



Ex Parte 722 – Railroad Revenue Adequacy

Presentation for Norfolk Southern

238896

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University of Florida

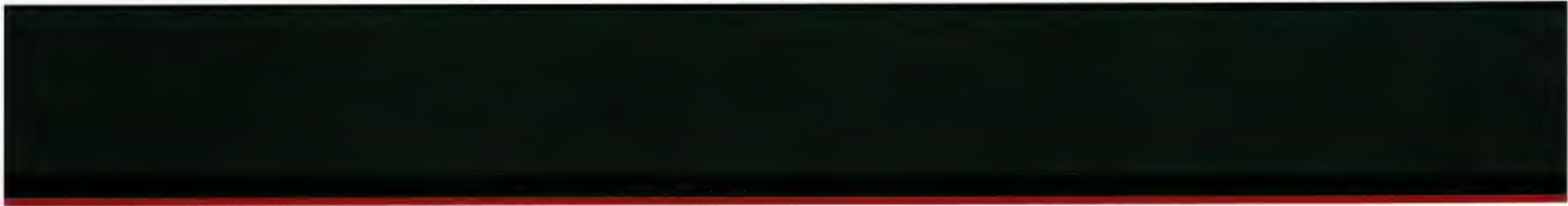
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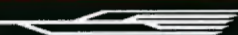
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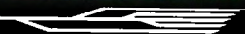
Professor David Sappington

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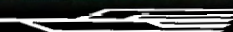


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- Principles of Sound Regulatory Policy Design
- The Board's Present Policy Implements Those Principles
- Explicit Earnings Regulation Has Many Drawbacks Because It Does Not Implement Those Principles



- **Asymmetric Earnings Regulation is Particularly Pernicious**
- **Regulators are Abandoning Stringent Earnings Regulation**
- **The Board is on the Frontier of Innovative Policy Design**



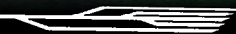
Dispelling a Common Myth

- **MYTH**—Regulators protect consumers by precluding regulated firms from securing more than “adequate” earnings.
- **TRUTH**—All parties gain when suppliers are motivated by the prospect of financial reward.



Conclusions

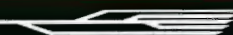
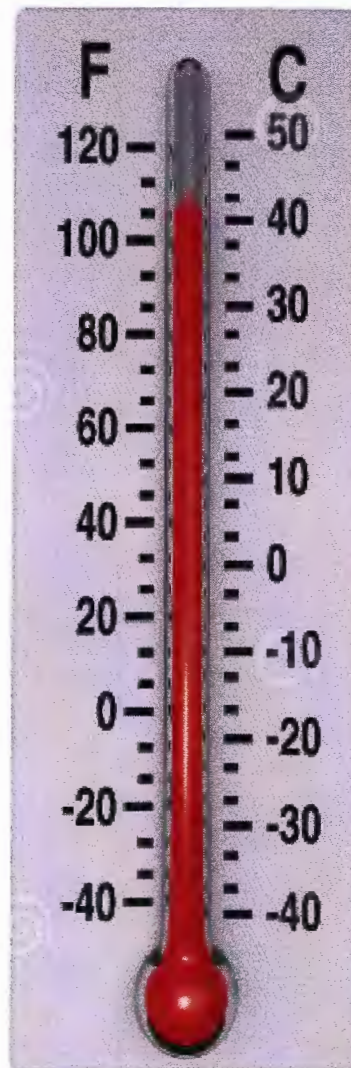
- Retain current progressive policy that embodies the key principles of sound regulatory design.
- Resist pressure to return to largely discredited regulatory policies of the past.





Professor Bradford Cornell

California Institute of Technology



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Deficiencies in Annual Measurement of Revenue Adequacy

- Fails to measure returns over the lifetime of rail assets.
- Treatment of deferred taxes.
- Comparison of an economic measure with an accounting measure.
- Inappropriate for evaluating individual rates.



Exhibit 1a

**Illustration of ROI from a Single Asset in each Year of its Life
Calculated using Straight-Line Depreciation**

	<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = PrevD - PrevB</i>	<i>E = C / D</i>
<u>Year</u>	<u>Cash Flows</u> (1000.00)	<u>Straight-Line Depreciation</u>	<u>Net Income</u>	<u>Book Value (Beg. of Period)</u>	<u>ROI</u>
1	\$117.46	\$50.00	\$67.46	\$1,000.00	6.75%
2	117.46	50.00	67.46	950.00	7.10%
3	117.46	50.00	67.46	900.00	7.50%
4	117.46	50.00	67.46	850.00	7.94%
5	117.46	50.00	67.46	800.00	8.43%
6	117.46	50.00	67.46	750.00	8.99%
7	117.46	50.00	67.46	700.00	9.64%
8	117.46	50.00	67.46	650.00	10.38%
9	117.46	50.00	67.46	600.00	11.24%
10	117.46	50.00	67.46	550.00	12.27%
11	117.46	50.00	67.46	500.00	13.49%
12	117.46	50.00	67.46	450.00	14.99%
13	117.46	50.00	67.46	400.00	16.87%
14	117.46	50.00	67.46	350.00	19.27%
15	117.46	50.00	67.46	300.00	22.49%
16	117.46	50.00	67.46	250.00	26.98%
17	117.46	50.00	67.46	200.00	33.73%
18	117.46	50.00	67.46	150.00	44.97%
19	117.46	50.00	67.46	100.00	67.46%
20	117.46	50.00	67.46	50.00	134.92%

Exhibit 1b

Illustration of ROI from a Single Asset in each Year of its Life
Calculated using Economic Depreciation

	<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = PrevD - PrevB</i>	<i>E = C / D</i>
Year	Cash Flows (1000.00)	Economic Depreciation [1]	Net Income	Book Value (Beg. of Period)	ROI
1	\$117.46	\$17.46	\$100.00	\$1,000.00	10.00%
2	117.46	19.21	98.25	982.54	10.00%
3	117.46	21.13	96.33	963.33	10.00%
4	117.46	23.24	94.22	942.21	10.00%
5	117.46	25.56	91.90	918.97	10.00%
6	117.46	28.12	89.34	893.41	10.00%
7	117.46	30.93	86.53	865.29	10.00%
8	117.46	34.02	83.44	834.36	10.00%
9	117.46	37.43	80.03	800.33	10.00%
10	117.46	41.17	76.29	762.91	10.00%
11	117.46	45.29	72.17	721.74	10.00%
12	117.46	49.81	67.65	676.45	10.00%
13	117.46	54.80	62.66	626.64	10.00%
14	117.46	60.28	57.18	571.84	10.00%
15	117.46	66.30	51.16	511.57	10.00%
16	117.46	72.93	44.53	445.26	10.00%
17	117.46	80.23	37.23	372.33	10.00%
18	117.46	88.25	29.21	292.10	10.00%
19	117.46	97.07	20.39	203.85	10.00%
20	117.46	106.78	10.68	106.78	10.00%

Exhibit 2a

**Illustration of ROI for a Single Year from a Set of Twenty Assets of Different Vintages
Calculated using Straight-Line Depreciation**

	<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = PrevD - PrevB</i>	<i>E = C/D</i>
Asset Age (Beg. Of Period)	Cash Flows	Straight-Line Depreciation	Net Income	Book Value (Beg. of Period)	ROI
	(1000.00)				
1	\$117.46	\$50.00	\$67.46	\$1,000.00	6.75%
2	117.46	50.00	67.46	950.00	7.10%
3	117.46	50.00	67.46	900.00	7.50%
4	117.46	50.00	67.46	850.00	7.94%
5	117.46	50.00	67.46	800.00	8.43%
6	117.46	50.00	67.46	750.00	8.99%
7	117.46	50.00	67.46	700.00	9.64%
8	117.46	50.00	67.46	650.00	10.38%
9	117.46	50.00	67.46	600.00	11.24%
10	117.46	50.00	67.46	550.00	12.27%
11	117.46	50.00	67.46	500.00	13.49%
12	117.46	50.00	67.46	450.00	14.99%
13	117.46	50.00	67.46	400.00	16.87%
14	117.46	50.00	67.46	350.00	19.27%
15	117.46	50.00	67.46	300.00	22.49%
16	117.46	50.00	67.46	250.00	26.98%
17	117.46	50.00	67.46	200.00	33.73%
18	117.46	50.00	67.46	150.00	44.97%
19	117.46	50.00	67.46	100.00	67.46%
20	117.46	50.00	67.46	50.00	134.92%
Current Year Total for All Assets			\$1,349.20	\$10,500.00	12.85%

Exhibit 2b

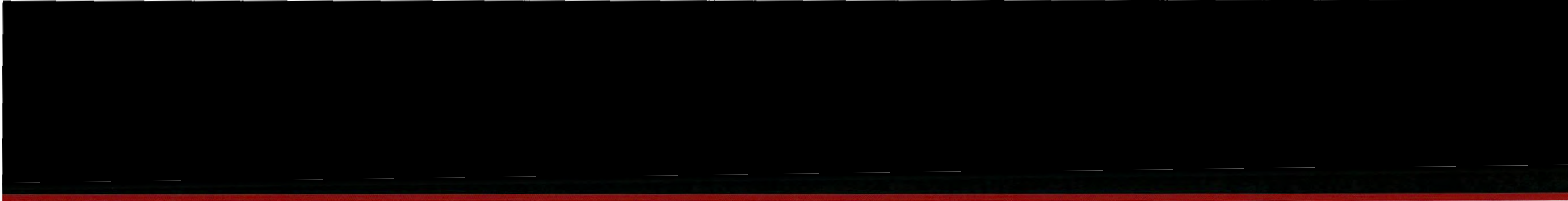
Illustration of ROI for a Single Year from a Set of Twenty Assets of Different Vintages
Calculated using Economic Depreciation

	<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = PrevD - PrevB</i>	<i>E = C / D</i>
Asset Vintage (Beg. Of Period)	Cash Flows (1000.00)	Economic Depreciation [1]	Net Income	Book Value (Beg. of Period)	ROI
1	\$117.46	\$17.46	\$100.00	\$1,000.00	10.0%
2	117.46	19.21	98.25	982.54	10.0%
3	117.46	21.13	96.33	963.33	10.0%
4	117.46	23.24	94.22	942.21	10.0%
5	117.46	25.56	91.90	918.97	10.0%
6	117.46	28.12	89.34	893.41	10.0%
7	117.46	30.93	86.53	865.29	10.0%
8	117.46	34.02	83.44	834.36	10.0%
9	117.46	37.43	80.03	800.33	10.0%
10	117.46	41.17	76.29	762.91	10.0%
11	117.46	45.29	72.17	721.74	10.0%
12	117.46	49.81	67.65	676.45	10.0%
13	117.46	54.80	62.66	626.64	10.0%
14	117.46	60.28	57.18	571.84	10.0%
15	117.46	66.30	51.16	511.57	10.0%
16	117.46	72.93	44.53	445.26	10.0%
17	117.46	80.23	37.23	372.33	10.0%
18	117.46	88.25	29.21	292.10	10.0%
19	117.46	97.07	20.39	203.85	10.0%
20	117.46	106.78	10.68	106.78	10.0%
Current Year Total for All Assets			\$1,349.20	\$13,491.90	10.0%

estimated average property value per county subdivision



Definition 4 (non-orthogonal basis). Let $\mathcal{B} = \{\mathbf{b}_1, \mathbf{b}_2, \dots, \mathbf{b}_n\}$ be a basis of $\mathbb{R}^n$. $\mathcal{B}$ is non-orthogonal if $\mathbf{b}_i \cdot \mathbf{b}_j \neq 0$ for some $i \neq j$.



Raymond Atkins

SIDLEY AUSTIN LLP

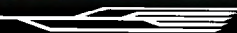
Recap

- A system-wide revenue adequacy constraint is a discredited form of regulation that is fraught with perils.
- These perils are made exponentially worse by serious measurement errors.
- You do not need to travel down this path.

“... CMP, with its SAC constraint, is the preferred and most accurate procedure available for determining the reasonableness of rates in markets where the rail carrier enjoys market dominance.”

D.C. Circuit 1993 & 2006

Burlington N. R.R. Co. v. ICC, 985 F.2d 589, 596 (D.C. Cir. 1993)
BNSF Ry. Co. v. STB, 453 F.3d 473, 481 (D.C. Cir. 2006)



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“As railroads enjoy increasing market power with rising demand for their services the SAC test (in either its full or simplified form) would provide a **critical restraint** on their pricing of captive traffic, without deterring railroads from making the investments in their rail networks that are needed to meet rising demand.”

STB 2012

Rate Regulation Reforms, STB Docket Ex Parte No. 715, at 10 (served July 25, 2012) (emphasis added)

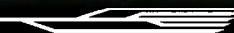


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“The very purpose of the SAC test is to determine what [the railroad] needs to charge to earn ‘adequate’ revenues on the portion of its system that is included in the system of the SARR.”

STB 2005

Xcel v. BNSF Ry. Co., STB Docket NOR 42057, at 6 (served Jan. 19, 2005)



“The Board is on solid ground here.”

D.C. Circuit 2006

BNSF Ry. Co. v. STB, 453 F.3d at 480 (D.C. Cir. 2006)

“[T]he RSAM figure merely provides a test of ‘system-wide revenue need’ and therefore ‘provides **no guidance** on the rates Xcel should be charged for the particular facilities and services Xcel uses.’”

D.C. Circuit 2006

BNSF Ry. Co. v. STB, 453 F.3d at 481 (D.C. Cir. 2006)
(quoting STB/DOJ brief) (emphasis added)

Norfolk Southern Network 20,000 miles



SunBelt v. NS - NOR 42130

580 miles

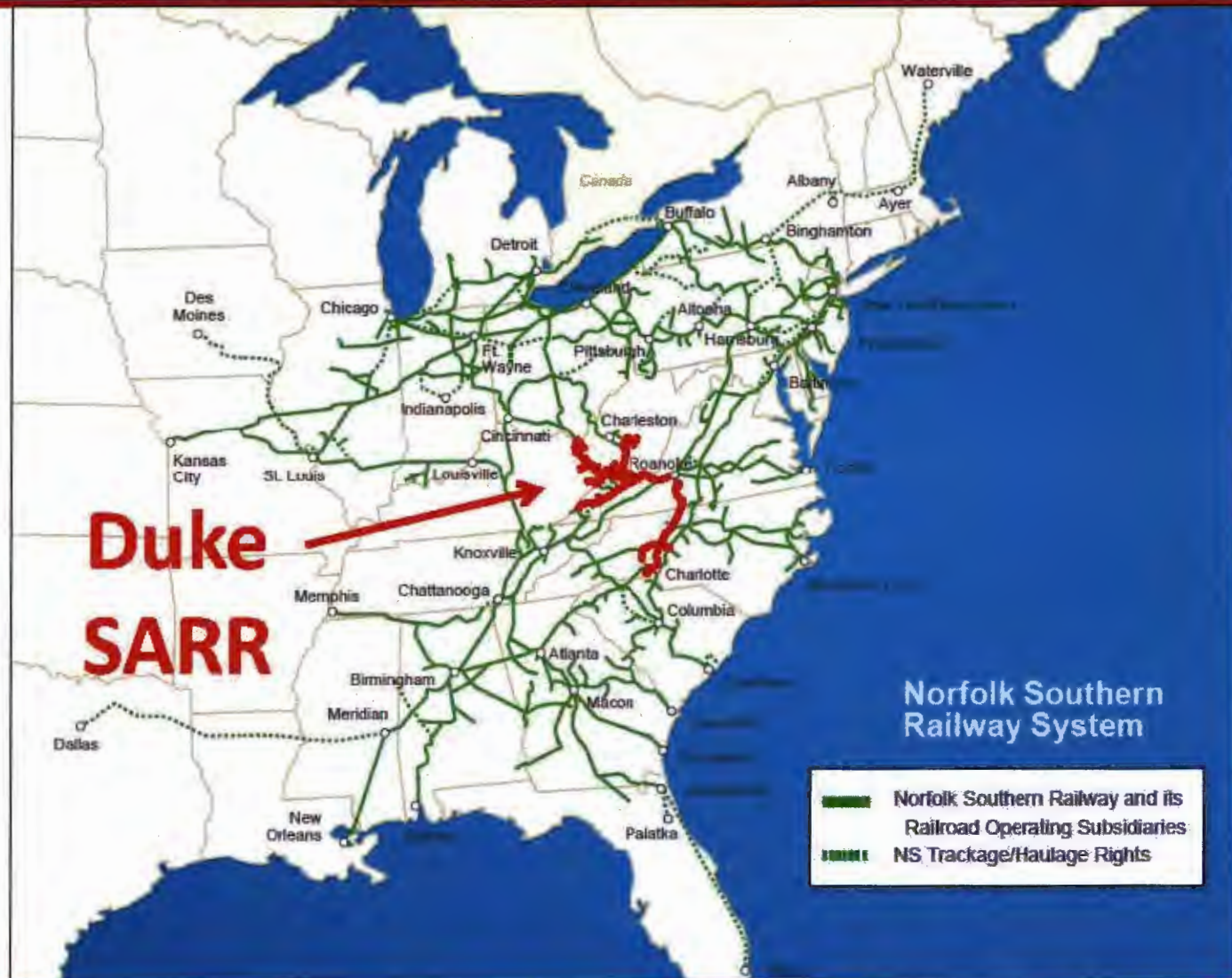


Norfolk Southern Railway System

— Norfolk Southern Railway and its Railroad Operating Subsidiaries
--- NS Trackage/Haulage Rights

Duke v. NS - NOR 42069

1,100 miles



DuPont v. NS - NOR 42125

7,200 miles



Shipper Responses?

- Dismiss concerns about incentive problems that plague rate-of-return style regulation
- Dismiss concerns about cross-subsidies
- Dismiss the measurement errors

Subsidized Rent Control?

“A more appropriate comparison . . . would be to methods employed by government 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.”

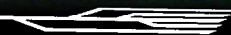
Joint Reply Comments of WCTL, Consumers Energy Co., and S. Miss. Elec. Power Assoc., STB Docket Ex Parte 722, at 15 (Nov. 4, 2014) (emphasis added)

Economists' Statement in Support of Staggers Act (Feb. 25, 1985)

“The appropriate standard for determining the adequacy of railroad revenues is a rate or 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 source of funds used in investing in those assets.”

Nobel Laureate Kenneth Arrow
Nobel Laureate James Tobin
(and 54 other leading economists)

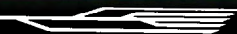
Attachment D, Reply Comments of NS, STB Docket Ex Parte 722, (Nov. 4, 2014)



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SAC Is Not Broken

- Full-SAC is well designed for cases where there are millions of dollars in dispute.
- Simplified-SAC
 - Fast.
 - Simple. **NO HYPOTHETICAL RAILROAD**
 - Discovery burden on railroads.
 - Unlimited relief.
- But that is not the relief shippers are looking for.



Multiple Independent Reasons To Abandon The Revenue Adequacy Constraint

- Regulators discarding rate-of-return regulation
- Stifle innovation
- Discourage investment
- SAC and Simplified-SAC are targeted “revenue adequacy” tests
- Massive measurement error
- Cost of capital should not be a ceiling
- Internal cross-subsidies
- “No Guidance” as to reasonableness of a particular rate

