
Kenny Vieth
ACT RESEARCH Co., LLC

Chicago Federal Reserve Automotive Outlook Symposium
June 3, 2016
Crosscurrents

**Good**
- Consumer confidence
- Job creation
- Household big ticket buys (autos slowing)
- Oil prices (users)
- Decent RDPI
- Low inflation & interest rates
- Stock market

**Not-so-good**
- Rest-of-world economies
  - China, Brazil
- US$ impact on exports
- Gov’t finance-worldwide
- Oil prices (producers)
  - & other commoditites
- Beltway blues, ‘16 election
- Geopolitical risk
Lead Indicator Review

• Yield curve (long/short rate spread):
  • Healthy, Wide

• Purchasing Managers’ Index:
  • Improved, recent moves above 50

• Commodity prices:
  • Off bottom, insufficient to spur investment

• Stock market trends

• Consumer & Business Sentiment surveys:
  • No traction past ~3 quarters
Key Freight Markets

• Consumer sectors:
  • RS: Strong April and ~3% RDPI trend suggest sustainability
  • Housing: Lean inventories and strong trend
  • Auto: Underlying strength, but volumes appear peaky

• Capital Goods/Machinery:
  • Popped commodity bubble triggers capex retrenchment in energy, agriculture, etc.
  • Strong US$, soft global markets weaken exports
  • Ample domestic capacity
    – Excessive inventories add drag
<table>
<thead>
<tr>
<th>Category</th>
<th>Metric</th>
<th>Jan-14</th>
<th>Feb-14</th>
<th>Mar-14</th>
<th>Apr-14</th>
<th>May-14</th>
<th>Jun-14</th>
<th>Jul-14</th>
<th>Aug-14</th>
<th>Sep-14</th>
<th>Oct-14</th>
<th>Nov-14</th>
<th>Dec-14</th>
<th>Jan-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro</td>
<td>ISM-PMI Index</td>
<td>52.1</td>
<td>54.8</td>
<td>55.1</td>
<td>55.4</td>
<td>55.8</td>
<td>55.3</td>
<td>55.6</td>
<td>58.1</td>
<td>55.8</td>
<td>57.3</td>
<td>57.5</td>
<td>54.9</td>
<td>53.9</td>
</tr>
<tr>
<td></td>
<td>Non-Auto Durables Mfg Output**</td>
<td>0.7</td>
<td>0.7</td>
<td>1.5</td>
<td>1.9</td>
<td>2.5</td>
<td>2.9</td>
<td>3.3</td>
<td>3.1</td>
<td>3.2</td>
<td>3.4</td>
<td>3.4</td>
<td>3.7</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>Consumer Spend, Goods only**</td>
<td>1.8</td>
<td>2.0</td>
<td>2.6</td>
<td>2.9</td>
<td>3.0</td>
<td>3.4</td>
<td>3.6</td>
<td>4.2</td>
<td>4.1</td>
<td>4.3</td>
<td>4.5</td>
<td>4.7</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td>Residential Const Expend (real) **</td>
<td>12.6</td>
<td>12.7</td>
<td>13.2</td>
<td>13.3</td>
<td>12.6</td>
<td>10.5</td>
<td>7.8</td>
<td>4.8</td>
<td>2.9</td>
<td>1.9</td>
<td>1.7</td>
<td>3.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Financial</td>
<td>Dow Jones Transport Stock Index</td>
<td>72.89</td>
<td>73.48</td>
<td>75.75</td>
<td>76.72</td>
<td>81.05</td>
<td>82.02</td>
<td>84.08</td>
<td>84.51</td>
<td>87.56</td>
<td>91.98</td>
<td>91.40</td>
<td>86.49</td>
<td></td>
</tr>
<tr>
<td>Freight</td>
<td>ATA TL Loads**</td>
<td>1.6</td>
<td>2.6</td>
<td>1.3</td>
<td>1.7</td>
<td>2.2</td>
<td>2.2</td>
<td>2.8</td>
<td>2.6</td>
<td>3.4</td>
<td>3.6</td>
<td>3.6</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>DAT Transcore Loads/Truck</td>
<td>9.7</td>
<td>10.3</td>
<td>8.9</td>
<td>6.3</td>
<td>5.8</td>
<td>6.9</td>
<td>7.1</td>
<td>7.7</td>
<td>5.9</td>
<td>6.3</td>
<td>6.2</td>
<td>7.4</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>DAT Aggregate Contract/Spot Spread</td>
<td>15</td>
<td>11</td>
<td>5</td>
<td>14</td>
<td>16</td>
<td>8</td>
<td>12</td>
<td>17</td>
<td>10</td>
<td>12</td>
<td>7</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>ACT data</td>
<td>Cl 8 Cancellations (sa)</td>
<td>2028</td>
<td>1941</td>
<td>1494</td>
<td>1685</td>
<td>1693</td>
<td>1594</td>
<td>2849</td>
<td>3552</td>
<td>2537</td>
<td>1286</td>
<td>1975</td>
<td>2145</td>
<td>3936</td>
</tr>
<tr>
<td></td>
<td>Cl 8 I/S ratio (sa)</td>
<td>2.09</td>
<td>1.91</td>
<td>2.06</td>
<td>2.25</td>
<td>2.21</td>
<td>2.14</td>
<td>2.45</td>
<td>2.12</td>
<td>2.41</td>
<td>2.44</td>
<td>2.03</td>
<td>2.47</td>
<td>2.09</td>
</tr>
<tr>
<td></td>
<td>Class 8 Inventory Level (000 sa)</td>
<td>44.0</td>
<td>45.1</td>
<td>47.8</td>
<td>48.9</td>
<td>51.1</td>
<td>51.9</td>
<td>54.5</td>
<td>54.5</td>
<td>55.7</td>
<td>56.1</td>
<td>56.9</td>
<td>56.1</td>
<td>57.5</td>
</tr>
<tr>
<td></td>
<td>ACT For Hire - Volume less Capacity</td>
<td>54.6</td>
<td>58.2</td>
<td>68.8</td>
<td>62.2</td>
<td>61.2</td>
<td>58.6</td>
<td>57.4</td>
<td>53.7</td>
<td>55.2</td>
<td>55.5</td>
<td>56.0</td>
<td>47.3</td>
<td>45.7</td>
</tr>
<tr>
<td>Green Minus Red Tally</td>
<td></td>
<td>3</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>
Capacity Rising Faster Than Freight

ACT For-Hire Trucking Survey
Supply-Demand Balance
Fleet Capacity Index Less Freight Volume Index
January '10 - April '16

Improving
Deteriorating
No Traction

ATA Truck Loads Index
January '03 - March '16 (2000=100)

2015
FY2015 y/y @ 1.0%
Q1’15: 4.0%
Q2-Q4’15: 0.0%

2016
Q1’16: 1.4%

February read incongruous relative to other data points

Source, American Trucking Associations, ACT Research Co., LLC: Copyright 2016
Supply-Demand Imbalance...

Widening spot-contract rate gap implies difficult 2017 contract rate environment
...Implies Lower Contract Rates

Dry Van Rate Pressure Analysis:
Contract less Spot rate relative to target rate spread
January '10 - April '16 (2000=100)

Source, Transcore Commercial Technology Group, ACT Research Co., LLC: Copyright 2016
Carriers Buy Trucks to Make Money
(and not pay so much in taxes)

TL Carrier Database:
Net Profit Margin
Q1'05 - Q4'15

- Some top line misses
- Margins weaker than year-ago but . . .
- Carriers generally hit street earnings targets
- Thru cost discipline
Productivity: Paradigm Shift

Class 8 Total Population & U.S. Real GDP
1976 - 2021f

Productivity in Play
Increased Density
Increased Utilization
Some Modal shifting
Online retail shift
Modal Impacts

Domestic Intermodal Loadings
2003-2016F

Thousands

Domestic Trailers & Containers

E-Commerce as a Percentage of Retail Sales
Q1’2001 - Q1’2016

Percent

Percent x Food
Percent w Food
y/y PPTs

Source: Federal Reserve Board, ACT Research: Copyright 2016
Productivity Impacts Demand-Side

NET FREIGHT: ACT Freight Composite less HD Tractor Productivity
2008 - 2017 (Year/Year)

Y/Y % Chg.

- Net Freight
- C8 Productivity
- ACT Freight Comp.

HOS Offset
HOS rev.
ELD Offset

Freight Growth less Productivity Growth
2015-2016 Supply-Side Surge

At 2.0% GDP, U.S. tractor-only demand should be ~155k units/yr.

If productivity is offsetting freight growth, tractor-only replacement is ~140k
More Capacity = More Competition

U.S. Class 8
Implied Tractor Fleet Utilization Rate
1997 - 2017

ACT Research Co., LLC: Copyright 2016

Fleet Utilization (%)

Q1’16 Update (2015 Actual)
HOS (~+4% pts Tractor)
Utilization Target
Fcst.

Utilization rebound in 2017 predicated on ELD adoption productivity hit
(OOIDA v. FMCSA ELD suit still not posted on docket)

All utilization model inputs moving in the wrong direction in 2015: Weaker freight environment; Uptick in productivity trends; Strong Class 8 tractor fleet additions
Used Values Stabilizing

Used Class 8: Average Retail Selling Price
January '10- Preliminary April '16

$(000s) per Unit

Monthly & 3MMA

Y/Y % Chg.
Class 8 Off-peak

- Soft freight metrics
- Bifurcated economy
  - 2015-2016 parallel to 1995-1996?
    - Industrial correction in a growing economy
      - But with the added dimension of a burst commodity price bubble
- Orders hit 4-year low in April, continuing (-40% YTD)
  - Even as cancellations fall to 2-year lows
- Still large backlogs thanks to reasonable carrier health
- Payback for excessive inventory builds exacerbates need to cut build rates (-20% YTD)
- Inventory discounting supports sales (-10%)
# Order Performance: YTD April

<table>
<thead>
<tr>
<th></th>
<th>Tractor Slpr.</th>
<th>Tractor DC</th>
<th>Truck Slpr.</th>
<th>Truck DC</th>
<th>Total Class 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Year NA Mkt. Share</td>
<td>47%</td>
<td>27.3%</td>
<td>0.7%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

### April YTD Y/Y % Chg. (‘15)

<table>
<thead>
<tr>
<th>Region</th>
<th>U.S. (81%)</th>
<th>Can (10%)</th>
<th>Mex. (7%)</th>
<th>Exp. (2%)</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Chg.</td>
<td>-60</td>
<td>-57</td>
<td>+96</td>
<td>-35</td>
<td>-51</td>
</tr>
<tr>
<td></td>
<td>-53</td>
<td>-52</td>
<td>+28</td>
<td>-79</td>
<td>-51</td>
</tr>
<tr>
<td></td>
<td>+59</td>
<td>+256</td>
<td>+166</td>
<td>0</td>
<td>+89</td>
</tr>
<tr>
<td></td>
<td>-15</td>
<td>-50</td>
<td>+165</td>
<td>-47</td>
<td>-13</td>
</tr>
<tr>
<td></td>
<td>-48</td>
<td>-54</td>
<td>+98</td>
<td>-53</td>
<td>-42</td>
</tr>
</tbody>
</table>

C8NANO SAAR:
- Past 12: 246k
- Past 6: 207k
- Past 3: 195k
- April: 166k
Mixed Signals

TOTAL CLASS 8: N.A. CANCELLATIONS
January '10 - April '16

TOTAL CLASS 8: N.A. CANCELLATION RATE
Expressed as a percentage of Backlog
January '10 - April '16

ACT Research Co., LLC, Copyright 2016
Bad is Relative

TOTAL CLASS 8: N.A. BACKLOG & BL/BU RATIO
January '10 - April '16

ACT Research Co., LLC, Copyright 2016
Inventory Breakdown:
Assume that “process IN” is constant @~5wk/~1.2 mo.

Everything above = stock

INRS Target @ 250k mkt.
2.2m = ~46,000

April Actual: 65,700
## 2018: ELD Impact Swag

<table>
<thead>
<tr>
<th>Market Share Estimates</th>
<th>Implied Units</th>
<th>ELD Penetration</th>
<th>Units w/ ELD</th>
<th>Units w/o ELD</th>
<th>% &quot;Excess&quot; Miles</th>
<th>Compliance Productivity loss</th>
<th>Capacity Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Tractor Pop.</td>
<td>1,505,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Private</td>
<td>47% 708,000</td>
<td>100%</td>
<td>56,000</td>
<td>-</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For Hire:</td>
<td>53% 798,000</td>
<td></td>
<td>80,000</td>
<td>-</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expedited</td>
<td>7% 56,000</td>
<td>100%</td>
<td>56,000</td>
<td>-</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTL</td>
<td>10% 80,000</td>
<td>100%</td>
<td>80,000</td>
<td>-</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large TL</td>
<td>25% 200,000</td>
<td>90%</td>
<td>180,000</td>
<td>20,000</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mid TL</td>
<td>20% 160,000</td>
<td>25%</td>
<td>40,000</td>
<td>120,000</td>
<td>5%</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Sm. TL</td>
<td>28% 224,000</td>
<td>10%</td>
<td>22,400</td>
<td>201,600</td>
<td>10%</td>
<td>20,160</td>
<td></td>
</tr>
<tr>
<td>OO</td>
<td>10% 80,000</td>
<td>0%</td>
<td>-</td>
<td>80,000</td>
<td>20%</td>
<td>16,000</td>
<td></td>
</tr>
</tbody>
</table>

**Total For-Hire Implication** 378,400 **421,600** **42,160** 28%

**Total Tract Fleet Capacity Impact (%)** 2.8%

**For-hire Fleet Only Capacity Impact (%)** 5.3%
Medium Duty

• Cancellations and key ratios (BL/BU and IN/RS) suggest fundamentals are solid. *Can always use more orders.*

• Key MD truck demand drivers staying between the lines:
  – Consumer confidence has subsided a little (election?)
    • Confident consumers are more willing to spend
  – Construction market (resi/non-resi) is especially important to MD trucks
  – State and local governments exhibiting moderate growth

• Classes 4-7 population approaching growth phase
  – Cl.6-7 at ~160k/yr, Cl.4-5 at ~70k/yr

• Competitive landscape rumblings
# N.A. Classes 5-7 Order Distribution

(Data through April 2016, annualized)

<table>
<thead>
<tr>
<th>Classes 5-7 Orders</th>
<th>Truck (000s)</th>
<th>Bus (000s)</th>
<th>RV (000s)</th>
<th>Total* (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past 12 Mo.</td>
<td>170.7</td>
<td>38.6</td>
<td>20.7</td>
<td>238.0</td>
</tr>
<tr>
<td>Past 6 (AR)</td>
<td>185.4</td>
<td>36.9</td>
<td>21.7</td>
<td>249.7</td>
</tr>
<tr>
<td>Past 3 (AR)</td>
<td>183.7</td>
<td>43.4</td>
<td>26.6</td>
<td>262.7</td>
</tr>
<tr>
<td>Apr. (AR)</td>
<td>169.4</td>
<td>39.4</td>
<td>23.7</td>
<td>250.6</td>
</tr>
<tr>
<td>Apr. (SAAR)</td>
<td></td>
<td></td>
<td></td>
<td>250.3</td>
</tr>
</tbody>
</table>

* Total includes Step Vans
MD BL/BU On-Target

TOTAL CL. 5-7: N.A. BACKLOG & BL/BU RATIO
January '10 - March '16

Units (000s)

BL/BU Ratio (Months)

BACKLOG

BL/BU RATIO
(Right Axis)
## Trailer Demand Remains Robust

### Total Trailers

<table>
<thead>
<tr>
<th>Category</th>
<th>Actual</th>
<th>Seasonally Adj.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mar-16</td>
<td>Mar-16</td>
</tr>
<tr>
<td></td>
<td>Last 13 Mo</td>
<td>Last 13 Mo</td>
</tr>
<tr>
<td>Backlog</td>
<td>168,193</td>
<td>156,272</td>
</tr>
<tr>
<td>Build</td>
<td>26,896</td>
<td>24,163</td>
</tr>
<tr>
<td>Inventory</td>
<td>17,729</td>
<td>17,339</td>
</tr>
<tr>
<td>New Orders</td>
<td>16,517</td>
<td>15,216</td>
</tr>
<tr>
<td>Cancellations</td>
<td>1,536</td>
<td>1,259</td>
</tr>
<tr>
<td>Net Orders</td>
<td>14,981</td>
<td>13,911</td>
</tr>
<tr>
<td>Shipments</td>
<td>26,761</td>
<td>24,894</td>
</tr>
</tbody>
</table>

An old fleet driving strong underlying replacement trend. Not visible yet, but at some point, gravity will re-exert itself.
## Build, Sales & Shipment Forecasts

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA Class 8 BU (000s)</td>
<td>245.8</td>
<td>297.1</td>
<td>323.3</td>
<td>236.0</td>
<td>239.5</td>
</tr>
<tr>
<td>NA C5-7 RS (000s)</td>
<td>190.6</td>
<td>212.3</td>
<td>226.8</td>
<td>237.2</td>
<td>240.5</td>
</tr>
<tr>
<td>U.S. C8 RS (000s)</td>
<td>187.6</td>
<td>224.0</td>
<td>252.9</td>
<td>201.5</td>
<td>198.0</td>
</tr>
<tr>
<td>U.S. C5-7 RS (000s)</td>
<td>167.7</td>
<td>187.9</td>
<td>203.8</td>
<td>215.2</td>
<td>215.1</td>
</tr>
<tr>
<td>U.S. Trailer FS (000s)</td>
<td>234.4</td>
<td>268.7</td>
<td>307.7</td>
<td>296.1</td>
<td>275.3</td>
</tr>
</tbody>
</table>