

RAILS AND RAIL OEMS – A VIEW FROM THE STREET

Cowen Equity Research

JULY 2018

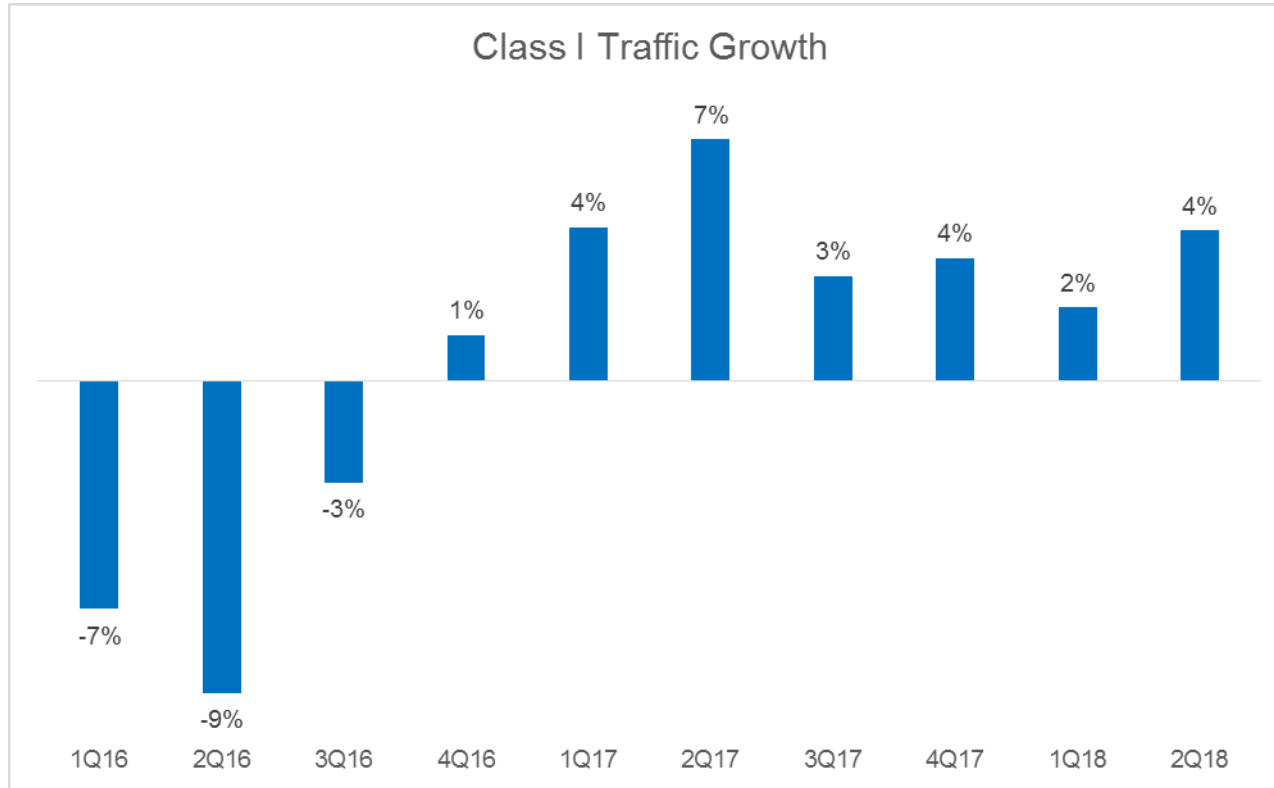
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The Current State of Rail – The Terrific Trifecta

1. **Robust traffic growth** – up 4% in 2Q18 and 8% thus far in 3Q18.
2. **Improving pricing** – our proprietary July-13 survey showed a 90 bps increase in rail shippers' expectations for average rail price increases over the next 6-12 months.
3. **Stabilizing service** – still suboptimal but getting better.

1. Traffic

Growth turned positive in 1Q16 and has not looked back since.



Source: Cowen and RailShare

Recent Class I Traffic Results

Week 27, 2018

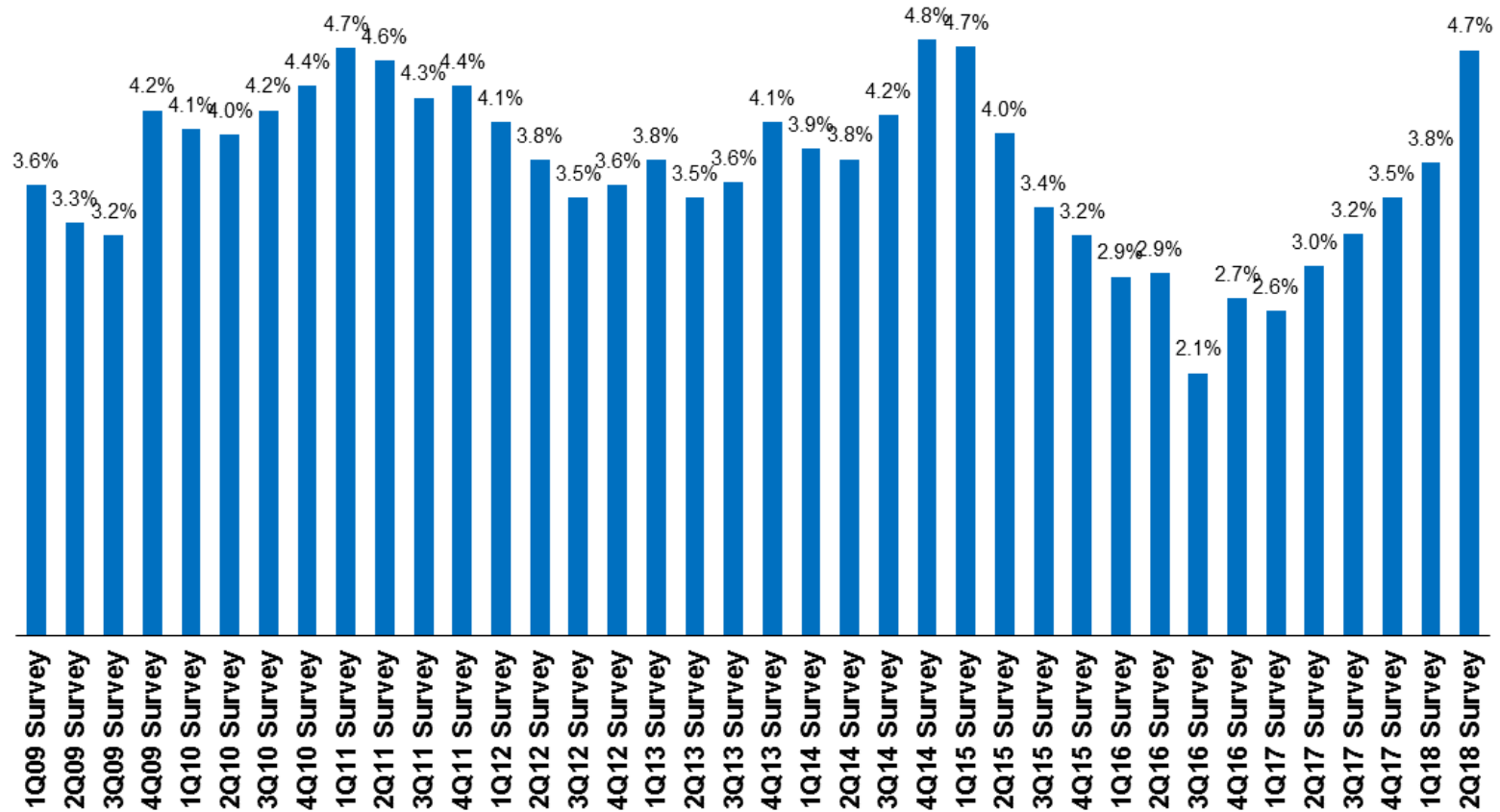
Week Ending July 07, 2018

Carloads by Commodity Type	This Week	One Year Ago	Y/Y % Change	Cumulative			Quarter to Date			Year to Date		
				Four Week Total	One Year Ago	Y/Y % Change	2018	2017	Y/Y % Change	2018	2017	Y/Y % Change
Agricultural Products	63,830	59,185	7.8%	271,674	262,166	3.6%	63,830	59,185	7.8%	1,841,041	1,850,264	-0.5%
Grain	32,003	29,713	7.7%	140,472	136,295	3.1%	32,003	29,713	7.7%	952,974	960,153	-0.7%
Farm Products, Ex. Grain	4,303	3,510	22.6%	18,347	16,552	10.8%	4,303	3,510	22.6%	123,440	136,855	-9.8%
Grain Mill Products	14,327	13,246	8.2%	57,932	54,887	5.5%	14,327	13,246	8.2%	381,277	372,345	2.4%
Food and Kindred Products	13,197	12,716	3.8%	54,923	54,432	0.9%	13,197	12,716	3.8%	383,350	380,911	0.6%
Chemicals	90,510	77,539	16.7%	368,118	328,281	12.1%	90,510	77,539	16.7%	2,444,536	2,317,079	5.5%
Chemicals	61,270	56,868	7.7%	250,689	238,939	4.9%	61,270	56,868	7.7%	1,705,931	1,659,913	2.8%
Petroleum Products	29,240	20,671	41.5%	117,429	89,342	31.4%	29,240	20,671	41.5%	738,605	657,166	12.4%
Coal	96,571	99,861	-3.3%	408,123	427,655	-4.6%	96,571	99,861	-3.3%	2,761,836	2,811,492	-1.8%
Forest Products	26,772	25,778	3.9%	110,686	105,263	5.2%	26,772	25,778	3.9%	730,868	716,174	2.1%
Primary Forest Products	2,336	2,396	-2.5%	10,837	10,413	4.1%	2,336	2,396	-2.5%	72,288	72,199	0.1%
Lumber and Wood Products	9,833	9,112	7.9%	42,707	39,451	8.3%	9,833	9,112	7.9%	280,583	272,851	2.8%
Pulp, Paper, and Allied Products	14,603	14,270	2.3%	57,142	55,399	3.1%	14,603	14,270	2.3%	377,997	371,124	1.9%
Metallic Ores and Minerals	37,879	34,228	10.7%	157,034	143,100	9.7%	37,879	34,228	10.7%	1,011,757	976,620	3.6%
Metallic Ores	17,141	13,792	24.3%	66,976	57,457	16.6%	17,141	13,792	24.3%	413,939	393,336	5.2%
Coke	5,559	6,034	-7.9%	23,975	23,938	0.2%	5,559	6,034	-7.9%	158,706	165,055	-3.8%
Metals and Products	15,179	14,402	5.4%	66,083	61,705	7.1%	15,179	14,402	5.4%	439,112	418,229	5.0%
Motor Vehicles and Equipment	31,769	30,497	4.2%	152,543	152,215	0.2%	31,769	30,497	4.2%	1,048,046	1,073,147	-2.3%
Non-metallic Minerals and Products	50,844	49,009	3.7%	219,150	212,877	2.9%	50,844	49,009	3.7%	1,400,762	1,335,926	4.9%
Crushed Stone, Sand, and Gravel	32,506	30,683	5.9%	140,757	134,371	4.8%	32,506	30,683	5.9%	903,070	827,503	9.1%
Nonmetallic Minerals	5,810	6,491	-10.5%	24,629	27,250	-9.6%	5,810	6,491	-10.5%	164,153	180,029	-8.8%
Stone, Clay, and Glass Products	12,528	11,835	5.9%	53,764	51,256	4.9%	12,528	11,835	5.9%	333,539	328,394	1.6%
Other	18,196	16,670	9.2%	87,843	83,906	4.7%	18,196	16,670	9.2%	575,479	577,423	-0.3%
Waste and Scrap Materials	9,168	8,283	10.7%	43,504	41,936	3.7%	9,168	8,283	10.7%	282,168	287,504	-1.9%
All Other	9,028	8,387	7.6%	44,339	41,970	5.6%	9,028	8,387	7.6%	293,311	289,919	1.2%
Intermodal	362,097	329,383	9.9%	1,404,578	1,312,605	7.0%	362,097	329,383	9.9%	10,625,498	10,048,847	5.7%
Trailers	23,942	18,758	27.6%	109,778	90,012	22.0%	23,942	18,758	27.6%	735,193	621,090	18.4%
Containers	338,155	310,625	8.9%	1,294,800	1,222,593	5.9%	338,155	310,625	8.9%	9,890,305	9,427,757	4.9%
Total w/o Grain, Coal	649,894	592,576	9.7%	2,833,107	2,659,279	6.5%	649,894	592,576	9.7%	18,725,013	17,935,327	4.4%
Total w/o Grain, Coal & Intermodal	287,797	263,193	9.3%	1,428,529	1,346,674	6.1%	287,797	263,193	9.3%	8,099,515	7,886,480	2.7%
Total Carloads	778,468	722,150	7.8%	3,381,702	3,223,229	4.9%	778,468	722,150	7.8%	22,439,823	21,706,972	3.4%

Source: Cowen and RailShare

2. Pricing

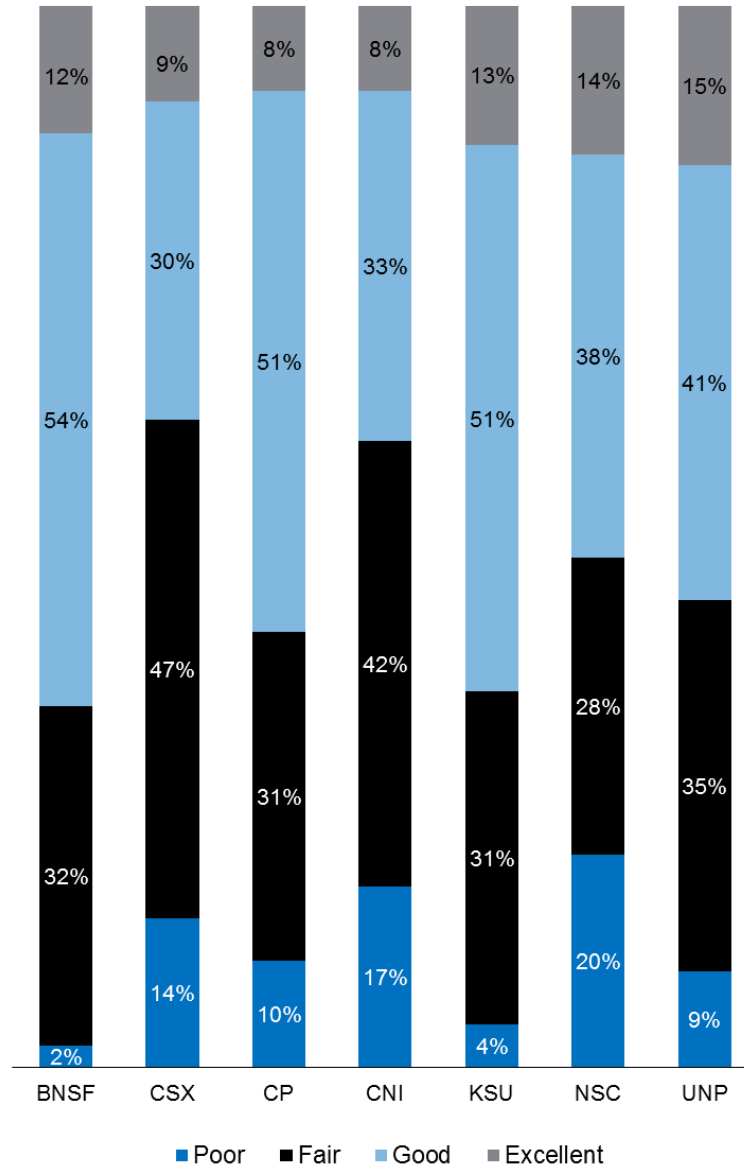
Pricing continues to gather momentum. Our proprietary July-13 survey showed a big, 90 bps increase in rail shippers' expectations for average rail price increases over the next 6-12 months.



Source: Cowen proprietary 2Q18 rail shipper survey

2. Service

Still suboptimal but getting better.

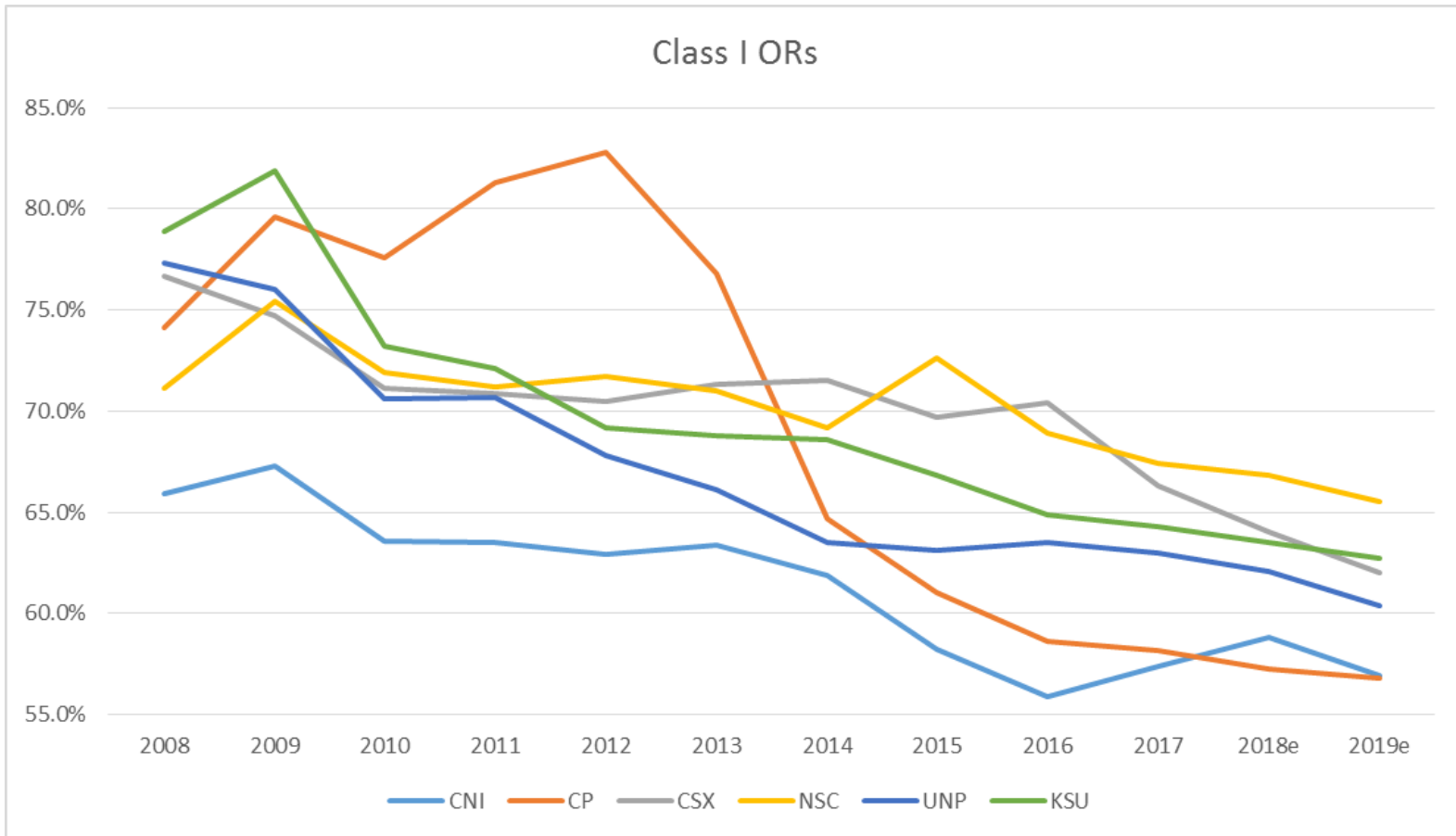


Source: Cowen proprietary 2Q18 rail shipper survey

Wall Street's View of Rails, Summed Up

Lower OR, or else

- Long-term revenue growth potential limited by network capacity.
- Once network capacity can be fully optimized, the focus shifts even more closely to operating ratios.
- When both the top line and margin expansion potentials are reached, what will be the rail story to investors? Income or technology? or both?



Source: Cowen estimates and SEC filings

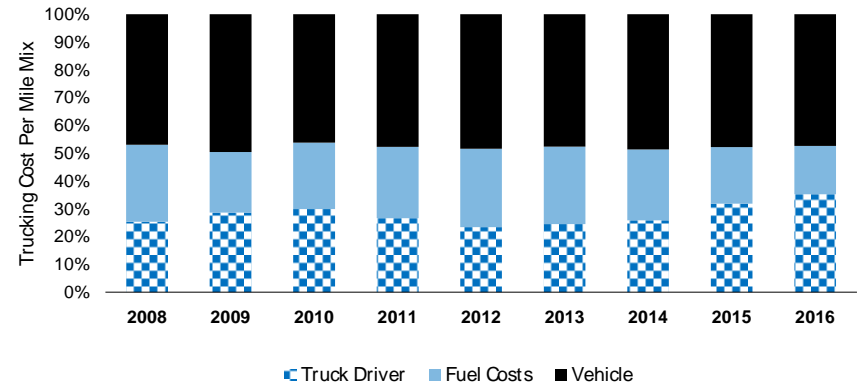
Autonomous Trucks - What the Rails Stand to Lose

- Should the rails lose sleep over this right now? No, but they should sleep with one eye half open and watch for oncoming electric truck traffic.
- Low risk of significant, technology-driven conversion from rail to truck in the next 5 years; but...
- ...a big step-up in headline risk could occur in 2-3 years and have real consequences for rail freight and stocks alike. That is if major players testing technologies come out with high marks and reinforced commitment.
- Upward of 25% of rail traffic could be at risk of conversion or increased price competition should electric trucks/platooning/autonomous trucks become ubiquitous.
- The rails can take small comfort in the highly fragmented nature of trucking (over 150K carriers); for many, the capital investment requirement in new technology may be prohibitive, which leads us to a potential twist in the plot...
- ...will the aging mom and pop operations be discouraged by capital requirements/transformational changes and opt out of the market, thereby reducing trucking industry capacity? Or will they be compelled by the presumably lower conventional equipment and diesel prices to stay or even grow, thereby boosting trucking industry capacity?
- The rails' multi-pronged answer to the threat: investment in new technologies, such as autonomous and natural gas locomotives; exhaust double tracking and double stacking opportunities; train length and speed; streamlined, higher-capacity railcars (intermediate-term positive for builders, a potential risk in the very long term). What about Class I consolidation?

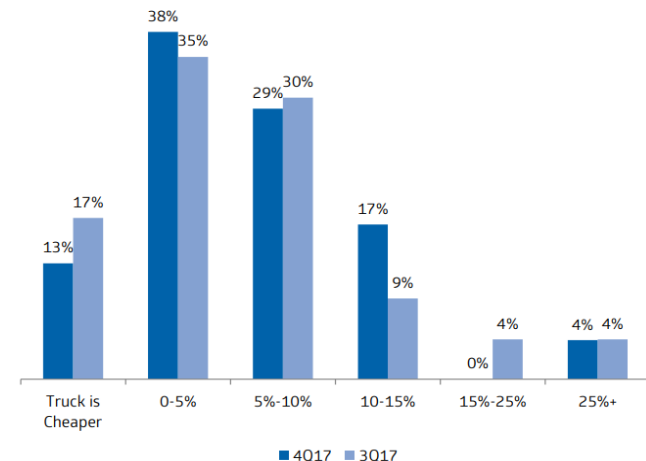
Autonomous Trucking Implications For Rails

- On Shippers' Radars:** 86% of rail shippers, representing \$7.7B worth of transport spend told us they would use or consider using autonomous trucks to move their freight
- Sooner Than You Think:** Level 3 (driver still required) autonomous trucks could be ubiquitous on US roadways by the mid to late 2020s. Levels 4 (driver required, but less involved) and 5 (driverless) could follow in the decade beyond that. Consumer adoption of driverless passenger vehicles is an important precursor.
- Rail Cost Advantage Narrows Over Time:** The rail cost advantage could dwindle. We think a Level 3 fleet could see a 4-8% earnings improvement. We don't need to have driverless trucks for rails to potentially lose a portion of their 5-15% cost advantage.
- Platooning Is A Risk To Rails:** 7% improvement in fuel efficiency leads to a 3% reduction in overall cost per mile alone.

The Driver Is A Significant Piece Of The Cost Per Mile



84% of Shippers Say The Rail Discount vs. Truck Is Up To 15%



The Logistics Perspective

- **Questions that could be asked more often by the mid-to-late 2020s:**
 - If very large e-tailers and retailers develop or acquire vertically integrated supply chains, why use as much rail when the density is available to fully utilize those owned trucking assets?
 - Why use as much rail when speed is so important to consumers and the cost gap between trucking is closing?
 - App-based brokerages make it so easy to secure truck capacity and give me great visibility. Why use so much rail?
 - Why use so much rail when its fuel efficiency vs. truck is far less than the historical 4x?
 - Does it make sense for a large 3PL and Class 1 rail to partner or even take it a step further.....?

Railcar Dynamics in 2018

We're forecasting 52K units of production in 2018. Here are the drivers:

- Frac sand (small covered hopper)
- Bill C49 in Canada and aging grain hopper fleet (medium covered hopper)
- Chemicals projects coming online (large covered hopper, tank cars)
- Trucking ELD regulations (intermodal equipment)
- Higher energy prices (tank cars, small covered hoppers)
- Accelerated bonus depreciation
- Financial investors
- Increased scrapping
- Overall freight recovery likely sustainable

Consolidation?

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Jason Seidl, the author of this research report, was elected President of The North East Association of Rail Shippers (NEARS), a rail transportation industry group, for a two-year term beginning September 27, 2017.

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