

Best Recession Ever

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Seminar 68
February 23, 2023

Eric Crawford, Vice President & Senior Analyst

- ACT Research since April 2022
 - Class 8 and Trailer Forecasts
- 10+ years in equity research at UBS Investment Bank
- Notre Dame Football, UCONN basketball, Boston Red Sox



What we will cover

- Class 8 forecast
 - Components of demand
- Key themes to monitor
- Industry metrics/Where we are in the cycle



Key Takeaways

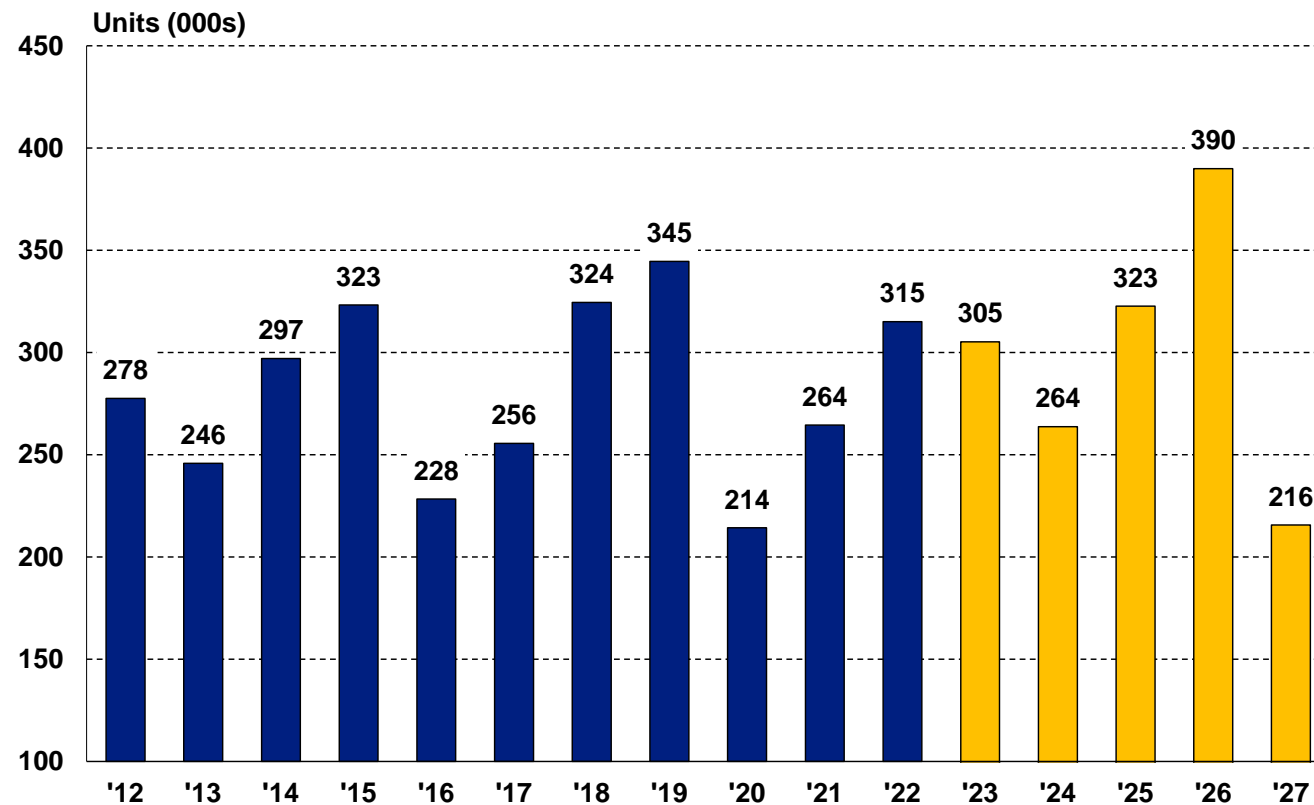
- Best Recession Ever
- Order peak behind us; Production catching up
- Pent-up demand likely exhausted by year-end



Class 8 Forecast

N.A. Class 8 Production

2012 - 2027



Source: ACT Research Co. © 2023

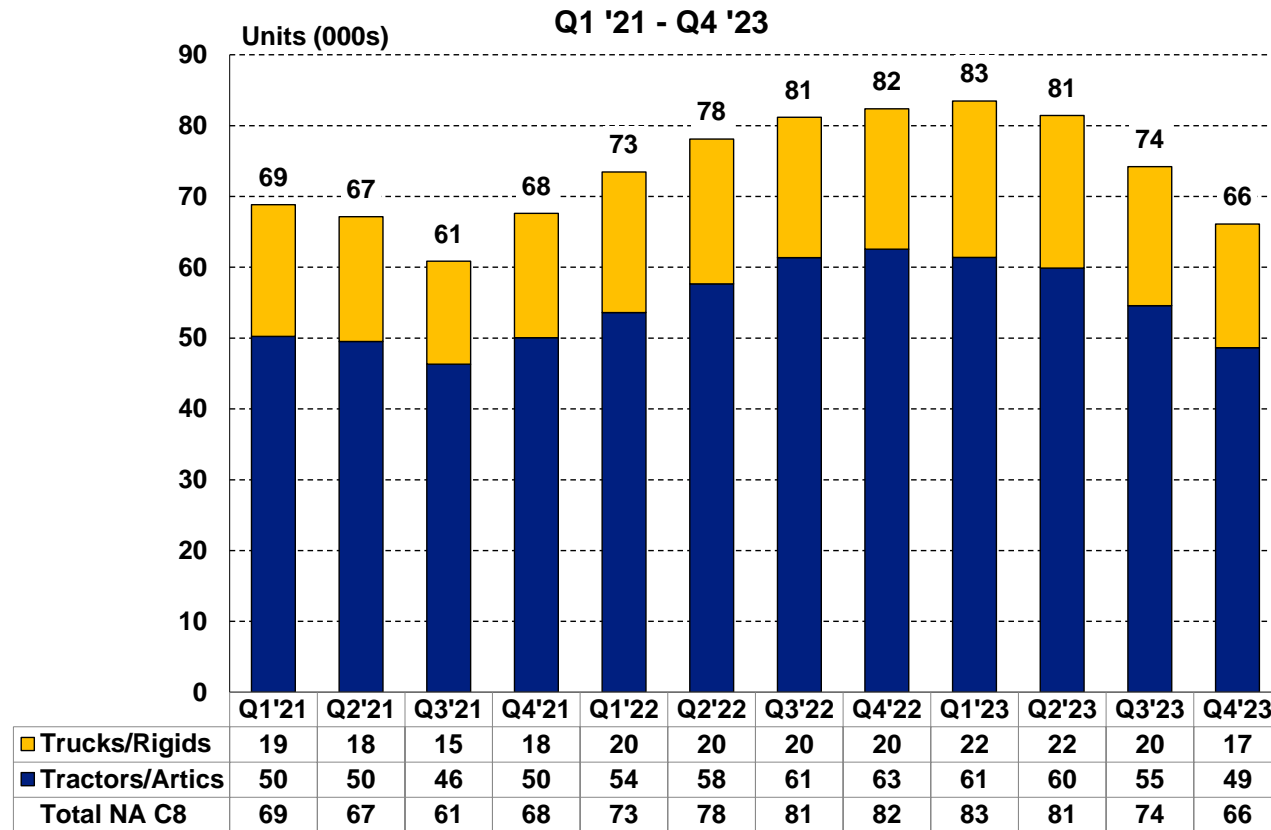
Different cycles, but
Similar volumes:

- 2017-2020: 1.14m
- 2021-2024: 1.15m

Lower peak/higher trough

Quarterly build cadence

N.A. Class 8 Production



Source: ACT Research Co. © 2023

Build should moderate as backlog shrinks

A lot will depend on 1H orders



Components of Class 8 demand

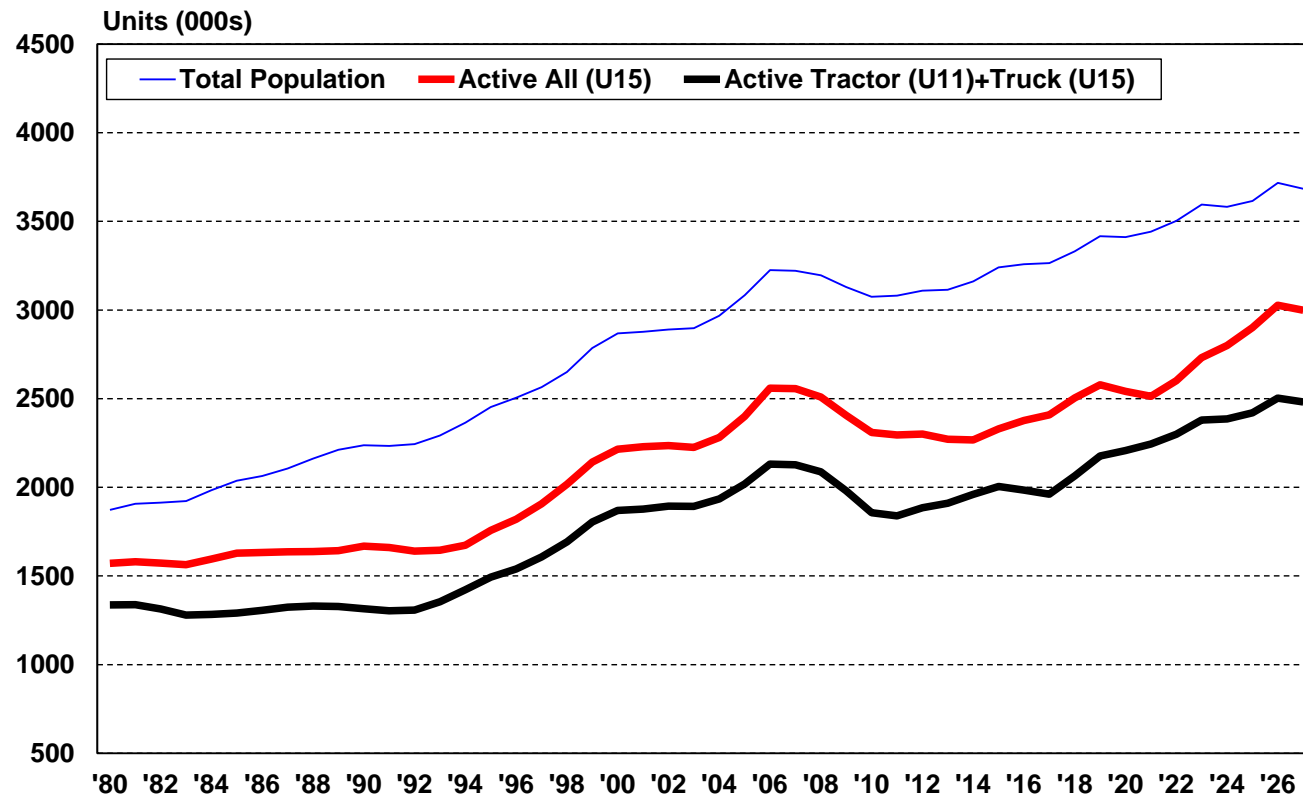
- Replacement demand
- Growth/New demand
- Productivity
 - Freight density
 - Equipment utilization
- Regulations/Exogenous



#1) Replacement demand

U.S. Class 8 Population

1980 - 2027

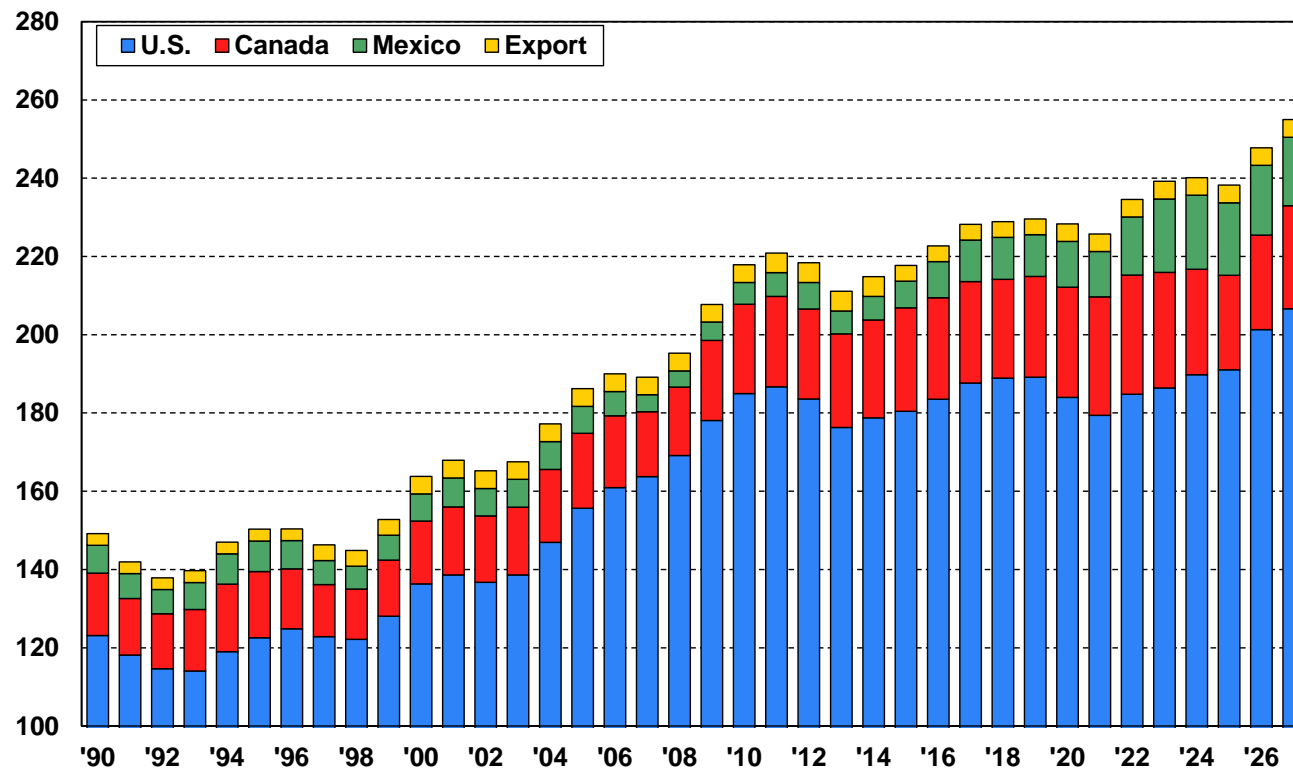


Source: ACT Research Co. © 2023

#1) Replacement demand

Replacement: NA Class 8 Active Stock

1990 - 2027

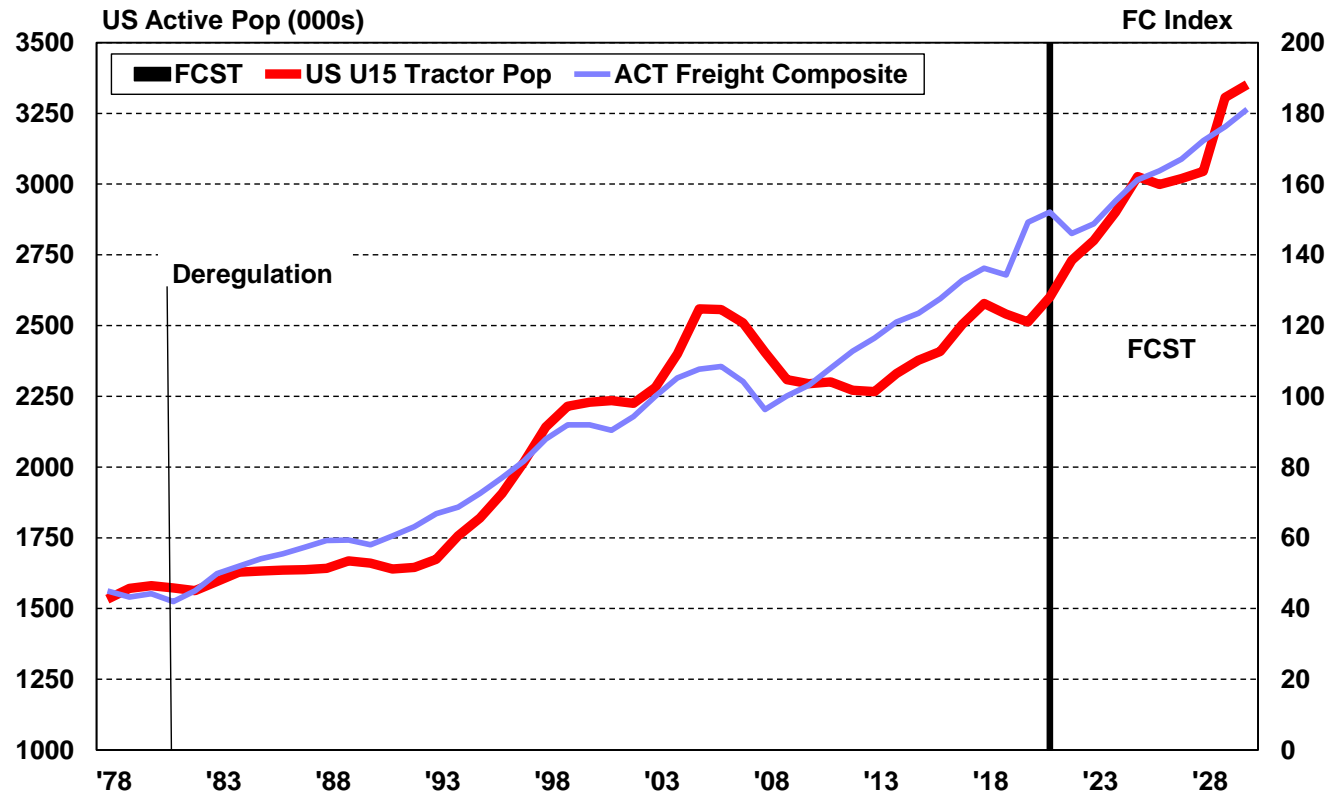


Source: ACT Research Co. © 2023

#2) Growth/New demand

Class 8 Active Tractor Pop & ACT Freight Composite

1978 - 2030



Source: ACT Research Co. © 2023

ACT Freight Composite:

- great metric to gauge new demand

Dislocations

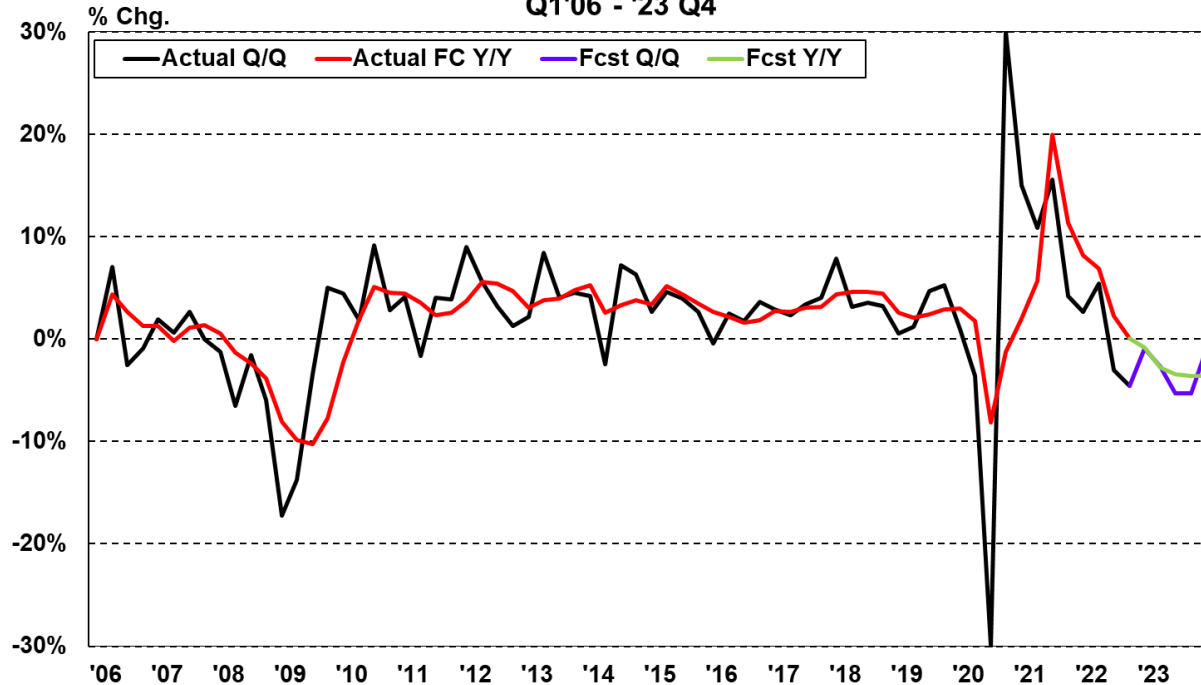
- Pre-buy/GFC
- Productivity gains

#2) Growth/New demand: ACT Freight Composite

ACT U.S. Freight Composite

Q/Q at SAAR, Y/Y

Q1'06 - '23 Q4

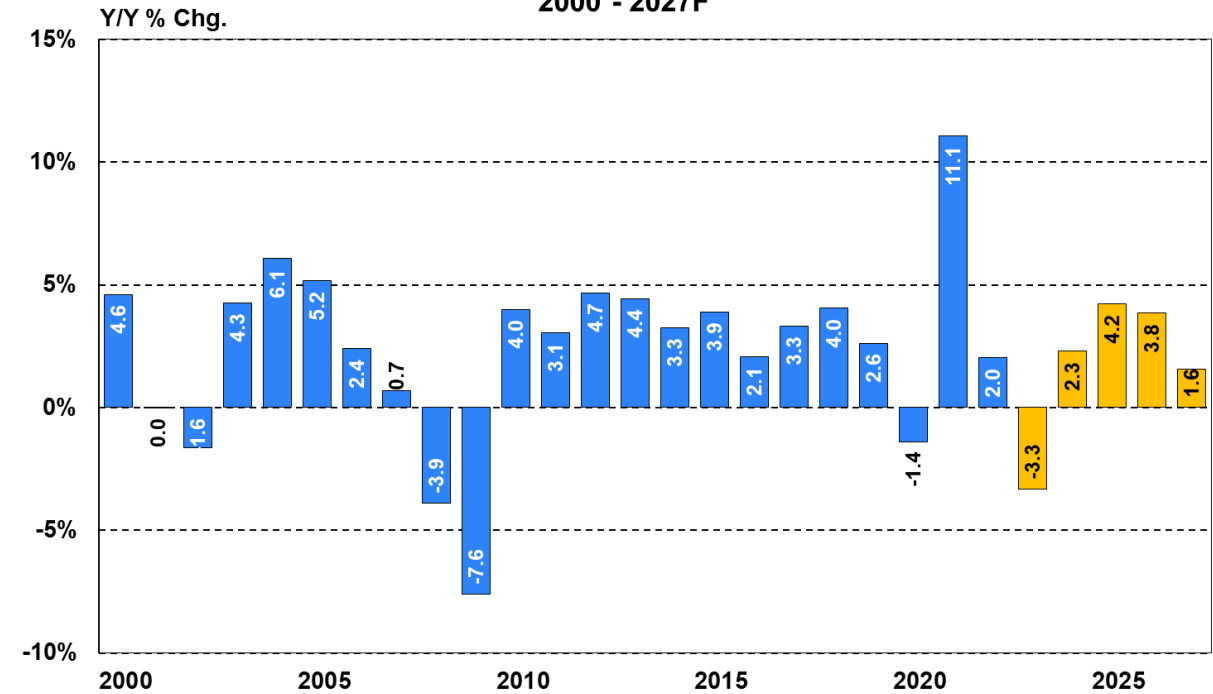


ACT Freight Composite: a weighted, GDP-based metric; accounts for different economic segments' freight at different rates

ACT U.S. Freight Composite

Year Over Year

2000 - 2027F

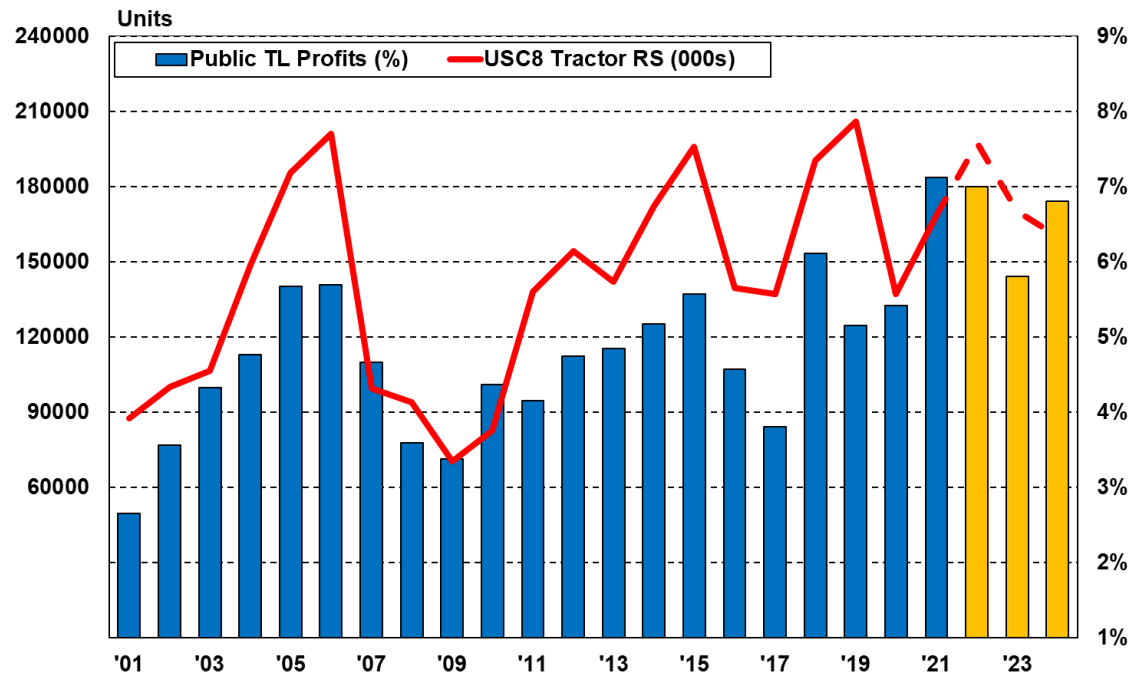


Source: ACT Research Co. © 2023

#2) Growth/New demand: Carrier profits key

U.S. Class 8 Tractor RS & Carrier Profits

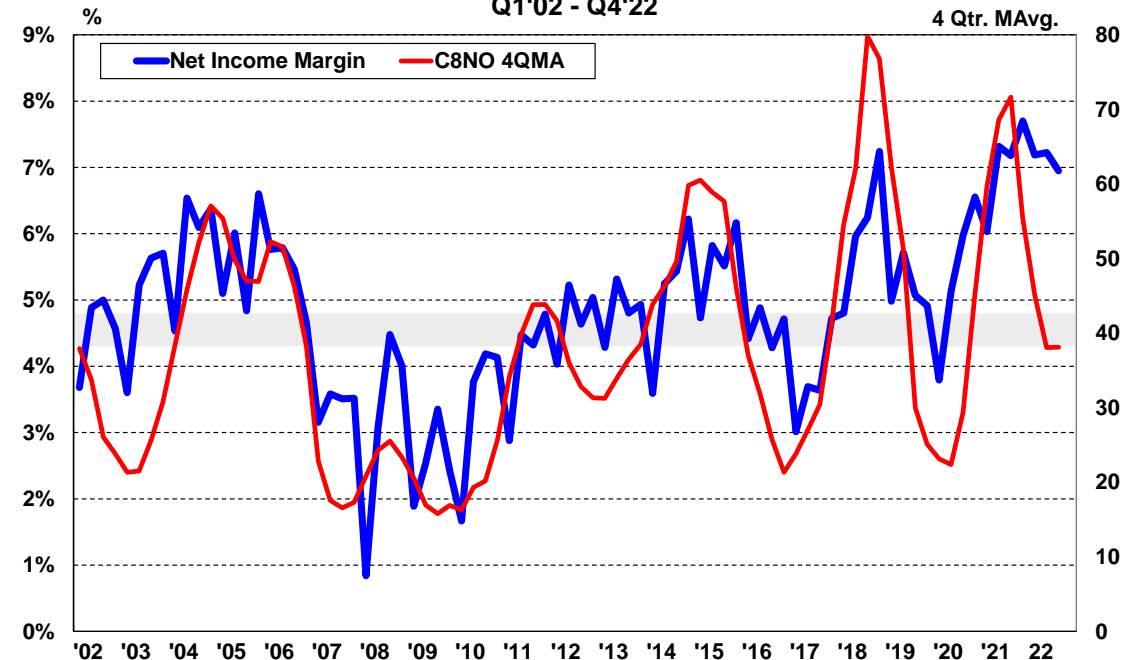
2001 - 2024



Source: ACT Research Co. © 2023

TL Carrier Database:
Carrier Net Profit Margins & US CL8 Tractor Orders

Q1'02 - Q4'22

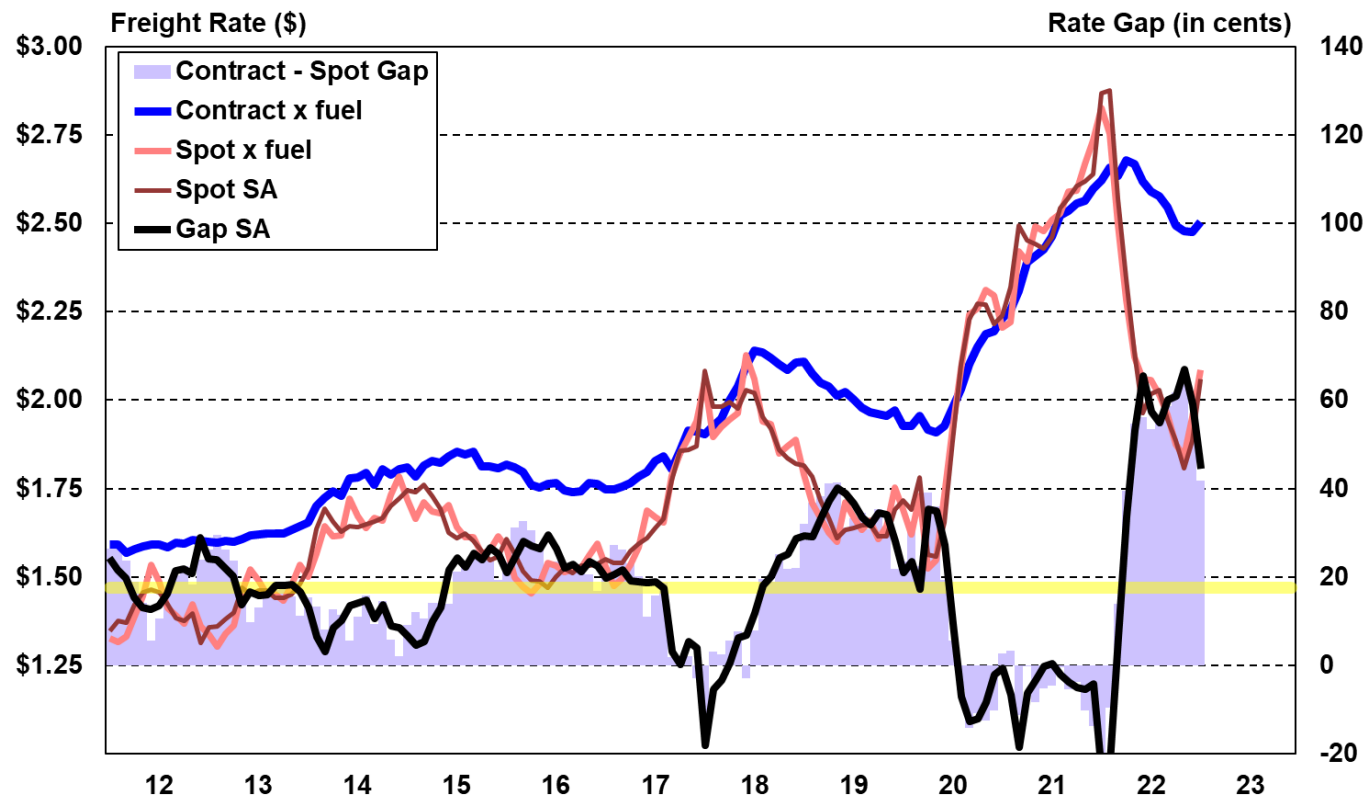


Source: ACT Research Co. © 2023

#2) Growth/New demand: Profits to decline

DAT Trendlines: Aggregated Revenue per Mile

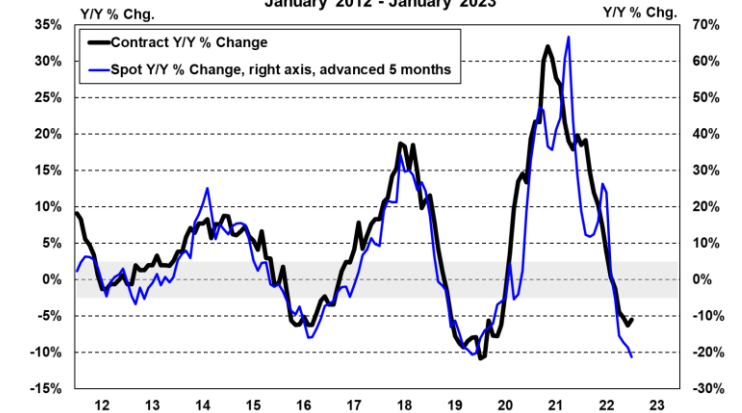
January 2012 - January 2023 (2000=100)



Source: DAT Solutions, ACT Research Co. © 2023

DAT Trendlines Spot & Contract Rates: Dry Vans (net fuel)

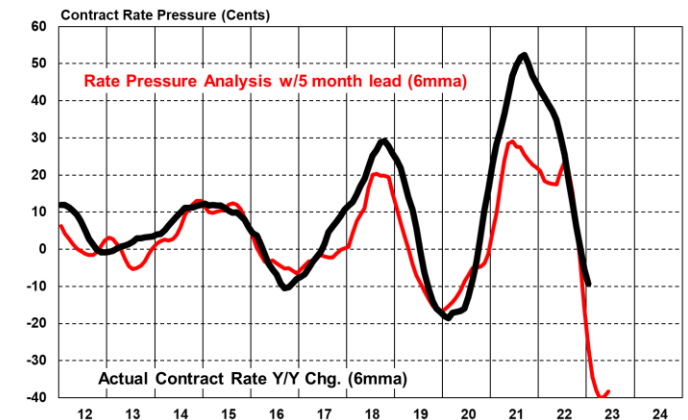
January 2012 - January 2023



Source: DAT Solutions, ACT Research Co. © 2023

Dry Van Rate Pressure Analysis: Contract less SA Spot rate relative to target rate spread

January 2012 - June 2023

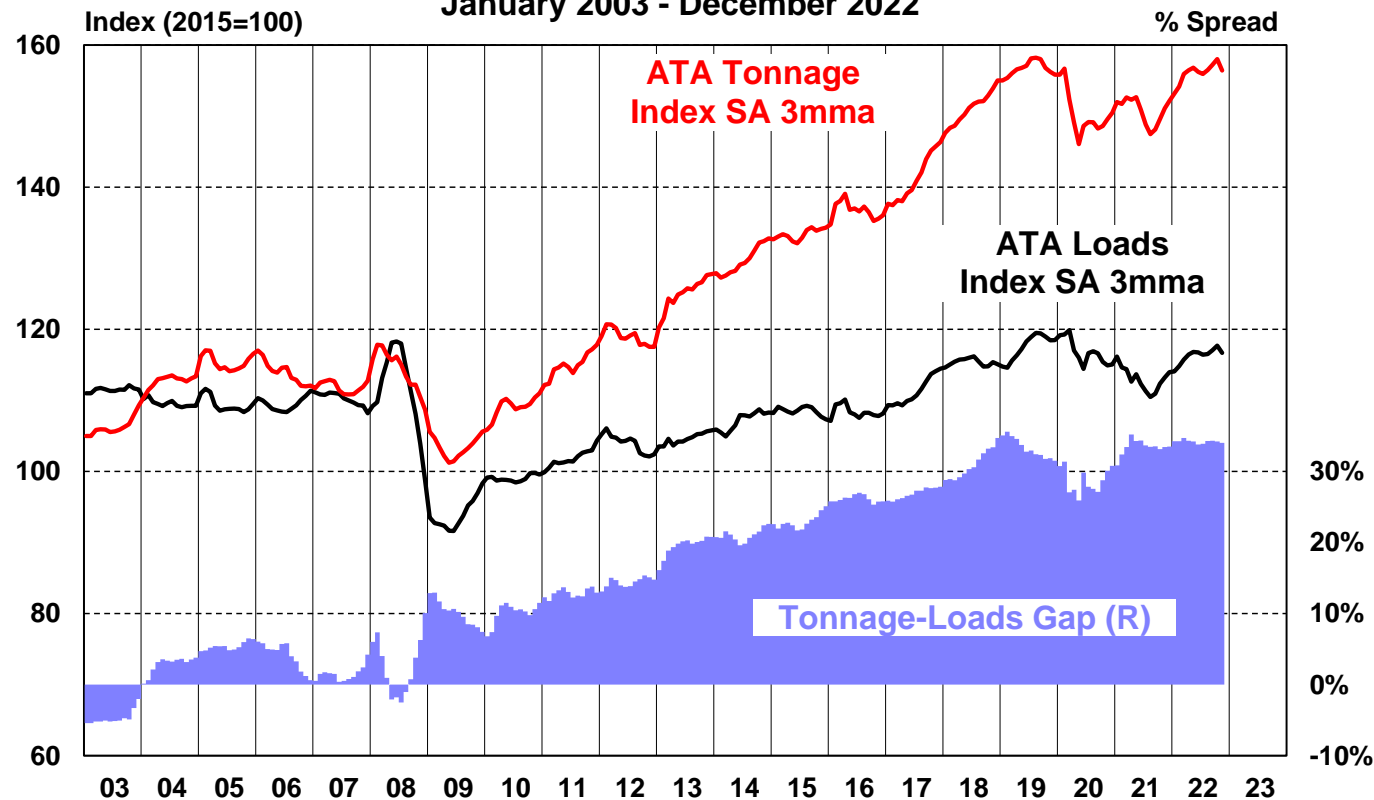


Source: DAT Solutions, ACT Research Co. © 2023

3) Productivity: Freight density

ATA Truck Tonnage Index & ATA Truck Loads Index

January 2003 - December 2022

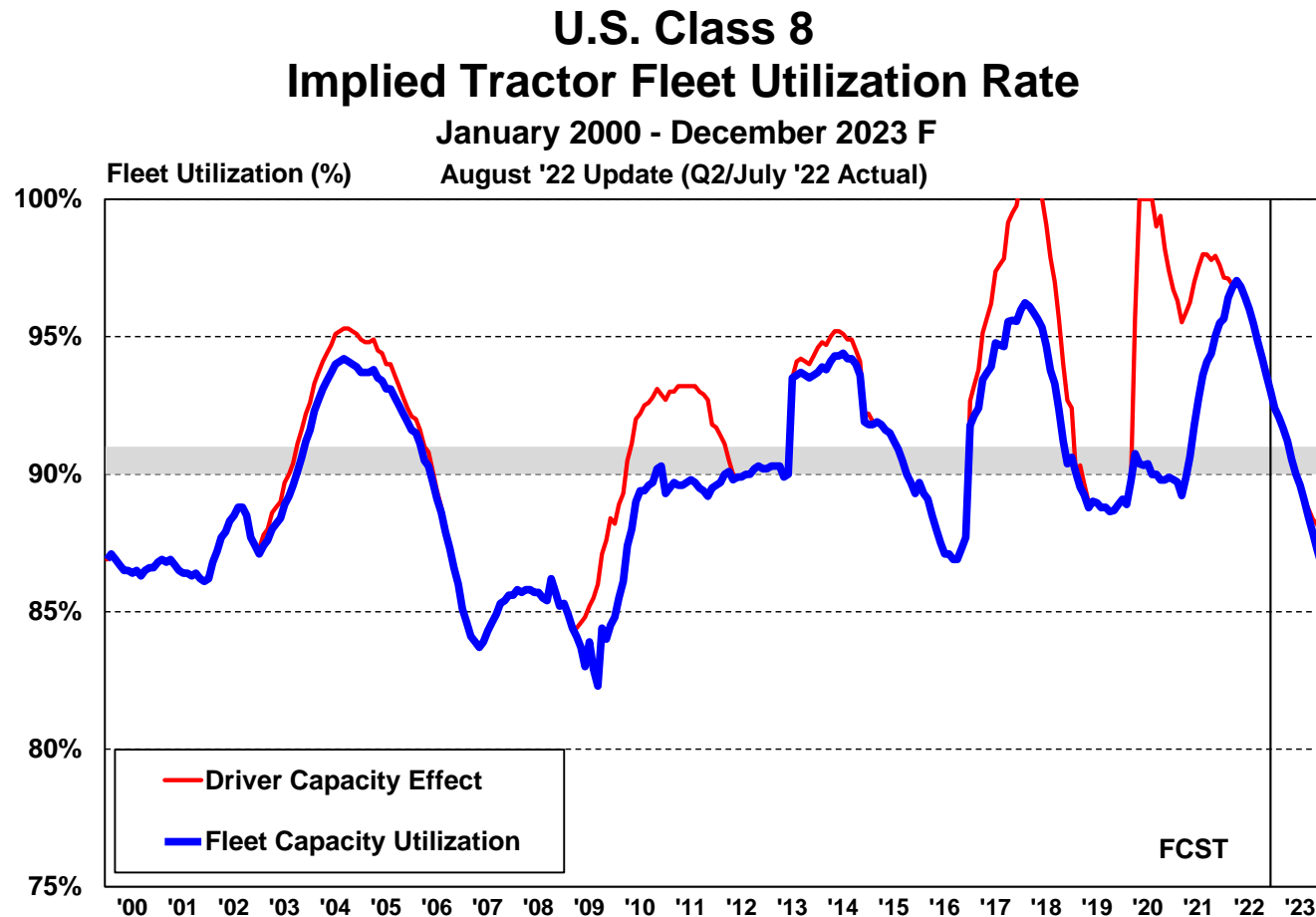


Source: American Trucking Associations, ACT Research Co. © 2023

Early 2000s – Pandemic:

Tonnage grew at a faster rate than loads

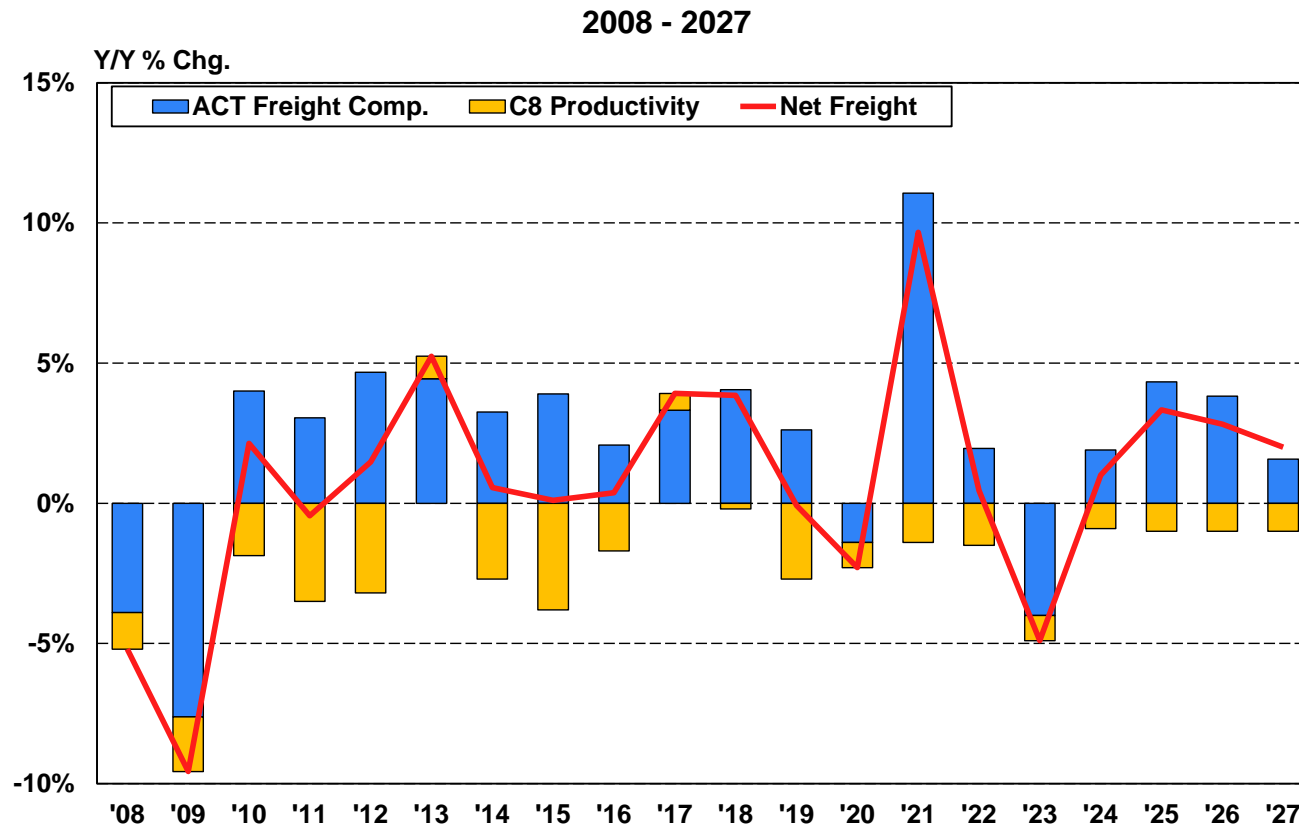
3) Productivity: Equipment Utilization



Relatively strong Class 8 output, coupled with contracting freight leads to overcapacity in 2023.

#3) Productivity: Net Freight

Net Freight: ACT Freight Composite less HD Tractor Productivity



Source: ACT Research Co. © 2023

Productivity trend from 2009-2016 was ~2%/yr

Forecasting ~1%/yr going forward

#4) Regulations/Exogenous

- Mandate will hit CARB CV States in 2024 and EPA in 2027
 - Low NOx
 - Major warranty extension to 600k mi., 8yrs.
 - Around 40% buyers choose extended warranties
- Prebuying & inventory building expected
 - CARB-following states for CVs account for ~20% market share
 - 2024: CA, OR, ME (CO)
 - 2025: NY, NJ, WA, (PA)
- Supply chain issues



Key Themes to Monitor

- Cycle headwinds/tailwinds
- Pent-up demand
- Supply chain



Cycle headwinds/tailwinds

Dashboard designed to provide 3-6 months of forward visibility on orders

ACT Research Class 8 Tractor Dashboard

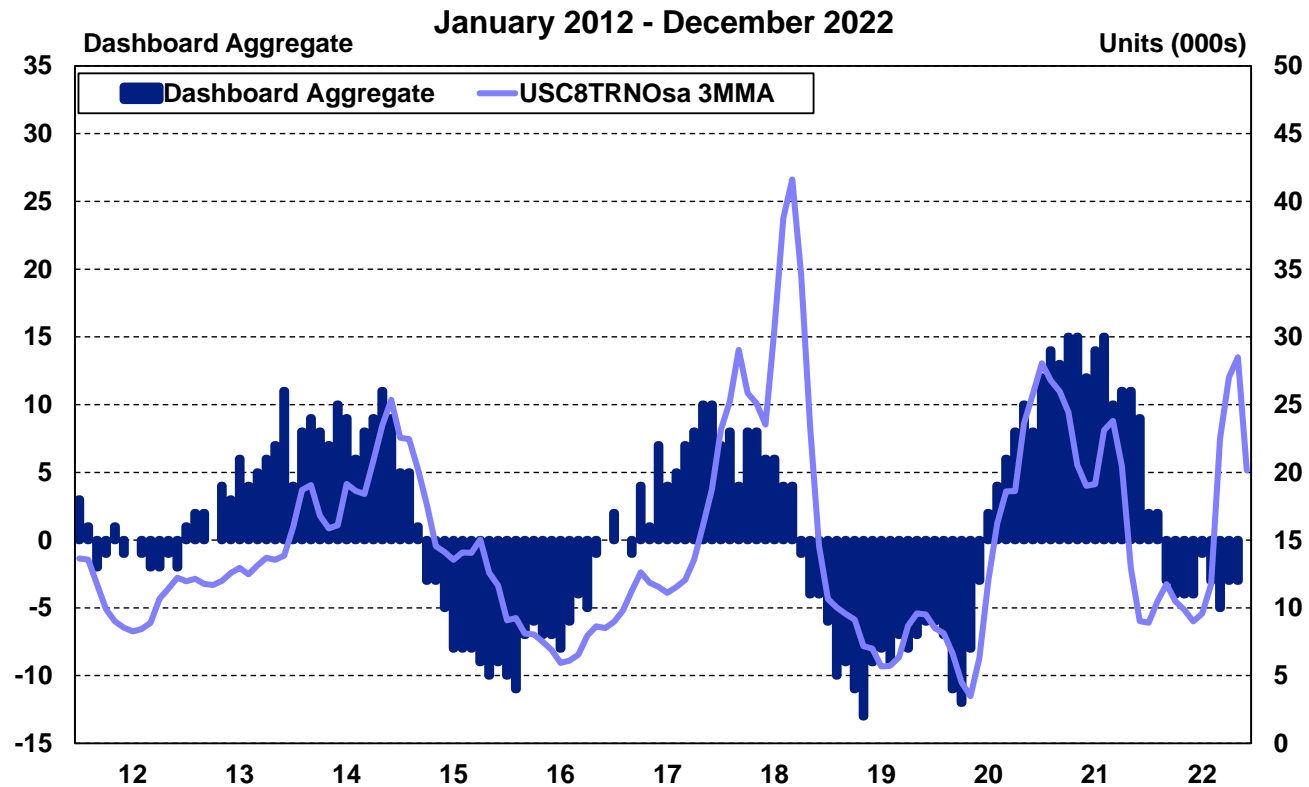
Category	Metric	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	RED LIGHT SIGNAL	GREEN LIGHT SIGNAL
	Green Minus Red Tally	9	2	2	-3	-4	-4	-4	-1	-3	-5	-3	-3	-1	-3 or less	3 or more
	Positive Indicators (Green)	10	6	5	4	4	4	2	4	3	2	3	3	5		
	Neutral Indicators	4	5	7	4	3	3	7	6	6	6	6	6	4		
	Negative Indicators (Red)	1	4	3	7	8	8	6	5	6	7	6	6	6		
Macro & Financial	ISM Mfg PMI Index	58.7	57.6	58.6	57.1	55.4	56.1	53.0	52.8	52.8	50.9	50.2	49.0	48.4	Value under 50	Value over 53
	Non-Auto Durables Mfg Output**	6.0	5.3	6.2	5.6	6.0	5.4	4.6	3.9	3.8	3.4	2.9	2.0	0.8	Value under 0	Value over 3.5
	Consumer Spend, Goods only**	3.9	1.2	-0.3	-3.0	-1.7	-1.0	-0.8	-0.6	-0.9	-1.2	-0.8	-0.3	-0.2	Below 2.5% growth	Above 4% growth
	Residential Const Expend (real) **	1.5	1.8	2.7	3.2	4.0	4.6	3.3	2.3	-0.6	-3.2	-6.6	-10.5	-14.2	Below 2% growth	Above 8% growth
	Dow Jones Trucking Stock Index	1633	1447	1465	1430	1304	1272	1204	1410	1309	1182	1270	1388	1284	-10% from recent peak	+10% from recent trough
Freight	Cass Freight Shipments**	7.2	0.6	-2.7	-4.5	-5.0	-4.2	0.3	1.0	0.7	5.2	5.6	5.5	4.2	Below 0%	Above 8%
	DAT Loads/Truck	10.3	17.0	13.9	7.5	6.1	6.8	4.5	5.9	5.6	5.0	5.0	4.3	4.8	Below 2.75	Above 4.75
	DAT Aggregate Contract/Spot Spread	-14	-21	-10	14	39	55	56	54	57	60	62	69	53	Above 20	Below 15
	DAT Dry Van Spot Rate*	19.7	28.2	24.0	3.1	-4.5	-14.9	-16.9	-18.0	-20.2	-24.6	-27.6	-31.1	-28.6	Below 0	Above 8
	Cass Freight/US Cl8Tractor Pop Growth Gap	5.1	-1.4	-4.4	-5.9	-6.4	-5.6	-0.7	0.3	0.7	5.8	6.6	6.3	5.2	Below -5	Above 5
ACT data	Cl 8 Cancellations (SA)	2500	1888	2500	4055	750	2148	556	1304	262	2448	1289	689	1727	Over 3000	Under 2000
	Cl 8 I/S ratio (SA)	2.23	2.22	2.33	2.43	2.35	2.07	2.28	2.35	2.18	2.34	2.28	2.05	2.07	Over 2.6	Under 2.1
	Class 8 Inventory Level (000 SA)	50.1	52.8	54.2	55.4	58.0	56.5	56.9	55.6	56.5	58.4	58.7	58.0	57.7	Over 65K	Under 52K
	Class 8 Net Orders to Build (6mma,SA)	1.16	0.96	0.80	0.70	0.66	0.70	0.72	0.71	0.72	0.96	1.06	1.13	1.15	Under 1.00	Over 1.15
	ACT For Hire - Volume less Capacity	59.6	57.4	55.2	47.6	44.4	43.3	40.6	42.3	44.5	37.9	39.2	36.7	40.8	Under 48	Over 58

All measures are levels, except *=Year/Year % Change and **=12 month CAGR Rate of Change

Italics denotes special cancellation treatment

Dashboard vs. Net Orders: Leading Indicator

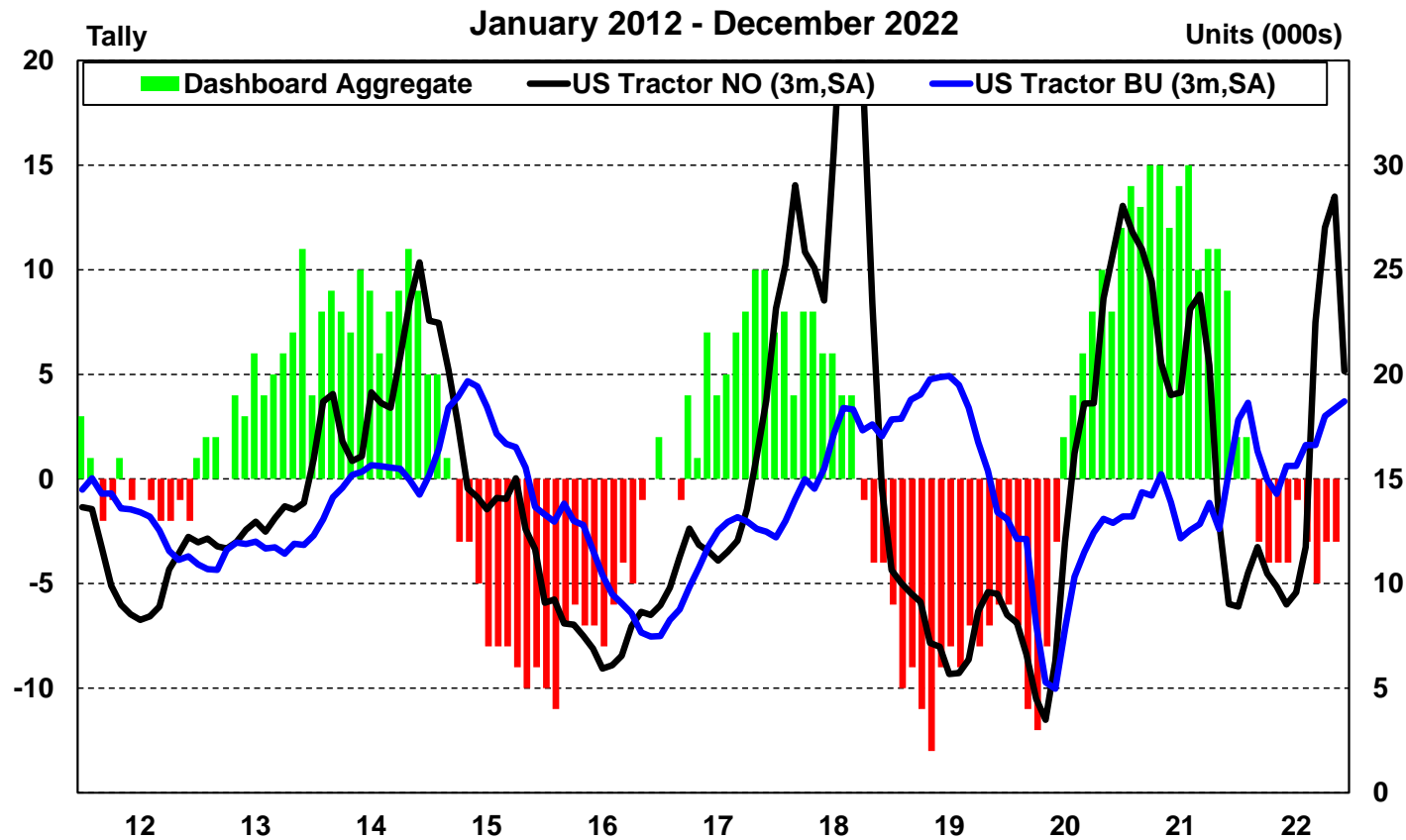
ACT Research Tractor Dashboard: Aggregate Tally & USC8 Tractor Net Orders



Source: ACT Research Co. © 2023

Dashboard vs. Net Orders: Recent Disconnect

ACT Research Tractor Dashboard: Aggregate Tally & USC8 Tractor Net Orders (SA)



Source: ACT Research Co. © 2023

Adding production
sheds some light

Underproduction led to
massive pent-up
demand

Pent-up demand: Where are we now?

Pent-up demand in 2022	
Pent-up demand @ 1/22	~100,000
Economic growth	2.9%
Trucks per 1%	12,000
Build due to growth	34,800
Replacement demand	240,000
Implicit build	274,800
Actual build	315,128
Impact on pent-up demand	-40,328
Pent-up demand @ 1/23	~60,000

Pent-up demand in 2023	
Pent-up demand @ 1/23	~60,000
Economic growth	0.3%
Trucks per 1%	12,000
Build due to growth	4,000
Replacement demand	240,000
Implicit build	244,000
ACT Build Forecast	305,259
Impact on pent-up demand	-61,259
Pent-up demand @ 1/24	~(1,000)

Pent-up demand:

Likely exhausted by year-end

CARB Prebuy: ~10k

- Would pull forward '24 replacement demand
- 2023 RD: 250k
- 2024 RD: 230k



Global Supply Chain Pressure Index

Latest Update January 2023

Enter a date range to see monthly estimates or use the slider below to view a specific date range.



Source: Federal Reserve Bank of New York, Global Supply Chain Pressure Index
<https://www.newyorkfed.org/research/gscpi.html>

Supply chain
not yet back to
normal

But nothing like
the disruptions
in 2021/22



Current market conditions: Orders

Total Class 8: N.A. Net Orders

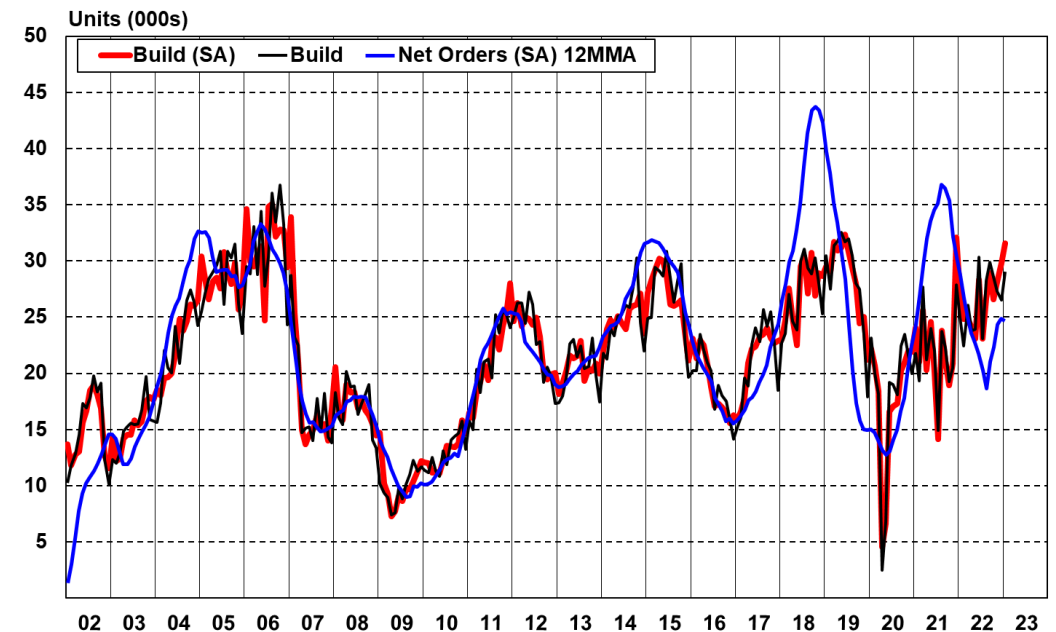
January 2014 - January 2023



Source: ACT Research Co. © 2023

Total Class 8 N.A.: Net Orders 12 Mo. Avg. & Build

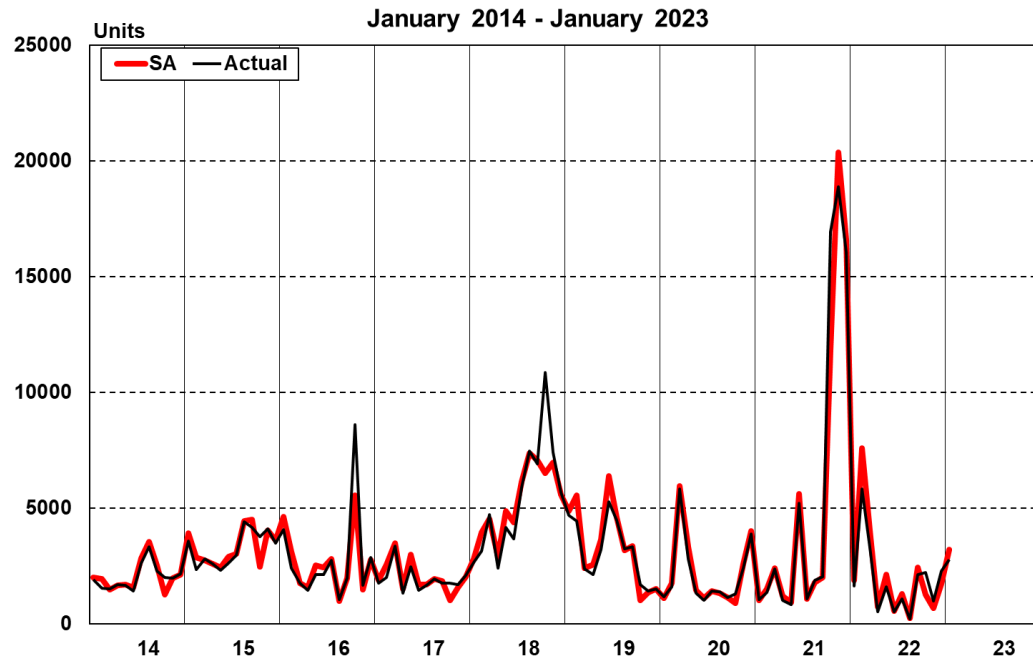
January 2002 - January 2023



Source: ACT Research Co. © 2023

Current market conditions: Cancellations

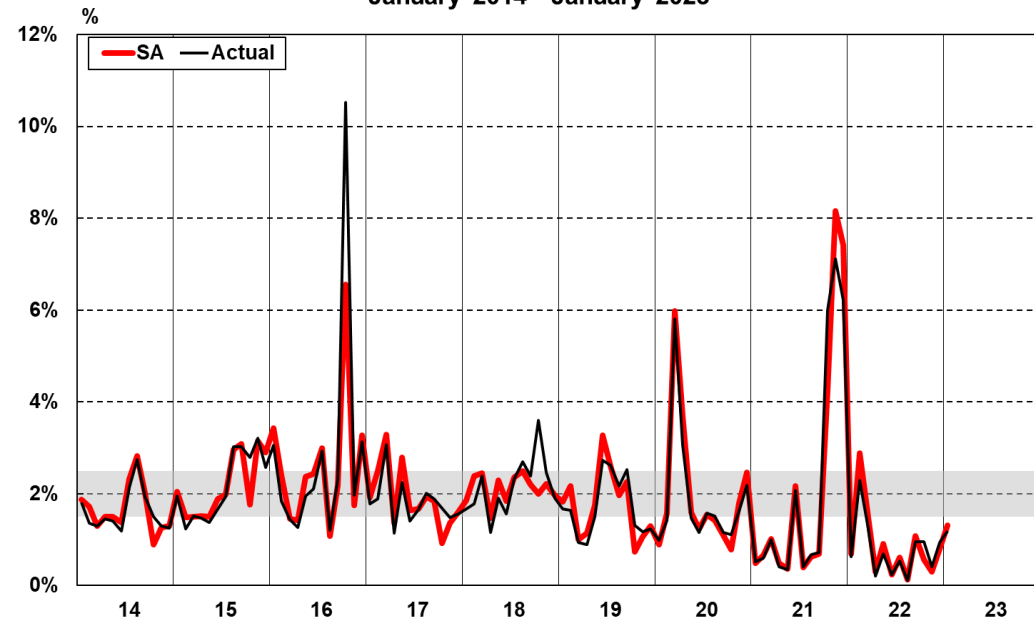
Total Class 8: N.A. Cancellations



Source: ACT Research Co. © 2023

Total Class 8: N.A. Cancellation Rate

Expressed as a percentage of Backlog
January 2014 - January 2023

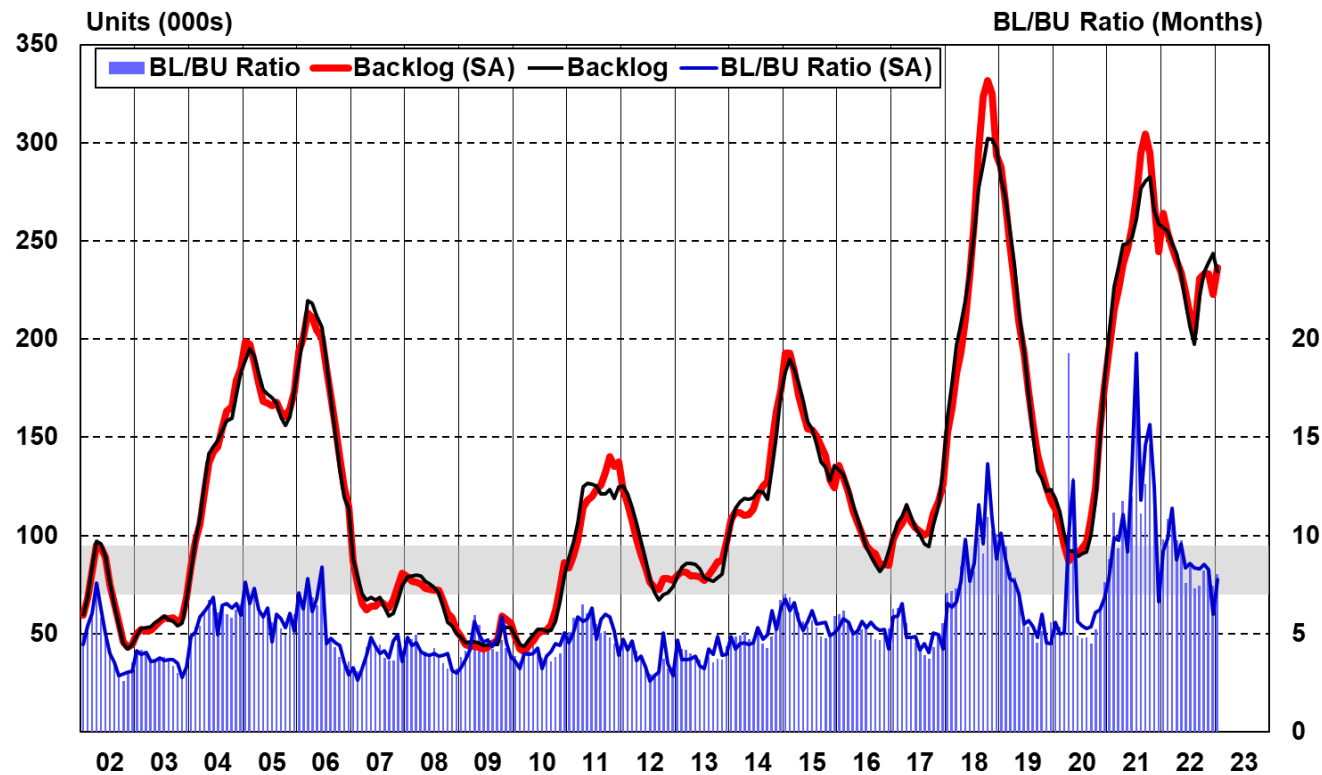


Source: ACT Research Co. © 2023

Current market conditions: Backlog/Build

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

January 2002 - January 2023

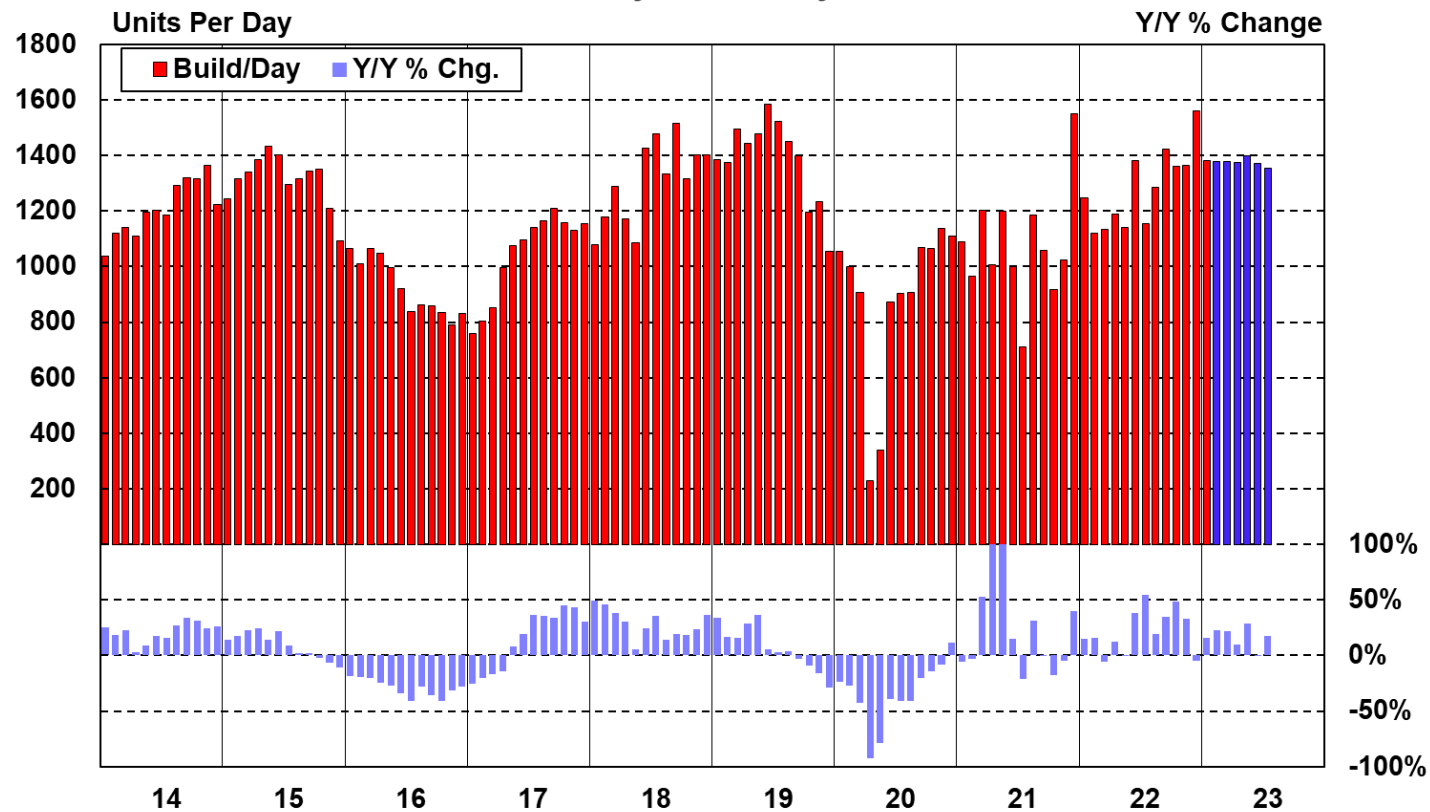


Source: ACT Research Co. © 2023

Current market conditions: Build rate

Total Class 8: N.A. Build Per Day

January 2014 - July 2023

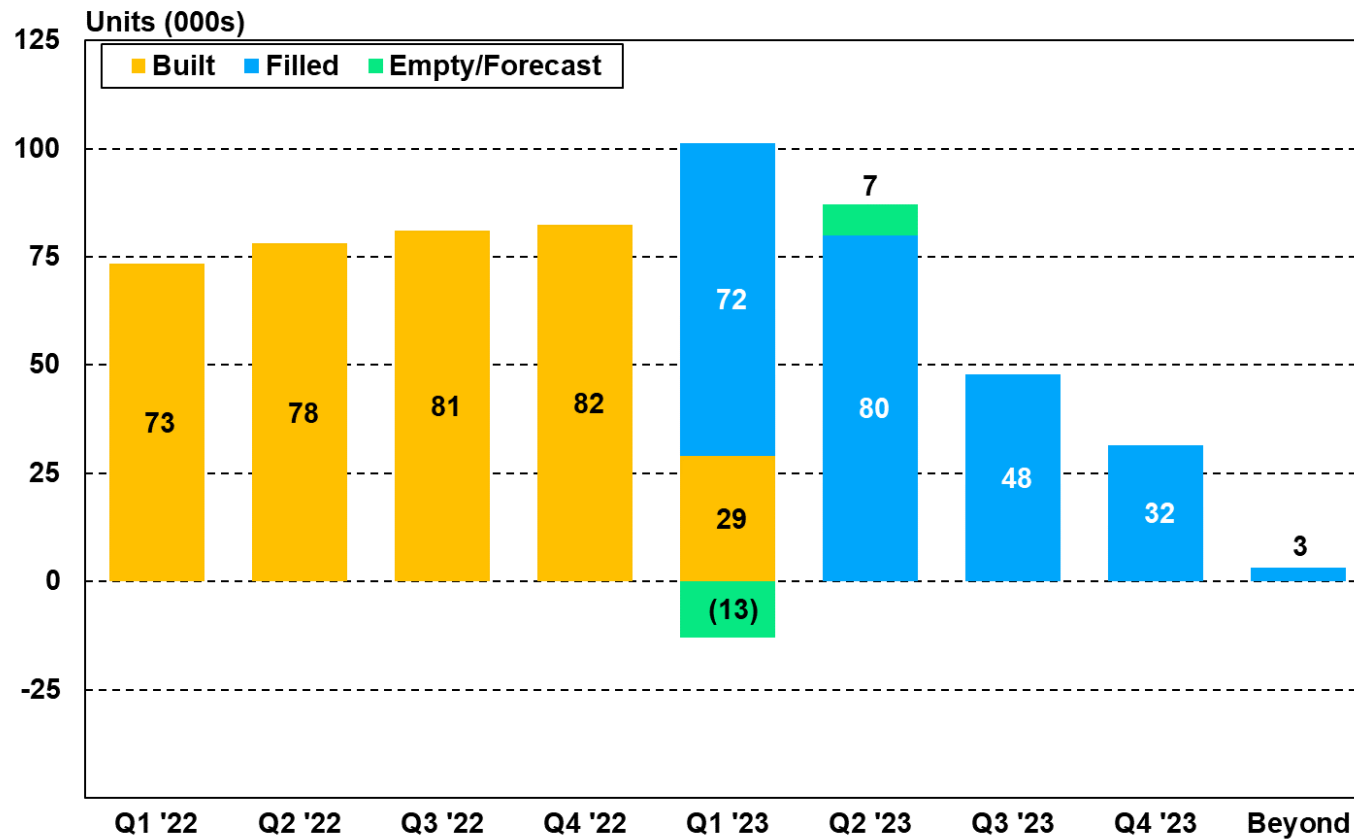


Source: ACT Research Co. © 2023

Current market conditions: Backlog fill

Class 8 Backlog Fill

January 2023 Ending

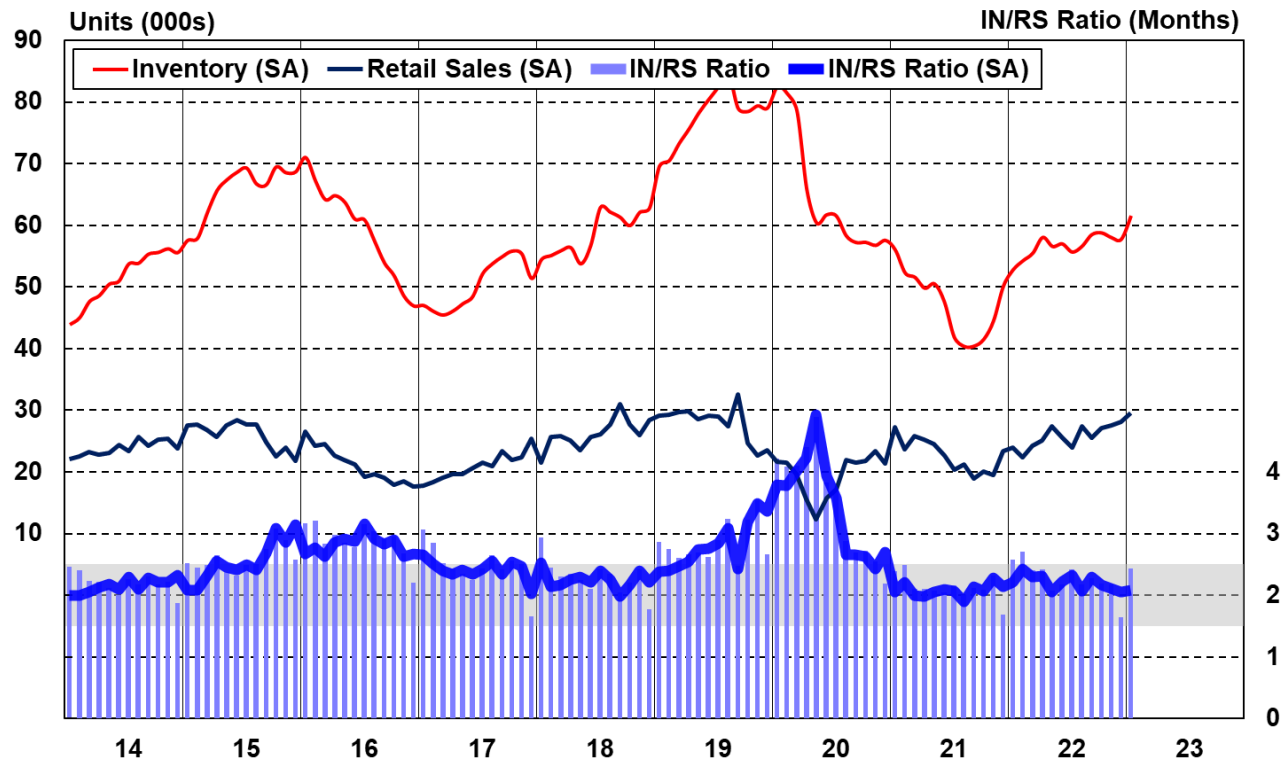


Source: ACT Research Co. © 2023

Current mkt conditions: Inventory/Retail Sales

Total Class 8: N.A. Inventory/Retail Sales Ratio

January 2014 - January 2023

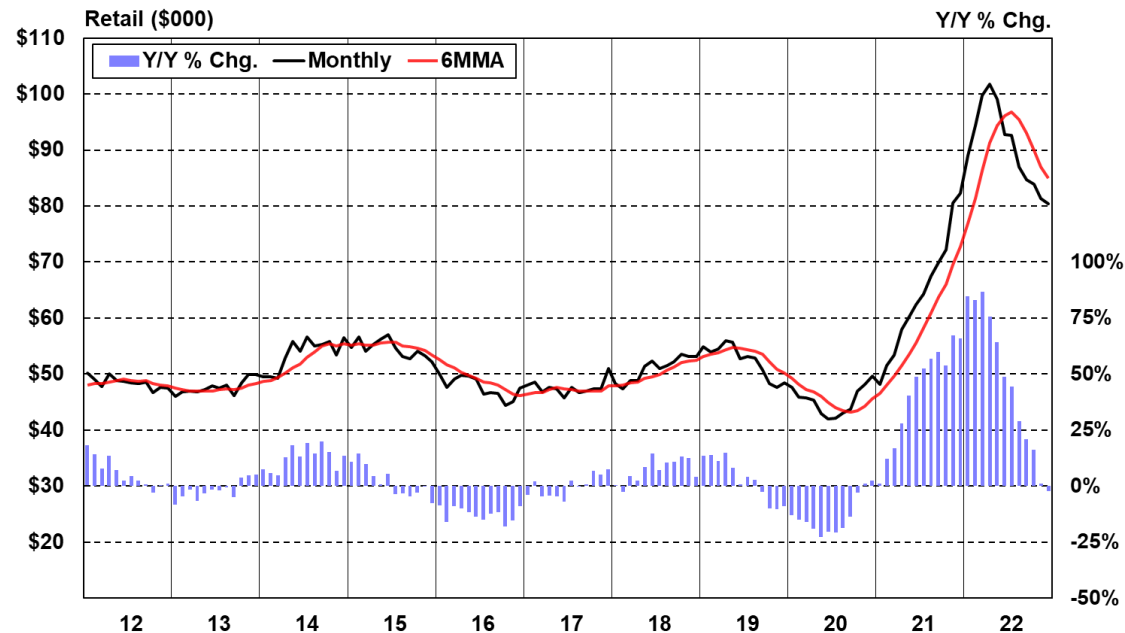


Source: ACT Research Co. © 2023

Current market conditions: Used values

Class 8: U.S. Used Truck Average Sale Price

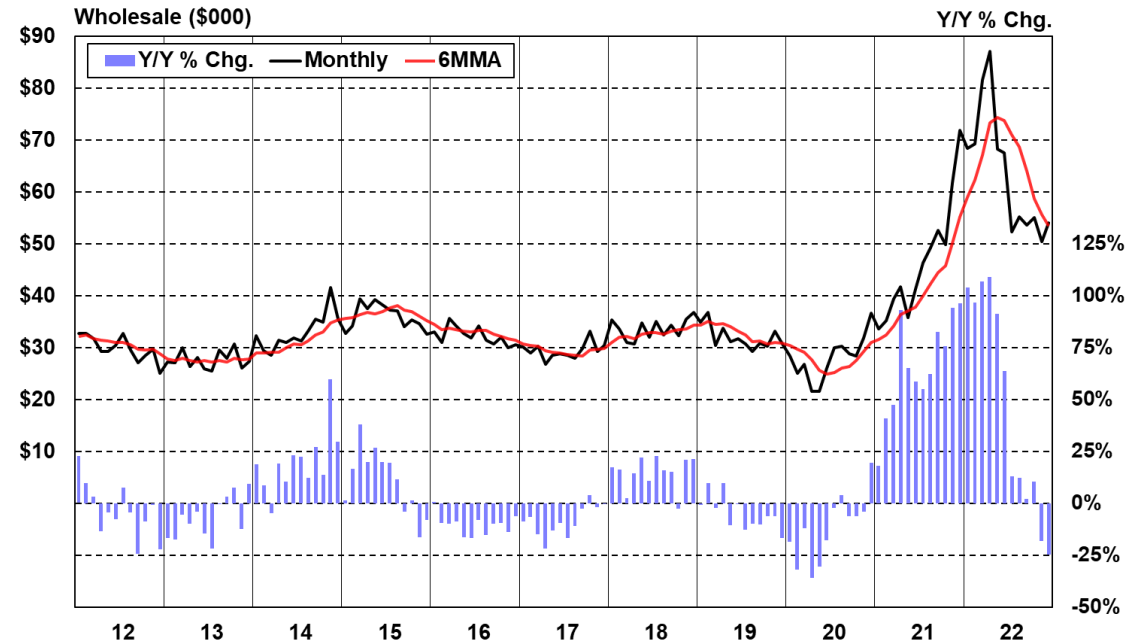
January 2012 - December 2022



Source: ACT Research Co. © 2023

Class 8: U.S. Used Truck Average Sale Price

January 2012 - December 2022



Source: ACT Research Co. © 2023

With new vehicle \$ up significantly, used valuations post-froth should settle out well above traditional levels



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SPEAKING/YEAR

2

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