Railroads

An Economic Perspective

October 2, 2018
Established in 1995 in Philadelphia to advise short line railroads and companies in the rail industry, SRF has advised on projects in 42 US states and Canadian provinces

- Public and private finance
- Business sales and acquisitions
- Transportation planning and policy
- Business development and site selection

Created OnTrackNorthAmerica in 2007, a 501c3 non-profit advancing sound transportation policy and collaborative, holistic growth of the rail industry
Presentation Outline

Railroad industry as context
Railroad performance measures
Basic Railroad Economics
Build or Buy Back??
Structure of the North American Rail Industry

Class I Railroads
Class II and III Railroads
Industrial Rail Shippers

AAPA Conference Strategic Rail Finance October 2, 2018 – Page 4
Comparison of Railroad Types

Class I and Regional Railroads
• Long-haul carriers
• The railroads are “public” like a utility but without price controls
• Railroads privately fund the infrastructure and locomotives
• Railroads maintain exclusive operational control over tens of thousands of route miles

Terminal (Class III) Railroads
• Last-mile carriers
• Typically operate a few miles of track and switching yards
• Many public, private and hybrid ownership / operation models
• Perform the blocking and interchange for Class Is and switching for customers
Railroad Annual Revenues

<table>
<thead>
<tr>
<th>Operating Revenue ($B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
</tr>
<tr>
<td>$25.0</td>
</tr>
</tbody>
</table>

Seven Railroads

- UP
- BNSF
- CSX
- NS
- CN
- CP
- KCS

Ports

Operating Revenue ($B)

- 7
- 600+
- 3000+
Revenue Sources

Revenue Diversity

- Balance by sector
- Intermodal v. Carload v. Unit Trains

Revenue per Car

- Agriculture, Chemical, Industrial
- Coal / Auto have smallest per-car revenue
- Intermodal (per container ... context)

Long trains, Long hauls

- ... And the long story of short lining

### Revenue Carloads

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Products</td>
<td>958</td>
<td>980</td>
<td>941</td>
<td>(2)%</td>
<td>4 %</td>
</tr>
<tr>
<td>Automotive</td>
<td>838</td>
<td>883</td>
<td>883</td>
<td>(3)</td>
<td>-</td>
</tr>
<tr>
<td>Chemicals</td>
<td>1,055</td>
<td>1,074</td>
<td>1,098</td>
<td>(2)</td>
<td>(2)</td>
</tr>
<tr>
<td>Coal</td>
<td>1,232</td>
<td>1,166</td>
<td>1,159</td>
<td>6</td>
<td>(20)</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>1,227</td>
<td>1,097</td>
<td>1,213</td>
<td>12</td>
<td>(10)</td>
</tr>
<tr>
<td>Intermodal [a]</td>
<td>3,278</td>
<td>3,262</td>
<td>3,488</td>
<td>-</td>
<td>(6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8,588</td>
<td>8,442</td>
<td>9,082</td>
<td>2 %</td>
<td>(7)%</td>
</tr>
</tbody>
</table>

### Average Revenue per Car

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Products</td>
<td>3,847</td>
<td>3,702</td>
<td>3,805</td>
<td>4 %</td>
<td>(3)%</td>
</tr>
<tr>
<td>Automotive</td>
<td>2,384</td>
<td>2,317</td>
<td>2,498</td>
<td>3</td>
<td>(7)</td>
</tr>
<tr>
<td>Chemicals</td>
<td>3,410</td>
<td>3,234</td>
<td>3,227</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Coal</td>
<td>2,146</td>
<td>2,092</td>
<td>2,218</td>
<td>3</td>
<td>(6)</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>3,324</td>
<td>3,051</td>
<td>3,139</td>
<td>9</td>
<td>(3)</td>
</tr>
<tr>
<td>Intermodal [a]</td>
<td>1,170</td>
<td>1,138</td>
<td>1,188</td>
<td>3</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>2,310</td>
<td>2,203</td>
<td>2,251</td>
<td>5 %</td>
<td>(2)%</td>
</tr>
</tbody>
</table>
Operational Performance Measures


And...

Increase train velocity
• How fast is fast?

Reduce train time in terminals
• No one makes money sitting in terminals!

Increase train weight and length
• Size does matter!

<table>
<thead>
<tr>
<th>Operating Performance</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>5-Year Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average train speed (mph)</td>
<td>18.4</td>
<td>18.0</td>
<td>21.4</td>
<td>23.5</td>
<td>22.6</td>
<td>23%</td>
</tr>
<tr>
<td>Average terminal dwell (hours)</td>
<td>7.1</td>
<td>8.7</td>
<td>7.2</td>
<td>6.7</td>
<td>6.6</td>
<td>-7%</td>
</tr>
<tr>
<td>Average train weight (tons)</td>
<td>7,573</td>
<td>8,076</td>
<td>8,314</td>
<td>8,614</td>
<td>8,806</td>
<td>16%</td>
</tr>
<tr>
<td>Average train length (feet)</td>
<td>6,530</td>
<td>6,682</td>
<td>6,935</td>
<td>7,217</td>
<td>7,214</td>
<td>10%</td>
</tr>
</tbody>
</table>
The “Average” Class I - $13B Annual Revenue

Sources of Cash

- Operating revenue: 92%
- Misc. income: 7%
- Debt (net): 1%

Uses of Cash

- Operating expense: 58%
- Capital investment: 9%
- Dividends and interest: 9%
- Taxes paid: 9%
- Shares repurchased: 15%

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October 2, 2018 - Page 9
Highlighting the Highlights

**Operating Ratio**
- What does it mean?
- Why does it matter so much?

**Capital RE-Investment!**
- Over half of net cash
- *These are not really “additions”*

**Leverage**
- Debt is typically 40% +/-
- NS: the undisputed long-bond champion!

**How are they using extra cash?**
- Paying for capital!
- Paying down debt
- And giving equity back!

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### FOR THE YEAR (numbers in millions, except per-share amounts)

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railway operating revenues</td>
<td>$10,551</td>
<td>$9,888</td>
<td>$10,511</td>
</tr>
<tr>
<td>Income from railway operations</td>
<td>$3,435</td>
<td>$3,074</td>
<td>$2,884</td>
</tr>
<tr>
<td>Net income(^1)</td>
<td>$1,922</td>
<td>$1,668</td>
<td>$1,556</td>
</tr>
<tr>
<td>Per share – diluted(^1)</td>
<td>$6.61</td>
<td>$5.62</td>
<td>$5.10</td>
</tr>
<tr>
<td>Dividends per share</td>
<td>$2.44</td>
<td>$2.36</td>
<td>$2.36</td>
</tr>
<tr>
<td>Dividend pay-out ratio(^1)</td>
<td>37%</td>
<td>42%</td>
<td>46%</td>
</tr>
<tr>
<td>Net cash provided by operating activities</td>
<td>$3,253</td>
<td>$3,034</td>
<td>$2,908</td>
</tr>
<tr>
<td>Property additions</td>
<td>$1,723</td>
<td>$1,887</td>
<td>$2,385</td>
</tr>
<tr>
<td>Free cash flow(^2)</td>
<td>$1,530</td>
<td>$1,147</td>
<td>$523</td>
</tr>
</tbody>
</table>

### AT YEAR END

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total assets</td>
<td>$35,711</td>
<td>$34,892</td>
<td>$34,139</td>
</tr>
<tr>
<td>Total debt</td>
<td>$9,836</td>
<td>$10,212</td>
<td>$10,093</td>
</tr>
<tr>
<td>Stockholders’ equity</td>
<td>$16,359</td>
<td>$12,409</td>
<td>$12,188</td>
</tr>
<tr>
<td>Shares outstanding</td>
<td>284.2</td>
<td>290.4</td>
<td>297.8</td>
</tr>
<tr>
<td>Stockholders’ equity per share</td>
<td>$57.57</td>
<td>$42.73</td>
<td>$40.93</td>
</tr>
</tbody>
</table>

### FINANCIAL RATIOS

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating ratio(^1)</td>
<td>67.4%</td>
<td>68.9%</td>
<td>72.6%</td>
</tr>
<tr>
<td>Debt-to-total-capitalization ratio</td>
<td>37.5%</td>
<td>45.1%</td>
<td>45.3%</td>
</tr>
</tbody>
</table>
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What is this??
Reinvestment vs. Returning Capital

**Q** At what point is it worth building something new?!

**A** When you can get a 10 or 12 month payback!!

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**Diagram:**
- **Revenue from asset**:
  - Operation cost
  - Maintenance
  - Cost of capital
  - Taxes on Income

**Balance:**
- **Buy back shares**
- **AT ZERO RISK!!**
- **DIVIDED BY THE BUSINESS RISK**
Recap

- Class Is, short lines, and switching operators have very different business models
- All railroads focus on operating cost (OR) and capital expense
- Railroading is capital intensive, capital is expensive, and there are high hurdle rates for new investment
- Keep perspective on the railroad size and economics
- The longer the railroad, the more they focus on long trains and long hauls
- The shorter the line, the more they focus on short-haul service
- Create advantage in your respective cost of capital
Thank You!

Strategic Rail Finance
1700 Sansom Street, Suite 500
Philadelphia, PA 19103
(215) 564-3122
strategicrail.com