



Top Trends in Trucking: Demand Driver Convergence

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Economic Review: Broad-based Strength



Manufacturers' PMIs

	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
Global	53.0	52.7	52.6	52.6	52.7	53.2	53.3	53.5	54.1	54.5	54.4	54.2	53.4	53.5
United States	53.3	52.8	52.7	52.0	53.3	52.8	53.1	54.6	53.9	55.1	55.5	55.3	55.6	56.5
Canada	55.5	55.9	55.1	54.7	55.5	54.6	55.0	54.3	54.4	54.7	55.9	55.6	55.7	55.5
Mexico	51.5	50.7	51.2	52.3	51.2	52.2	52.8	49.2	52.4	51.7	52.6	51.6	52.4	51.6
Eurozone	56.2	56.7	57.0	57.4	56.6	57.4	58.1	58.5	60.1	60.6	59.6	58.6	56.6	56.2
Germany	58.3	58.2	59.5	59.6	58.1	59.3	60.6	60.6	62.5	63.3	61.1	60.6	58.2	58.1
France	53.3	55.1	53.8	54.8	54.9	55.8	56.1	56.1	57.7	58.8	58.4	55.9	53.7	53.8
Italy	55.7	56.2	55.1	55.2	55.1	56.3	56.3	57.8	58.3	57.4	59.0	56.8	55.1	53.5
Spain	53.9	54.5	55.4	54.7	54.0	52.4	54.3	55.8	56.1	55.8	55.2	56.0	54.8	54.4
UK	54.2	57.3	56.7	54.3	55.1	56.9	55.9	56.3	58.2	56.3	55.3	55.0	55.1	53.9
Russia	52.4	50.8	52.4	50.3	52.7	51.6	51.9	51.1	51.5	52.0	52.1	50.2	50.6	51.3
Japan	52.4	52.7	53.1	52.4	52.1	52.2	52.9	52.8	53.6	54.0	54.8	54.1	53.1	53.8
China	51.2	50.3	49.6	50.4	51.1	51.6	51.0	51.0	50.8	51.5	51.5	51.6	51.0	51.1
India	52.5	52.5	51.6	50.9	47.9	51.2	51.2	50.3	52.6	54.7	52.4	52.1	51.0	51.6
Brazil	49.6	50.1	52.0	50.5	50.0	50.9	50.9	51.2	53.5	52.4	51.2	53.2	53.4	52.3

>54
Above Trend
51-54
Trend
45-51
Flat
<45
Recession

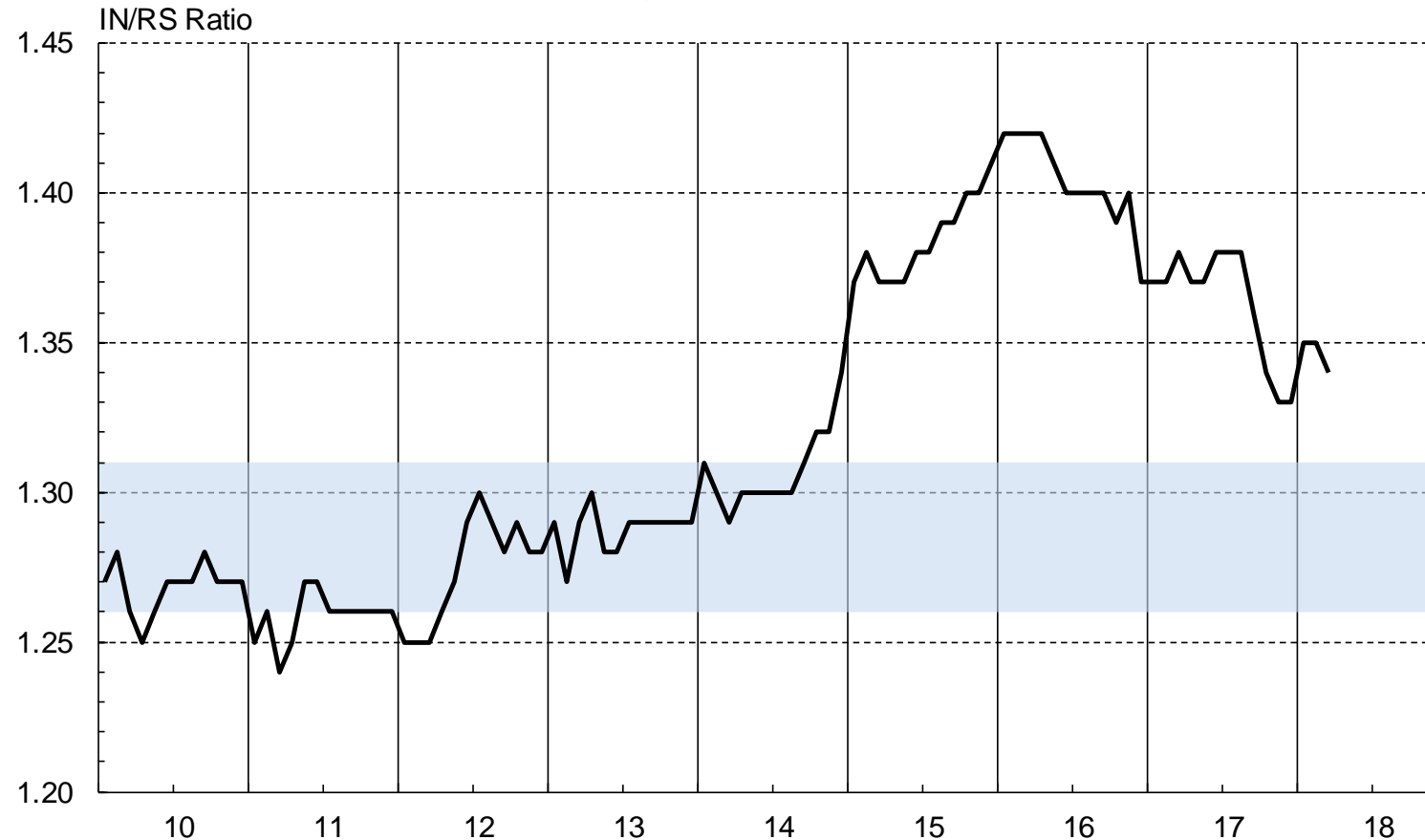
Source: Markit Economics

New Normal?

Inventory to Sales Ratio: Total Business

Index - SAAR

January 2010 - March 2018



Source: Census Bureau, ACT Research Co., LLC: Copyright 2018

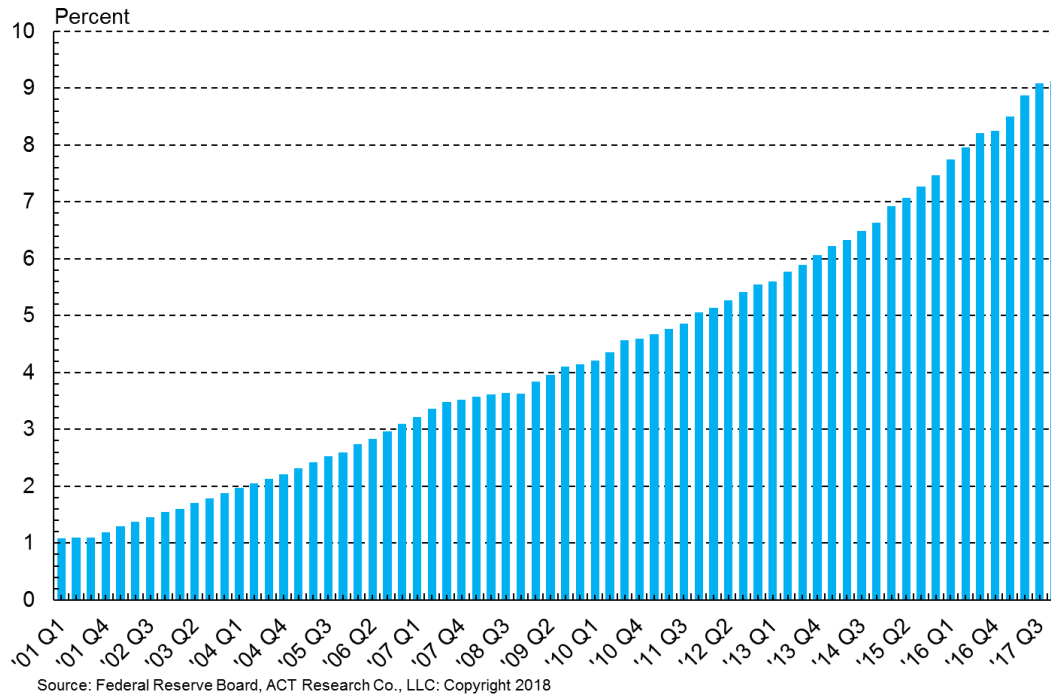
Enjoying tailwinds
following two years
of headwinds

What is correct ratio
in multi-channel
retail environment?

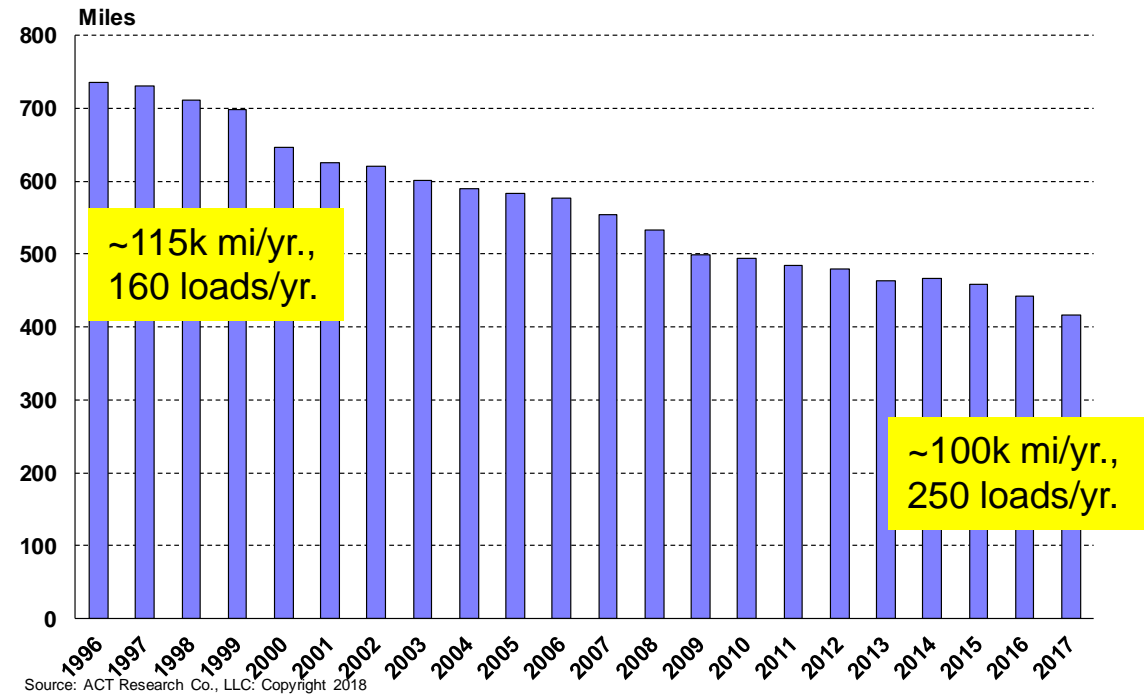
AMZN raises

Impact of E-Commerce

E-Commerce as a Percentage of Retail Sales
(Excluding Food Service)
Q1'01 - Q4'17



TL Carrier Database: Average Length of Haul
1996 - 2017



Strong e-commerce trend leads to structural changes in warehousing
Fewer miles/load, but increased service intensity, more time-definite TL miles

Current Indicator Review

Happy

- Business/consumer confidence
- Rising industrial production
- Job market, RDPI
- Stable oil prices
- Corporate profits growth
- Global expansion
- Tax cuts
- Stocks

Not-so-happy

- Trade tensions – with allies!
 - NAFTA risk
 - *Trade wars are “good and easy to win”* D. Trump
- Low saving rate, rising petrol prices, interest rates
 - Pinching discretionary incomes
 - Making housing less affordable
 - But holding off a rate inversion
- Tougher-to-beat comps in 2019
 - No freight cycle this century has lasted much beyond two years
- Widespread global risk
 - Italy?@#!

Class 8 Quiz

- What is the word that follows:
 - Driver _____
 - Technician _____
 - Parking _____
- Leading to a
 - Capacity _____

CV Markets: From Hot to White-hot

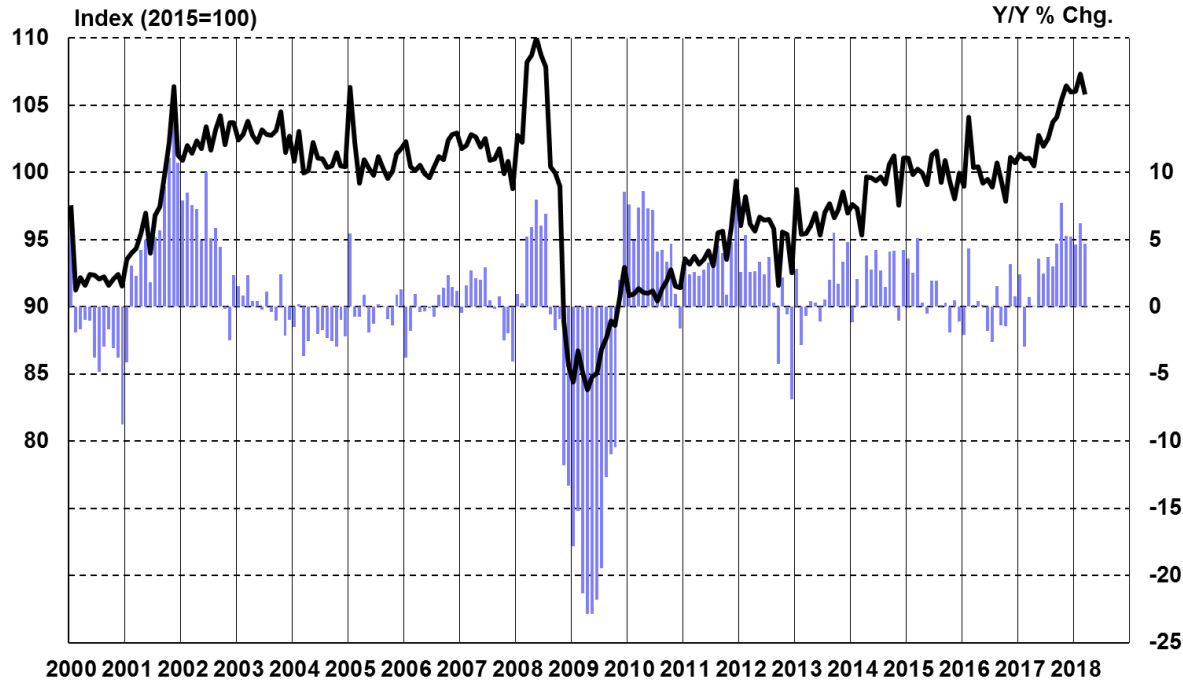
- Demand-side strength
 - Economy poised for period of sustained growth
 - *Healthy freight demand*
 - Corporate tax windfall drives machinery
 - Carrier Profits accelerate
- Supply-side constraints
 - ELD capacity absorption: No more cheaters!
 - Drivers availability constraining capacity
- Exogenous variables positive
 - Productivity trends slowing
 - Desirable new vehicle features: MPG, AMTs, Safety techs

Tax cuts turn solid CV demand environment into an inferno

Soaring Freight Metrics

ATA SA TL Loads Index

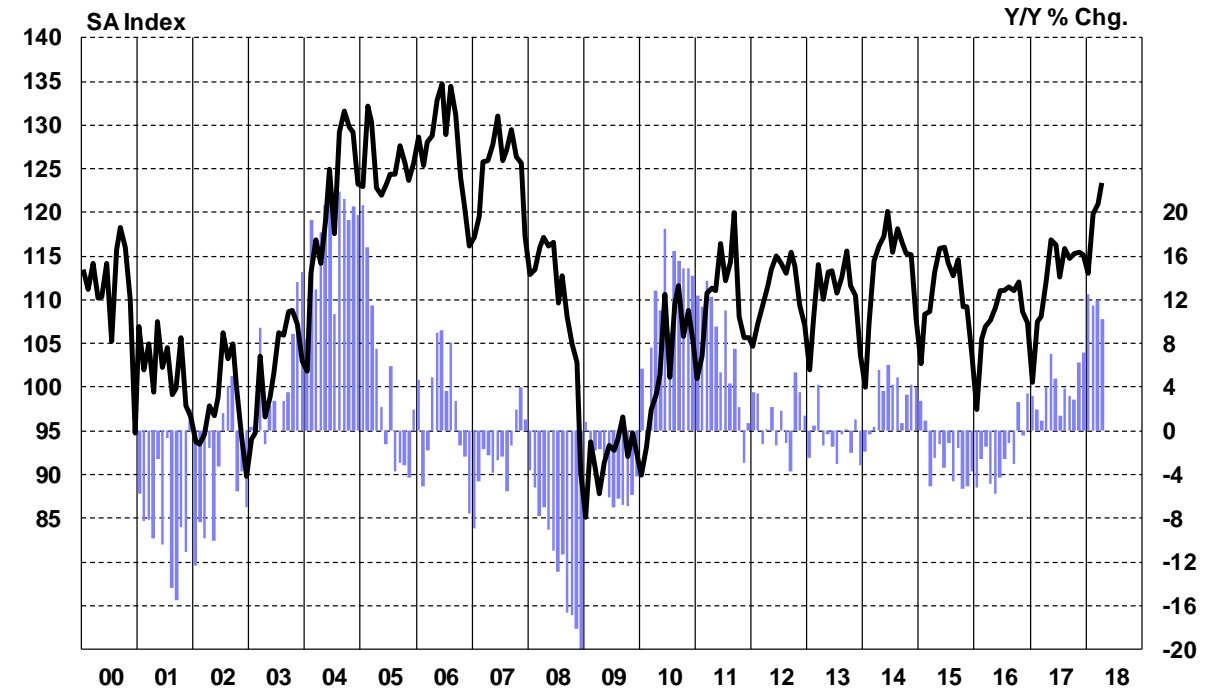
January 2000 - March 2018



Source: American Trucking Associations, ACT Research Co., LLC: Copyright 2018

Cass Shipments Index

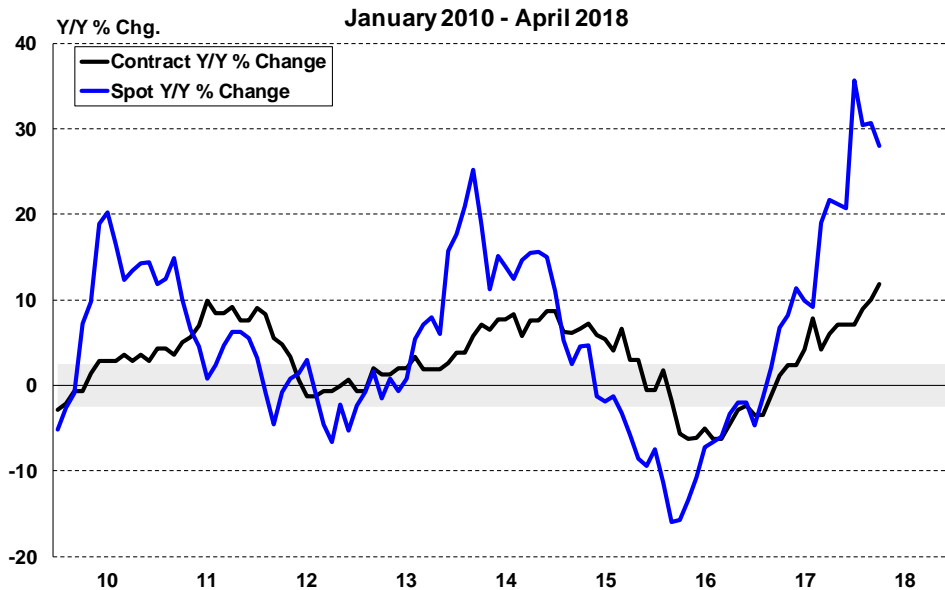
January 2000 - April 2018 (01'1990=100)



Source: Cass Information Systems, ACT Research Co., LLC: Copyright 2018

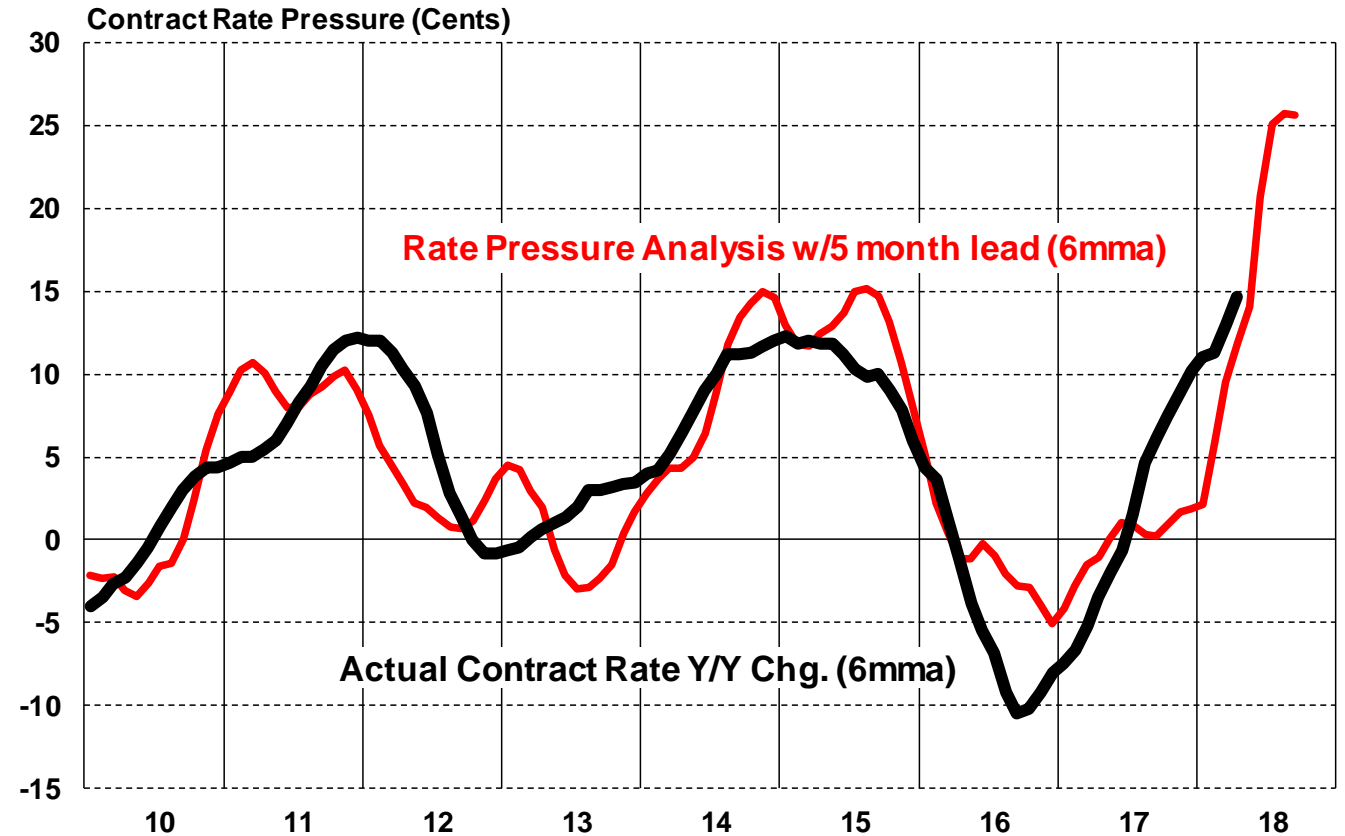
Historic Rate Environment

**DAT Trendlines Spot & Contract Rates:
Dry Vans (ex FSC)**



Source: DAT Solutions, ACT Research Co., LLC: Copyright 2018

**Dry Van Rate Pressure Analysis:
Contract less SA Spot rate relative to target rate spread**
January 2010 - April 2018

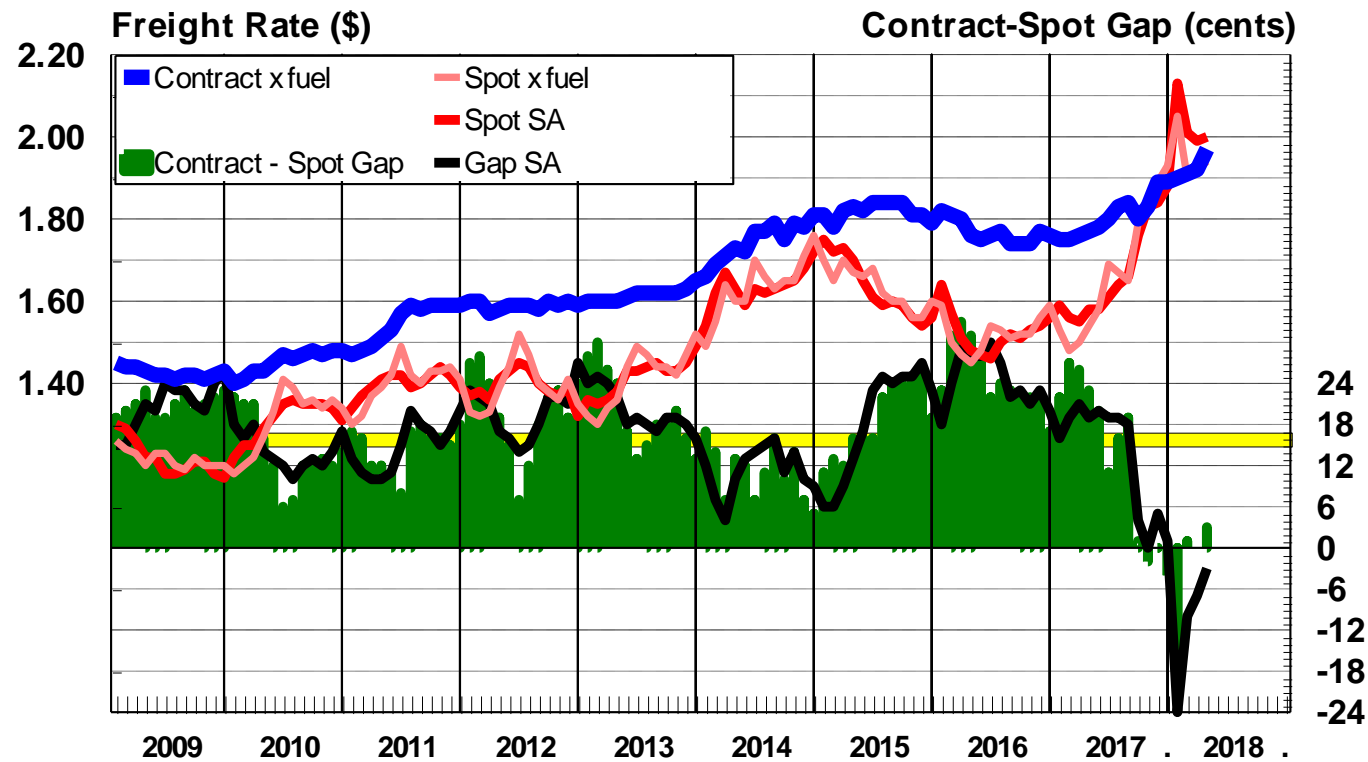


Source: DAT Solutions, ACT Research Co., LLC: Copyright 2018

Unprecedented

DAT Trendlines: AGGREGATE Revenue per Mile Rate

January '09 - April '18 (2000=100)



Source: DAT Solutions, Inc.; ACT Research Co., LLC: Copyright 2018

Hurricanes tip the supply-demand balance:

Rate Gap (SA):

(2010-2017 Mean @ 16c)

August: 18 cents

September: 4 cents

October: -0 cents

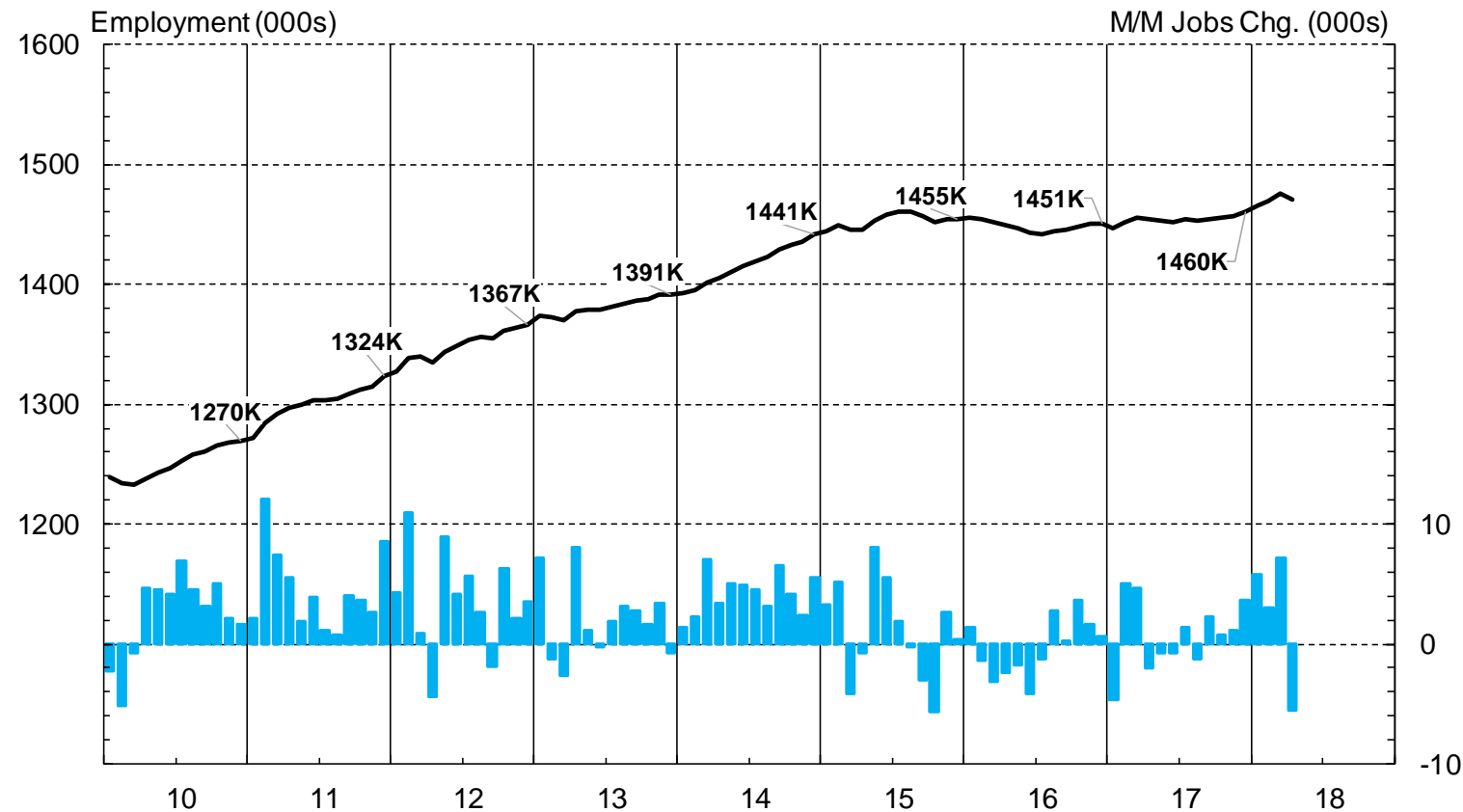
January: -26 cents

April: -3 cents

Limited Traction on Drivers

Truck Transportation Employment

January 2010 - April 2018 (SA)



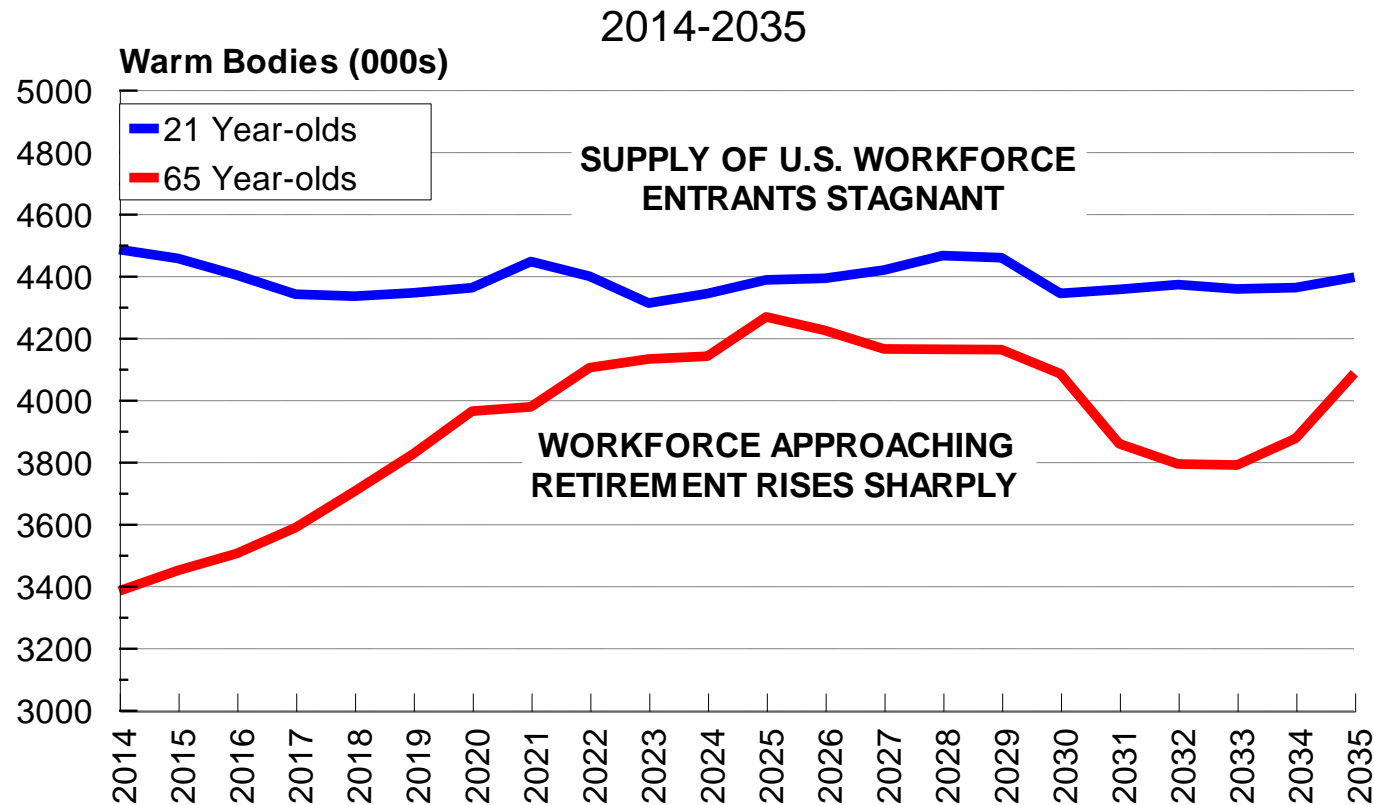
Source: BLS, ACT Research Co., LLC: Copyright 2018

Should have
added ~50k drivers
in 2017 – not 9k

YTD'18: 13.5k

It is NOT Going to Get Better

U.S. Demographics Potential Hirees & Impending Retirees

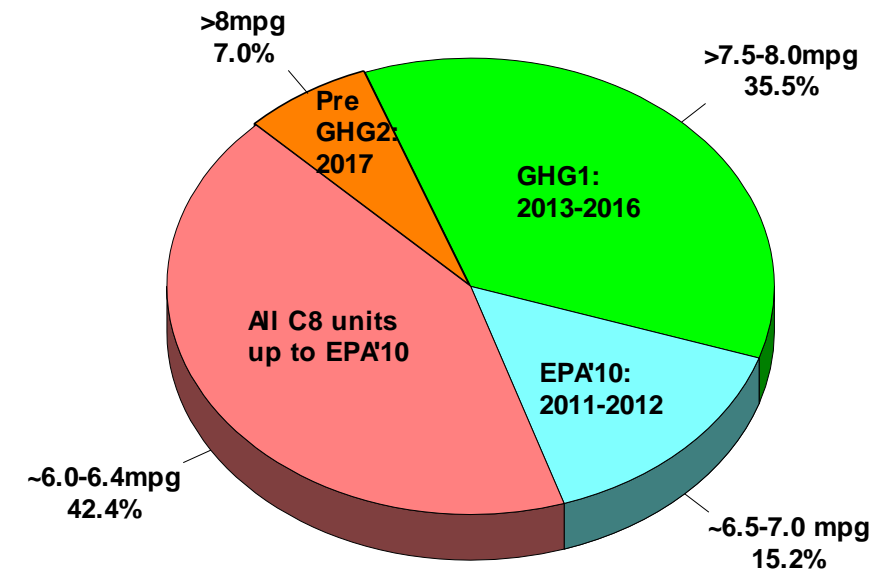


Source: U.S. Census Bureau, ACT Research Co., LLC: Copyright 2018

Significant MPG Strides since EPA'10

MPG	Mi/Yr. @100k	Fuel 5yr (000s)	Diesel @ \$3.50	Notes
6.3		76.9	\$269k	~EPA'07
7.0		71.4	\$250k	~EPA'10
7.5		66.7	\$233k	Pre GHG1
8.0		62.5	\$219k	GHG1
8.5		58.8	\$206k	Pre GHG2
9.0		55.6	\$194k	Pre GHG2
9.5		52.6	\$184k	GHG2'24
10.0		50.0	\$175k	GHG2'27

U.S. C8 Tractor Fleet Fuel Economy
2017-Ending U-15 Population



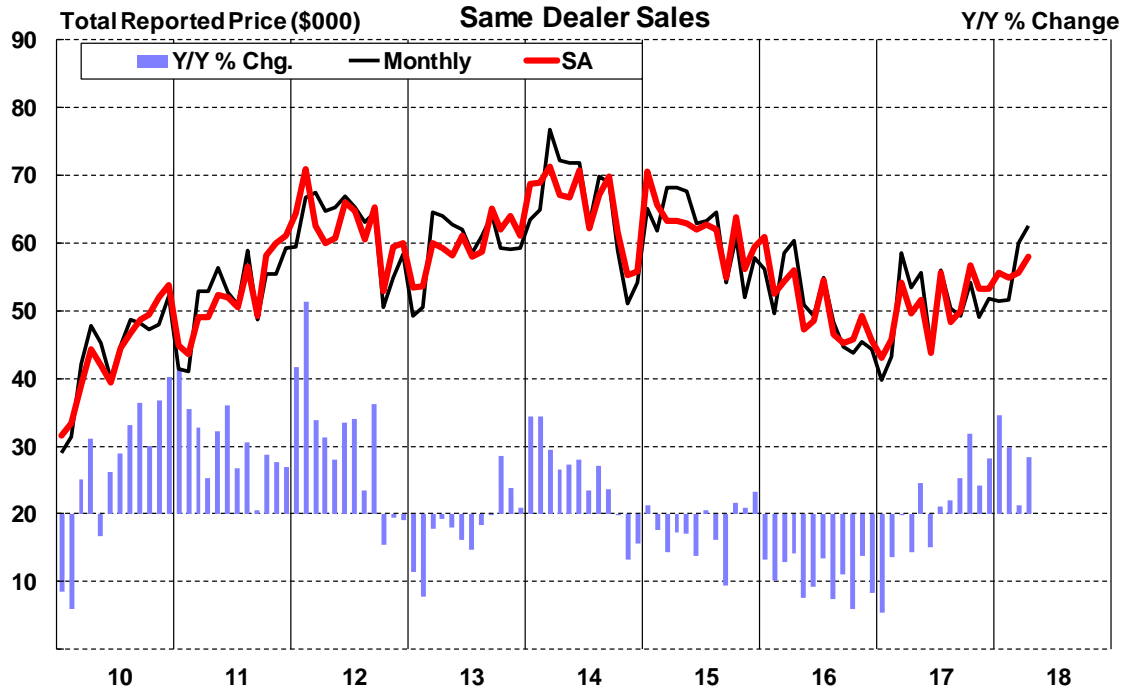
ACT Research Co., LLC: Copyright 2017

More than 50% of fleet <7mpg

Gaining Traction, Rising Risk into 2019

Class 8: U.S. 4-5 Year Old Used Truck Average Sale Price

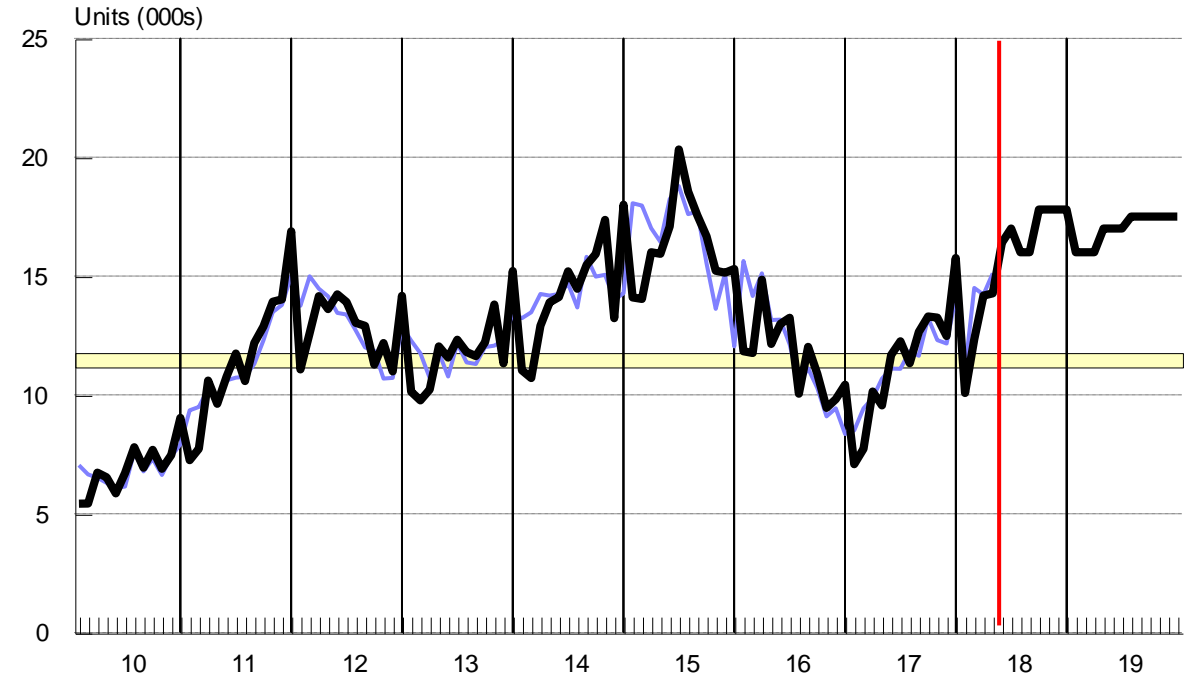
4 to 5 years old, 400-500,000 miles
January 2010 - Preliminary April 2018



Source: ACT Research Co., LLC: Copyright 2018

U.S. CLASS 8 TRACTORS Retail Sales

January '10 - April '16



ACT Research Co., LLC: Copyright 2016

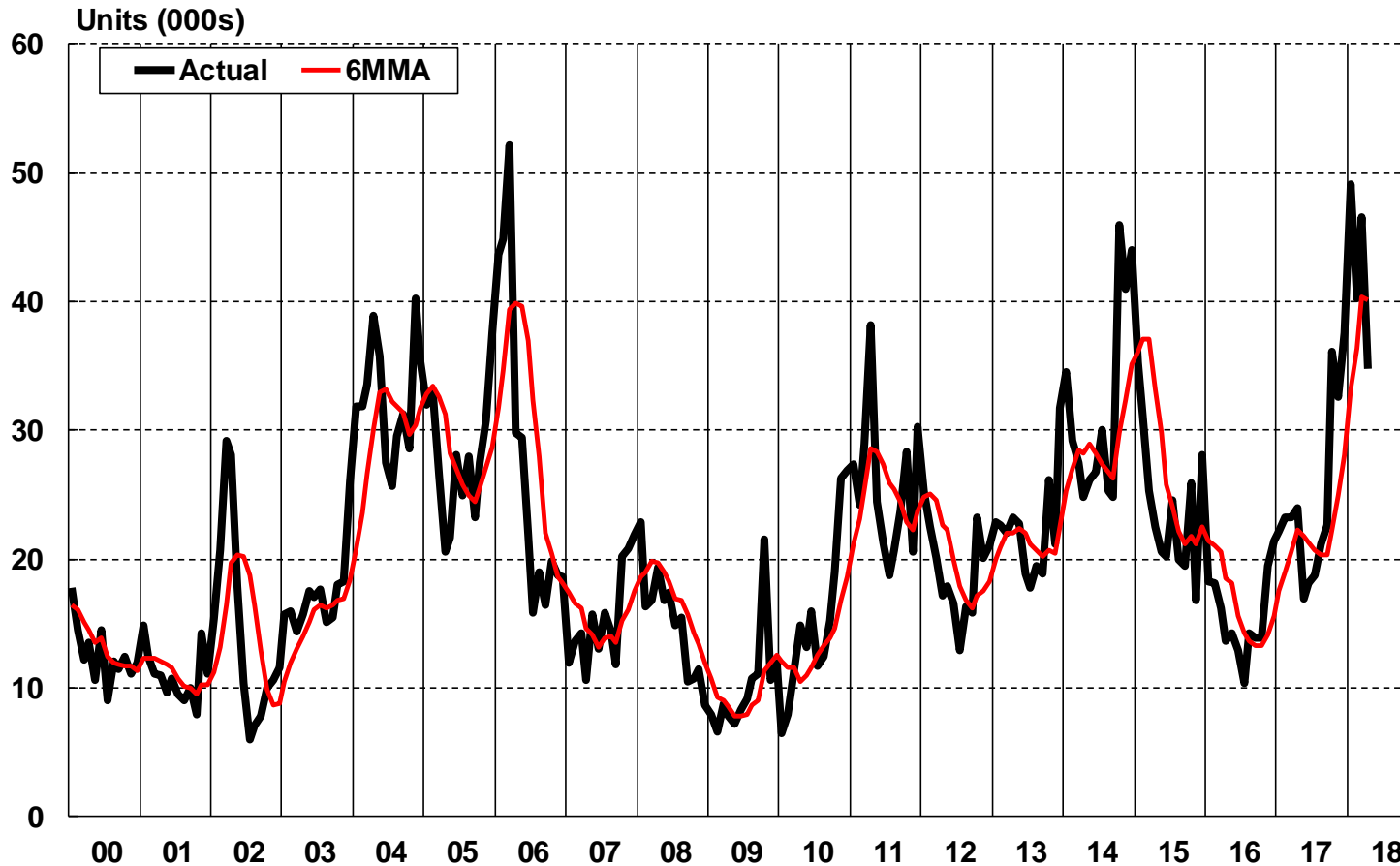
Yesterday's new tractor sales are tomorrow's used trucks: *There were a lot of new trucks sold yesterday*

Late-model trades are not today's preferred new truck spec

U.S. Tractor Market Drives Surge

Total Class 8: N.A. Net Orders

January 2000 - April 2018



**NA C8 NO
April-Ending
(SAARS)**

Past 12 375k

Past 6 436k

Past 3 462k

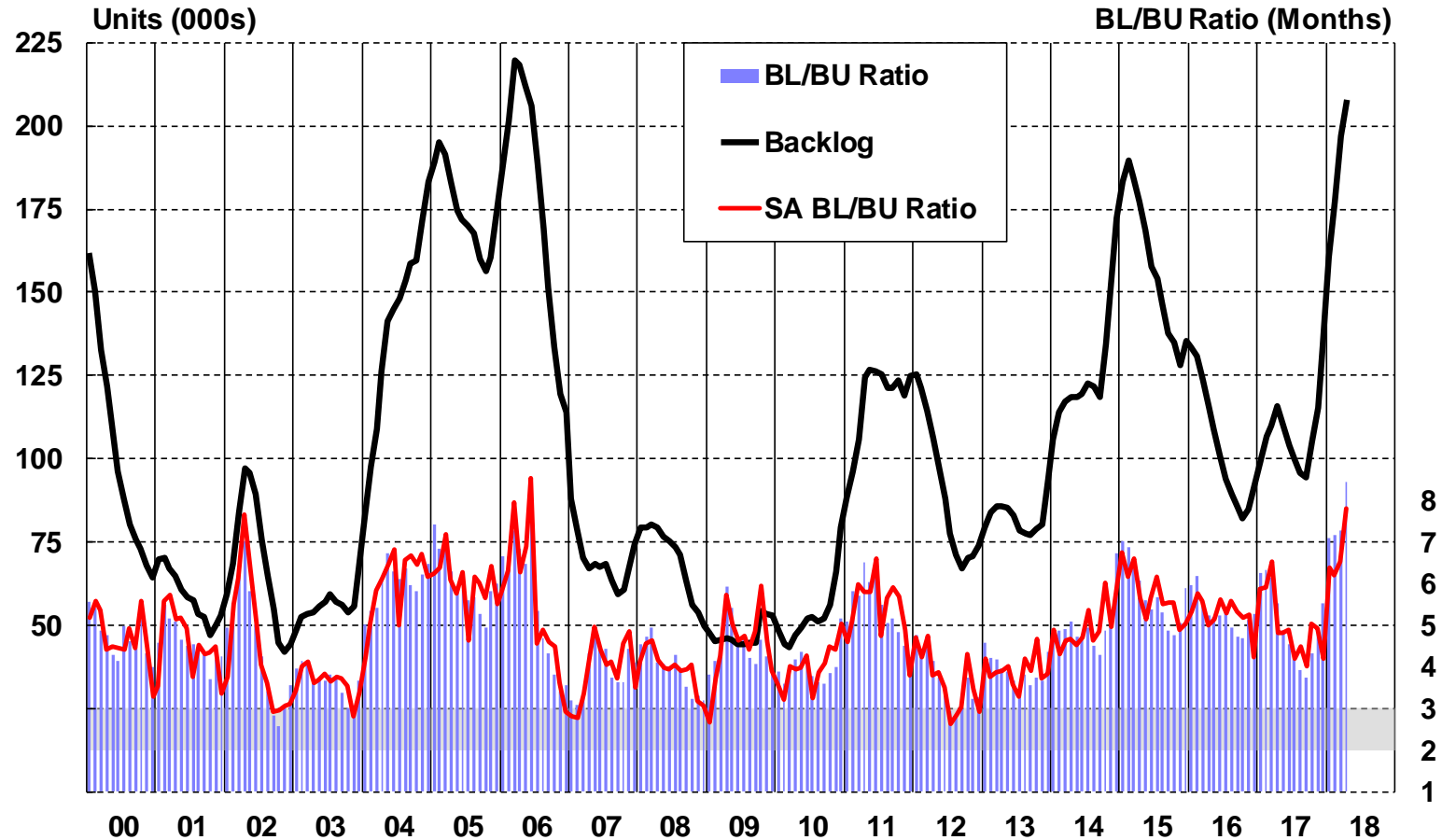
April 421k

Source: ACT Research Co., LLC: Copyright 2018

BL/BU Hits 8 in April

Total Class 8: N.A. Backlog & BL/BU Ratio

January 2000 - April 2018

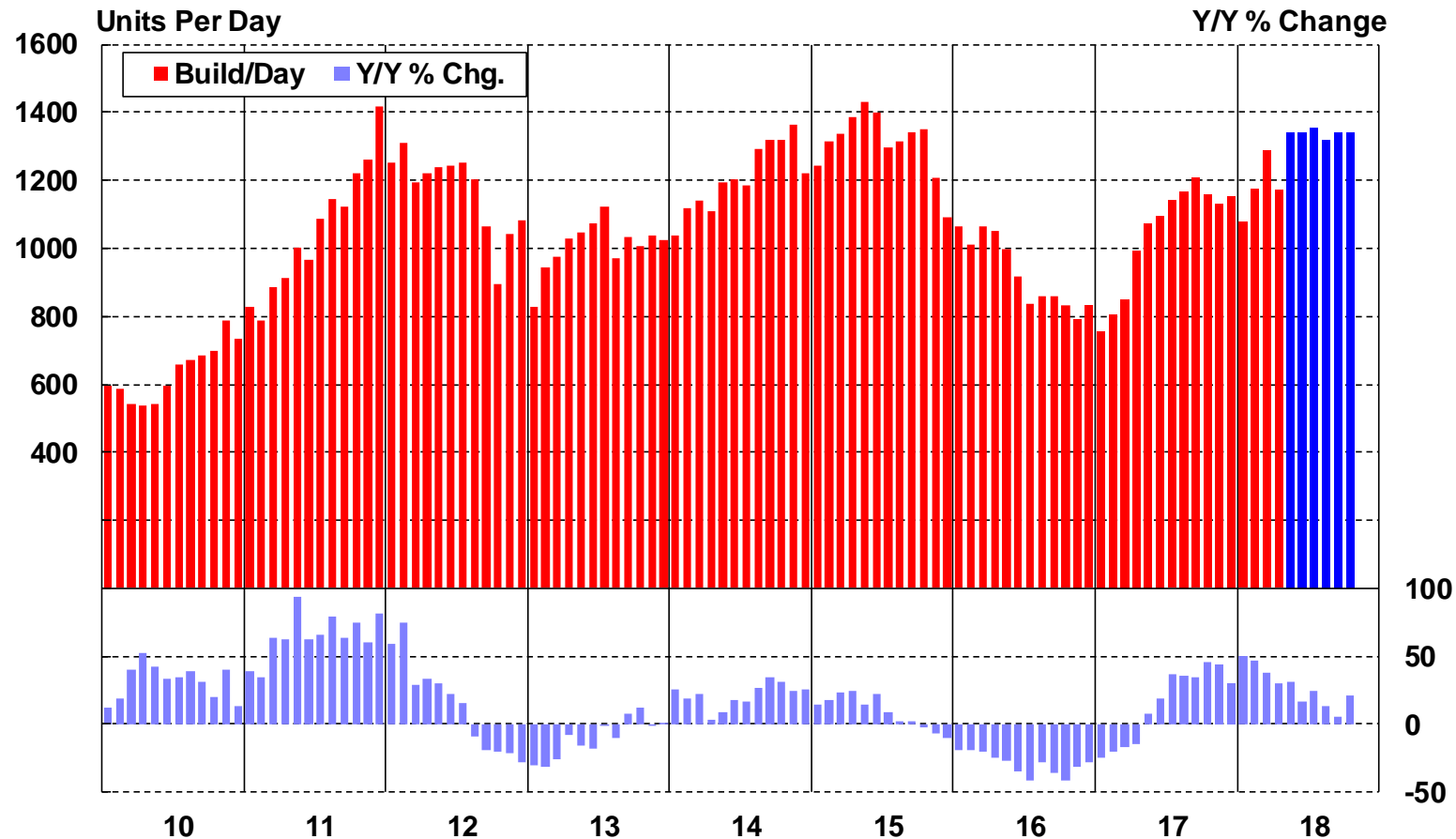


Source: ACT Research Co., LLC: Copyright 2018

Production Supply-Chain Constrained

Total Class 8: N.A. Build Per Day

January 2010 - October 2018



One OEM on 5-22:

“Another 60 days to work through capacity issues” with proprietary axles and some plastic parts

Source: ACT Research Co., LLC: Copyright 2018

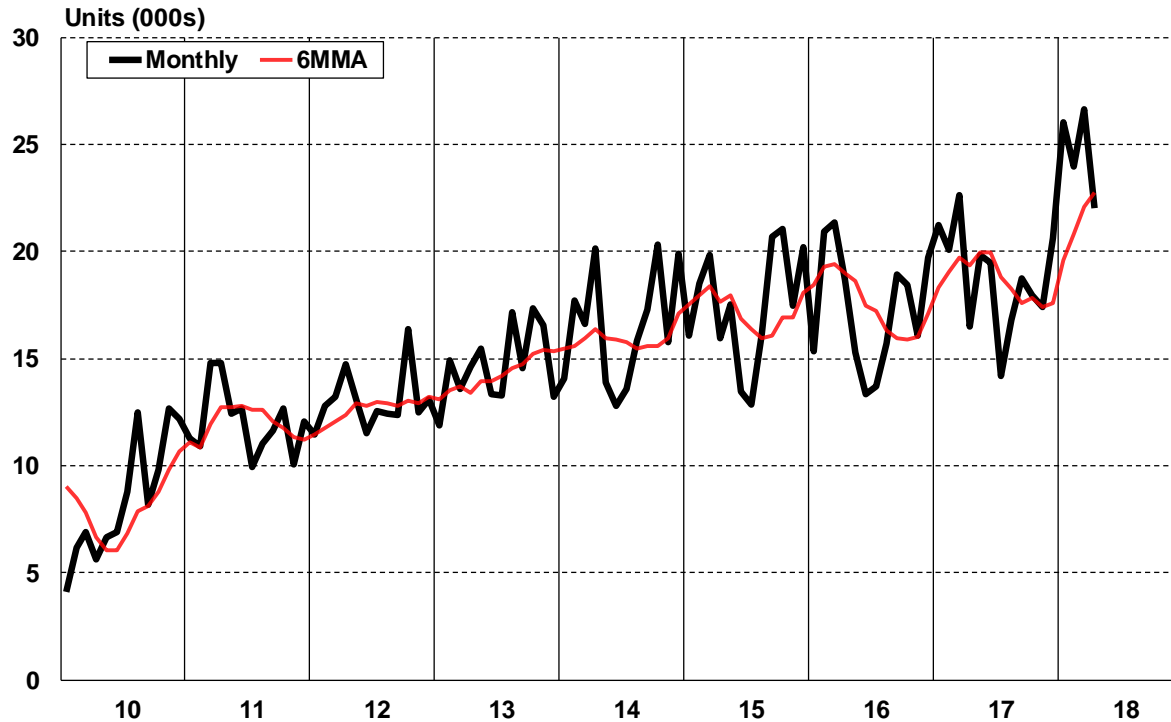
MD Update

- 2018-19 reaching a plateau at high, stable levels
- Nothing new - key markets solid; big upside surprise unlikely
 - Consumer package goods
 - Consumer services
 - Package delivery, P&D, and on-line retail
 - Construction
 - Relocation
- Backlog and inventory levels in line with demand
- Steady 8.5 year growth track in contrast to more volatile Class 8

Healthy Demand Continues

U.S. Classes 5-7: Net Orders

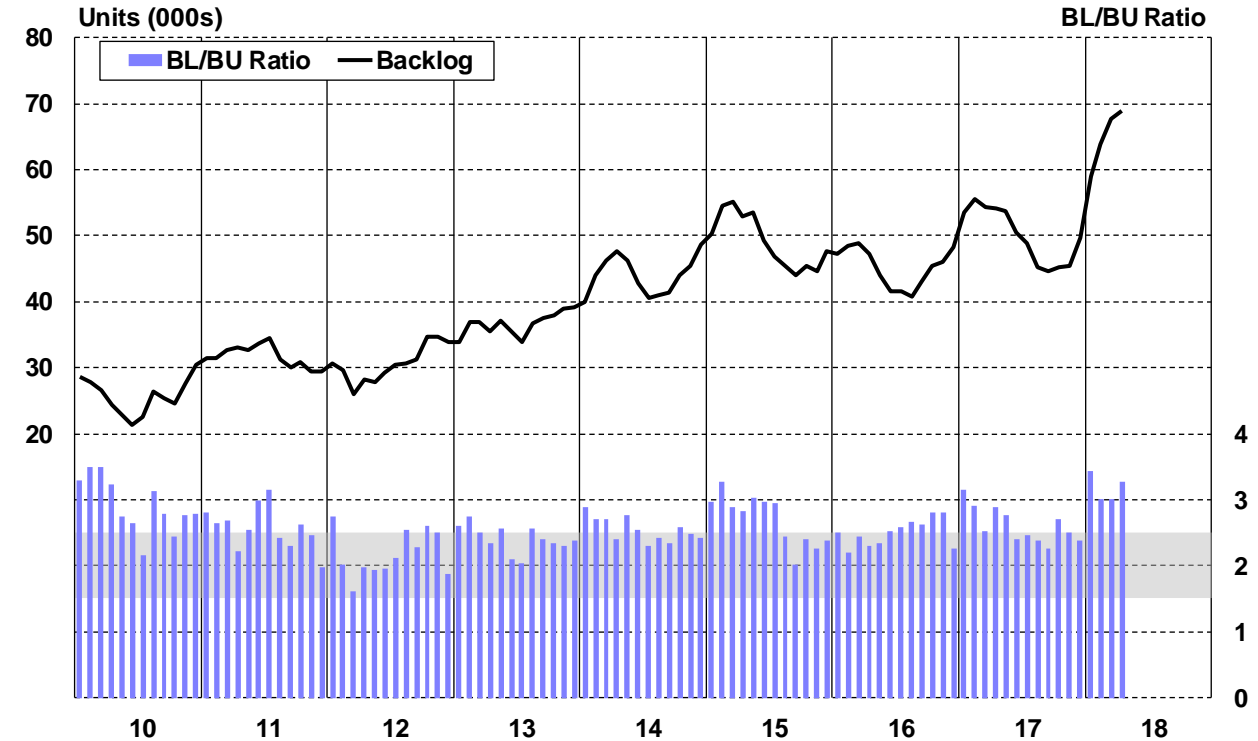
January 2010 - April 2018



Source: ACT Research Co., LLC: Copyright 2018

U.S. Classes 5-7: Backlog and Backlog/Build Ratio

January 2010 - April 2018



Source: ACT Research Co., LLC: Copyright 2018

High Level on Electric

- Without incentives, long payback period
 - **Significant** upfront premium
 - Robust first round incentives in California
- Other hurdles
 - Range, Weight, **battery durability (cycles)**, temperature extremes
- EV sweet-spots
 - Short-haul, return-to-base, stop & start, low-speed
 - Public transit; Urban delivery/last mile; Distribution; refuse
- Lower maintenance, cheaper to operate
- Charging infrastructure & power grid considerations

At \$200/kWh, a 200 mile range
Class 8 battery pack:
 $((2\text{kw mi} \times 200) \times 1.3) = \104k

Near-term Class 8 Forecast Review

2018: In the bag

- Strong fundamentals

- *Healthy freight volumes*
- *Rising freight rates*
- *On-going capacity constraints*
- *Changes in spec'ing preferences*

} ***Best carrier profitability environment ever***

- Challenge for suppliers to find employees/ramp production

- 4% unemployment presents a challenge

2019: Labor still more relevant than equipment*

- * Carrier profitability versus used equipment valuations
- Capacity constraints eventually get solved

NA Outlook

Units (000s)	2016	2017	2018	2019	2020
US GDP (%)	1.5	2.3	3.0	2.9	1.8
Freight Comp.	1.6	3.4	4.6	3.9	2.0
NA Class 8 BU	228	256	328	336	230
Memo: Tractors BU	159	177	236	244	154
Memo: Vocational BU	70	79	91	92	76
US Class 8 RS	197	197	254	258	185
NA Classes 5-7 BU	233	249	253	258	271
Memo: Trucks	171	183	187	191	200
Memo: Bus	42	43	43	44	45
U.S. Trailers (only)	288	291	320	298	264



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