66.9%	64.8%	61.8%	70.6%	60.0%	62.0%	62.1%	63.6%	72.9%	61.7%	61.6%	61.5%	64.3%	70.5%	61.7%	61.4%	61.5%	63.6%	63.0%
<b>EBIT</b>	1,780	1,870	1,777	2,168	2,624	3,030	561	811	768	736	2,876	523	805	809	781	2,918	596	846	856	821	3,120	3,333
% margin	31.5%	30.6%	30.2%	33.1%	35.2%	38.2%	29.4%	40.0%	38.0%	37.9%	36.4%	27.1%	38.3%	38.4%	38.5%	35.7%	29.5%	38.3%	38.6%	38.5%	36.4%	37.0%
<b>EBITDA</b>	2,312	2,454	2,331	2,766	3,251	3,680	732	979	933	909	3,553	698	979	985	950	3,612	789	1,030	1,040	998	3,858	4,098
% margin	40.9%	40.2%	39.6%	42.2%	43.7%	46.4%	38.4%	48.3%	46.1%	46.8%	45.0%	36.2%	46.6%	46.7%	46.8%	44.2%	39.0%	46.6%	46.9%	46.8%	44.9%	45.3%
Interest Income (expense), net	(327)	(361)	(315)	(294)	(299)	(312)	(88)	(85)	(78)	(85)	(136)	(86)	(97)	(100)	(103)	(385)	(107)	(110)	(113)	(116)	(445)	(496)
Other Income (expense), net	63	76	21	(20)	12	11	4	1	2	6	13	(6)	-	-	-	(6)	-	-	-	-	-	-
<b>Profit Before Tax</b>	1,516	1,585	1,483	1,854	2,337	2,729	477	727	692	657	2,553	431	708	710	679	2,527	490	736	744	706	2,676	2,837
% margin	26.8%	25.9%	25.2%	28.3%	31.4%	34.4%	25.0%	35.9%	34.2%	33.8%	32.3%	22.4%	33.7%	33.7%	33.4%	30.9%	24.2%	33.3%	33.5%	33.1%	31.2%	31.5%
Effective Tax Rate	27.4%	33.6%	34.9%	32.1%	33.4%	33.7%	32.1%	33.1%	31.9%	32.4%	32.4%	30.3%	33.0%	33.0%	33.0%	32.5%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
<b>Net Income (loss) from continuing operations</b>	1,100	1,052	966	1,258	1,556	1,810	324	486	471	444	1,725	301	474	475	455	1,705	328	493	498	473	1,793	1,901
Extraordinary item (net of tax)	(60)	(252)	48	-	-	277	-	30	14	389	433	11	-	-	-	11	-	-	-	-	-	-
<b>Net Income</b>	1,040	800	1,014	1,258	1,556	2,087	324	516	485	833	2,158	311	474	475	455	1,715	328	493	498	473	1,793	1,901
% margin	18.4%	13.1%	17.2%	19.2%	20.9%	26.3%	17.0%	25.5%	24.0%	42.9%	27.3%	16.1%	22.6%	22.6%	22.4%	21.0%	16.2%	22.3%	22.5%	22.2%	20.9%	21.1%
Average Shares Outstanding - diluted <sup>(1)</sup>	603.0	608.4	581.4	579.8	562.2	534.4	517.8	512.3	506.4	495.8	508.1	488.6	481.1	474.1	467.1	477.7	460.1	453.1	446.1	439.1	449.6	421.6
<b>EPS - diluted</b>	1.72	1.31	1.74	2.17	2.77	3.91	0.63	1.01	0.96	1.68	4.25	0.64	0.99	1.00	0.97	3.59	0.71	1.09	1.12	1.08	3.99	4.51
% change y/y	12.0%	-23.8%	32.6%	24.4%	27.6%	41.1%	-5.8%	-25.6%	2.2%	76.3%	8.7%	1.7%	-2.1%	4.7%	-42.1%	-15.5%	12.0%	10.5%	11.4%	10.6%	11.0%	13.1%
<b>EPS - diluted (continuing operations)</b>	1.82	1.73	1.66	2.17	2.77	3.39	0.63	0.95	0.93	0.90	3.40	0.62	0.99	1.00	0.97	3.57	0.71	1.09	1.12	1.08	3.99	4.51
% change y/y	26.3%	-5.2%	-3.9%	30.6%	27.6%	22.4%	-5.8%	6.7%	-0.8%	-0.7%	0.2%	-1.7%	3.9%	7.8%	8.7%	5.1%	16.0%	10.5%	11.4%	10.6%	11.7%	13.1%
<b>CDN to USD AVG Rate</b>	1.55	1.57	1.40	1.30	1.21	1.13	1.17	1.10	1.04	0.98	1.07	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.98	0.99	0.98
<b>EPS - \$US diluted (continuing operations)</b>	\$ 1.18	\$ 1.10	\$ 1.19	\$ 1.67	\$ 2.29	\$ 2.99	\$ 0.54	\$ 0.86	\$ 0.89	\$ 0.91	\$ 3.17	\$ 0.62	\$ 1.00	\$ 1.01	\$ 0.98	\$ 3.60	\$ 0.72	\$ 1.10	\$ 1.14	\$ 1.10	\$ 4.05	\$ 4.60
% change y/y	21.1%	-6.5%	7.8%	40.5%	37.6%	30.4%	-6.6%	8.9%	6.7%	15.6%	6.0%	14.5%	15.3%	13.3%	7.6%	13.5%	17.1%	10.5%	12.5%	11.8%	12.6%	13.7%

Includes BC Rail, GLT, and Wisconsin Central Transportation acquisitions as of May 10, 2004, July 14, 2004

- (1) Adjusted for 3:2 and 2:1 stock splits which took place on February 27, 2004 and February 28, 2004
- (2) 1Q01 excludes a \$73 million after-tax gain related to the company's interest in the Detroit Riv
- (3) 2Q01 excludes a \$62 million after-tax charge for reduction of workforce and excludes an after-tax charge
- (4) 4Q02 excludes an after-tax labor restructuring charge of \$79 million and an after-tax charge of \$173 mill
- (5) 1Q03 excludes a one-time after-tax gain of \$48 million from a change in accounting for asset retirement obligations.
- (6) 2Q06 excludes a deferred income tax recovery of C\$250 million.
- (7) 4Q06 adjusted for a deferred income tax recovery of C\$27 million
- (8) 2Q07 adjusted for deferred income tax recovery of C\$30 million
- (9) 3Q07 adjusted C\$14 million for benefit from favorable tax adjustments
- (10) 4Q07 adjusted for (1) deferred income tax recovery of C\$284 million, (2) after-tax gain of C\$64 million on Central Station Complex sale, and (3) C\$41 million from the EWS Railway sale
- (11) 1Q08 adjusted for income tax recovery of C\$11 million (C\$0.02 per diluted share)

Source: Company data and Stifel Nicolaus estimates



John Larkin, CFA / jglarkin@stifel.com  
 David Ross, CFA / dross@stifel.com  
 Mike Baudendistel / mbauden@stifel.com

**Canadian National Railway Company Balance Sheet**

(figures in \$CAN millions)  
 Fiscal Year End December 31

							2007				2008				2009				2010E
	2001A	2002A	2003A	2004A	2005A	2006A	1QA	2QA	3QA	4QA	1QA	2QE	3QE	4QE	1QE	2QE	3QE	4QE	
<b>Assets</b>																			
<b>Current Assets</b>																			
Cash and cash equivalents	53	25	130	147	62	179	106	241	214	310	334	560	816	1,003	808	1,209	1,466	1,647	2,264
Accounts receivable	645	722	529	793	623	692	508	425	641	370	621	799	808	816	813	837	848	858	900
Material and supplies	133	127	120	127	151	189	208	204	206	162	212	160	162	163	163	167	170	172	180
Deferred income taxes	153	122	125	364	65	84	83	73	69	68	67	67	67	67	67	67	67	67	67
Other	180	196	223	279	248	192	184	159	316	138	111	320	323	327	325	335	339	343	360
<b>Total Current Assets</b>	<b>1,164</b>	<b>1,192</b>	<b>1,127</b>	<b>1,710</b>	<b>1,149</b>	<b>1,336</b>	<b>1,089</b>	<b>1,102</b>	<b>1,446</b>	<b>1,048</b>	<b>1,345</b>	<b>1,906</b>	<b>2,176</b>	<b>2,377</b>	<b>2,176</b>	<b>2,615</b>	<b>2,889</b>	<b>3,087</b>	<b>3,771</b>
<b>Properties</b>	19,145	19,681	18,305	19,715	20,078	21,053	20,988	20,401	19,883	20,413	20,754	21,259	21,479	21,705	21,923	22,149	22,375	22,608	23,563
<b>Intangibles and Other assets</b>	914	865	905	940	961	1,615	1,646	1,664	1,576	1,999	2,065	2,065	2,065	2,065	2,065	2,065	2,065	2,065	2,065
<b>Total Assets</b>	<b>21,223</b>	<b>21,738</b>	<b>20,337</b>	<b>22,365</b>	<b>22,188</b>	<b>24,004</b>	<b>23,723</b>	<b>23,167</b>	<b>22,905</b>	<b>23,460</b>	<b>24,164</b>	<b>25,230</b>	<b>25,719</b>	<b>26,147</b>	<b>26,164</b>	<b>26,828</b>	<b>27,329</b>	<b>27,760</b>	<b>29,399</b>
<b>Liabilities</b>																			
<b>Current Liabilities</b>																			
Accounts payable and accrued charges	1,374	1,487	1,366	1,605	1,478	1,823	1,460	1,427	1,205	1,282	1,262	1,678	1,696	1,715	1,734	1,757	1,781	1,802	1,890
Current portion of long-term debt	163	574	483	578	408	218	244	366	293	254	269	269	269	269	269	269	269	269	269
Other	132	73	73	76	72	73	50	62	56	54	71	96	97	98	99	100	102	103	108
<b>Total Current Liabilities</b>	<b>1,669</b>	<b>2,134</b>	<b>1,922</b>	<b>2,259</b>	<b>1,958</b>	<b>2,114</b>	<b>1,754</b>	<b>1,855</b>	<b>1,554</b>	<b>1,590</b>	<b>1,602</b>	<b>2,043</b>	<b>2,062</b>	<b>2,082</b>	<b>2,102</b>	<b>2,127</b>	<b>2,151</b>	<b>2,174</b>	<b>2,267</b>
<b>Deferred income taxes</b>	4,591	4,826	4,550	4,723	4,817	5,215	5,025	4,885	4,940	4,908	5,021	5,079	5,138	5,194	5,234	5,295	5,356	5,415	5,649
<b>Other liabilities and def. credits</b>	1,345	1,406	1,258	1,513	1,487	1,465	1,532	1,443	1,410	1,422	1,404	1,680	1,686	1,623	1,617	1,768	1,775	1,706	1,786
<b>Long-term debt</b>	5,764	5,003	4,175	4,586	4,677	5,386	5,602	5,193	5,342	5,363	6,064	6,314	6,564	6,814	7,064	7,314	7,564	7,814	8,814
<b>Convertible preferred securities</b>	366	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Liabilities</b>	<b>13,735</b>	<b>13,369</b>	<b>11,905</b>	<b>13,081</b>	<b>12,939</b>	<b>14,180</b>	<b>13,913</b>	<b>13,376</b>	<b>13,246</b>	<b>13,283</b>	<b>14,091</b>	<b>15,117</b>	<b>15,450</b>	<b>15,713</b>	<b>16,018</b>	<b>16,504</b>	<b>16,847</b>	<b>17,109</b>	<b>18,516</b>
<b>Shareholders' Equity</b>																			
Common shares	4,442	4,785	4,664	4,706	4,580	4,459	4,426	4,417	4,359	4,283	4,241								
Accumulated other comprehensive income	58	97	(129)	(148)	(222)	(44)	(50)	(180)	(257)	(31)	9								
Retained earnings	2,958	3,487	3,897	4,726	4,891	5,409	5,434	5,554	5,557	5,925	5,823								
<b>Total Shareholders' Equity</b>	<b>7,488</b>	<b>8,369</b>	<b>8,432</b>	<b>9,284</b>	<b>9,249</b>	<b>9,824</b>	<b>9,810</b>	<b>9,791</b>	<b>9,659</b>	<b>10,177</b>	<b>10,073</b>	<b>10,113</b>	<b>10,269</b>	<b>10,434</b>	<b>10,147</b>	<b>10,325</b>	<b>10,483</b>	<b>10,651</b>	<b>10,883</b>
<b>Total Liabilities and Shareholders' Equity</b>	<b>21,223</b>	<b>21,738</b>	<b>20,337</b>	<b>22,365</b>	<b>22,188</b>	<b>24,004</b>	<b>23,723</b>	<b>23,167</b>	<b>22,905</b>	<b>23,460</b>	<b>24,164</b>	<b>25,230</b>	<b>25,719</b>	<b>26,147</b>	<b>26,164</b>	<b>26,828</b>	<b>27,329</b>	<b>27,760</b>	<b>29,399</b>

Book Value/Share	\$12.37	\$13.81	\$14.63	\$15.97	\$16.79	\$18.76	\$18.95	\$19.11	\$19.07	\$20.53	\$20.62	\$21.02	\$21.66	\$22.34	\$22.05	\$22.79	\$23.50	\$24.26	\$26.47
Net working capital	(505)	(942)	(795)	(549)	(809)	(778)	(665.0)	(753.0)	(108.0)	(542)	(257.0)	(137.0)	113.5	295	74.0	487.9	738.1	913	1,504
Current ratio	0.7x	0.6x	0.6x	0.8x	0.6x	0.6x	0.6x	0.6x	0.9x	0.7x	0.8x	0.9x	1.1x	1.1x	1.0x	1.2x	1.3x	1.4x	1.7x
Total assets	21,223	21,738	20,337	22,365	22,188	24,004	23,723	23,167	22,905	23,460	24,164	25,230	25,719	26,147	26,164	26,828	27,329	27,760	29,399
Long term debt	5,764	5,003	4,175	4,586	4,677	5,386	5,602	5,193	5,342	5,363	6,064	6,314	6,564	6,814	7,064	7,314	7,564	7,814	8,814
Total debt	5,927	5,577	4,658	5,164	5,085	5,604	5,846	5,559	5,635	5,617	6,333	6,583	6,833	7,083	7,333	7,583	7,833	8,083	9,083
Net debt (cash)	5,874	5,552	4,528	5,017	5,023	5,425	5,740	5,318	5,421	5,307	5,999	6,023	6,017	6,080	6,525	6,374	6,367	6,436	6,819
Debt/ total book capitalization	44.2%	40.0%	35.6%	35.7%	35.5%	36.3%	37.3%	36.2%	36.8%	35.6%	38.6%	39.4%	40.0%	40.4%	42.0%	42.3%	42.8%	43.1%	45.5%
Debt / EBITDA	2.1x	2.1x	2.1x	1.7x	1.4x	1.5x	2.0x	1.5x	1.5x	1.5x	2.1x	1.6x	1.7x	1.8x	2.3x	1.8x	1.9x	2.0x	2.1x
Debt / EBIT	2.6x	2.8x	2.4x	2.2x	1.7x	1.8x	2.6x	1.8x	1.8x	1.9x	2.9x	2.0x	2.1x	2.2x	3.0x	2.2x	2.3x	2.4x	2.6x
Shareholders' equity	7,488	8,369	8,432	9,284	9,249	9,824	9,810	9,791	9,659	10,177	10,073	10,113	10,269	10,434	10,147	10,325	10,483	10,651	10,883

Source: Company data and Stifel Nicolaus estimates

**STIFEL  
NICOLAUS**

John Larkin, CFA / jglarkin@stifel.com  
David Ross, CFA / dross@stifel.com  
Mike Baudendistel / mbauden@stifel.com

**Canadian National Railway Company Statement of Cash Flows**

(figures in CAN millions except per share data)

Fiscal Year End December 31

**Operating Activities**

Net Income (loss)

Adjustments:

Depreciation and amortization  
Deferred income taxes  
Gain on exchange of investments  
Gain on sale of Central Station Complex  
Gain on sale of English Welsh and Scottish Railway  
Write-down of investments  
Special charge  
Charge to increase U.S. personal injury and other claims liability  
Workforce reduction charge  
Equity in earnings of English Welsh Scottish Railway  
Cumulative effect of change in accounting policy

**Changes in working capital items:**

Accounts receivable  
Material and supplies  
Accounts payable and accrued charges  
Other net current assets and liabilities

Total change in net working capital

Other

**Net Cash Provided by Operations**  
as % of revenue

**Investing Activities**

Net additions to properties  
Acquisitions, net of cash acquired  
Sale of Central Station Complex  
Sale of investment in English Welsh and Scottish Railway  
Acquisition of EJ&E  
Acquisition of BC Rail  
Acquisition of GLT  
Acquisition of Wisconsin Central Transportation  
Net (costs) proceeds from disposal of properties  
Other, net

Cash provided from (used by) investing activities

Cash available for (required by) financing activities

Issuance of long-term debt  
Issuance of convertible preferred securities  
Reduction of long-term debt  
Issuance of common shares  
Repurchase of common shares  
Dividends Paid

Cash used by financing activities

Effect of foreign exchange fluctuations on U.S. dollar denominated cash and equivalents

Beginning Cash Balance

Net increase (decrease) in cash and equivalents

Ending cash balance

Free Cash Flow

FCF margin (as % of total revenues)  
Per Share

	2007						2008				2009				2009E	2010E						
	2007A	2007A	2007A	2007A	2007A	2007A	1QA	2QA	3QA	4QA	2007A	1QA	2QE	3QE			4QE	1QE	2QE	3QE	2QE	
Net Income (loss)	1,040	800	1,014	1,258	1,556	2,087	324	516	485	833	2,158	311	474	475	455	1,715	328	493	498	473	1,793	1,901
Adjustments:																						
Depreciation and amortization	538	591	560	602	630	653	172	169	165	172	678	175	175	175	168	694	192	184	184	177	737	765
Deferred income taxes	295	272	411	366	547	3	7	43	75	(207)	(82)	25	58	59	56	198	40	61	61	58	221	234
Gain on exchange of investments	(101)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gain on sale of Central Station Complex	0	0	0	0	0	0	0	0	0	(92)	(92)	0	0	0	0	0	0	0	0	0	0	0
Gain on sale of English Welsh and Scottish Railway	0	0	0	0	0	0	0	0	0	(61)	(61)	0	0	0	0	0	0	0	0	0	0	0
Write-down of investments	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special charge	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charge to increase U.S. personal injury and other claims liability	0	281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Workforce reduction charge	(169)	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity in earnings of English Welsh Scottish Railway	0	(33)	(17)	4	(4)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative effect of change in accounting policy	0	0	(48)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Changes in working capital items:																						
Accounts receivable	199	(80)	153	(233)	142	(17)	176	38	(252)	267	229	(235)	(178)	(8)	(9)	(430)	3	(23)	(11)	(10)	(42)	(42)
Material and supplies	11	0	(3)	10	(25)	(36)	(19)	(1)	(6)	44	18	(48)	52	(2)	(2)	1	1	(5)	(2)	(2)	(8)	(8)
Accounts payable and accrued charges	(216)	(154)	(96)	5	(156)	197	(402)	(4)	(65)	120	(351)	(68)	416	18	19	385	20	23	23	22	88	88
Other net current assets and liabilities	(27)	(18)	(29)	21	8	58	(18)	27	42	(12)	59	38	(184)	(2)	(2)	(151)	2	(8)	(3)	(3)	(12)	(12)
Total change in net working capital	(33)	(252)	25	(197)	(31)	202	(263)	60	(281)	419	(65)	(313)	106	5	5	(196)	26	(13)	7	6	26	26
Other	(146)	(167)	31	106	7	5	23	(49)	(14)	(79)	(119)	(33)	0	0	0	(33)	0	0	0	0	0	0
<b>Net Cash Provided by Operations</b> as % of revenue	<b>1,621</b> 28.7%	<b>1,612</b> 26.4%	<b>1,976</b> 33.6%	<b>2,139</b> 32.7%	<b>2,705</b> 36.3%	<b>2,950</b> 37.2%	<b>263</b> 13.8%	<b>739</b> 36.5%	<b>430</b> 21.3%	<b>985</b> 50.7%	<b>2,417</b> 30.6%	<b>165</b> 8.6%	<b>814</b> 38.8%	<b>715</b> 33.9%	<b>685</b> 33.7%	<b>2,378</b> 29.1%	<b>587</b> 29.0%	<b>725</b> 32.8%	<b>751</b> 33.8%	<b>714</b> 33.5%	<b>2,777</b> 32.4%	<b>2,926</b> 32.5%
<b>Investing Activities</b>																						
Net additions to properties	(1,058)	(938)	(1,043)	(1,072)	(1,180)	(1,298)	(203)	(344)	(350)	(490)	(1,387)	(177)	(380)	(395)	(395)	(1,347)	(410)	(410)	(410)	(410)	(1,640)	(1,720)
Acquisitions, net of cash acquired	0	0	0	0	0	0	0	0	0	(25)	(25)	0	0	0	0	0	0	0	0	0	0	0
Sale of Central Station Complex	0	0	0	0	0	0	0	0	0	351	351	0	0	0	0	0	0	0	0	0	0	0
Sale of investment in English Welsh and Scottish Railway	0	0	0	0	0	0	0	0	0	114	114	0	0	0	0	0	0	0	0	0	0	0
Acquisition of EJ&E	0	0	0	0	0	0	0	0	0	0	0	(300)	0	0	(300)	0	0	0	0	0	0	0
Acquisition of BC Rail	0	0	0	(984)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acquisition of GLT	0	0	0	(547)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acquisition of Wisconsin Central Transportation	(1,278)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net (costs) proceeds from disposal of properties	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other, net	112	14	(32)	192	105	(51)	10	2	14	26	52	11	276	6	(63)	230	(6)	151	7	(69)	83	80
Cash provided from (used by) investing activities	(2,173)	(924)	(1,075)	(2,411)	(1,075)	(1,349)	(193)	(342)	(336)	(24)	(895)	(166)	(404)	(389)	(458)	(1,417)	(416)	(259)	(403)	(479)	(1,557)	(1,640)
Cash available for (required by) financing activities	(552)	688	901	(272)	1,630	1,601	70	397	94	961	1,522	(1)	410	325	227	961	170	466	348	236	1,220	1,286
Issuance of long-term debt	4,015	3,146	4,109	8,277	2,728	3,308	434	1,050	1,841	846	4,171	1,055	250	250	250	1,805	250	250	250	250	1,000	1,000
Issuance of convertible preferred securities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduction of long-term debt	(3,336)	(3,558)	(4,141)	(7,579)	(2,865)	(3,089)	(145)	(904)	(1,420)	(1,120)	(3,589)	(580)	0	0	0	(580)	0	0	0	0	0	0
Issuance of common shares	61	69	83	86	115	120	18	41	14	4	77	18	0	0	0	18	0	0	0	0	0	0
Repurchase of common shares	0	(205)	(656)	(2,233)	(1,418)	(1,483)	(343)	(344)	(452)	(445)	(1,584)	(367)	(329)	(216)	(187)	(1,099)	(505)	(206)	(233)	(199)	(1,144)	(1,264)
Dividends Paid	(150)	(170)	(191)	(222)	(275)	(340)	(107)	(185)	(104)	(102)	(418)	(111)	(105)	(104)	(102)	(422)	(110)	(109)	(107)	(105)	(432)	(405)
Cash used by financing activities	590	(716)	(796)	289	(1,715)	(1,484)	(143)	(262)	(121)	(817)	(1,343)	15	(184)	(70)	(40)	(278)	(366)	(65)	(91)	(54)	(576)	(669)
Effect of foreign exchange fluctuations on U.S. dollar denominated cash and equivalents							0	0	0	(48)	(48)	10	0	0	0	10	0	0	0	0	0	0
Beginning Cash Balance	15	53	25	130	147	62	179	106	241	214	179	310	334	560	816	310	1,003	808	1,209	1,466	1,003	1,647
Net increase (decrease) in cash and equivalents	38	(28)	105	17	(85)	117	(73)	135	(27)	96	131	24	226	256	187	683	(195)	401	257	181	644	617
Ending cash balance	53	25	130	147	62	179	106	241	214	310	310	334	560	816	1,003	1,003	808	1,209	1,466	1,647	1,647	2,264
Free Cash Flow	464	504	742	845	1,301	1,312	(47)	290	(24)	393	612	(123)	329	216	187	609	66	206	233	199	705	801
FCF margin (as % of total revenues)	8.2%	8.2%	12.6%	12.9%	17.5%	16.5%	-2.5%	14.3%	-1.2%	20.2%	7.7%	-6.4%	15.6%	10.2%	9.2%	7.5%	3.3%	9.3%	10.5%	9.3%	8.2%	8.9%
Per Share	0.77	0.83	1.28	1.46	2.31	2.46	(0.09)	0.57	(0.05)	0.79	1.20	(0.25)	0.68	0.46	0.40	1.27	0.14	0.46	0.52	0.45	1.57	1.90

Current Share Price \$55.30

FCF Yield	1.7%	1.8%	2.8%	3.2%	5.1%	5.4%					2.6%					2.8%					3.4%	4.2%
Dividend/FCF	32.3%	33.7%	25.7%	26.3%	21.1%	25.9%					68.3%					69.4%					61.2%	50.5%
Capex_net/ CFO	141.0%	58.2%	52.8%	121.7%	43.6%	44.0%					39.2%					69.3%					59.1%	58.8%

Source: Company data and Stifel Nicolaus estimates



John Larkin, CFA / jglarkin@stifel.com  
David Ross, CFA / dross@stifel.com  
Mike Baudendistel / mbauden@stifel.com

Norfolk Southern Income Statement

(figures in \$ millions, except per share amounts)

	2007							2008				2009				2009E	2010E						
	2000A	2001A	2002A	2003A	2004A	2005A	2006A	1Q07	2Q07	3Q07	4Q07	2007A	1Q08	2Q08	3Q08			4Q08	2008E	1Q09	2Q09	3Q09	4Q09
Operating Revenue	1,435	1,521	1,441	1,500	1,728	2,060	2,330	557	579	578	601	2,315	662	667	658	666	2,653	699	704	694	703	2,800	2,935
Coal	8.5%	6.0%	-5.3%	4.1%	15.2%	19.2%	13.1%	-0.4%	-0.9%	-2.9%	1.5%	-0.6%	18.9%	15.2%	13.8%	10.8%	14.6%	5.6%	5.6%	5.6%	5.6%	5.6%	4.8%
% change y/y																							
General Merchandise:																							
Automotive	921	885	961	936	954	997	974	227	255	221	245	948	228	257	245	265	994	240	270	257	278	1,044	1,087
% change y/y	23.5%	-3.9%	8.6%	-2.6%	1.9%	4.5%	-2.3%	-13.4%	-7.6%	4.7%	8.9%	-2.7%	0.4%	0.6%	10.8%	8.1%	4.9%	5.1%	5.0%	5.0%	5.0%	5.1%	4.0%
Chemicals	756	752	769	774	864	973	1,076	274	297	297	298	1,166	305	327	334	328	1,294	322	345	352	346	1,366	1,428
% change y/y	17.9%	-0.5%	2.3%	0.7%	11.6%	12.6%	10.6%	7.0%	10.8%	3.8%	12.0%	8.4%	11.3%	10.1%	12.4%	10.1%	11.0%	5.6%	5.6%	5.6%	5.6%	5.6%	4.5%
Metals/Construction	689	674	692	699	818	978	1,168	275	298	287	289	1,149	305	336	320	313	1,274	320	353	337	329	1,339	1,393
% change y/y	21.5%	-2.2%	2.7%	1.0%	17.0%	19.4%	19.4%	-1.4%	-2.0%	-9.2%	7.4%	-1.6%	10.9%	12.8%	11.7%	8.2%	10.9%	5.1%	5.0%	5.0%	5.0%	5.0%	4.0%
Agriculture/Consumer products/Government	609	612	623	686	727	845	997	241	254	264	288	1,047	299	305	313	332	1,249	318	324	332	352	1,326	1,386
% change y/y	13.0%	0.5%	1.8%	10.1%	6.0%	16.2%	18.0%	-9.7%	6.3%	10.5%	14.3%	5.0%	24.1%	20.2%	18.7%	15.2%	19.3%	6.2%	6.1%	6.1%	6.1%	6.1%	4.5%
Paper/Clay/Forest	630	603	603	634	684	793	891	211	216	222	211	860	215	221	224	226	885	225	232	235	237	929	966
% change y/y	9.0%	-4.3%	0.0%	5.1%	7.9%	15.9%	12.4%	-1.4%	-3.6%	-3.9%	-5.0%	-3.5%	1.9%	2.1%	0.7%	7.1%	2.9%	4.7%	5.0%	5.0%	5.0%	5.0%	4.0%
Intermodal	1,119	1,123	1,181	1,239	1,537	1,826	1,971	462	479	484	496	1,921	486	519	517	527	2,049	515	550	549	559	2,173	2,306
% change y/y	31.8%	0.4%	5.2%	4.9%	24.1%	18.8%	7.9%	-0.9%	-3.6%	-6.0%	0.6%	-2.5%	5.2%	8.3%	6.9%	6.2%	6.7%						
Gross revenues	6,159	6,170	6,270	6,468	7,312	8,472	9,407	2,247	2,378	2,353	2,428	9,406	2,500	2,632	2,611	2,656	10,398	2,639	2,778	2,756	2,804	10,978	11,500
% change y/y	17.5%	0.2%	1.6%	3.2%	13.0%	15.9%	11.0%	-2.4%	-0.6%	-1.7%	4.7%	0.0%	11.3%	10.7%	11.0%	9.4%	10.5%	5.6%	5.6%	5.6%	5.6%	5.6%	4.8%
Operating expenses:																							
Compensation and benefits	2,234	2,014	2,022	2,168	2,272	2,473	2,637	681	638	619	623	2,561	705	690	679	690	2,764	731	719	709	720	2,879	2,968
Materials, services, and rents	1,445	1,444	1,457	1,427	1,601	1,809	2,021	497	496	505	487	1,985	476	466	458	466	1,866	493	485	479	486	1,944	2,004
Conrail rents and services	478	421	412	419	319	129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Depreciation	503	514	515	513	598	774	738	192	192	194	197	775	198	187	191	194	769	205	202	199	202	808	834
Diesel fuel	478	412	342	380	449	727	977	219	249	258	353	1,079	404	411	389	395	1,599	419	412	406	413	1,650	1,701
Casualties and other claims	142	143	171	181	151	163	220	52	46	33	40	171	52	49	50	51	203	54	53	53	54	214	221
Other	246	215	193	209	220	254	257	78	76	63	68	285	74	65	71	72	283	77	75	74	76	302	312
Total operating expenses	5,526	5,163	5,112	5,297	5,610	6,329	6,850	1,719	1,697	1,672	1,768	6,856	1,909	1,868	1,838	1,869	7,484	1,980	1,947	1,920	1,950	7,797	8,039
Operating ratio	89.7%	83.7%	81.5%	81.9%	76.7%	74.7%	72.8%	76.5%	71.4%	71.1%	72.8%	72.9%	76.4%	71.0%	70.4%	70.4%	72.0%	75.0%	70.1%	69.7%	69.6%	71.0%	69.9%
EBIT	633	1,007	1,158	1,171	1,702	2,143	2,557	528	681	681	660	2,550	591	764	773	787	2,914	660	831	837	854	3,181	3,461
% margin	10.3%	16.3%	18.5%	18.1%	23.3%	25.3%	27.2%	23.5%	28.6%	28.9%	27.2%	27.1%	23.6%	29.0%	29.6%	29.6%	28.0%	25.0%	29.9%	30.4%	30.5%	29.0%	30.1%
EBITDA	1,136	1,521	1,673	1,684	2,300	2,917	3,295	720	873	875	857	3,325	789	951	963	980	3,683	865	1,033	1,036	1,056	3,989	4,294
% margin	18.4%	24.7%	26.7%	26.0%	31.5%	34.4%	35.0%	32.0%	36.7%	37.2%	35.5%	35.5%	31.5%	36.1%	36.9%	36.9%	35.4%	32.8%	37.2%	37.6%	37.7%	36.3%	37.3%
Interest expense	551	553	518	497	489	494	476	115	111	107	108	441	109	115	115	117	457	119	117	119	124	479	496
Interest (income) and other (income) expense, net	(168)	(99)	(66)	(31)	(36)	(74)	(149)	(7)	(21)	(31)	(34)	(93)	(7)	(13)	(14)	(16)	(49)	(21)	(21)	(21)	(21)	(83)	(87)
Profit before tax	250	553	706	705	1,249	1,723	2,230	420	591	605	586	2,202	489	661	671	685	2,506	562	734	738	751	2,785	3,051
% margin	4.1%	9.0%	11.3%	10.9%	17.1%	20.3%	23.7%	18.7%	24.9%	25.7%	24.1%	23.4%	19.5%	25.1%	25.7%	25.8%	24.1%	21.3%	26.4%	26.8%	26.8%	25.4%	26.5%
Tax rate	31.2%	34.5%	34.8%	24.8%	30.3%	30.4%	33.6%	32.1%	34.3%	33.1%	34.8%	33.7%	38.9%	38.5%	38.5%	38.5%	38.6%	38.5%	38.5%	38.5%	38.5%	38.5%	38.5%
Net income (loss) from continuing operations	172	362	460	530	870	1,200	1,482	285	388	405	382	1,460	299	407	413	421	1,540	345	451	454	462	1,713	1,877
Non recurring items (1)(2)(3)(4)(5)	0	13	0	5	53	81	0	0	6	(19)	17	4	(8)	0	0	0	(8)	0	0	0	0	0	0
Net income	172	375	460	535	923	1,281	1,482	285	394	386	399	1,464	291	407	413	421	1,532	345	451	454	462	1,713	1,877
Average shares outstanding - diluted	383.0	386.0	388.2	389.8	395.3	412.3	414.7	402.3	401.7	397.4	389.9	397.8	383.9	379.2	375.6	372.2	377.7	369.1	366.1	363.3	360.5	364.7	354.2
EPS - diluted (continuing operations)	\$0.45	\$0.94	\$1.18	\$1.35	\$2.18	\$2.91	\$3.57	\$0.71	\$0.97	\$1.02	\$0.98	\$3.67	\$0.78	\$1.07	\$1.10	\$1.13	\$4.08	\$0.94	\$1.23	\$1.25	\$1.28	\$4.70	\$5.30
% change y/y	-16.6%	108.8%	26.4%	13.9%	61.5%	33.5%	22.8%	-2.0%	8.9%	0.3%	2.9%	2.7%	9.8%	11.0%	7.8%	15.5%	11.0%	20.3%	14.9%	13.8%	13.1%	15.2%	12.8%
EPS - diluted	\$0.45	\$0.97	\$1.18	\$1.37	\$2.32	\$3.11	\$3.57	\$0.71	\$0.98	\$0.97	\$1.02	\$3.68	\$0.76	\$1.07	\$1.10	\$1.13	\$4.06	\$0.94	\$1.23	\$1.25	\$1.28	\$4.70	\$5.30
% change y/y	-16.6%	116.3%	22.0%	15.8%	69.1%	33.8%	15.0%	-2.0%	10.6%	-4.4%	7.5%	3.0%	7.0%	9.4%	13.1%	10.6%	10.2%	23.5%	14.9%	13.8%	13.1%	15.8%	12.8%

(1) 2Q05 results exclude additional revenue and expenses associated with coal rate case settlements (approximately \$55 million in revenue, \$35 million in operating income and \$24 million in net income)  
 (2) 2Q05 results also exclude roughly \$2 million in nonrecurring expenses related to 1Q05 derailment in Graniteville, SC, and exclude a \$96 million tax benefit from a change in Ohio state tax law  
 (3) 3Q05 results exclude an estimated \$17.9 million in pre-tax charges related to an unfavorable jury verdict, as well as the portion of the company's self-insured retention (estimated at \$5.95 million) related to damages caused by hurricane Katrina. Both  
 (4) 3Q07 results exclude a \$19 million non-cash charge related to an income tax law modification in the state of Illinois.  
 (5) 4Q07 results exclude a \$26 million one-time benefit related to a contract settlement.

Source: Company data and Stifel Nicolaus estimates





**STIFEL  
NICOLAUS**

John Larkin, CFA / jglarkin@stifel.com

David Ross, CFA / dross@stifel.com

Mike Baudendistel / mbauden@stifel.com

**Union Pacific Income Statement**

(figures in \$ millions, except per share amounts)

	2005A	2006A	2007				2007A	2008				2008E	2009				2009E	2010E
			1QA	2QA	3QA	4QA		1QA	2QE	3QE	4QE		1QE	2QE	3QE	4QE		
Operating revenue																		
Agricultural	1,971	2,395	607	604	667	719	2,597	756	732	763	807	3,058	826	799	833	881	3,339	3,646
% change y/y	17.7%	21.5%	7.9%	6.8%	11.8%	7.3%	8.4%	24.5%	21.2%	14.4%	12.2%	17.8%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%
Automotive	1,273	1,438	355	389	351	374	1,469	363	408	371	389	1,531	387	435	395	414	1,631	1,747
% change y/y	3.1%	13.0%	-1.8%	-0.3%	7.0%	4.2%	2.1%	2.3%	4.9%	5.6%	4.0%	4.2%	6.5%	6.6%	6.6%	6.6%	6.6%	7.1%
Chemicals	1,850	2,098	544	578	587	584	2,293	603	640	641	625	2,509	642	682	683	667	2,674	2,863
% change y/y	7.6%	13.4%	8.5%	7.8%	8.7%	12.3%	9.3%	10.8%	10.7%	9.2%	7.1%	9.4%	6.4%	6.6%	6.6%	6.6%	6.6%	7.1%
Energy	2,578	2,953	730	761	827	818	3,136	857	887	936	893	3,573	936	968	1,022	975	3,901	4,219
% change y/y	7.2%	14.6%	4.4%	3.9%	8.3%	8.0%	6.2%	17.4%	16.6%	13.2%	9.2%	13.9%	9.2%	9.2%	9.2%	9.2%	9.2%	8.1%
Industrial products	2,819	3,173	747	815	795	753	3,110	773	853	847	805	3,278	827	914	908	862	3,510	3,759
% change y/y	16.6%	12.5%	-3.6%	-1.1%	-4.3%	1.2%	-2.0%	3.5%	4.7%	6.6%	6.9%	5.4%	7.0%	7.1%	7.1%	7.1%	7.1%	7.1%
Intermodal	2,466	2,805	669	718	769	755	2,911	707	767	823	806	3,102	758	822	890	871	3,340	3,595
% change y/y	10.1%	13.8%	3.9%	3.4%	3.5%	4.2%	3.8%	5.7%	6.8%	7.0%	6.7%	6.6%	7.2%	7.1%	8.2%	8.2%	7.7%	7.6%
<b>Total freight revenue</b>	<b>12,957</b>	<b>14,862</b>	<b>3,652</b>	<b>3,865</b>	<b>3,996</b>	<b>4,003</b>	<b>15,516</b>	<b>4,059</b>	<b>4,287</b>	<b>4,381</b>	<b>4,324</b>	<b>17,052</b>	<b>4,375</b>	<b>4,620</b>	<b>4,731</b>	<b>4,670</b>	<b>18,396</b>	<b>19,830</b>
Other revenue	621	716	197	181	195	194	767	211	201	209	211	832	195	210	220	230	855	855
<b>Gross revenues</b>	<b>13,578</b>	<b>15,578</b>	<b>3,849</b>	<b>4,046</b>	<b>4,191</b>	<b>4,197</b>	<b>16,283</b>	<b>4,270</b>	<b>4,488</b>	<b>4,590</b>	<b>4,535</b>	<b>17,884</b>	<b>4,570</b>	<b>4,830</b>	<b>4,951</b>	<b>4,900</b>	<b>19,251</b>	<b>20,685</b>
% change y/y	11.2%	14.7%	3.7%	3.1%	5.2%	5.9%	4.5%	10.9%	10.9%	9.5%	8.1%	9.8%	7.0%	7.6%	7.9%	8.0%	7.6%	7.4%
Operating expenses:																		
Compensation and Benefits	4,309	4,535	1,165	1,145	1,106	1,121	4,537	1,132	1,159	1,134	1,125	4,550	1,174	1,210	1,191	1,193	4,768	4,985
Fuel	2,508	2,968	662	753	786	903	3,104	957	981	959	952	3,849	993	1,024	1,008	1,009	4,034	4,218
Purchased Services and Materials	1,634	1,756	443	478	479	456	1,856	469	481	471	467	1,889	488	503	495	495	1,980	2,071
Equipment and Other Rents	1,338	1,396	339	354	342	333	1,368	342	367	359	357	1,425	372	384	377	378	1,511	1,580
Depreciation	1,175	1,237	325	327	332	337	1,321	340	346	338	336	1,360	350	361	355	356	1,423	1,488
Other	819	802	196	202	199	183	780	242	232	227	225	926	235	242	238	239	954	997
<b>Total operating expenses</b>	<b>11,783</b>	<b>12,694</b>	<b>3,130</b>	<b>3,259</b>	<b>3,244</b>	<b>3,333</b>	<b>12,966</b>	<b>3,482</b>	<b>3,566</b>	<b>3,489</b>	<b>3,463</b>	<b>13,999</b>	<b>3,613</b>	<b>3,724</b>	<b>3,664</b>	<b>3,670</b>	<b>14,670</b>	<b>15,339</b>
Operating ratio	86.8%	81.5%	81.3%	80.5%	77.4%	79.4%	79.6%	81.5%	79.5%	76.0%	76.4%	78.3%	79.1%	77.1%	74.0%	74.9%	76.2%	74.2%
<b>EBIT</b>	<b>1,795</b>	<b>2,884</b>	<b>719</b>	<b>787</b>	<b>947</b>	<b>864</b>	<b>3,317</b>	<b>788</b>	<b>922</b>	<b>1,102</b>	<b>1,073</b>	<b>3,885</b>	<b>957</b>	<b>1,106</b>	<b>1,287</b>	<b>1,230</b>	<b>4,581</b>	<b>5,346</b>
% margin	13.2%	18.5%	18.7%	19.5%	22.6%	20.6%	20.4%	18.5%	20.6%	24.0%	23.7%	21.7%	21.0%	22.9%	26.0%	25.1%	23.8%	25.8%
<b>EBITDA</b>	<b>2,970</b>	<b>4,121</b>	<b>1,044</b>	<b>1,114</b>	<b>1,279</b>	<b>1,201</b>	<b>4,638</b>	<b>1,128</b>	<b>1,268</b>	<b>1,440</b>	<b>1,408</b>	<b>5,245</b>	<b>1,308</b>	<b>1,467</b>	<b>1,643</b>	<b>1,586</b>	<b>6,004</b>	<b>6,834</b>
% margin	21.9%	26.5%	27.1%	27.5%	30.5%	28.6%	28.5%	26.4%	28.3%	31.4%	31.1%	29.3%	28.6%	30.4%	33.2%	32.4%	31.2%	33.0%
Interest expense	504	477	113	120	124	125	482	126	126	126	127	505	129	132	136	139	536	592
Interest (income) and other (income) expense, net	(145)	(118)	(15)	(36)	(25)	(40)	(116)	(25)	(20)	(20)	(18)	(83)	(16)	(20)	(20)	(18)	(74)	(79)
<b>Profit before tax</b>	<b>1,436</b>	<b>2,525</b>	<b>621</b>	<b>703</b>	<b>848</b>	<b>779</b>	<b>2,951</b>	<b>687</b>	<b>816</b>	<b>996</b>	<b>963</b>	<b>3,462</b>	<b>845</b>	<b>994</b>	<b>1,171</b>	<b>1,109</b>	<b>4,119</b>	<b>4,833</b>
% margin	10.6%	16.2%	16.1%	17.4%	20.2%	18.6%	18.1%	16.1%	18.2%	21.7%	21.2%	19.4%	18.5%	20.6%	23.7%	22.6%	21.4%	23.4%
<b>Tax rate</b>	<b>36.8%</b>	<b>36.1%</b>	<b>37.8%</b>	<b>36.6%</b>	<b>38.3%</b>	<b>37.0%</b>	<b>37.4%</b>	<b>37.8%</b>	<b>38.0%</b>	<b>38.0%</b>								
<b>Net income (loss) from continuing operations</b>	<b>908</b>	<b>1,615</b>	<b>386</b>	<b>446</b>	<b>523</b>	<b>491</b>	<b>1,846</b>	<b>428</b>	<b>506</b>	<b>617</b>	<b>597</b>	<b>2,148</b>	<b>524</b>	<b>616</b>	<b>726</b>	<b>687</b>	<b>2,554</b>	<b>2,996</b>
Extraordinary items (net of tax) <sup>(1)(3)(4)</sup>	118	15	0	0	9	0	9	16	0	0	0	16	0	0	0	0	0	0
Income from discontinued operations, net <sup>(2)</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Net income</b>	<b>1,026</b>	<b>1,629</b>	<b>386</b>	<b>446</b>	<b>532</b>	<b>491</b>	<b>1,855</b>	<b>443</b>	<b>506</b>	<b>617</b>	<b>597</b>	<b>2,163</b>	<b>524</b>	<b>616</b>	<b>726</b>	<b>687</b>	<b>2,554</b>	<b>2,996</b>
% margin	7.6%	10.5%	10.0%	11.0%	12.7%	11.7%	11.4%	10.4%	11.3%	13.4%	13.2%	12.1%	11.5%	12.8%	14.7%	14.0%	13.3%	14.5%
Dilutive effect of interest assoc. w/CPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Net income for comm. shareholders</b>	<b>1,026</b>	<b>1,629</b>	<b>386</b>	<b>446</b>	<b>532</b>	<b>491</b>	<b>1,855</b>	<b>443</b>	<b>506</b>	<b>617</b>	<b>597</b>	<b>2,163</b>	<b>524</b>	<b>616</b>	<b>726</b>	<b>687</b>	<b>2,554</b>	<b>2,996</b>
Average shares outstanding - diluted	266.5	271.9	272.8	270.7	265.7	264.3	268.4	261.4	258.6	256.0	253.0	257.2	249.7	246.2	242.7	239.2	244.5	230.5
<b>EPS - diluted (continuing operations)</b>	<b>\$3.41</b>	<b>\$5.94</b>	<b>\$1.41</b>	<b>\$1.65</b>	<b>\$1.97</b>	<b>\$1.86</b>	<b>\$6.88</b>	<b>\$1.64</b>	<b>\$1.96</b>	<b>\$2.41</b>	<b>\$2.36</b>	<b>\$8.35</b>	<b>\$2.10</b>	<b>\$2.50</b>	<b>\$2.99</b>	<b>\$2.87</b>	<b>\$10.45</b>	<b>\$13.00</b>
% change y/y	17.8%	74.3%	23.3%	14.8%	25.0%	4.5%	15.8%	15.6%	18.8%	22.5%	27.1%	21.4%	28.2%	27.9%	24.1%	21.7%	25.1%	24.4%
<b>EPS - diluted</b>	<b>\$3.85</b>	<b>\$5.99</b>	<b>\$1.41</b>	<b>\$1.65</b>	<b>\$2.00</b>	<b>\$1.86</b>	<b>\$6.91</b>	<b>\$1.70</b>	<b>\$1.96</b>	<b>\$2.41</b>	<b>\$2.36</b>	<b>\$8.41</b>	<b>\$2.10</b>	<b>\$2.50</b>	<b>\$2.99</b>	<b>\$2.87</b>	<b>\$10.45</b>	<b>\$13.00</b>
% change y/y	67.1%	55.7%	23.3%	14.8%	22.9%	4.5%	15.3%	19.8%	18.8%	20.4%	27.1%	21.7%	23.7%	27.9%	24.1%	21.7%	24.2%	24.4%

(1) FAS 143 pertaining to Accounting for Asset Retirement Obligations

(2) The discontinued operations represents the sale of Overnite Corp., the less-than-truckload company owned by Union Pacific

(3) 4Q04 excludes a \$247 million pretax, \$154mm after-tax, or \$0.58 per diluted share, noncash charge for unasserted asbestos claims.

(4) 3Q06 excludes \$23 million pretax, \$14.7 million after-tax, or \$0.05 per diluted share, benefit from insurance recoveries related to storm damage incurred in January 2005.

Source: Company data and Stifel Nicolaus estimates

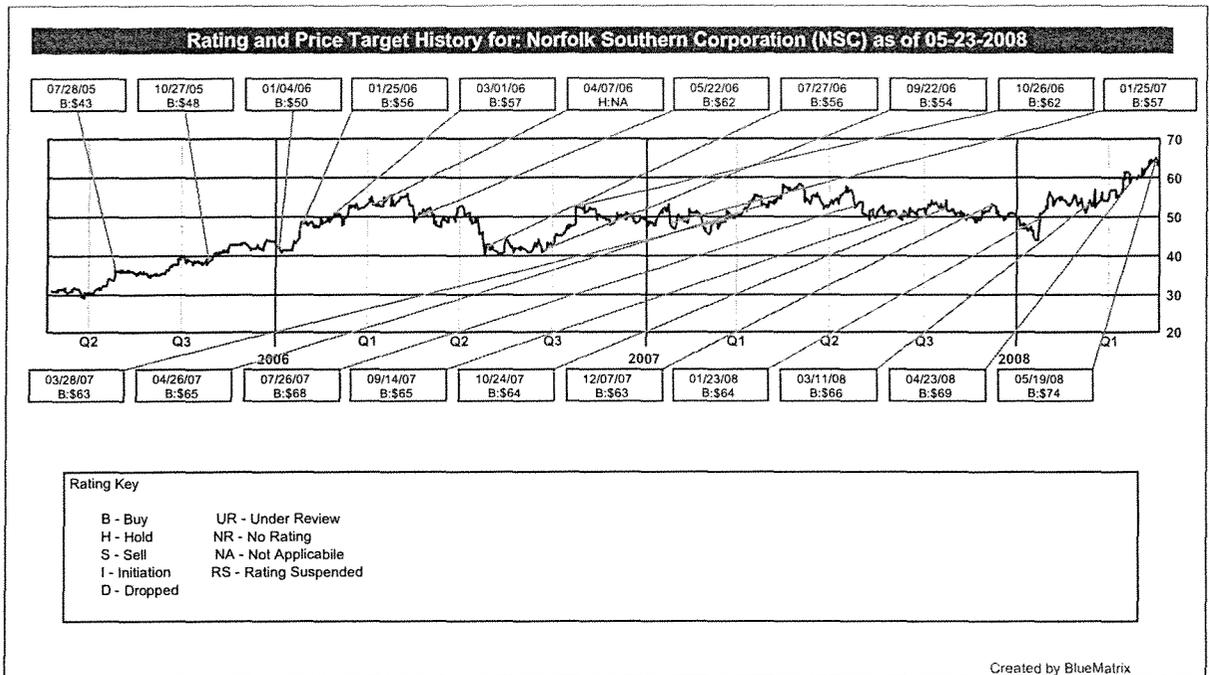




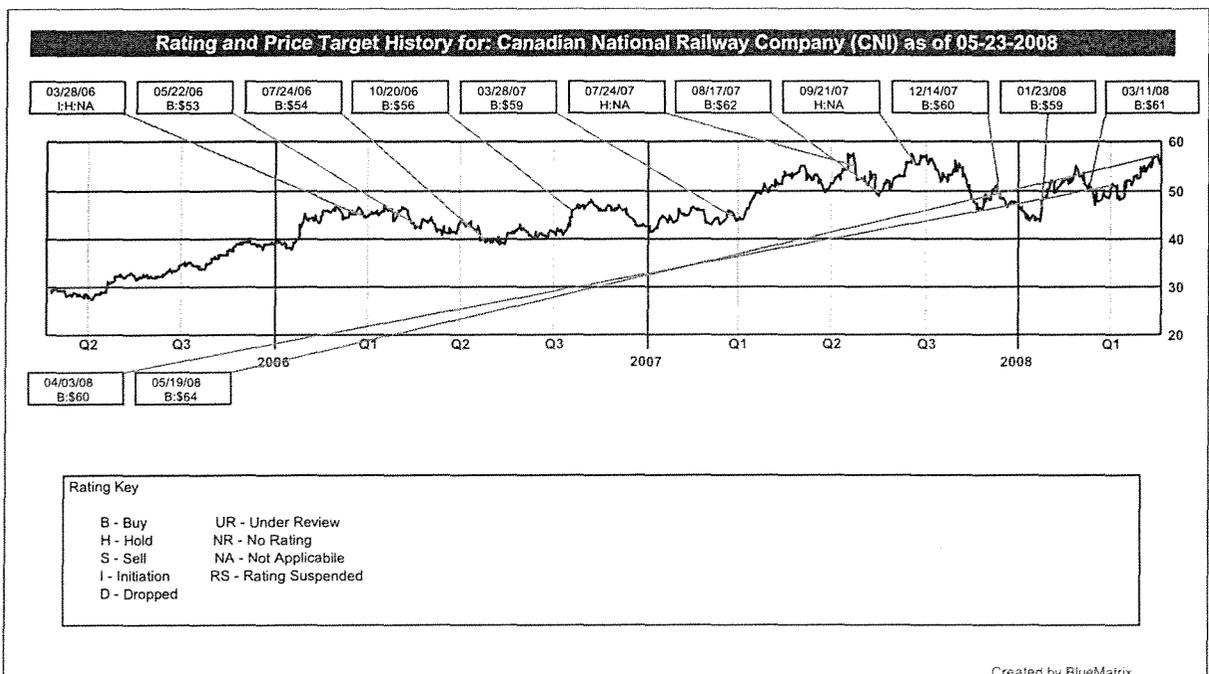
Important Disclosures and Certifications

I, John Larkin, certify that the views expressed in this research report accurately reflect my personal views about the subject securities or issuers; and I, John Larkin, certify that no part of my compensation was, is, or will be directly or indirectly related to the specific recommendation or views contained in this research report.

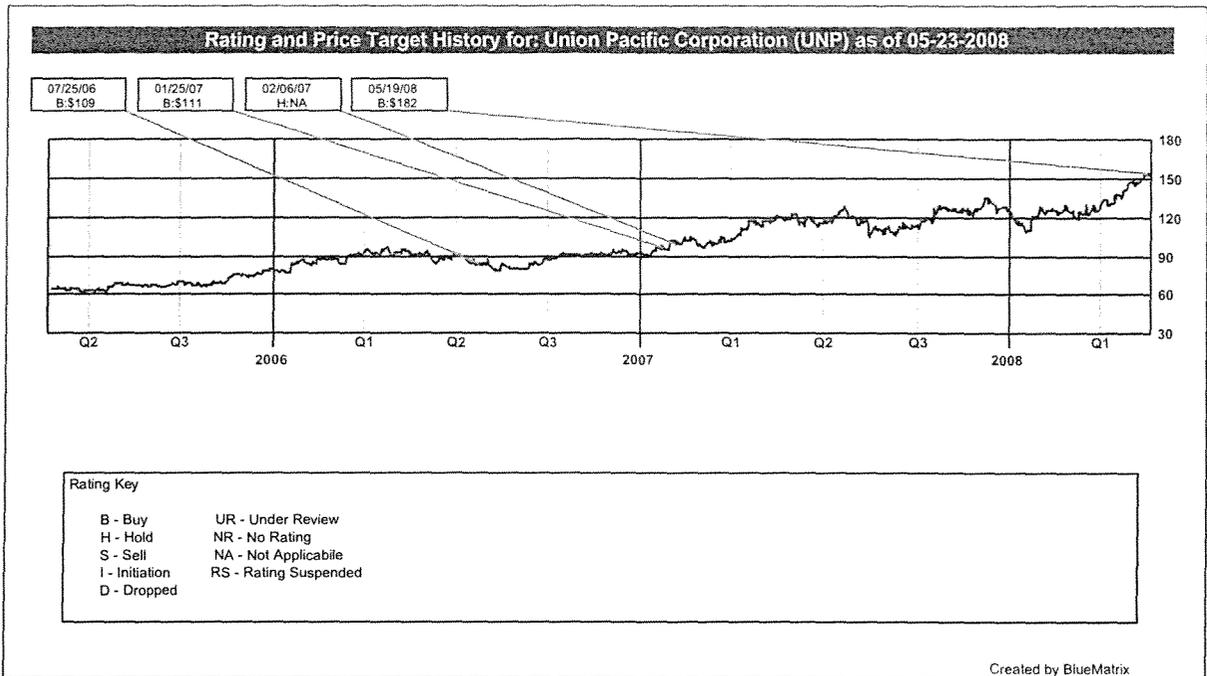
I, David Ross, certify that the views expressed in this research report accurately reflect my personal views about the subject securities or issuers; and I, David Ross, certify that no part of my compensation was, is, or will be directly or indirectly related to the specific recommendation or views contained in this research report.



For a price chart with our ratings and target price changes for NSC go to <http://sf.bluematrix.com/bluematrix/Disclosure?ticker=NSC>



For a price chart with our ratings and target price changes for CNI go to <http://sf.bluematrix.com/bluematrix/Disclosure?ticker=CNI>



For a price chart with our ratings and target price changes for UNP go to <http://sf.bluematrix.com/bluematrix/Disclosure?ticker=UNP>

The rating and price target history for Norfolk Southern Corporation and its securities prior to December 1, 2005 on the above price chart reflects the research analyst's views while employed at the prior owner of part of the Stifel Nicolaus Capital Markets business.

The rating and price target history for Union Pacific Corporation and its securities prior to December 1, 2005 on the above price chart reflects the research analyst's views while employed at the prior owner of part of the Stifel Nicolaus Capital Markets business.

Norfolk Southern Corporation is a client of Stifel, Nicolaus & Company, Inc. or an affiliate or was a client of Stifel Nicolaus or an affiliate within the past 12 months.

Norfolk Southern Corporation is provided with non-investment banking, securities related services by Stifel, Nicolaus & Company, Inc. or an affiliate or was provided with non-investment banking, securities related services by Stifel Nicolaus or an affiliate within the past 12 months.

Stifel, Nicolaus & Company, Inc. expects to receive or intends to seek compensation for investment banking services from Norfolk Southern Corporation in the next 3 months.

Stifel, Nicolaus & Company, Inc. expects to receive or intends to seek compensation for investment banking services from Canadian National Railway Company in the next 3 months.

Stifel, Nicolaus & Company, Inc. expects to receive or intends to seek compensation for investment banking services from Union Pacific Corporation in the next 3 months.

Stifel, Nicolaus & Company, Inc. or an affiliate has received compensation for non-investment banking, securities related services from Norfolk Southern Corporation in the past 12 months.

Stifel, Nicolaus & Company, Inc.'s research analysts receive compensation that is based upon (among other factors) Stifel Nicolaus' overall investment banking revenues.

Our investment rating system is three tiered, defined as follows:

**BUY** -We expect this stock to outperform the S&P 500 by more than 10% over the next 12 months. For higher-yielding equities such as REITs and Utilities, we expect a total return in excess of 12% over the next 12 months.

**HOLD** -We expect this stock to perform within 10% (plus or minus) of the S&P 500 over the next 12 months. A Hold rating is also used for those higher-yielding securities where we are comfortable with the safety of the dividend, but believe that upside in the share price is limited.

SELL -We expect this stock to underperform the S&P 500 by more than 10% over the next 12 months and believe the stock could decline in value.

Of the securities we rate, 39% are rated Buy, 58% are rated Hold, and 3% are rated Sell.

Within the last 12 months, Stifel, Nicolaus & Company, Inc. or an affiliate has provided investment banking services for 14%, 15% and 23% of the companies whose shares are rated Buy, Hold and Sell, respectively.

#### **Additional Disclosures**

Please visit the Research Page at [www.stifel.com](http://www.stifel.com) for the current research disclosures applicable to the companies mentioned in this publication that are within Stifel Nicolaus' coverage universe. For a discussion of risks to target price please see our stand-alone company reports and notes for all Buy-rated stocks.

The information contained herein has been prepared from sources believed to be reliable but is not guaranteed by us and is not a complete summary or statement of all available data, nor is it considered an offer to buy or sell any securities referred to herein. Opinions expressed are subject to change without notice and do not take into account the particular investment objectives, financial situation or needs of individual investors. Employees of Stifel, Nicolaus & Company, Inc. or its affiliates may, at times, release written or oral commentary, technical analysis or trading strategies that differ from the opinions expressed within.

Stifel, Nicolaus & Company, Inc. is a multi-disciplined financial services firm that regularly seeks investment banking assignments and compensation from issuers for services including, but not limited to, acting as an underwriter in an offering or financial advisor in a merger or acquisition, or serving as a placement agent in private transactions. Moreover, Stifel Nicolaus and its affiliates and their respective shareholders, directors, officers and/or employees, may from time to time have long or short positions in such securities or in options or other derivative instruments based thereon.

These materials have been approved by Stifel Nicolaus Limited, authorized and regulated by the Financial Services Authority (UK), in connection with its distribution to professional clients and eligible counterparties in the European Economic Area. (Stifel Nicolaus Limited home office: London +44 20 7557 6030.) No investments or services mentioned are available in the European Economic Area to retail clients or to anyone in Canada other than a Designated Institution. This investment research report is classified as objective for the purposes of the FSA rules. Please contact a Stifel Nicolaus entity in your jurisdiction if you require additional information.

#### **Additional Information Is Available Upon Request**

© 2008 Stifel, Nicolaus & Company, Inc. One South Street Baltimore, MD 21202. All rights reserved.

**EXHIBIT 2**

# **Contestable markets: applications and their theoretical foundation**

---

*Momigliano Lecture 1997*

William J. Baumol

It is a great honour to be invited to serve as the Momigliano lecturer, and an even greater honour to be the first in what promises to be a distinguished and valuable series of lectures. The distinguished character of my audience, the fact that the event occurs in a country that my wife and I love so deeply, and the beautiful surroundings, all enhance the reasons for my gratitude to those who invited me.

Some twenty years have now passed since several colleagues and I first began our work on the theory of contestable markets. It is, we are convinced, a *new* theory, but, of course, like any theory, it builds upon the valuable work of predecessors. Here it is necessary to single out the work of Joe S. Bain who, more than anyone else, drew the attention of economists to the power of freedom of entry and the presence of *potential* rather than actual competitors to influence the behavior of business firms and to curtail the use of monopoly power. In addition, our work drew its foundation from a variety of illuminating analysis of the performance of industries composed of a small number of large firms ranging from the great work of A.A. Cournot in 1838 to the much more recent contributions of Paolo Sylos Labini. Our work went off in another direction from their, but I believe that there is no necessary conflict among the different approaches, and that together they give us a clearer vision of the workings of the markets of reality and of the design of appropriate public policy where the market competition is too weak to serve the public welfare adequately.

Contestable market theory, perhaps as much as any analysis of oligopolistic markets, has already influenced public policy to a considerable degree in ways that these lectures will describe. Courts in a number of countries have cited it approvingly as an appropriate foundation for pertinent public policies. It has been adopted as a guide by government agencies and has affected the design of laws. Thus, it is not a theory in search of application. The applications, then, will be the central theme of these lectures. However, before describing some applications, part of the theory itself must be resummarized, to make the remainder of my discussion comprehensible. The reasons for its applicability to practice in reality must also be described in general terms, as well as the types of policy issues

to which it is applicable. The lecture must therefore begin with some generalizations and abstractions that in themselves may not seem significant to nonacademic members of my audience. This, however, is something that cannot be avoided if the practical side of the subject is to be understood.

### **Contestable Markets:**

#### **What are They and do They Actually Exist?**

Analytic investigations in a variety of disciplines find it useful to employ idealized and simplified concepts such as the notion of frictionless motion in physics. Economics is no different in this respect, and for more than a century much of its analytic research has been carried out in terms of such an idealized model – the model of perfect competition. This is a state of affairs in which there are no economies of large scale production, so very small business firms can operate efficiently and survive. In addition, a perfectly competitive industry is defined to be one characterized by extreme ease of entry and exit, so that new firms face no obstacles to starting an enterprise in such a field. It is admitted by economists that the real world contains no industries that are perfectly competitive, and few that approximate that state of affairs. Yet the concept is useful because it permits rigorous analytic results that sometimes apply approximately to industries that are certainly *not* perfectly competitive. Moreover, it has been demonstrated repeatedly that a perfectly competitive industry, if it existed, would serve the interests of consumers, and those of the public more generally, very efficiently and effectively. Because it is therefore a theoretical *ideal state of affairs*, it can conceivably serve as a goal for the economy and a model for government efforts to improve the operations of the economy. Later in this lecture, the meaning of this assertion will be made clearer and its usefulness will be explained. But for the moment, the remarks in this paragraph are sufficient to suggest that such idealized concepts can be useful and illuminating even though their correspondence to the real world is limited.

These observations apply fully to the concept of a *perfectly contestable market*. Such a market, roughly speaking, can be defined as one into which new firms can enter and from which they can exit without incurring special costs or risks, and can

do so without delay. That is, entrants can start a new business instantly, and any costs they must undertake in the process must not be *sunk*, meaning that if the firm decides to leave that market, it can take its investment away with it, without any loss and with little or no delay. Clearly, in reality there is no such thing as a *perfectly* contestable market. It generally requires at least months of planning and preparation before a new firm can begin its activities, and almost always that firm must invest funds that it cannot get back unless its operations continue successfully for a substantial period of time.

Despite these universal facts, however, a high degree of contestability can be achieved in some industries in either or both of two ways. First, the investments can be highly mobile so that the sunk commitments required for entry are minimal and the time required for entry and exit is equally insignificant. Second, where business is conducted via contract and the bulk of the sales are to a few relatively large customers, what we may refer to as “virtual entry” can be achieved very nearly instantaneously and costlessly. Both of these possibilities require a bit of explanation and comment.

Mobile capital, as in the case of airline equipment, can substantially reduce the risk of entry into a particular market. For example, there may be very little risk that results when an airline decides to enter the market from, e.g., Minneapolis to San Francisco by transferring some of its airplanes from the Chicago-New Orleans route. Even if the new route proves not to be very profitable, the airplanes that were quickly transferred into that route can just as quickly be transferred out. Thus, much of the capital of an airline is capital on wings, and entry into a particular route is hardly an irreversible commitment. The evidence provided by experience in the United States since regulation of rates and routing of airlines came to an end more than 15 years ago shows that predictions of near-perfect contestability that were made at the time of deregulation were overly optimistic. Because entry does take some time to arrange, advertise and carry out, and because some sunk investment is unavoidable, it transpires that air transportation is hardly perfectly contestable. But the evidence also indicates that the resulting distortions of prices and outputs from the

ideal are quite limited, implying that the forces of contestability are still quite powerful.

Contracts and the resulting virtual entry are another way in which a close approximation to contestability can be achieved. For example, in a market for, e.g., a chemical product that is used as an input by a few large firms, the supplier normally cannot charge a price much above the competitive level even if it is a monopolist so long as there are potential rivals which could take the market over profitably if prices were excessive. This is true even if it would take several years for an entrant to build the necessary plant whose investment would be entirely sunk. The reason is that overpricing by the monopoly producer would make it possible for a potential competitor to induce the large customers to sign long-term contracts at prices lower than the monopolist's which are still profitable. The contracts would guarantee recovery of the entrant's investment expenditures, thereby making them as safe as if they were not sunk. In addition, because the contract between the entrant and the customers is firm, the delay before the entrant can begin to supply those customers does not enable the former monopolist to take retaliatory action to regain those customers. Thus, even if entry requires years and a heavy sunk investment, contracts mean that the incumbent monopolist is subject to as effective a threat from potential entrants as if entry entailed no lag and no sunk expenditures.

### **Toward Application:**

#### **Public Interest Benefits of Contestable Markets**

The conclusion is that while perfect contestability does not exist anywhere in reality, it can be and is in fact approximated in reality in some industries. This immediately suggests one practical application of contestable market analysis. Where an industry or firm is suspected of behaving monopolistically and a government agency empowered to control monopoly seeks to punish it or to restrict its activities, that firm or industry may be able to protect itself from this sort of government intervention by providing evidence that the industry is effectively contestable. That is, it can argue that market forces prevent it from acting in ways that damage the public interest and that gover-

nmental restraints are therefore unnecessary and counterproductive. Anti trust lawyers have not overlooked this line of argument and contestable markets has consequently been used (and has sometimes been misused) quite frequently for the purpose.

This application, however, has not proved to be the most important use of contestable markets analysis. Rather, it has been employed most frequently and most effectively as a guideline for regulatory and remedial actions. This sort of application becomes possible whenever a government authority seeks to modify or restrain the behavior of a firm with monopoly or market power. Recently the importance of such applications has grown both because privatization has transferred large and powerful firms from government operation to the private sector and because international treaties have opened government monopolies or their privatized successors to foreign competition. The issue, in brief, is this: while it is easy to conclude that a monopoly firm should not be permitted to act as it would like to do if it were free from regulation, it is much harder to decide how those firms should be asked to behave instead. We know we do not want the firm to charge a monopoly price for its product – but what price do we want it to charge instead? The answer that has been proposed is that the monopoly firm should be required to charge only prices that it could obtain if the market in which it operated were perfectly contestable. That is, this application is useful only for markets that are *not* contestable, but it works by requiring firms in such a market to behave as they would if the market, *contrary to fact*, were perfectly contestable. Later I will give a clear and widely used application that illustrates this notion concretely. First, however, two questions must be answered:

- 1) why is perfect contestability rather than perfect competition, the economists' old standard of pro public interest behavior, proposed as the guideline, and
- 2) what are the benefits that can be promised by what can be called "contestable behavior?"

That is, exactly what can society hope to gain if firms with monopoly power are required to limit their actions to contestable behavior? Let us, next, answer those two questions.

**A. Unusability of Perfect competition as Regulatory Guideline.** The industries selected for economic regulation almost always include very large firms and are frequently characterized by scale economies. This, of course, is not an accident. Industries in which there are no scale economies and in which all firms are small enough to have a small market share are generally not a source of monopoly problems. No firm then, has market power, and therefore no firm can charge monopoly prices. Economic decisions (other than such things as working conditions, product safety and pollution omissions) are normally not regulated in such industries.

Perfect competition, however, is possible only if there are no scale economies and if all firms are small. Thus, the model is, strictly speaking, relevant only for industries that are not regulated. More than that: the policy recommendations that follow from the model of perfect competition are both unworkable and undesirable for an industry whose firms have significant scale economies. For, the model implies, first of all, that smallness of firms is desirable. But where scale economies are substantial small firms cannot survive against the competition of large enterprises because of the significant cost advantages that high-volume production offers the latter. Therefore, unless they are permanently propped up by government, in such an industry minuscule firms cannot long survive.

Nor is it desirable for consumers that such little firms should survive in an industry with significant scale economies. Their unnecessarily high costs mean that consumers will have to bear the burden of the resulting inefficiency through higher prices. That is hardly a way to promote the public interest. If in addition we take into account the proposition, well known to economists, that the pricing rules of perfect competition will force a firm with scale economies into insolvency, then we realize that the model of perfect competition is not a useful guide for economic regulation.

In contrast, the contestable markets model applies just as much to large firms as to small ones and to firms with scale economies as well as those without such economies. As will be shown next, contestable market behavior offers all (or virtually all) of the benefits of perfect competition without the disadvantages

of loss of the benefits of large-scale operation. Next, we must, therefore, review those benefits and indicate how contestability provides them.

**B. Benefits Offered by contestable Markets.** A contestable market makes at least four beneficial contributions to the general welfare: it prevents firms from earning monopoly profits, it prevents the survival of an inefficient supplier, it prevents cross subsidy, and (with one exception) it forces firms to adopt the prices that are required for economic efficiency. The meaning of the first two of these is obvious. The last two require a bit of explanation. The third is a matter of greater interest to government regulators than to academic economists, while the reverse is true for the fourth. Let us review these very briefly, one at a time.

*a) Profits no higher than the competitive level.* In a perfectly competitive industry if a firm were to charge prices that yielded any monopoly profit, a rival could enter and take away all of that firm's customers by charging prices that are lower but still profitable. I have already shown how that can be done with the help of contracts. This also means that in a perfectly contestable market no firms can charge prices that are sufficiently high to make entry profitable. This observation is described in the writings about contestable markets by the assertion that no price of any product can be higher in such a market than its *stand-alone cost* (and no group of products can be priced so as to yield revenues greater than its combined stand-alone cost). This result has turned out to be very important in guiding regulation of business by government agencies (see below), together with the observation that in a perfectly contestable market no price of any product will (in the long run) be lower than the cost of supplying that product (called the product's *incremental cost* – the amount [per unit of product] by which the firm's total expenditures must increase in order to supply that product).

*b) No Inefficiency.* Second, in a perfectly contestable market no firm that is inefficient or that makes inefficient decisions can survive. The explanation is the same as that for the absent-

ce of monopoly profit. If prices are sufficiently high to enable an inefficient firm to cover its costs, a more efficient entrant can charge lower prices, take away all of the customers of the inefficient firm and still make a profit. These efficiency benefits of perfectly contestable patterns of activity are among their most important social contributions.

c) *No Cross-subsidy*. The prices of a firm that sells a number of different products are said to provide a *cross subsidy* if it sells some of its products at prices that are insufficient to repay the incremental costs of those products, and makes up for the resulting deficit by charging an excessive price for other products in which it has a monopoly or faces no substantial competition. Then the consumers of the monopolized products are interpreted to be providing a cross subsidy to the marketing of the competitive products. Regulators worry about this because the firm that cross subsidizes may be doing so in order to destroy its competitors and to obtain a monopoly position in those outputs for which it is currently facing competition. In a perfectly contestable market, however, cross subsidy is impossible because, as we have just seen, in such a market a firm cannot possibly earn monopoly profit. Therefore, none of its products can be sources of the cross subsidy. With nowhere to obtain the funding the firm cannot provide the cross subsidy to the products for which it now has competition. As a result, if those products are sold at prices that do not cover their costs, the loss must come out of the pockets of the firm's investors. In a perfectly contestable market there can be no cross subsidy to erase that deficit. That is all there is to the matter.

d) *Economic Efficiency and Marginal-Cost Pricing*. The last benefit of contestability to be noted here, as already said, is a subject studied primarily by professional economists. Economic analysis concerns itself with the allocation of inputs such as labor, machinery and raw materials among the different products offered by the economy. Should those inputs be reallocated to produce more automobiles and fewer computers or the reverse? Or should things be left as they are? In a market economy that is obviously decided by prices. If car prices rise and computer prices fall, consumer demand and, therefore, inputs will shift toward the latter while if automobile prices

decline relative to those of computers the market will transfer inputs away from computers and into the production of cars. Economic analysis tells us that prices will result in that allocation of inputs that best serves the interest of consumers if the price of each product is equal to the marginal cost of that product (here we can interpret marginal cost as approximately a synonym for incremental cost). Since it would take a good deal of space to describe the reasons for this conclusion they will not be summarized here. The interested reader can refer to any textbook in basic economics for an explanation. Nor will I describe the reasons for the conclusion that in equilibrium in a perfectly contestable market, unless the industry is a monopoly, prices will in fact equal marginal costs, so in such a market the prices will automatically be those that best serve the interests of consumers.<sup>(1)</sup>

This completes our brief review of the benefits that result from the behavior of firms that would occur in a (hypothetical) perfectly contestable market. They are essentially the same benefits that would occur in an (equally hypothetical) perfectly competitive market. But, so far, the discussion is all theoretical and abstract. The natural question is whether it has any applicability to the problems of the real world. The answer, as will be shown next, is that it has such applicability, and that it is in fact being used for the purpose.

### **Public-Sector Decisions Based on Contestable Market Analysis**

As has been implied here, applications of contestable market analysis occur primarily in governmental activity designed to prevent abuses of market and monopoly power by firms that are judged to be inadequately constrained by competitive market forces, so that in the absence of government intervention their activities would threaten to harm economic welfare.

(1) For the proof of this statement, see Baumol, Panzar and Willig, *Contestable Markets and the Theory of Industry Structure*, San Diego: Harcourt, Brace, Jovanovich, 1988, pp. 26-28.

Today, this is a frequent danger in industries that undergo privatization. In such cases, the appropriate role of government intervention is to serve as a substitute for competition in markets where competition is weak or nonexistent. The appropriate goal of such intervention is to *require firms whose markets are inadequately competitive to behave as if (contrary to fact) those markets were really competitive*. Several key conclusions follow from this objective:

- 1) The task of the courts or regulatory agencies is then to find out how the firms in question would behave – what pricing, output and investment decisions they would make – if, contrary to fact, their markets were effectively competitive.
- 2) Contestable markets theory provides this required information. It enables us to deduce just what decisions those firms would make if perfectly unobstructed entry were to make those markets effectively competitive.
- 3) Thus, paradoxically, contestable market analysis is most useful for policy in industries in which its premises are least realistic. That is, this analysis, based on an assumption of maximal competitiveness even for industries with scale economies, is most useful when employed as the standard for regulation of firms in industries in which competition is feeble, if it exists at all.
- 4) If it is agreed that the goal of the type of government intervention in question is to obtain for the public the benefits of competition where competition is inadequate, then the government should constrain firms never to make any decision or to take any action that market forces would prevent if that market were perfectly contestable.
- 5) The other side of the previous conclusion is that government intervention whose purpose is as has been described should never interfere with or prevent any business decision that could be carried out in a perfectly contestable market. Such interferences by government can only prevent the market mechanism from working and from providing its well recognized productivity benefits to the economy. Such excessive intervention can make a sham of privatization by ensuring that the firms given up by the public sector will not really be run as private enterprises are because they

will not be given the freedom to act as firms in competitive markets are able to do.

The conclusion most relevant for our discussion is this: the unrealistic model of perfect contestability is useful for governmental regulation of firms with market power in reality, because it tells the relevant government agency what types of behavior of the firm should be permitted and which should not, if the public is to obtain the benefits of competition from the uncompetitive industry in question. This is precisely how the analysis has in fact been used by courts and regulatory agencies. Two examples of actual decisions, one from New Zealand (and London) and the other from the United States will confirm this.

### **Case 1** **The New Zealand Courts, the Privy Council** **and Telephone Regulation**

New Zealand Telecom, the newly privatized telephone Company of New Zealand, soon faced competition from an entrant, Clear Communications. Clear offers long distance service and hopes to provide local service as well. But Clear's long-distance messages normally can reach their intended recipients only via Telecom's local facilities. After negotiations over the price for rental of these facilities broke down, Clear sued Telecom. Telecom offered to adopt the contestable market standard for the pricing of access to its local facilities (using the rule called "the parity principle", see below), but Clear refused. The High Court of New Zealand, with some reservations, decided that the parity-principle offer was appropriate. But this decision was then overturned by the Court of Appeal on grounds related to special features of New Zealand law. That decision, in turn, was reviewed by the final appeals body, the Privy Council in London. In October 1994, the Council issued its judgment, fully supporting the parity principle. Its decision stated in part:

Both the High Court and the Court of Appeal proceeded on the basis, with which their Lordships [that is, the judges of the Privy Council] agree, that if the terms Telecom was seeking to

extract were no higher than those which a hypothetical firm would seek in a perfectly contestable market, Telecom was not using its dominant position [that is, it was not behaving as a monopolist] [...] The [parity principle] rule is a closely reasoned economic model which seeks to show how the hypothetical firm would conduct itself [...] the underlying object [of the relevant New Zealand law] will be achieved if the [parity principle] rule is applied.<sup>(2)</sup>

## **Case 2.**

### **The Rules for Pricing of Coal and Other Freight Transport in the U.S.**

Here are excerpts from the decision of the U.S. government agency that regulates freight transportation in the U.S. That decision, about 12 years old still controls the pricing of freight transportation and is currently being used as the basis for decision in a substantial number of current lawsuits. It should be recalled that stand-alone cost (SAC) is the ceiling that, contestable markets analysis indicates, should be imposed on a railroad's prices because no higher prices could be charged in an unregulated competitive market.

[The] stand-alone cost (SAC) test [...] is used to compute the rate a competitor in the market-place would need to charge in serving a captive shipper or a group of shippers who benefit from sharing joint and common costs. A rate level calculated by the SAC methodology represents the theoretical maximum rate that a railroad could levy on shippers without substantial diversion of traffic to a hypothetical competing service. It is, in other words, a simulated competitive price [...]

The theory behind SAC is best explained by the concept of contestable markets. This recently developed economic theory augments the classical economic model of pure competition with a model which focuses on the entry and exit from an industry as a measure of economic efficiency [...] The under-

<sup>(2)</sup> Source: Privy Council Appeal No. 21 of 1994, Judgment of the Lords of the Judicial Committee of the Privy Council, pages 21 and 27.

lying premise is that a monopolist or oligopolist will behave efficiently and competitively where there is a threat of losing some or all of its markets to a new entrant. In other words, contestable markets have competitive characteristics which preclude monopoly pricing.<sup>(3)</sup>

The applicability of the principles in this decision to rates on other types of freight was reconfirmed in 1993 by the U.S. Court of Appeals (Case No. 88-1114, decided February 9, 1993).

These two examples should confirm that contestable market analysis continues to be put to use in practical decision making. Even on the very day this passage was written I was consulted by a team of lawyers about a major litigation before a regulatory agency in the United States in which a previous tentative decision was based explicitly on contestable markets analysis, with that decision pervaded by quotations from the contestable markets book by my colleagues and myself.

To indicate explicitly the nature of the regulatory rules that follow from contestable markets analysis I turn, next, to two examples, one to be discussed rather briefly, and one at greater length.

### **Practical Application 1: Price Ceilings and Price Floors**

The selection of appropriate constraints on pricing is the most obvious issue that arises when regulating a firm, including a newly privatized firm. The firm must not be permitted to charge prices that are excessive, and yield monopoly profits by exploiting consumers. But it also must not be permitted to charge prices so low that they can destroy any new competitor, prices that no competitive firm would accept for any substantial period. We have already seen what is indicated for this purpose by contestable market analysis. We have noted that no firm in a perfectly contestable market will be willing in the long run

<sup>(3)</sup> Source: Interstate Commerce Commission, "Coal-Rate Guidelines, Nationwide", Ex Parte No. 347 (Sub-No. 1), Aug. 3, 1985, page 10).

to supply any product at a price below the incremental cost of that product, because only a price equal to or above the incremental cost of the product will enable the firm to recover the cost that is caused by its decision to supply that product. Consequently, incremental cost becomes the regulatory price floor that the analysis gives us. Similarly, stand-alone cost is the appropriate ceiling over prices, according to the analysis, since no price above stand-alone cost can persist for any significant period in a perfectly contestable market. That is so because, by definition, any price above stand-alone cost will attract entrant competitors who will be able to take the business away from the firm with these high prices. To summarize, the contestable markets rule that at least some regulatory agencies have adopted to constrain pricing by firms considered to have market power is the following.

No price is allowed to be higher than stand-alone cost and no price is allowed to be lower than incremental cost, but any price in between these two levels is permitted.

These rules guarantee consumers that they will pay no more for what they buy than they would in a market that is very competitive as a result of perfect freedom of entry. Moreover, potential competitors are guaranteed that their entry will not be blocked by cross-subsidized prices below the minimum level that competitive firms will accept in the long run.

This conclusion solves the price regulation problem in principle. But how does it work out in practice? One legitimate concern, for example, is whether anyone in reality knows how to calculate stand-alone cost. The answer is that since the ideas just described first appeared and began to be used by courts and regulatory agencies, these calculations have been made with increasing frequency by regulated firms or their competitors or their customers and have been submitted by them to courts and regulatory agencies. Indeed, there are now research firms in Washington and elsewhere that specialize in collection of the required financial and output data and their use in providing incremental and stand-alone cost statistics.

But contestable-markets theory goes beyond just suggesting such rules. It can sometimes help in making the required calculations. The price-floor price-ceiling issue is a clear example.

There the analysis has provided a number of short cuts that can greatly facilitate the calculations. Only one of these will be described here. There is a theorem derived from the analysis showing that it is unnecessary to calculate *both* the firm's incremental and its stand alone costs. Either of these calculations alone will do the job, because if the firm is earning no more than competitive profits overall and none of its prices are below incremental costs, then none can possibly be above stand alone costs (and conversely). So, to enforce the price-ceiling and price-floor rules, the regulator only needs data on the firm's rate of return and *either* its incremental or its stand-alone costs, but *not both*. Exhibit 1 gives the simple proof.

**Exhibit I.**  
**One pricing test, not two:**  
**incremental cost floor or stand-alone cost ceiling**

Consider a firm with two products, Good X and Good Y. Then, since

*Total cost of X and Y must equal cost of producing Y alone plus cost of producing in addition to Y, by definition*

$$(1) \text{ Incremental cost of X} = \text{Total cost} - \text{Stand-alone cost of Y}$$

Suppose the firm earns competitive profits overall, so that

$$(2) \text{ X Revenue} + \text{Y Revenue} = \text{Total cost (including competitive return)}$$

Then (1) becomes

$$(3) \text{ Incremental cost of X} = \text{X Revenue} + \text{Y Revenue} - \text{Stand-alone cost of Y,}$$

that is,

$$(4) \text{ X Revenue} - \text{Increment cost of X} = \text{Stand-alone cost of Y} - \text{Y Revenue}$$

It follows at once that

(5)  $X \text{ Revenue} > \text{Incremental cost of } X$  (the IC test criterion)

if and only if

(6)  $\text{Stand-alone cost of } Y > Y \text{ Revenue}$  (the SAC test criterion).

Basic result:

If all of the firm's prices pass either test, the prices must pass both tests.

This completes our first example of the way in which contestable market analysis helps in carrying out practical regulatory tasks.

### **Practical Application 2:**

#### **Pricing of the Services of Bottleneck Facilities**

The second illustration, to which we turn next, is more complicated, but it deals with an issue that is already very important, and is likely to become an international matter of great urgency in the near future. The reason for this is the Telecommunications Agreement of 1997, under which about 70 countries agreed to open their telecommunications markets to foreign competition. If that competition is to become a reality and to provide the benefits of lower prices and better service, obstacles that impede the entry by foreign rivals must be removed or reduced. Contestable markets analysis emphasizes that, normally, one of the most serious obstacles to such entry is the need for the entrant to incur a large amount of *sunk* investment before it can begin operation. Sunk investments, that is, investments from which the investors cannot recover their outlays quickly or easily, clearly make exit difficult and can obviously be very risky. Therefore, if the sunk investment required for successful entry is very large, entry will be discouraged or it will be prevented altogether.

In telecommunications, the way in which this barrier to entry is being overcome is through a rule under which the current monopoly provider of telecommunications services is required to offer its facilities for rental by any entrants that desire

to use them. In this way, the entrant can be saved from the need to build expensive plant and equipment of its own, and entry will become a practical possibility. In such a situation, the plant and equipment of the monopolist telephone company is called a bottleneck facility, meaning that no entrant can operate without it, that the facility is available from only one owner, and that this owner will be a competitor of the entrant who uses these facilities. All this seems to solve the entry barrier problem in a straightforward manner, but it is an illusion unless the regulating government agency specifies the *price* at which the facilities will be offered to entrants. Clearly, if the owner of the facilities is permitted to charge as high a price as it wants to it can protect itself from entry by setting the price at a level so high that no entrant can afford to pay it.

The same issue arises in practice in other fields. Bottleneck pricing is now a key issue in at least three industries: electric power, telecommunications and rail transportation. In electricity it has been raised by the inauguration of competition in the generation of electricity. Now, and increasingly in the near future, the established electric utility firms in the U.S. will face the competition of rival generators of electricity. However, before electricity can be sold as a final product it must be transported to customers. The large capacity and high cost of the electricity transmission facilities make rivalry in electricity *transmission* (as distinguished from generation) impractical. These transmission facilities are the exclusive property of the electric utilities which, along with all their competitors in generation, must use those facilities to get the electricity from the generating stations to the customers. Thus, the transmission facilities are bottleneck inputs to the supply of the final product, delivered electric power, and the issue of pricing these facilities is clearly analogous to the setting of a fee for monopoly-owned telephone facilities.

The railroad case will bring out most clearly the traditional regulatory rules for bottleneck-service pricing and their difference from the contestable-market roles that will be described presently, but which tell us, in brief, that the bottleneck price should equal the full incremental cost of supplying the bottleneck's services as competitive market analysis describes.

Roughly speaking, regulators have often approached the bottleneck pricing decision in the manner suggested by the following example. Consider two railroads, A and B, that want to compete in serving cities C and D. The cities are separated by high mountains with a single pass, through which railroad A owns tracks and in which there is no room for a second set of tracks. Railroad B therefore requests rental of permission to use that portion of A's route. The mountain pass is clearly a bottleneck input to the transportation of freight between the two cities. Suppose railroad A's incremental cost of carrying a carload of lumber between the two cities is \$1000, with \$10 of this amount attributable to wear and tear of track when a carload of lumber crosses the pass. Railroad A has been charging shippers \$1500 per carload for this traffic, and using the \$500 surplus over the incremental cost of lumber transport for the entire route to cover costs common to lumber and other types of freight – cost such as track maintenance and replacement. The railroad earns no more than a competitive profit overall. Under these circumstances, we will see that the contestable-markets price for the right of railroad B to send a carload of lumber over the mountain pass is \$510, the incremental cost of \$10 plus the incremental *opportunity cost* to A – the loss of \$500 contribution if B's shipment replaces a carload of A traffic. As we know from standard economic analysis, incremental opportunity cost is a legitimate part of incremental cost and is therefore covered by competitive price. However, at least until very recently, the regulators would have calculated the fee quite differently. Since the \$10 incremental cost of B's traversal is only 1 percent of the total incremental cost of the route, they would have reasoned that railroad A is entitled only to 1 percent of the contribution to common costs that flows from B's shipments between the two cities, making the regulatory fee \$15 rather than the \$510 price required by the parity principle.

We see that the two prices can be dramatically different, the one based on a regulatory concept of equity and the other, the contestable market price, set at the level of full incremental cost. And while at first glance it may appear that the far higher contestable-market price is “unfair,” extracting so high a fee

for traversal of a small portion of the route, it will be demonstrated here that with the fee set at this level both railroads can be said to be paying the same price for traversal of the mountain pass. The lower traditional fee is therefore not only a subsidy to the other railroad, that can permit it to take business away from a more-efficient competitor, but it treats the two railroads differently, permitting railroad B to rent use of the mountain-pass tracks at a cost far lower than what, as we will see, it really costs railroad A.

### **The Parity-Pricing Rule for Efficiency in the Use of a Bottleneck Input**

More generally, when several firms compete with one another in the sale of an identical final product, but one of them is the monopoly owner of an input (such as telecommunications equipment) that is indispensable in the supply of that product, the problem is how competition *in the final product market* can be preserved and not tilted to favor either the owner of the indispensable input or its rivals. The answer, in principle, is that the input should be made available to all of the competitors, including the bottleneck owner, on equal terms, with an appropriate price charged for it by the proprietor of the bottleneck input. But what is the appropriate price? And is adoption of that price enough to preserve competition and to ensure efficiency? The discussion that follows will describe a pricing rule for a bottleneck input service sold by its owner to competitors in the supply of final product if inefficiency in resource allocation among producers of final products is to be prevented. Recent critics have argued, correctly, that the rule, by itself, is certainly *not sufficient* to ensure efficiency, a reservation my coauthors and I in earlier writings on this subject have been at pains to emphasize since we first enunciated the rule, some years ago. However, it will be shown here that the rule is a *necessary* requirement for economic efficiency.

The efficiency issue is straightforward. If the bottleneck input is priced in such a way that sales of the final product are diverted to a supplier (the bottleneck owner or its rival) that incurs in the process real costs higher than those that would be in-

curred by another of the possible suppliers, then the result is surely inefficient. Such an inefficiency will clearly occur whenever the prospective supplier who incurs the lower real incremental cost in providing the final product cannot afford to charge a price as low as that of a rival with a higher incremental cost of supplying the output in question.

Here it will be shown that *only* pricing of access to the bottleneck input service satisfying what has come to be called *parity pricing* or *the efficient component-pricing rule* (ECPR) can ensure avoidance of any such inefficiency. In this sense, any price that violates ECPR is inconsistent with efficiency, so that ECPR is, indeed, a necessary efficiency requirement.

In the ensuing discussion, it is convenient to think of the final product, F, as being composed of two inputs, the bottleneck input, B, and the remaining input (or set of inputs), R. The objective is to preserve competition and efficiency in the competitive market for R, even if the market for B retains its monopoly character. By ensuring that all competing suppliers of R pay the same price for the bottleneck input, B, competition in the supply of R can be preserved and encouraged. But, in addition, to prevent inefficient restriction of the output of B something must be done to exclude monopoly earnings from that common price. Such earnings can be prevented, as has just been argued, by requiring all prices to be no higher than the corresponding stand-alone costs.

In brief, as will be demonstrated presently, ECPR requires that the price of the bottleneck input satisfy either (and, hence, both) of two equivalent rules. The first is expressed in the formula

- (1) Parity price of bottleneck use = bottleneck owner's final product price minus incremental cost to the owner of all other inputs to the final product

Alternatively and equivalently (as will be shown) the ECPR price of the bottleneck input must satisfy

- (2) Parity price of bottleneck use = owner's (incremental) cost of bottleneck use + the bottleneck owner's profit per unit of final-product output

Equation (1) tells us that ECPR establishes a tight link between the price the bottleneck owner charges for its final product and the price it charges its rivals for the bottleneck input. If production costs do not change, a rise in one of these prices must be matched exactly by a rise in the other. Equation (2) tells us that the efficient price of B is its direct incremental cost plus the *opportunity cost* (the foregone profit) that the bottleneck owner incurs when it loses a sale of a final product to a rival, a loss made possible because the bottleneck input has been sold to the rival. Thus, the Second form of the ECPR rule asserts that the price of the bottleneck input should equal any direct cost caused by supplying it to a competitor, plus any opportunity cost incurred as a result of that transaction. Standard economic analysis tells us that this is the way price is set in a perfectly competitive market or a perfectly contestable market, so that, for this reason, the result should not be surprising.

Yet, the opportunity cost element of this result is the focus of current discussion of ECPR both among economists and practitioners. The problem is that the bottleneck owner is a monopolist, and its final product price may therefore be set at a level that yields monopoly profits. These monopoly profits are among the profits foregone as a result of a lost sale of final product and, consequently, constitute a part of opportunity cost for which, according to (2) (at least without further modification of the ECPR regime) the bottleneck owner should be compensated when it sells bottleneck input to a rival. Aside from any equity issues this raises, my coauthors and I have long emphasized that such overpricing of both final product and bottleneck input [in accord with (1)] must lead to resource misallocation and inefficiency. My coauthors and I have consequently always maintained that efficiency requires *both* ECPR for bottleneck-input prices and a stand-alone cost ceiling on final-product prices. This prevents overpricing of both final product and bottleneck input and, consequently, removes all monopoly profit from the opportunity cost component of (2). An obvious rule for the pricing of a bottleneck service in a way that does not handicap the more efficient supplier is that the owner of the bottleneck input be required to charge exactly

the same price to all competing final-product providers, *including itself*. By avoiding discriminatory pricing in the sale of bottleneck input to rival final-product providers they are left free to compete for customers strictly on the basis of their relative efficiency in the non-bottleneck activities that constitute the rest of the final-product production process.

Reality, however, makes this non-discriminatory pricing requirement more difficult than it first appears. For it is not even obvious at what bottleneck price the owner would be charging others the same amount *that the owner is charging itself* for use of the bottleneck facilities. Such a price may be specified in the firm's accounting records, but that price is really an artificial and arbitrary number that tells us nothing about what the owner really gives up financially (that is, what it really costs that firm) when it supplies bottleneck input to itself. After all, a rise in the accounting figure that purports to be the inter-division bottleneck-input price merely moves money out of one pocket of the bottleneck-owner firm and transfers it to another of its pockets.

The analysis underlying the parity principle solves this problem. Formula (1) tells us that the price that the bottleneck-owner firm really charges itself for bottleneck input is simply the price the firm charges to the final-product customer, minus the incremental cost to that firm of the remaining inputs of the final product, including the requisite capital. The parity principle tells us that this is, consequently, the price at which competing final-product providers should be entitled to purchase bottleneck input.

The logic of the proof that the parity-pricing formulas satisfy this requirement is not difficult to understand. We can say that a bottleneck owner and a rival final-product provider that uses the same input have a *level playing field* if and only if at the given bottleneck-input price the rival can afford to sell final product at a price that differs from the bottleneck owner's by precisely the amount that the rival's incremental cost of its remaining inputs differs from the bottleneck owner's. If the competitor-firm, A, can provide the remaining inputs of the final product at an incremental cost that is lower than B's by X cents per unit of final product, then the playing field is level

if A can afford to charge a final-product price that is also X cents per unit lower than B's.

Let us then prove that at the parity price given by formulas (1) or (2) (and only at that price) the playing field will be level. Specifically, it will be proven, (Exhibit 2) that:

**Proposition:** The parity price for a bottleneck input, as given either by formula (1) or by formula (2) is both necessary and sufficient in order for the playing field to be level, i.e., for the maximum difference between the remunerative prices of the perfect-substitute final-products of the two firms, the bottleneck-input provider and its final product competitor, to be exactly equal to the difference in their incremental costs for the remaining input portions of their competing final product supply.

## Exhibit 2 Derivation of the parity pricing rules

We have the LEVEL PLAYING FIELD DEFINITION:

- (1) Owner final-product price – min competitor final-product price = cost of owner supplied (non bottleneck) input - cost of competitor supplied input.

But we know that the competitor's minimum price is

- (2) Min competitor final-product price = price of bottleneck use + cost of competitor supplied input.

Adding these two equations we immediately obtain parity pricing formula 1:

- (3) (Parity) price of bottleneck use = owner final-product price – incremental cost of owner supplied input.

To derive the second (equivalent) parity-pricing formula, note that, by definition,

- (4) Owner final-product price = per-unit cost of owner + per-

unit profit (of owner) = bottleneck-use cost + incremental cost of owner supplied input + profit per unit.

So, substituting (4) into (3) we obtain parity pricing formula 2:

(5) (Parity) price of bottleneck use = bottleneck-use cost + per-unit profit = bottleneck-use cost + opportunity cost of business lost to competitor as a result of the sale of a unit of access.

The derivation in exhibit 2 confirms that pricing in accord with either of the equivalent ECPR formulas is necessary for the achievement of economic efficiency. For if those pricing rules are violated, so that the playing field is not level, then the less efficient of two suppliers of the non-bottleneck inputs to the final product may be able to charge a price lower than the more efficient supplier. In other words, the firm that uses a larger quantity of non-bottleneck inputs (as measured by their incremental cost) to produce a given quantity of input may nevertheless be able to take the business away from its rival that can supply the output using a smaller quantity of inputs. Clearly, that is a violation of economic efficiency and must cause consumers to pay higher prices and to suffer a loss in welfare. Here, then is a second example of a practical rule for regulatory oversight of firms that emerges from the contestable market analysis. This, too, is a rule that continues to play a role in the arena of regulation in practice, as is shown by the quotation given earlier from a decision by the Privy Council in London, a decision whose subject is the legitimacy of the parity pricing rules. They are rules that will be at the center of the debates sure to break out throughout the world as foreign telephone systems seek entry into countries now served only by telephone monopolies. And that may only be the beginning.

### **Concluding Comment**

When contestable markets analysis was first presented, it undoubtedly received more attention than it deserved. This led to the predictable reaction that, I believe also went somewhat

too far. Today, I think a more balanced treatment of the subject is evolving.

This paper has tried to describe the current status of the analysis and has used it to describe the insights that can be produced by marriage of formal economic analysis and actual practice. I have reviewed some of the pertinent portions of the theory of contestable markets and described some of the issues it can be used to analyze. I have given concrete examples of both the theory and the practice. The discussion suggests also that the practitioners have much to learn from the theorists and that much useful learning can also go the other way.

**REPLY VERIFIED STATEMENT**

**OF**

**DR. HARVEY A. LEVINE**

REPLY VERIFIED STATEMENT

OF

DR. HARVEY A. LEVINE

My name is Harvey A. Levine. My initial Verified Statement in this proceeding was included in the “Opening Comments of the Western Coal Traffic League, Consumers Energy Company and South Mississippi Electric Power Association,” dated September 5, 2014. In that Statement I included an overview of my qualifications along with a resume, and thus do not do so herein. The purpose of this Reply Verified Statement is to respond to the following two allegations made by the Union Pacific Railroad (UP) and CSX Transportation, Inc. (CSXT) in their Opening Comments:<sup>1</sup>

1. UP and other railroads are not revenue adequate and continue to need greater levels of profit to attract needed capital.
2. The regulatory methodology to determine revenue adequacy is flawed in that return on investment (ROI) is based on book value, rather than replacement cost.

In a sense, the two allegations are mutually exclusive in that the first claim is dependent on changes to the current “accounting” ROI, and to alterations in the regulatory statistical techniques and implementation procedures presently in use,

---

<sup>1</sup> Opening Comments of Union Pacific Railroad Company, Railroad Revenue Adequacy, Docket No. EP 722, September 5, 2014, and Opening Comments of CSX Transportation, Inc., Railroad Revenue Adequacy, STB Ex Parte No. 722, September 5, 2014.

while the second claim is centered on a theoretical “economics” ROI. The two allegations are interrelated in that they would appear to be intended to produce lower ROIs and create the appearance of greater shortfalls of capital attractiveness. Whatever their relationship, I find both of the railroad positions to be without merit.

In the first instance, UP’s positions regarding its own and the other major railroads’ alleged revenue inadequacy depend on: (1) changing the STB-adopted pre-tax ROI to a post-tax measure; (2) inappropriately adding accumulated deferred taxes to the post-tax investment base and assuming that this no-risk cash flow<sup>2</sup> should earn the same rate of return as at-risk invested capital; (3) adopting an alternative measure of the cost of capital without explaining how and why it differs from the STB methodology; (4) arbitrarily using the average of 10 years of financial data as the basis for its revenue-adequacy calculations; and (5) using inappropriate financial averages from a group of railroads in making comparisons with the S&P 500 companies. Even with all these deviations from Board practices, however, UP could not show that it was revenue inadequate in 2013, when UP was found to be revenue adequate by the STB. Taken together, UP’s approaches involve more than a little statistical “sleight of hand.”

---

<sup>2</sup> This is generated by differences between the tax treatments of standard accounting principles and the rules of the Internal Revenue Service.

In regard to the replacement cost position emphasized by CSXT,<sup>3</sup> there is no evidence that an ROI based on such hypothetical costs could be effectively implemented, is consistent with measures used in the financial community to assess capital attractiveness, or would make a difference in the way equity providers assess investment opportunities in the railroad industry. CSXT cites the Board's *demonstrated ability to calculate the replacement cost of a complex stand-alone rail network*, in concluding that *the difficulty of calculating replacement costs – is no longer valid*.<sup>4</sup> However, there is a wide gap between the limited analysis that the STB makes for a portion of a single railroad even in a major stand-alone rate case and the system-wide analyses that CSXT proposes for every railroad. Moreover, the Stand-Alone–Cost (SAC) approach that CSXT relies on for its conclusion assumes that a railroad would replace all of its assets each and every year, which is divorced from the reality of railroad asset replacements and upgrades. Even if asset replacement could be estimated for the first year of replacement and indexed in future years, as CSXT suggests, such an exercise would be speculative, presumptuous, subject to extreme volatility from year to year (*e.g.*, as the price of steel changes), and highly controversial. Furthermore, CSXT and the other railroads offer no suggestions on how to calculate the future stream of railroad revenues needed for a replacement cost

---

<sup>3</sup> The CSXT position was supported by UP and by Norfolk Southern Railway in their Comments.

<sup>4</sup> CSX Opening Comments, p. 22.

ROI numerator,<sup>5</sup> and to compare the results with the plethora of other investment opportunities that produce ROIs based on the traditional accounting approach. Instead, the railroads propose additional study. The issue of a replacement cost ROI has been studied for more than 30 years by the STB and its predecessor, the Interstate Commerce Commission, the Railroad Accounting Principles Board, and the General Accounting Office. It has been consistently rejected as too impractical and subjective to be used as a regulatory tool. The applicability of the economic concept of a replacement cost ROI needs no further study.

#### I. WHAT UP SAYS ABOUT ITS FINANCIAL CONDITION OUTSIDE OF THE REGULATORY ENVIRONMENT

A sound foundation on which to begin a critique of UP's assessment of its financial condition in this proceeding is to review what it reported to the Securities & Exchange Commission (SEC) and to the stockholders, both in its most recent annual report<sup>6</sup> and in its recent proxy statement.<sup>7</sup> The financial performance detailed in these documents has been noted by investors, who along with the railroad's customers have provided the railroad with ample equity capital to fund needed investments. It has also allowed for hearty dividends,

---

<sup>5</sup> The numerator in the current ROI measure is based on accounting costs, and would also have to be adjusted if a replacement cost denominator were adopted.

<sup>6</sup> Union Pacific Corporation, Form 10-K, "Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934," February 7, 2014.

<sup>7</sup> Union Pacific Corporation, "Proxy Statement for Annual Meeting of Shareholders to be Held on May 15, 2014."

stock re-purchases and attractive returns. In the opening paragraph of the UP 2013 Annual Report to the SEC, the President & Chief Executive Officer stated:

2013 was another tremendous year for Union Pacific, with our overall financial performance exceeding all previous milestones. The year was a testament to the strength and diversity of our franchise and the dedication and commitment of our employees. We achieved record earnings of \$9.42 per share, driven by a best-ever operating ratio of 66.1 percent. As a result, our return on invested capital of 14.7 percent also hit an all-time high, while free cash flow exceeded the \$2 billion mark. Shareholders were rewarded with increased financial returns, including a 19 percent increase in dividends declared per share compared to 2012 and \$2.2 billion in share repurchases, up 50 percent from 2012. UP's stock price reached new highs in 2013, increasing 34 percent, and outpaced the S&P 500 by 4 percentage points.

The robust financial performance of UP has enhanced its ability to raise capital. The railroad reported that it had a working capital surplus and *adequate access to capital markets to meet any foreseeable cash requirements, and . . . sufficient financial capacity to satisfy . . . current liabilities.*<sup>8</sup> UP showed that over the past five years, its returns to shareholders consistently exceeded returns to its Peer Group, the Dow Jones Transportation companies, and the Standard & Poor's 500 companies.<sup>9</sup> As shown graphically in the Report, a \$100 investment on December 31, 2008 would have generated the following returns for the

---

<sup>8</sup> UP Annual Report, 2014, *op. cit.*, p. 7.

<sup>9</sup> *Ibid.*, p. 21.

railroad, its Peer Group, the Dow Jones Transportation companies, and the S&P 500 companies, through 2013:<sup>10</sup>

<u>Year</u>	<u>UP</u>	<u>Peer Group</u>	<u>DJ Trans.</u>	<u>S&amp;P 500</u>
2008	\$100	\$100	\$100	\$100
2009	140	135	135	135
2010	200	175	155	150
2011	240	185	150	150
2012	275	165	160	165
2013	385	255	230	230

As shown above, the returns to UP investors were greater than those for the three alternative investment categories in every one of the five years, with the total return being substantially higher -- \$385 to UP, or 285%, compared with \$230-\$255, or 130%-155%, to the other groups.

Aside from the market returns to equity investors, UP's net income, cash from operations, and dividends more than doubled from 2009 to 2013, as shown below.

	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Net Income (billions)	\$1.9	\$2.8	\$3.3	\$3.9	\$4.4
Cash from operations (billions)	\$3.2	\$4.1	\$5.9	\$6.2	\$6.8
Dividends per share	\$1.08	\$1.31	\$1.93	\$2.49	\$2.96
Return on equity	11.8%	16.1%	18.1%	20.5%	21.4%

What is especially noteworthy is that UP increased its dividend per-share over the time period by \$1.88, or 173%. Based on over 455 million shares of

---

<sup>10</sup> ibid. Figures are derived from a chart and may not be exact, but slight deviations do not impact their relationships. Dividends are assumed to be reinvested.

outstanding stock on January 31, 2014,<sup>11</sup> the additional annual payment to shareholders amounted to over \$855 million in 2013 alone. This is hardly the performance of a revenue-inadequate entity. Similarly, the UP return on equity (ROE) over the five-year period nearly doubled, with the 2012-2013 returns exceeding 20%.<sup>12</sup> With interest rates hovering around 2.0% during the same 2009-2013 period, UP's ROE easily attracted capital adequate to sustain and appropriately expand or replace elements of its system. The same is true of the other major railroads, as I detailed in my Opening Verified Statement.<sup>13</sup>

UP's financial performance has been so robust that in looking ahead, the railroad stated that it expects to have continual access to capital markets through alternative sources of financing, and does not plan to borrow under its revolving credit facility.<sup>14</sup> In just the past year, UP stockholders benefitted from a 34% increase in the stock price and a 19% increase in dividends. Shareholders were further rewarded with a stronger balance sheet.

The executives of UP also have been handsomely rewarded by the railroad's strong financial performance. Aside from salary, UP executives are paid with cash bonuses, performance stock, retention stock, and stock options. The reliance on equity payments to UP executives is based on the railroad's

---

<sup>11</sup> Ibid., p. 20.

<sup>12</sup> The ROE is the after-tax return to shareholders (including the treatment of deferred taxes as an operating expense), as a percentage of the value of their investments.

<sup>13</sup> I focus specifically on UP in this Statement because only UP elected to seriously challenge the indisputable evidence of the industry's overall financial health.

<sup>14</sup> Ibid., p. 33.

policy, which states: *By providing equity incentives, we link a substantial portion of executive compensation to both short-term and long-term financial performance that benefits our shareholders and aligns the interests of management with those of our shareholders.*<sup>15</sup> As shown below, only about 8% of the compensation to the top five UP executives in 2013 was derived from salary. The remaining 92% was based largely on five financial indicators, measured over the most recent three-year period, relative to a UP Peer Group of 19 companies.

	Total Compensation (million)	Salary (thousand)	Percent Salary
President/CEO	\$17.8	\$933	5.2%
EVP Finance	4.9	505	10.3
Chairman	6.8	692	10.2
President	4.2	460	11.0
EVP/Corp. Sec.	<u>2.5</u>	<u>410</u>	<u>16.4</u>
Average	\$36.2	\$3,000	8.3%

As shown below, UP ranked first in overall financial performance in both 2012 and 2013, when compared with its Peer Group. What's also noteworthy is that one of the five financial indicators is Return on Invested Capital, or ROI -- a return on the book value of invested capital, with no extraneous adjustments.

---

<sup>15</sup>UP Proxy Report, 2014, p. 33.

	2013	2012
<u>Financial Measure</u>	<u>(Rank out of 19)</u>	<u>(Rank out of 19)</u>
Revenue Growth	4	4
Operating Income Growth	3	3
Earnings Per share Growth	3	3
Return on Invested Capital	7	10
Total Shareholder Return	4	2
Overall Rank	1	1

It is no wonder that UP thought of itself as a good investment relative to other opportunities. First, it used a substantial portion of its cash to invest in its infrastructure, and still had a significant amount remaining. The railroad stated that, *Cash generated by operating activities totaled \$6.6 billion, yielding record free cash flow of \$2.1 billion after reductions of \$3.4 billion for cash used in investing activities and a 16% increase in dividends paid.*<sup>16</sup> Second, the railroad increased its stock buy-back program. UP stated that, *On November 21, 2013, our Board of Directors approved the early renewal of the share repurchase program, authorizing the repurchase of up to 60 million shares of our common stock by December 31, 2017.*<sup>17</sup> This particular planned repurchase amounted to about 13% of the shares outstanding at time. Fewer shares of outstanding stock obviously benefitted shareholders and company executives, and further enhanced the financial viability of UP. However, the fact that UP had the resources to invest in such a program after meeting its capital investment needs

---

<sup>16</sup> UP Annual Report, 2014, *op. cit.*, pp. 23-24.

<sup>17</sup> *Ibid.* p. 36.

also disproves its claims in this proceeding that it lacks the capacity to attract capital.

## II. THE DISCONNECT BETWEEN UP'S REPORTING TO THE SEC AND ITS CLAIMS IN THIS PROCEEDING

In spite of the overwhelmingly positive evidence of its financial performance and structure, UP presents a dire picture in this proceeding. The railroad contends that:

Financial performance lags behind the performance of comparable companies, our returns are not sufficient to attract the capital necessary to replace our assets, and the increasingly risky and costly nature of our investments makes the opportunity to earn market-based returns more important now than ever.<sup>18</sup>

Furthermore, UP states that it *lagged behind the performance of other companies operating in competitive environments*, and that its return on investment is below its cost of capital.<sup>19</sup> Thus, it advises the STB to *be more concerned that the returns on investment earned by UP and other railroads are low when compared to returns earned by comparable companies*, allegedly limiting their ability to invest in innovation and growth.<sup>20</sup>

It is puzzling how UP reached such a conclusion when it previously supported an argument that there was no way to test the results of cost-of-

---

<sup>18</sup> UP Opening Comments, *op cit.*, p. 2.

<sup>19</sup> *Ibid.*, p. 19-20.

<sup>20</sup> *Ibid.*, p. 41.

capital determinations.<sup>21</sup> Without such an ability, there would be no way to make the qualitative claim that UP does here. Putting aside the issue of inconsistency, however, for UP to suggest that its financial performance is inadequate, it would have had to alter the current revenue-adequacy methodology; ignore the financial data it reported to the SEC, shareholders, employees and investors; and/or use a different statistical methodology than the broad financial community. In fact, it did all three.

First, based on the included Statement of its consultant, Dr. Willner, UP adopts an after-tax ROI as the relevant measure of the return to shareholders. The railroad ignores the post-tax ROE that is a commonly accepted measure of net returns in both the financial and general business communities. While a post-tax ROI can be compared with other investment opportunities, it is susceptible to distortion by ever-changing tax policies and practices, and the inclusion of returns from non-operating ventures. A pre-tax ROI such as that used by the STB, better reflects actual railroad returns on capital actually employed in the transportation system. However, the ROE still remains a more viable and preferable measure, certainly as compared with the modified ROI that UP proposes in this proceeding.

Second, UP reverses the exclusion of deferred taxes from the investment base. To treat deferred taxes as a capital investment means that a liability

---

<sup>21</sup> Opening Comments of the Association of American Railroads, Ex Parte No. 664 (Sub No. 2), September 5, 2014, p. 2.

derived from a risk-free accounting convention requires the same return as at-risk capital assets that were funded by debt and equity providers. This is illogical. The result would be to reward railroads for an investment they did not make. UP already benefits from the creation of deferred taxes by receiving an infusion of cash flow from being able to pay its tax liability with future inflated dollars,<sup>22</sup> and from possibly avoiding the payment of some taxes altogether due to future offsetting activities. Additionally, the ratio of railroad income taxes paid to accumulated deferred taxes is lower than the rate of return to other capital assets, so including accumulated deferred income taxes in the investment base would inappropriately lower the standard ROI.

Third, UP compares its reconstructed ROIs with cost-of-capital calculations undertaken by Bloomberg. Dr. Willner acknowledges that the Bloomberg methodology is different from that of the Board, but he does not identify what those differences are, or discuss how they could distort or otherwise affect the comparison. Dr. Willner justifies his approach on the ground that *it permits consistent cost-of-capital and rate of return comparison among industries.*<sup>23</sup> However, no such consistency is present. Whereas the Board has employed two models that are railroad-specific in determining the cost of capital for a handful of railroads, Dr. Willner introduces cost-of-capital estimates whose applicability to the revenue-adequacy determination is unknown. Moreover, the

---

<sup>22</sup> Given inflation, a future dollar has less value than a current dollar.

<sup>23</sup> UP Opening Comments, *op. cit.*, p.2 of Dr. Willner Statement.

use of inappropriate averaging techniques by Dr. Willner, as discussed below, undercuts his alternative cost-of-capital results.

Fourth, UP averages its revised ROIs over a 10-year period, and then uses the average calculation as a basis for concluding that the railroad industry is revenue inadequate. The choice of the time period is explained by Dr. Willner thusly: *Given the volatility of the U.S. economy, I consider a 10-year period the minimum period necessary to compare the accounting returns of various companies.* However, other than offering his opinion, Dr. Willner does not justify why 10 years is a rational minimum period, or correlate it to any recognized regulatory measure. To be sure, by extending the averaging period back 10 years, Dr. Willner produces a result consistent with UP's argument in this case, but that is not a legitimate justification for selecting an essentially arbitrary figure. Using a sports analogy, suppose that a 22 year-old professional tennis player has been undefeated over the past three years, but is ranked as the 40<sup>th</sup> best player in the world based on his having lost half of his matches over the past 10 years, because he rarely won when he was 12 or 13. If one is assessing the likelihood of this player winning his next tournament, his 10-year average would be irrelevant.

There certainly is room for a limited average of individual annual revenue-adequacy determinations that does not supersede the annual calculations of ROI and cost of capital. Once these annual determinations are made, their

components could be averaged into a “rolling” 3-5 year period, for example, to allow for over-ages and under-ages in individual years, without the distorting effects of an artificially long period. A 3-5 year period in this case generally would track business cycles and would not be dissimilar from the 3-year period that UP and other railroads employ in rewarding their executives with long-term compensation.

Fifth, and finally, Dr. Willner makes his 10-year comparisons using groups of railroads and groups of other companies -- i.e., the UP Peer Group and the S&P 500. But it is only the 10-year average of his revamped ROI compared with a 10-year average of a non-STB cost of capital that allows Dr. Willner to conclude that the railroads failed to earn their cost of capital while, *on average, other companies did*.<sup>24</sup> His opinion, based on the manipulated ROI calculation, is directly contradicted by UP’s own statements in its Annual Report. It also is at odds with the STB’s procedures, which correctly do not rely on 10-year averages. Moreover, it is worth noting that UP and other railroads are included in the S&P 500, which under Dr. Willner’s own approach suggests that they are revenue adequate. According to Dr. Willner, the average S&P Company earned its cost of capital over the most recent 10-year period.

---

<sup>24</sup> *Ibid.*, p. 7.

### III. THE USE OF REPLACEMENT COSTS

Although also advocated by UP, the AAR, and other railroads, a large portion of the Opening Comments of CSXT is devoted to the proposition that the ROI investment base for revenue adequacy purposes should be based on replacement costs. CSXT states that, *Because the Board's methodology is founded on depreciated historical values of assets – instead of current replacement value of rail assets – its annual finding does not adequately gauge . . . whether a given carrier has earned adequate revenues.*<sup>25</sup> CSXT also references a group of economists enlisted by the AAR in 1985, to support the use of replacement costs in the revenue adequacy determination as part of a broader railroad deregulatory policy agenda. According to CSXT, support for the use of replacement costs is *simple . . .* in that investors are not interested in the original and/or depreciated cost of investments, but rather *they are interested in the cost at which they could purchase those assets in a competitive market.*<sup>26</sup> CSXT gives an example of a reliance on replacement costs in the housing market, as follows:

For example, the current competitive rental rate for a house is not a function of its original depreciated book value, but rather of the current rental rates for other houses in the market. That competitive rate, in turn, is driven in significant part by the cost of construction of new rental houses in the market. As a

---

<sup>25</sup> CSX Opening Comments, *op. cit.*, p. 2. This CSXT position is supported by UP, which postures that the current STB methodology is backward looking and provides no meaningful information about whether railroads' revenues are sufficient to attract and retain the capital needed to maintain and grow their networks. (UP Opening Comments, p. 1.)

<sup>26</sup> *Ibid.*, pp. 3-4.

result, the competitive rental rate for an older house may have little relation to the depreciated historical book value of that house.<sup>27</sup>

However, the railroad industry does not operate in a totally competitive marketplace, and this proceeding is focused specifically on the portion of the railroad marketplace that is *not* competitive. If a housing industry analogy was appropriate at all, we would be looking at rent controls and subsidized housing policies, or, alternatively, commercial real estate. While current market values are important to investors, who we already have seen readily supply the railroads with needed capital, the issue with railroad revenue adequacy is rate-making in markets where there is little, or no, effective competition. Distorting reality to support an economic theory is not sound policy. To be sure, it is not unusual to see a divide between economic theory and practical application. While much of the economics discipline is based on such assumptions as pure competition, maximization of profit, marginal cost and value, economic efficiency, and rational consumer behavior, the reality is that these conditions rarely, if ever, exist, and attempts to measure them are often elusive. They are concepts of optimization that serve a useful, but limited, theoretical purpose for analyzing resource allocation. This is precisely the case with replacement cost theory. In practice, calculating an ROI based on replacement costs would be an onerous, costly, and time-consuming task. The calculation (or more accurately,

---

<sup>27</sup> ibid., p. 4.

projections) would be highly subjective and dependent on indefensible assumptions; it would not be a measure used by the financial community, railroads, other companies, and investors; and it would not necessarily be an indicator of capital attractiveness. Moreover, the regulatory process needed to attempt such a calculation is likely to be contentious and protracted.

There is no dispute that revenue adequacy is achieved when an entity attracts the capital needed to sustain a viable operation. To obtain needed capital, in turn, the entity must provide investors with the prospect of earning returns comparable to alternative investment opportunities, with similar investment risk. While the required return is commonly known as the “cost of capital,” the process is focused on how to define the return required by investors. For the providers of debt, the answer is in a contractual obligation to provide interest on bonds, debentures, loans, and other financial instruments. For the providers of equity, however, the answer is the combination of anticipated dividends and increase in the per-share price of stock.<sup>28</sup> One major challenge in regard to measuring an annual overall return to all equity investors is that it depends on the timing of the purchase and sale of millions of units of stock among tens of thousands of investors. Even if such a number could be obtained, it would have to be compared with similar calculations of other investment

---

<sup>28</sup> For example, for those equity investors that held UP stock on January 1, 2013 and held the stock throughout the year, they realized a dividend of 3% and an increase in the value of their shares of 34%, amounting to a 37% return.

opportunities. The return measure used for the purpose of determining railroad revenue adequacy is a surrogate for the dividend/stock-appreciation measure. As I have shown herein and also addressed in my earlier Verified Statement, while there are many metrics employed for this purpose, a return on the replacement cost of a company's assets is not among them. As a most recent example, when Berkshire Hathaway paid \$34.5 billion for BNSF Railway in 2010, when the book value of the railroad was \$13 billion, there was no consideration of a replacement cost ROI. Berkshire Hathaway paid a substantial premium for BNSF based on analyses of financial indicators relative to other investment opportunities using the same standards used by investors generally, including an accounting ROI, and concluded that the railroad could be expected to earn relatively greater risk-adjusted returns on the \$34.5 billion investment. The extensive public reporting on this transaction did not suggest that an ROI based on "replacement costs" factored into the decision.

Similarly, for a number of years, CSXT preferred the operating ratio as its most relevant measure of financial performance, due to its . . . *high correlation to Company stock prices, alignment with shareholder interest and the ability of employees to understand the impact of their actions in relation to Company performance.*<sup>29</sup> Beginning in 2014, CSXT added the pre-tax ROI (similar to that used by the STB), based on . . . *the opportunity for incremental OR improvement . . .*

---

<sup>29</sup> CSXT, 2014 Proxy Statement, May 7, 2014, p. 43.

*to drive employee performance and value creation.*<sup>30</sup> A return on replacement costs never has been a recognized metric for investor value or behavior.

In the body of economics literature, the overwhelming focus of replacement cost theory addresses the decision of “keep or buy” – that is, to retain and maintain a used and depreciated asset, or to replace it with a new asset. There is a standard, practical formula for making such decisions on a specific asset basis. But in the case of a “replacement cost” ROI for an entity possessing thousands of assets, there is a complete void of application guidance. This is because the theory is trumped by its impracticality. It is little wonder that the only suggestion offered for calculating replacement costs was CSXT’s wholly unrealistic proposal to perform decennial SAC analyses for each railroad; the other railroads simply call for the Board to value rail assets based on replacement costs without specifying how it can be done.<sup>31</sup>

A replacement cost ROI is not needed for the purpose of determining railroad revenue adequacy, and any attempt to adopt one would be counter-productive. Its attempted construction would be very costly, complicated, and controversial. Because of its highly subjective nature, its results would be subject to recurrent doubt and cynicism. On the other hand, the accounting measure of pre-tax ROI is known and accepted by railroad shareholders; it is

---

<sup>30</sup> *Ibid.*, p. 33.

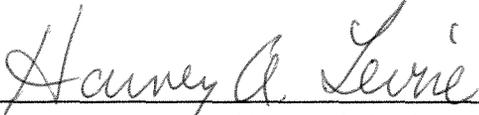
<sup>31</sup> Opening Comments of Norfolk Southern Railway Company, *Railroad Revenue Adequacy*, Docket EP 722, September 5, 2014, p. 72-73; UP Opening Comments, *op cit* p. 44-46.

widely used in the investor and financial communities; it allows for comparative analysis among railroads and with other industries/companies; railroads use it to compensate their executives; and it is compatible with cost of capital models. Additionally, because of ongoing replacements of railroad assets in the real world, accounting costs reflect replacement values in fairly short order. The extent to which the accounting version of ROI is “pure” in an economics sense is irrelevant. A replacement cost approach is neither needed nor worthy of serious consideration.

VERIFICATION

STATE OF MARYLAND            )  
  )  
  )  
COUNTY OF MONTGOMERY    )

I, HARVEY A. LEVINE, verify under penalty of perjury that I have read the foregoing Verified Statement, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

  
\_\_\_\_\_  
Harvey A. Levine

**VERIFIED STATEMENT  
OF  
DR. JOHN F. HENNIGAN**

# **VERIFIED STATEMENT**

**OF**

**DR. JOHN F. HENNIGAN**

## **1. INTRODUCTION, PURPOSE AND BACKGROUND**

### **A. Introduction**

My name is John F. Hennigan. I am a senior economic advisor at Microeconomic Consulting and Research Associates, Inc. (“MiCRA”) with offices at 1155 Connecticut Ave. N.W., Washington, D.C. I received my B.A. degree in Economics from Xavier University in Cincinnati, Ohio, and a Ph.D. in Economics from West Virginia University.

I joined the Interstate Commerce Commission (“ICC”) in 1976, initially as a staff economist in the Bureau of Economics working on transportation policy issues, and subsequently as a staff advisor to the Chairman. In 1981-1982 I was detailed to the U.S. House Committee on Public Works and Transportation to provide legislative and oversight support for the Committee. On returning to the ICC in June, 1982, I again served as a staff advisor to the Chairman of the ICC until being appointed as the Director of the ICC Office of Economics, and served in that position until 1990. This was an important and challenging period at the ICC. It was during this period that most of the major provisions of the Staggers Rail Act, such as the standards for railroad revenue adequacy, the Coal Rate Guidelines, and the major exemptions from rate regulation for commodities or railroad equipment, were considered and implemented by the Commission.

In 1991 after a one year assignment with IBM, I accepted a position as Deputy Director of the Office of Aviation Policy and Plans at the Federal Aviation Administration (“FAA”), where I dealt with policy issues in aviation and transportation. In 1999, I accepted a position as the Deputy CFO of the FAA, where I was responsible for decisions in accounting, finance, budget, and related FAA policy issues.

From 2006 to 2008 I was detailed to the U.S. Senate Committee on Commerce, Science, and Transportation to assist in the drafting and passage of the FAA Reauthorization Bill and to help provide oversight of aviation issues. I returned to the FAA in 2008 to serve as the coordinator of external liaison and business development functions with the FAA’s Air Traffic Organization. In 2011 I was detailed to the Department of Transportation (“DOT”), Office of Assistant Secretary for Budget and Programs/CFO to assist in setting up the Credit Program Oversight office for the DOT’s loan and loan guarantee programs for surface transportation and maritime parties.

I retired from the FAA in 2014. Throughout my career I have always been deeply involved with critical policy issues related to transportation modes, including the deregulation of the railroad and trucking industries, financial restructuring of FAA’s Air Traffic Control System, and the impact of the aviation industry on the global environment.

## **B. Purpose**

I have been asked by the Western Coal Traffic League, Consumers Energy Company and the South Mississippi Electric Power Association to respond to certain positions advanced by railroad companies in response to the Surface Transportation Board’s (“STB”) request for

comments on Docket No. EP 722, Railroad Revenue Adequacy. Specifically, I have been asked to provide testimony on two related items: (1) whether the STB should continue its practice of using the depreciated book value of a railroad's assets in the determination of a railroad's revenue adequacy, and (2) whether, as provided in the 1985 Coal Rate Guidelines, railroad revenue adequacy should be used as a separate constraint for determining the reasonableness of rates for captive rail traffic. It is my firm opinion that both questions should be answered in the affirmative.

### **C. Background**

The Staggers Rail Act ("Staggers") became law in 1980, over 34 years ago. Staggers was the culmination of efforts to revive and restore the railroads, and was based on Congress's belief that the continual deterioration of U.S. railroads could only be corrected by the ICC adopting a different approach to railroad regulation. The Staggers Act combined a new rail transportation policy containing numerous market-based provisions with a clear message to the ICC to implement its provisions quickly and aggressively.

Staggers gave railroads much greater certainty and flexibility in setting rates, abandoning track, requesting exemptions from regulation, and simplifying operations through, for example, closing of terminals and old non-competitive routes, and canceling unused joint rates. The ICC's early implementation of the Act addressed both shipper and railroad concerns. It recognized that if railroads were eventually to become revenue adequate, certain shippers that relied most heavily on rail service would have to pay higher rates and contribute more to railroad common and fixed costs. The Act also provided, however, that unreasonably high rates on captive traffic were to be

constrained by the ICC, and that charging captive shippers disproportionately higher prices would only be permitted when railroads were not earning revenue adequate to cover their cost of capital and sustain the essential parts of their systems.

The Staggers Act provisions regarding railroad revenue adequacy and maximum rate reasonableness are still key provisions today. Under the rules for determining railroad revenue adequacy, the STB annually compares each carrier's actual return on investment with the cost of capital for the rail industry as a whole. In its maximum rate reasonableness rules, the ICC and STB developed guidelines for determining the reasonableness of rail rates for captive shippers that employ a multiple constraint methodology known as Constrained Market Pricing. These two rules balance revenue adequacy for railroads against protection for captive shippers from unreasonable rates. The rules are closely related and have always been linked by the ICC and the STB. But with greatly improved railroad earnings in recent years, which have resulted in repeated annual determinations that certain railroads are revenue adequate, it is appropriate that the STB focus increasingly on the question of how best to avoid unreasonable rates for captive shippers.

**2. THE STB SHOULD CONTINUE TO RELY ON NET BOOK VALUE FOR DETERMINING THE VALUE OF RAIL ASSETS WHEN DETERMINING WHETHER A RAILROAD IS REVENUE ADEQUATE**

**A. The ICC And STB Have Always Used Net Book Value to Calculate Railroad Return On Investment**

Even prior to the Staggers Act, the ICC (and then the STB) each year attempted to determine if the revenues of rail carriers were sufficient to cover operating costs (including depreciation and obsolescence) plus a reasonable return on capital. Earning such revenues should allow the

carrier to continue to provide adequate transportation service currently and in the future. *See* 49 U.S.C. 10704(a)(2). This is the Annual Revenue Adequacy determination.

To determine Revenue Adequacy, the Board compares a carrier's return on net investment with the rail industry's after-tax cost of capital, which is computed annually by the STB. A railroad is considered either revenue adequate or revenue inadequate depending on whether the actual return meets the cost of capital. Recently, several railroads have been declared revenue adequate year after year, and those findings led the STB to initiate the current rulemaking review.

Railroad return on investment has traditionally been calculated by the ICC and the STB by dividing net income from railroad operations by the depreciated original cost, or net book value, of the railroad's assets. For many reasons, this is still the method that is used by the STB. As I will discuss later in this testimony, the ICC and the STB have continued to support using net book value rather than "replacement cost" for valuing rail assets, because net book value is the only way to assess the value of rail assets based on actual records and verifiable calculations. Over the years, the ICC and the STB have challenged parties -- essentially railroads -- who have opposed the use of net book value to provide detailed proposals that would address the practical problems associated with using replacement cost, but no such feasible alternatives to net book value have emerged. Net book cost remains the most reliable and practical method for the STB to timely and efficiently make the annual revenue adequacy determinations for Class 1 railroads that are required by law. In light of the long history of the issue, there is no basis for the STB in this proceeding to depart from the established use of depreciated original cost in favor of a still-undefined and impractical model of replacement costs.

While there is a theoretical appeal to considering a forward looking measure for valuing the replacement of the rail assets, forward-looking measures are difficult to construct and implement, and the results of necessity depend on assumptions and projections. In contrast, the book value of rail assets is based on known transactions and costs of tangible equipment, with a proper paper trail and documentation in the rail accounting or asset system. Critically, railroads have been required to use full depreciation accounting on all rail assets, since about 1985, so the net book value of all assets is now known and audited. As assets are replaced through actual investments, the values are updated. In addition, the STB has valued rail properties acquired in mergers at their acquisition price, which may overvalue the assets for regulatory purposes in some cases but does value the assets acquired at current levels. In addition, as some of the railroads' witnesses have pointed out, in the 34 years since Staggers the railroads have abandoned unproductive rail routes, sold light density lines to short-line railroads, eliminated old equipment and obsolete facilities, updated equipment and track and other operations, installed modern communication and operational controls, consolidated with other railroads, and outsourced certain functions. Therefore, the rail asset base on the books of each Class 1 railroad today is now much more reflective of current used and useful rail assets and values.

It is recognized that some of the flaws in a replacement cost approach include difficulties with valuation, projections of the timing of asset replacement, and determining just which assets will be replaced. Some assets, such as locomotives and other rolling stock, tend to have relatively shorter useful lives, and can easily be sold. Thus, the values of such assets is easier to mark to market. In addition, periodic additions to fleets mean the market and book values of such assets

may not be far apart. In fact, some of these types of assets can be secured by lease arrangements, and the provision of railcars can become the shipper's responsibility, removing these assets from the rate base. However, in a "forward looking" cost analysis the questions of how many mobile assets will be replaced or purchased, and when this will occur, remain. An even more difficult concern is how to find current costs for very long lived assets such as bridges, tunnels, and land and track, where issues of replacement cost valuation compound the replacement schedule challenges. The measure of the railroad investment in those assets is further complicated by public-private partnerships and federal grants to remedy bottlenecks or help replace critical older structures.

#### **B. The Use of Replacement Cost Of Railroad Assets in Return on Investment Calculations for Revenue Adequacy is not Practical**

The railroads have always argued that rail assets should be valued for regulatory purposes based on their replacement cost. Replacement cost values rail assets at their estimated current replacement value rather than their depreciated historical book value. CSXT in its initial comments notes that a statement submitted in 1985 by 50 economists in support of the Staggers Rail Act supported use of replacement cost. That document did express support for the theoretical concept of replacement costs – among other broad deregulation concepts. However, CSXT now asserts that the STB somehow is compelled to implement the specific advice offered in that statement, citing the following passage.

“The appropriate standard for determining the adequacy of railroad revenues is a rate of return equal to the current cost of capital on the replacement value of all rail assets that are required to meet the demands for railroad service, regardless of the sources of funds used in investing in

those assets.” (Economists’ Statement in Support of the Staggers Act, dated February 25, 1985). However, the economists’ statement was a summary of theoretical principles; nowhere did its authors propose specific, practical measures to give them effect in an actual regulatory context.

While both the ICC and the STB have commented favorably in the past regarding the theoretical value of replacement cost, they also have pointed out the serious and disqualifying concerns relate to its proper application. As the above passage recognized, rail assets that will not be replaced would here to be eliminated from the asset base calculation (“...replacement value of all rail assets that are required to meet the demands for railroad service”). The ICC and STB long have understood the practical difficulty of identifying rail assets that would not be replaced once they had been fully depreciated or worn out, and predicting the timing of replacements of those assets that would be retained. Even in those instances, some functions might be performed more efficiently with different new assets, which also likely would lower operating costs.

In their initial comments in this proceeding, several railroads sponsored statements by witnesses opposing the STB’s continued use of historic book values in railroad return on investment calculations. For example, in its opening comments CXST states that it ...“believes that before the Board considers any other ‘revenue adequacy’ issue or any potential further application of its annual revenue adequacy findings, it must first correct a fundamental flaw in its revenue adequacy calculations by developing a methodology that uses replacement costs to value rail carrier assets “(CSXT, p. 1). As noted above, this has been a recurring theme at least since the passage of the Staggers Act, with the railroads insisting that the ICC or the STB needs to develop a new methodology which incorporates a replacement cost approach to valuing assets. Their

arguments have been considered at length, both at the ICC and STB. The railroads' position for a replacement cost valuation of assets also was put forward and discussed in independent studies of this issue by other Government Agencies. (See Final Report of the RAPB, Vol II at 60-61 (1987) (RAPB Final Report) and Railroad Revenues: Analysis of Alternative Methods to Measure Revenue Adequacy, GAO/RCED-87-15BR at 109 (Oct. 1986) (GAO Report). But as described below, the railroads consistently have failed to provide an acceptable and workable option that would address the serious practical and methodological concerns that have been raised by the STB and other independent Governmental organizations about the use of forward replacement cost as the basis for valuing rail assets.

### **C. The ICC Consistently Rejected Using Replacement Costs in Railroad Asset Valuations**

Railroads first argued for the use of replacement cost in the original Revenue Adequacy rulemaking under the Staggers Act in 1981. After fully considering the comments of all parties, the Commission acknowledged that replacement cost had some theoretical appeal, but concluded that “shifting to a replacement-cost approach has proved impractical. The major obstacle would be estimating the current value of individual investments because this valuation cannot be based on actual transactions.” Standards for Railroad Revenue Adequacy, 364 I.C.C. 803, 841 (1981).

The issue was raised again in the ICC's update to the Revenue Adequacy rule in 1986. In that decision, the Commission conducted a multi-year analysis and concluded that “[w]hile current cost accounting is theoretically preferable to original cost valuation, it cannot be practically implemented in a manner that we can be confident would produce accurate and reliable results.” Standards for Railroad Revenue Adequacy, 3 I.C.C.2d 261, 277 (1986).

Two other federal agencies reached the same conclusion. In its 1987 report, the Railroad Accounting Principles Board (“RAPB”) concluded that, while “current market valuation is preferable to historical valuation from a theoretical economic viewpoint,” there are “serious practical problems” with such an approach. See Final Report of the RAPB, Vol II at 60-61 (1987) (RAPB Final Report). One practical concern identified by the RAPB is “the need to identify and revalue existing assets which will not be replaced.” Id. at 61. In a contemporaneous study, the United States General Accounting Office (“GAO”) also expressed concern that a current cost approach could overstate the value of the investment base, observing that “[t]he cost of reproducing a particular asset . . . may not be a good measure of the value of the asset.” See GAO Report at 109. After conducting its own inquiry, GAO concluded that it was “not able to identify an adequate solution for the potential problems of overstating asset values under a current cost approach.” Id. at 110.

While the ICC has improved the underlying data and calculations of revenue adequacy over time, it continued to use the net original cost approach to value assets up until it was replaced by the STB in 1995.

#### **D. The STB Also Has Consistently Rejected Using Replacement Costs in Railroad Asset Valuations**

In 2008, the STB rejected a railroad request to expand the scope of a cost-of-capital rulemaking to consider the use of replacement cost, stating “... the railroads advocate using a replacement-cost analysis. As the ICC explained, “[w]hile current cost accounting is theoretically preferable to original cost valuation, it cannot be practically implemented in a manner that we can be

confident would produce accurate and reliable results.’ Although the railroads and other parties continue to lobby for a shift to a replacement-cost approach, this change is outside the scope of this rulemaking. Moreover, the railroads have failed to address any of the practical concerns that led our predecessor to reject this approach... and, until we receive a firm proposal that addresses these issues, we will not initiate a rulemaking to reexamine this issue.” See Methodology To Be Employed In Determining The Railroad Industry Cost Of Capital, STB Ex Parte No. 664, p.9, (STB served Jan 17, 2008) (Cost Of Capital Methodology). In essence, the STB confirmed what its predecessor regularly concluded from 1981 forward: the replacement cost approach suffers from practical flaws which still had not been addressed.

On May 1, 2008 the Association of American Railroads (“AAR”) asked the STB to institute a rulemaking proceeding to consider a proposed methodology for use in the STB’s annual revenue adequacy determinations. See Association of American Railroads – Petition Regarding Methodology for Determining Railroad Revenue Adequacy, STB Ex Parte No. 679 (STB served October 24, 2008). The AAR proposed to calculate the replacement cost of rail-related assets for each of the nation’s major railroads. It argued that the STB’s recently adopted simplified stand-alone cost procedures (“Simplified-SAC”) for use in medium-sized rail rate disputes could be adapted for use in revenue-adequacy proceedings for a rail carrier’s entire system. See Simplified Standards for Rail Rate Cases, STB Ex Parte No. 646 (Sub-No. 1) (STB served Sept. 5, 2007).

The AAR’s proposed methodology would rely on Simplified-SAC procedures for the majority of a carrier’s total replacement costs, while using other methods to calculate replacement costs for

certain asset categories, such as equipment accounts and roadway machines. For assets such as land, for which it has not devised any method of calculating replacement cost, AAR proposed using book value as a proxy for replacement cost. The resulting amount would purportedly show the cost to each carrier to replace its entire system. AAR suggested that the STB use this result (with further refinements) to estimate the level of revenues that would be adequate in any given year. Reply comments were taken from interested parties, all of whom opposed this approach.

By 2008, three different federal agencies – the ICC, RAPB, and GAO- had carefully examined the issue of whether and how to use a replacement-cost approach in determining revenue adequacy, and all three rejected it. Given this history, the AAR had a heavy burden to show that its proposed approach overcame the practical difficulties laid out by the ICC and previous governmental studies. Upon consideration, the STB concluded that the AAR petition had not overcome the practical difficulties previously identified and did not provide a framework that could be developed in a rulemaking proceeding. The petition was denied.

According to the STB, the biggest obstacle to the use of a replacement cost approach has always been the difficulty of identifying and valuing those rail assets in a railroad's current configuration that the railroad will not replace. This kind of inquiry entails a highly case-specific analysis of projected traffic flows into the future and the profitability of the facilities. The process is highly subjective, and in individual rate proceedings the analyses proved so difficult and expensive that the STB found it necessary to develop a vastly simplified process that captive shippers can use where the value of their disputes with carriers could not justify the expense of

that larger undertaking. See Simplified Standards at 13-16. That process depended significantly on assumptions, and essentially presumed that a railroad's assets would be replaced annually in their entirety. Since the AAR was proposing to import the same method into the Revenue Adequacy determination, the STB concluded that the AAR had simply assumed away well documented problems. The bare fact that an investment was once made does not ensure that it would be profitable or efficient to undertake again and in the same way. Yet the AAR proposed to apply its methodology to all assets. While it may be appropriate to allow a complainant in a simplified rate case to assume that all the assets currently used to serve its traffic will be replaced (especially since the complainant is effectively foregoing the greater relief that might be available with a full SAC analysis), the AAR provided no basis to conclude that the rail industry or any particular railroad should be earning a return on the replacement cost of its entire existing infrastructure that is calculated every year. As a general matter, railroads have become more capacity constrained than they were in the 1980's, when significant excess capacity was observed. This does not mean, however, that all the assets in today's still massive rail network would be replaced. Perhaps because the asset replacement issue was sufficiently determinative, the STB did not reach other, equally serious problems presented by the railroads proposal that previously had been identified by the ICC and the RAPB. These include challenge of developing a "real" industry cost of capital to avoid double counting inflation with a replacement cost investment base, and the need to adjust the revenue calculation in the return an investment numerator, which itself is based on an accounting approach.

It has been noted that a replacement cost approach has proven to be practical in the context of an individualized rate proceeding where the Board's SAC test is applied, but that is the case because

under the SAC procedure, only necessary (used and useful) assets are included in the investment base at replacement cost. Additionally, only a defined portion of a railroad's system is replicated. Given the inability of the proponents to identify any feasible way to overcome these long-standing obstacles when a railroad's entire system is under consideration, continued use of depreciated original cost, as opposed to replacement cost, provides the most accurate assessment of the financial health of the actual railroad industry for railroad adequacy purposes, notwithstanding its incorporation of cross-subsidies and other inefficiencies that might be eliminated in a full SAC analysis. It is important to point out as well, that in the hypothetical SAC analysis, it continues to be assumed that the shipper-designed railroad's assets do not change in composition or type from year to year, contrary to the actual performance of the industry.

In a more recent proceeding about Simplified SAC cases, the STB again referenced the theoretical appeal of replacement cost, but concluded the discussion by stating it did not use replacement cost "because it is impractical to update the book value of railroad assets to replacement costs on an annual basis." (See Rate Regulation Reforms, STB Ex Parte No. 715 at 15-16, n.24 (STB served July 18, 2013).

**E. In This Proceeding The STB Should Find Petitioners' Proposal To Use Replacement Cost Both Impractical And Unreasonable, and Should Continue to Use Net Book Value in Revenue Adequacy Determinations**

Once again, in this proceeding, CSX Transportation, Inc. (CSXT) and other railroad parties ask the STB to adopt the use of replacement cost in its determination of revenue adequacy.

However, once again, they offer no real solutions to the practical impediments historically

identified. Their argument is based on the railroads' and STB's experience and use of replacement cost in full stand-alone rate reasonableness cases. CSXT notes that the STB has developed full forward-looking asset valuations for at least twelve stand-alone railroad ("SAAR") networks since 2000. CSXT also discusses two recent SAC cases where each of the proposed stand-alone rail lines consisted of 7,200 miles or more of track, representing a sizable part of the total track of each railroad seeking a rate increase. CSXT argues that its recent experience with developing replacement costs for parts of railroad systems implies that developing the replacement cost for a full railroad with far more track, is not that difficult, and therefore it should not be difficult for the STB to use a similar process in deciding current rail asset values for all Class I railroads in revenue adequacy determinations. Acknowledging somewhat the magnitude of the task, CSXT proposes that the STB undertake these analyses every 10 years, and index the costs annually in between.

In my opinion, this is a wholly impractical and unreasonable approach to making railroad asset valuations for entire railroads. The CSXT proposal seriously understates the potential difficulty and the resources and time required to conduct the suggested analysis for each railroad, a process which likely would require numerous proceedings and decisions involving methodology, timeframe, optimal rail and equipment, and the participation of affected shippers. All of these issues would need to be resolved at an initial stage of the proceeding. Since the determination would involve the entire railroad, all captive shippers if not all shippers would be affected, and would be entitled to offer comments about the component parts of the railroad system to be valued as well as the valuation itself. Even a partial list of likely issues would include:

- How would the initial proposal of the stand-alone railroad for replacement cost determination purposes be made, and who would make it?
- How would the STB and interested parties gain access to the full range of railroad data relevant to a replacement cost valuation?
- How would the STB manage issues of confidential commercial data?
- What parties could participate in the determination and what kind of schedule would be reasonable? (SAC cases involving only parts of railroads routinely take 18-24 months).
- What type of indexing mechanism could be developed for annual determinations?
- How long would it take to make the myriad individual decisions about the hypothetical stand-alone railroad?
- How long would it take to complete the analysis for one railroad, let alone for the industry?
- Where would the funding and other resources for such an undertaking come from?
- Would this process distract the industry, shippers, and the Board from addressing the current issue of which railroads are currently revenue adequate and how to use this determination?

Even if some of the foregoing issues could be resolved reasonably, the fact that the CSXT proposal includes 10 years of annual indexing means that the main defect historically identified by the ICC and the STB – the lack of a method to determine which assets would be replaced and when – would remain. Many of these issues were presented to the STB in 2008 as a result of the AAR petition, which proposed to use a similar earlier version of stand-alone cost to calculate the replacement costs of rail assets. The Board’s reaction to the current proposal should be the same as in 2008. Time and experience have improved the stand-alone process, but it will not provide a workable or timely solution to assist the STB in making annual Revenue Adequacy determinations and will only delay urgently needed rate relief for captive shippers.<sup>1</sup>

---

<sup>1</sup> The STB expressed concern in separate expressions and dissents to its recent *Sunbelt* maximum rate decision about the complexity for all parties of recent stand-alone cases and the number of

### **3. THE STB SHOULD CONTINUE TO INCLUDE REVENUE ADEQUACY AS A SEPARATE CONSTRAINT ON RATES UNDER THE CONSTRAINED MARKET PRICING (CMP) GUIDANCE**

#### **A. The Revenue Adequacy Constraint Should Be Affirmed by the STB As A Separate Part of Constrained Market Pricing**

The second issue I address in this Statement is the need for the STB to actually implement a finding of revenue adequacy as provided for by the Coal Rate Guidelines decision. (See Coal Rate Guidelines, Nationwide, 1 I.C.C. 2d 520 (1985)). In its 1985 decision that established guidance for determining maximum coal rates, the ICC adopted a “constrained market pricing (CMP)” approach for determining the reasonableness of rail rates for captive shippers. Three major constraints were proposed for rate setting: revenue adequacy, stand-alone cost, and management efficiency. A fourth constraint, phasing of rate increases, was initially proposed but ultimately downgraded to a consideration that the Commission might take into account when allowing a full increase could cause significant economic dislocations. The intent of the Coal Rate Guidelines decision was that captive shippers could avail themselves of any or all of these tools in rate case complaints filed against railroads before the Commission. As the Commission made clear in its decision, however, on the subject of a railroad’s ability to continue to differentially price captive traffic, revenue adequacy was the “first constraint.”

---

issues that have to be decided in creating an alternative railroad for these purposes. (See Sunbelt Chlor Alkali Partnership v. Norfolk Southern Railway Co., STB Docket No. NOR 42130, slip op. at 30 (Served June 20, 2014).

A finding that the railroad is not revenue adequate is a necessary condition for a railroad cost structure that requires differential pricing. Revenue adequacy directly is related to a railroad industry cost structure that allows higher pricing of rail services to shippers with less elastic demand in order to recover all costs, subject to restrictions on monopoly pricing. Under these conditions, fixed costs of providing services shared by shippers should be apportioned taking into account the price elasticity of demand of the various shippers. That is, economic efficiency is enhanced when captive shippers pay a higher share of common costs that railroads must cover to continue providing quality service, as shippers with more elastic demands otherwise would leave the system and deprive it of their contributions to joint and common costs. But if a captive shipper or shippers is required to pay rates higher than necessary for the railroad to earn adequate revenues over time, and if the railroad over-recovers its joint and common costs, an improper exercise of monopoly power results. On this critical point, the Coal Rate Guidelines state:

Our revenue adequacy standard represents a reasonable level of profitability for a healthy carrier. It fairly rewards the rail company's investors and assures shippers that the carrier will be able to meet their service needs for the long term. Carriers do not need greater revenues than this standard permits, and we believe that, in a regulated setting, they are not entitled to any higher revenues. Therefore, the logical first constraint on a carrier's pricing is that its rates not be designed to earn greater revenues than needed to achieve and maintain this "revenue adequacy" level. In other words, captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs.

See Coal Rate Guidelines, Nationwide, 1 I.C.C. 2d at 535-536.

The revenue adequacy constraint is a top-down approach to rate setting. It considers the railroad's mix of traffic and revenues as they are, and proscribes imposing higher prices on captive customers once revenues provide a return equal to the cost of capital. The stand-alone

cost (SAC) constraint is a bottoms-up approach. Its purpose is to ensure that a captive shipper for a particular identified movement does not pay more than is necessary for efficient service for its own account. This constraint is independent of the revenue adequacy status of the railroad, but it is subject to that status. SAC addresses a captive shipper's concern that a particular rate offered by a railroad is higher than necessary for efficient service. If the railroad is revenue adequate, the limit is a rail rate that a hypothetical competitive transportation system would charge the captive shipper in question. If the railroad is revenue adequate, however, the Guidelines prohibit additional differential pricing even if SAC would allow a further increase. The two constraints are inter-rated in that sense.

Finally, the management efficiency constraint provides a tool that allows a captive shipper to offer evidence to demonstrate that it derives no benefit from a facility or service on the railroad and therefore should bear none of the costs associated with that facility or service. Under certain circumstances, this constraint likewise could result in a maximum reasonable rate below the SAC level.

#### **B. STB Needs to Continue to Use The Revenue Adequacy Constraint In Rate Reasonableness Decisions**

Each of the constraints on railroad maximum rates discussed above is critical to the overall CMP methodology. While captive shippers have filed maximum rate cases based on all three constraints, the railroad rate cases invoking the revenue adequacy constraint have either settled or been decided based on the SAC constraint. The minimal use of the revenue adequacy constraint in the past could be expected because railroads only recently have begun achieving revenue adequacy (under the STB's current criterion and approach to estimating the cost of

capital). Nevertheless, the revenue adequacy constraint was always part of the STB's Constrained Market Pricing approach, and was designed for use in a period like today, when railroads are experiencing robust financial health. The STB has continued to reaffirm the principle laid out in the Coal Rate Guidelines, that a revenue adequate railroad does not have a sound basis for continued differential pricing, and that a railroad should "engage in enough differential pricing to earn adequate demand-based revenues, but no more". See Major Issues in Rail Rate Cases, STB Ex Parte No.657 (Sub-No.1) (STB served Oct. 30, 2006 at 7.

Thus, for example, in an anhydrous ammonia pipeline case, the STB applying the Constrained Market Principles articulated in the Coal Rate Guidelines, found the defendant revenue adequate, and fashioned a remedy for the shipper. The STB stated:

Applying the CMP revenue adequacy constraint, we find that Koch's rate increases to those points are unreasonable because Koch's revenues are adequate under its pre-rate increase structure. As a result, we will award reparations for past pipeline movements to those points, and prescribe maximum reasonable rates at the pre-increase ...level for future movements.

CF Industries, Inc. v. Koch Pipeline Company, L.P., STB Docket No. 41685 (STB served May 9, 2000, p.27, affirmed, CF Industries, Inc. v. Surface Transportation Board, 255 F. 3d 816, 828 (D.C. Cir. 2001). Consistent with the relationship between CMP constraints that I described above, the Board rejected the defendant's argument that its rate increases were reasonable because the resulting rates did not exceed SAC.

*Koch* reflects the structure of the Coal Rate Guidelines in that it gives the captive shipper multiple criteria or approaches in a rail rate case. Almost 30 years after they were promulgated, the Guidelines continue to represent a flexible tool for the Board to regulate railroad rates on captive traffic. Essential to this vitality, however, is maintenance of the balance between the Revenue Adequacy and SAC constraints.

If the STB were to use revenue adequacy only as a financial-progress metric as proposed by the railroads, the STB would have to rely exclusively on SAC to constrain captive shipper pricing. While SAC has existed since 1985 and it may now be the railroads' preferred approach, it has become unreasonably complicated, time consuming, and expensive. SAC clearly favors the railroads, both because a complained-about rate is presumed reasonable until proven otherwise and because railroads understand their systems far better than shippers, who are in different core businesses, and railroads control access to the extensive railroad data that is essential to a SAC analysis. This advantage is apparent from the comments of CSXT, which advises the STB that it can streamline the SAC process if only it further reduces the evidentiary options available to captive shippers.

**C. While Stand-Alone Costs Provide a “Cap” On Individual Captive Rates, Reasonable Rail Rates Can Be Lower Than Stand-Alone Rates**

The railroads argued in their pleadings that the SAC rate is the only correct rate for a particular captive movement. This is not consistent with the Coal Rate Guidelines or contestable market theory. In actuality, the computed SAC rate for a captive rail movement is not necessarily the “correct” and clearly not the “only” rate that could be used. The SAC rate is but one “cap” on

rates; it does not define the reasonable rate in every circumstance. As Professor Baumol summarized:

*“no firms can charge prices that are sufficiently high to make entry profitable.”*

And similarly stated,

*“No price of any product can be higher in a market than its stand-alone cost”*

And finally,

*To summarize, the contestable markets rule that at least some regulatory agencies have adopted to constrain pricing by firms considered to have market power is the following.*

*No price is allowed to be higher than stand-alone cost and no price is allowed to be lower than incremental cost, but any price in between these two levels is permitted.*

See William J. Baumol, “Contestable Markets: Applications and Their Theoretical Foundation,” Momigliano Lecture, 1997, P. 8,15.

#### **4. CONCLUSION**

The Staggers Act of 1980 marked a turning point in how the U.S. regulated railroads. The flexibility in rate setting and other provisions coupled with innovation, cost control, consolidations and improvements in services over the last 34 years have enabled a dramatic transformation. The railroads are achieving long-sought goals set in the rail policy prescriptions of the Staggers Act. But many railroads are now earning returns at least equal to the cost of their investment capital on an annual basis. Captive shippers have contributed disproportionately to this success over the years through high rates that have more than covered railroad common costs. The STB should not abandon protections that the Staggers Act provided to captive shippers. The STB should continue making the timely determinations of railroad revenue

adequacy, using the longstanding and practical approach of net book value of rail assets that the ICC and the STB have defended and used since at least the Staggers Act. The STB also should affirm the use of Revenue Adequacy as one of the available constraints in Constrained Market Pricing under the Coal Rate Guidelines.

**JOHN F. HENNIGAN, Ph.D.**

SENIOR ECONOMIC ADVISOR

MiCRA: Microeconomic Consulting & Research Associates  
1155 Connecticut Avenue, N.W., Suite 900  
Washington, D.C. 20036  
www.micradc.com

phone: (202) 467-2500

e-mail: [jh@micradc.com](mailto:jh@micradc.com)

---

**CURRICULUM VITAE**

**Education**

1976 Ph.D., Economics, West Virginia University. Areas of specialization: Monetary Policy, Regional Economics, Public Finance, and Public Regulation

1970 B.A., Economics, Xavier University, Cincinnati, Ohio

Dissertation, "Comparison of Efficiency Measures of Public and Private Ownership: The Water Utility Case."

**Professional Experience**

**-MiCRA: Microeconomic Consulting & Research Associates, Washington, D.C., Senior Economic Advisor, June 2014 – Present:** Worked on projects involving competition issues such as price fixing in the air cargo industry and bundling of telecommunication services.

**-U.S. Department of Transportation, Washington, D.C., Senior Advisor, November 2011 – June 2014:** Detailed to the Department of Transportation (DOT), Office of the Assistant Secretary for Aviation and International Affairs and the Office of the Assistant Secretary for Budget and Programs/ Chief Financial Officer. Fully participated in working on policy issues and projects related to implementation of the Federal Aviation Administration (FAA) Reauthorization Act of 2012. Served on the DOT team that prepared the analysis review memorandum to the Secretary on the US Airways/American Airlines merger proposal. Also participated in the evaluation of applications for federal low-interest loans and loan guarantees for large transportation infrastructure investment projects.

**-Federal Aviation Administration, Washington, D.C., Director, Liaison and Business Development of the Air Traffic Organization ATO), October 2008 – November 2011:**

Reported directly to and assisted the Senior Vice President for Strategy and Performance in improvements to FAA Air Traffic Control organization's policy development, operational processes, and coordination with employees and external stakeholders. In addition, fully participated in leadership capacities in two significant Federal special studies:

- **RTCA, NextGen Mid-Term Implementation Task Force, 2009:** Served as a Federal Co-chair of this significant aviation task force set up to solicit industry and user input on "NextGen", the Federal Aviation Administration's next generation air traffic control system.
- **The Future of Aviation Advisory Committee, US Department of Transportation, 2010:** Served as a Federal lead to guide and assist the Financing Subcommittee in developing recommendation for improvements in the funding for aviation systems. The Task Force's report was released in April, 2011.

**-U. S. Senate, Committee on Commerce, Science, and Transportation, Washington, D.C., Legislative Fellow, August 2006 – October 2008:** Detailed to the Subcommittee on Aviation to provide support for the development and drafting of the FAA Reauthorization Bill and to provide support for oversight of other significant aviation issues.

**- Federal Aviation Administration, Washington, D.C., Deputy Assistant Administrator for Financial Services and Deputy CFO, June 1999 – August 2006:** Assisted the FAA's CFO in developing, implementing, and managing FAA's performance and financial systems for enhanced financial management and accountability. During this period, FAA was awarded six clean audit opinions on the FAA's annual financial statements.

**-Federal Aviation Administration, Washington, D.C., Deputy Director, Office of Aviation Policy and Plans, August 1991 – June 1999:** Served as the Deputy Director of the FAA's Policy Office and was also tasked to perform special assignments during that period including serving on the professional staff or leadership positions on the following Commissions or Panels:

- **Committee on Aviation Environmental Protection (CAEP) of the International Civil Aviation Organization (ICAO), (1992-1995) – Chairman of the Sub-Group on Aircraft Noise and Emissions Standards**
- **Federal Aviation Administration, Air Traffic Control Corporation Study Report (1993-1994) and subsequent legislative proposal submitted to Congress. Deputy Chairman**
- **White House Commission on Aviation Safety and Security (1996-1997). Staff member**
- **National Civil Aviation Review Commission (NCARC) (1997). FAA Liaison and Finance Committee staff member**
- **Intergovernmental Panel on Climate Change (IPCC) (1997-1999). Lead writer for a chapter of the special report on "Aviation and the Global Environment"**

- **Vice President Gore's – National Partnership for Reinventing Government (1999). Represented the FAA**

**- IBM Corporation, Valhalla, N.Y., Exchange Executive, Transportation Marketing Division, January 1990 – January 1991:** Selected as one of eleven federal government executives in 1990 chosen to participate in the White House sponsored President's Commission on Executive Exchange program. The assignment was to work in the Transportation Marketing Department of the IBM Corporation for a year. A similar number of private sector executives were also selected for this White House sponsored program. They were each assigned to work in executive positions at specific government agencies while government executives were each assigned to work at specific private companies. Both groups interacted over the year discussing mutual experiences and observations about their assignments.

**-Interstate Commerce Commission (ICC), Washington, D.C., Director, Office of Economics, July 1976 – January 1990:** Actively participated in studies, various work groups, and legislative drafting efforts that ultimately resulted in the broad economic deregulation of US surface transportation modes starting in the early 1980's. This included work related to: railroads, motor carriers of freight and passengers, inland water carriers, freight forwarders, and transportation brokers. During this period also served as a senior advisor to two ICC Chairmen and was detailed to the U.S. House Committee on Public Works and Transportation in 1981-1982 to provide legislative and oversight support to the Committee.

**-Van Scoyoc & Wiskup Inc., Washington, D.C., September 1973 – July 1976:** Employed by the firm as an economic consultant in utility rate setting cases. Conducted economic analysis and prepared testimony on electric, gas and telephone rate cases before State and Federal Regulatory Commissions.

### **Recent Awards**

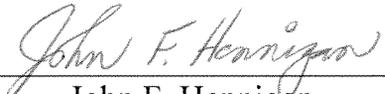
Formally recognized for aviation related environmental work in a report, [Aviation and the Global Atmosphere](#), contributing to the 2007 Nobel Peace Prize awarded to the Intergovernmental Panel on Climate Change.

RTCA Achievement Award for leadership of the RTCA NextGen Mid-Term Implementation Task Force, April, 2010.

**VERIFICATION**

CITY OF WASHINGTON            )  
  )  
  )  
DISTRICT OF COLUMBIA        )

I, John F. Hennigan, verify under penalty of perjury that I have read the foregoing Verified Statement, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

  
\_\_\_\_\_  
John F. Hennigan