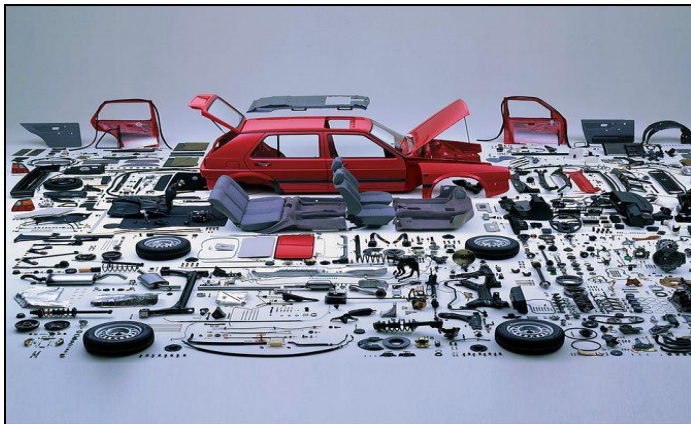


November 1, 2023 07:03 PM GMT

Nov 01, 2023

Global Auto Databook

Investor sentiment around autos turned even more negative last week with 2024 expectations on the precipice of lower YoY earnings and potential cash burn. Adding in higher wage inflation (UAW) and we believe EV capex, supplier margins and dealer grosses are all at risk.



See our recent reports below:

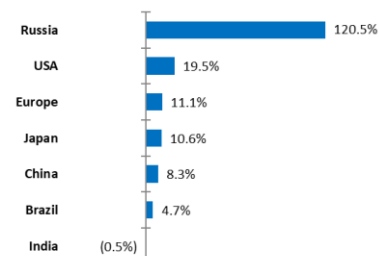
[What's Driving the Auto De-Rating? Costs Up, Macro Risk, Electric Shock](#) (Oct 31, 2023)

[Ford: Life After the UAW Strike: Costs Rising, EVs Revising](#) (Oct 30, 2023)

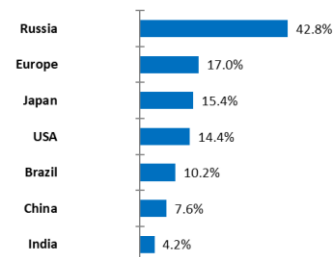
[China EV On-Ramp/Off-Ramp: STLA/Leapmotor Deal a Template for EV Discipline?](#) (Oct 26, 2023)

[US Auto Credit Crunch? Clues from Housing and ABS Market](#) (Oct 24, 2023)

YoY Regional Sales Growth (Sep-23)



YTD Regional Sales Growth (Sep-23)



Note: Europe sales growth is excluding of LCV sales.

Sources: Company data, Autodata, ACEA, Anfavea, China Auto Market, JADA, JMVA Note all regions have available data for Sep 2023 as of publication.

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Global Sales Estimates

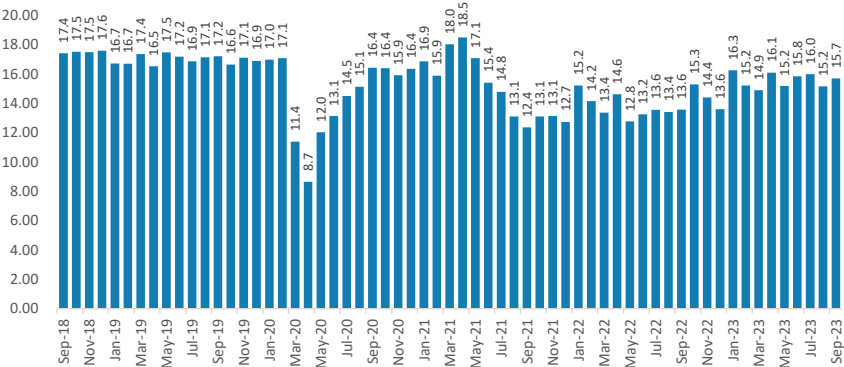
Global Auto Sales Summary

Country	LIGHT VEHICLE SALES FORECASTS								GROWTH %								CAGR '22-'25E
	2018	2019	2020	2021	2022	2023e	2024e	2025e	2018	2019	2020	2021	2022	2023e	2024e	2025e	
Asia																	
China	23.7	21.4	20.1	21.5	23.7	23.6	22.9	23.4	-4.2%	-9.5%	-6.1%	6.6%	10.2%	0.0%	-3.2%	2.2%	-0.4%
Japan	5.2	5.1	4.5	4.3	4.9	4.9	5.0	5.2	1.0%	-1.5%	-12.7%	-3.1%	13.7%	0.2%	0.8%	5.0%	2.0%
South Korea	1.6	1.5	1.6	1.4	1.4	1.4	1.5	1.5	5.0%	-2.0%	4.4%	-10.4%	-4.5%	5.0%	2.0%	2.0%	3.0%
India	3.4	3.0	2.4	3.1	3.8	4.2	4.5	4.9	5.1%	-12.7%	-17.9%	26.7%	23.0%	9.6%	7.9%	10.0%	9.2%
Indonesia	1.1	0.9	0.5	0.8	0.9	0.9	0.9	0.9	4.9%	-9.8%	-47.8%	65.9%	6.2%	2.3%	1.7%	1.7%	1.9%
Australia	1.1	1.0	0.9	1.0	1.1	1.0	1.0	1.1	-3.2%	-7.7%	-13.9%	15.7%	3.8%	-8.5%	4.1%	2.3%	-0.9%
Thailand	1.0	1.0	0.8	0.7	0.8	0.8	0.9	0.9	19.9%	-3.1%	-21.3%	-5.3%	11.8%	2.5%	3.4%	1.8%	2.6%
Rest of Asia	2.5	2.7	2.2	1.5	1.7	1.8	1.8	1.9	14.1%	7.9%	-19.4%	-29.5%	12.5%	3.9%	0.4%	5.1%	3.1%
Total Asia	39.6	36.8	33.0	34.5	38.3	38.7	38.4	39.8	-0.7%	-7.1%	-10.2%	4.4%	11.0%	1.2%	-0.7%	3.6%	1%
North America																	
US	17.3	17.1	14.6	15.1	14.3	15.0	16.0	16.2	-0.2%	-1.3%	-14.5%	3.4%	-5.1%	4.9%	6.7%	1.0%	4.2%
Canada	2.0	1.9	1.6	1.7	1.7	1.7	1.8	1.8	-2.2%	-3.2%	-18.8%	6.4%	2.6%	-0.7%	5.1%	4.1%	2.8%
Mexico	1.4	1.3	0.9	1.0	1.1	1.1	1.1	1.2	-7.3%	-7.2%	-28.1%	6.4%	8.0%	-0.8%	4.7%	3.0%	2.2%
Total NAFTA	20.7	20.3	17.1	17.7	17.1	17.8	18.9	19.2	-0.9%	-1.9%	-15.8%	3.9%	-3.7%	4.0%	6.4%	1.4%	3.9%
South America																	
Brazil	2.5	2.7	2.0	2.0	2.0	2.2	2.2	2.3	13.7%	7.7%	-26.7%	0.9%	0.0%	10.0%	3.0%	3.0%	5.3%
Argentina	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.4	-17.4%	-27.1%	-27.2%	9.4%	0.0%	5.0%	5.0%	0.0%	3.3%
Rest of South America	1.2	1.0	0.7	1.1	1.1	1.1	1.1	1.2	10.2%	-18.4%	-30.9%	53.2%	5.0%	0.0%	3.0%	3.0%	2.0%
Total South America	4.3	4.1	3.0	3.4	3.4	3.7	3.8	3.9	7.0%	-4.7%	-27.8%	14.0%	1.6%	6.3%	3.2%	2.7%	4.0%
Eastern Europe																	
Russia	1.9	1.9	1.6	1.7	0.6	0.6	0.7	0.8	12.4%	-3.7%	-12.5%	4.7%	-66.3%	-2.4%	19.4%	18.3%	11.3%
Turkey	0.8	0.6	0.9	0.7	0.9	0.9	0.9	0.9	-20.5%	-24.4%	63.4%	-21.3%	21.6%	0.0%	0.0%	0.0%	0.0%
Romania	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	5.4%	38.4%	-21.9%	-2.9%	0.6%	6.5%	5.8%	3.0%	5.1%
Poland	0.6	0.7	0.5	0.5	0.5	0.5	0.5	0.7	3.3%	10.9%	-22.1%	5.9%	-11.2%	5.0%	5.3%	25.5%	11.5%
Other E Europe	0.6	0.7	0.6	1.0	0.7	0.7	0.7	0.8	-4.0%	13.2%	-21.3%	67.4%	-29.1%	5.5%	4.6%	3.1%	4.4%
Total E. Europe	4.1	4.0	3.8	4.1	2.8	2.8	3.0	3.3	0.4%	-1.4%	-5.2%	7.6%	-32.1%	2.1%	6.3%	9.5%	5.9%
Western Europe																	
France	2.5	2.7	2.0	2.1	1.9	2.0	2.2	2.3	1.1%	4.8%	-23.9%	1.0%	-8.6%	7.8%	7.9%	4.3%	6.6%
Germany	4.0	4.2	3.4	3.1	2.9	3.2	3.3	3.4	1.1%	4.6%	-17.8%	-10.0%	-5.5%	8.9%	4.1%	4.2%	5.7%
Italy	2.2	2.1	1.5	1.6	1.4	1.6	1.7	1.7	-0.2%	-2.4%	-27.3%	6.0%	-11.8%	8.6%	5.9%	4.0%	6.1%
Spain	1.5	1.5	1.0	1.0	0.9	1.0	1.1	1.2	2.3%	0.5%	-31.5%	0.1%	-6.6%	10.0%	6.9%	5.1%	7.3%
UK	2.9	2.7	1.9	2.0	1.9	2.0	2.1	2.2	-0.5%	-6.9%	-28.2%	3.7%	-7.0%	4.3%	5.7%	6.5%	5.5%
Other	3.6	3.6	2.8	2.9	2.6	3.0	3.1	3.2	0.8%	-0.9%	-20.5%	0.9%	-7.5%	12.3%	5.8%	2.5%	6.8%
Total W. Europe	16.7	16.7	12.8	12.7	11.7	12.7	13.5	14.0	0.7%	0.2%	-23.5%	-1.0%	-7.6%	8.8%	5.8%	4.2%	6.3%
Total Europe (incl Russia & Turkey)	20.7	20.7	16.6	16.7	14.5	15.6	16.5	17.3	0.6%	-0.1%	-19.9%	1.0%	-13.6%	7.5%	5.9%	5.2%	6.2%
Rest of World	4.8	4.5	4.1	4.3	4.3	4.3	4.3	4.4	-0.1%	-6.5%	-9.3%	5.0%	0.0%	0.0%	0.0%	1.6%	0.5%
RoW (vs US specific countries)	18.0	17.3	13.7	14.7	15.0	15.3	15.7	16.2									
Global PC Total	81.7	78.1	66.9	69.0	69.9	72.1	73.8	76.4	-0.7%	-4.5%	-14.3%	3.2%	1.3%	3.1%	2.3%	3.5%	3.0%
Global LCV Total	8.1	8.0	6.6	7.8	7.6	7.9	8.2	8.3	3.5%	-1.3%	-17.4%	18.5%	-2.7%	4.1%	3.7%	1.5%	3.1%
Global LV Total	89.8	86.1	73.5	76.8	77.6	80.0	82.0	84.7	-0.4%	-4.2%	-14.6%	4.6%	0.9%	3.2%	2.4%	3.3%	3.0%
ICE sales	88.4	84.4	71.2	71.5	69.6	70.3	69.6	69.6	-1.0%	-4.5%	-15.6%	0.4%	-2.7%	1.1%	-1.0%	0.0%	0.0%
EV sales	1.4	1.6	2.3	5.4	8.0	9.7	12.3	15.1	72.0%	17.2%	37.6%	136.5%	49.1%	21.2%	27.4%	22.2%	23.6%

North America

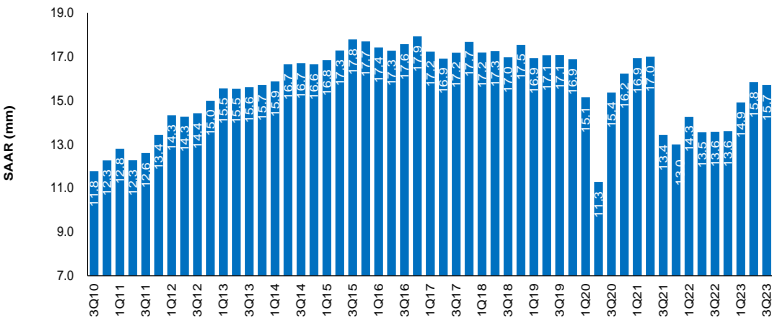
OEMs – US Sales & Share

New Vehicles SAAR



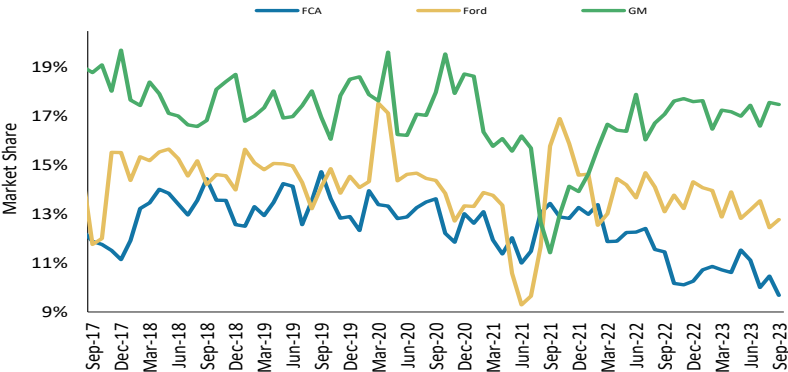
Source: Autodata, Morgan Stanley Research

SAAR by Quarter



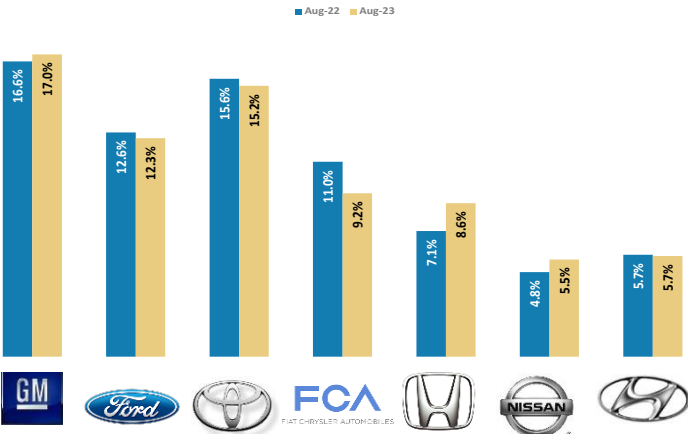
Source: Autodata, Morgan Stanley Research

New Vehicle Share Evolution



Source: Autodata

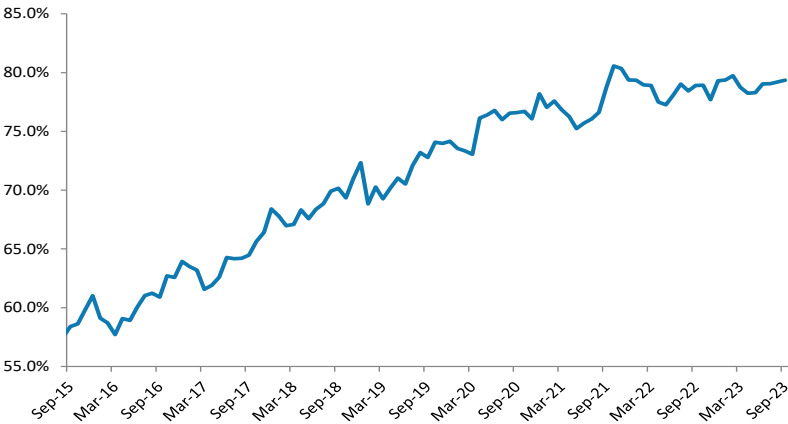
New Vehicles Share (Sep 2023 vs. LY)



Source: Autodata

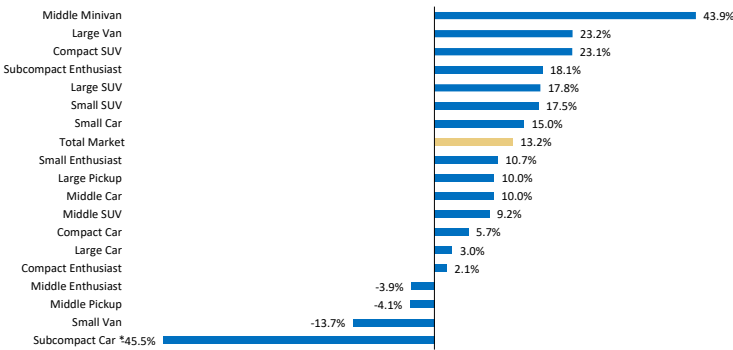
OEMs – US Mix & Pricing

Truck Share of Total Sales



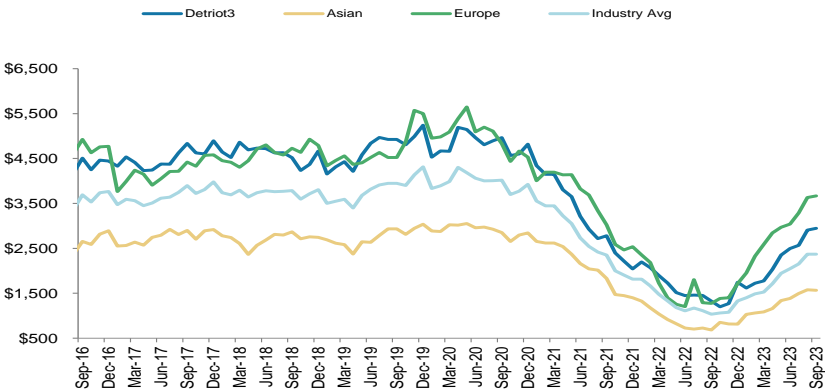
Source: Autodata, Morgan Stanley Research

Sales Segment Mix (2023 CYTD vs. 2022 CYTD)



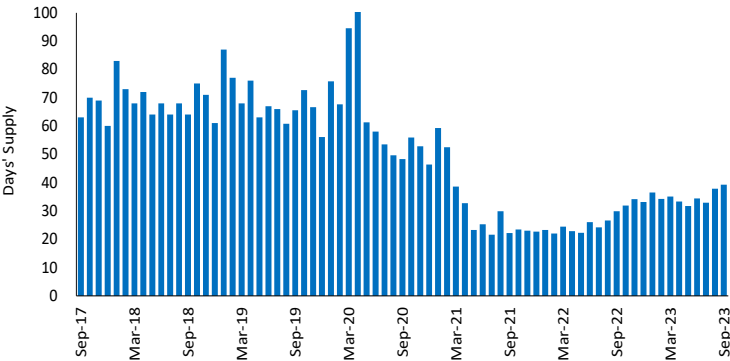
Source: Autodata, Morgan Stanley Research

D3 Incentives Evolution



Source: Autodata

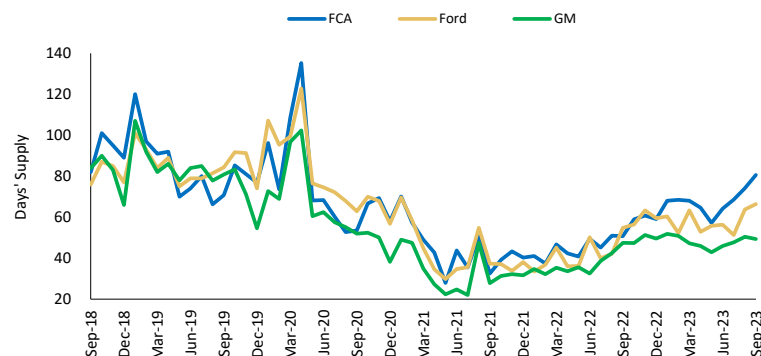
D3 Inventory (Days Supply)



Source: Autodata

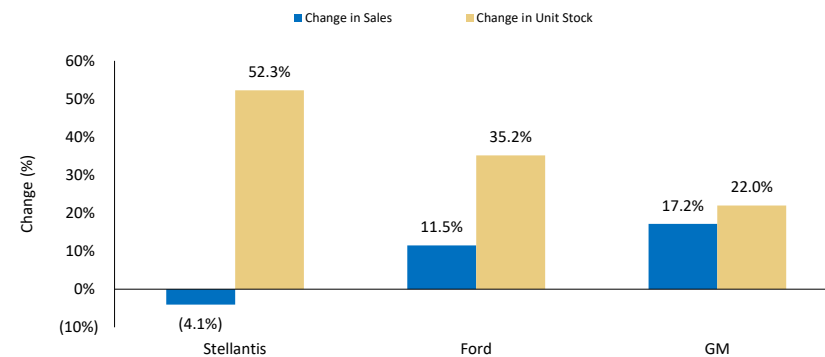
OEMs – US Inventory

D3 Inventory (Units)



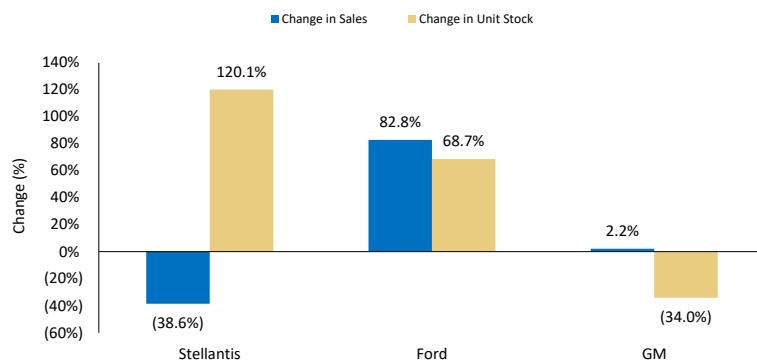
Source: Autodata

Total Sales Change vs. Total Inventory Change (Sep 2023 vs. LY)



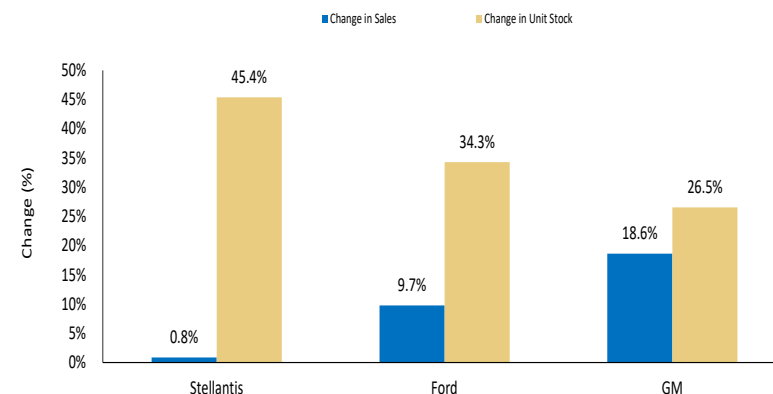
Source: Autodata

Car Sales Change vs. Car Inv. Change (Sep 2023 vs. LY)



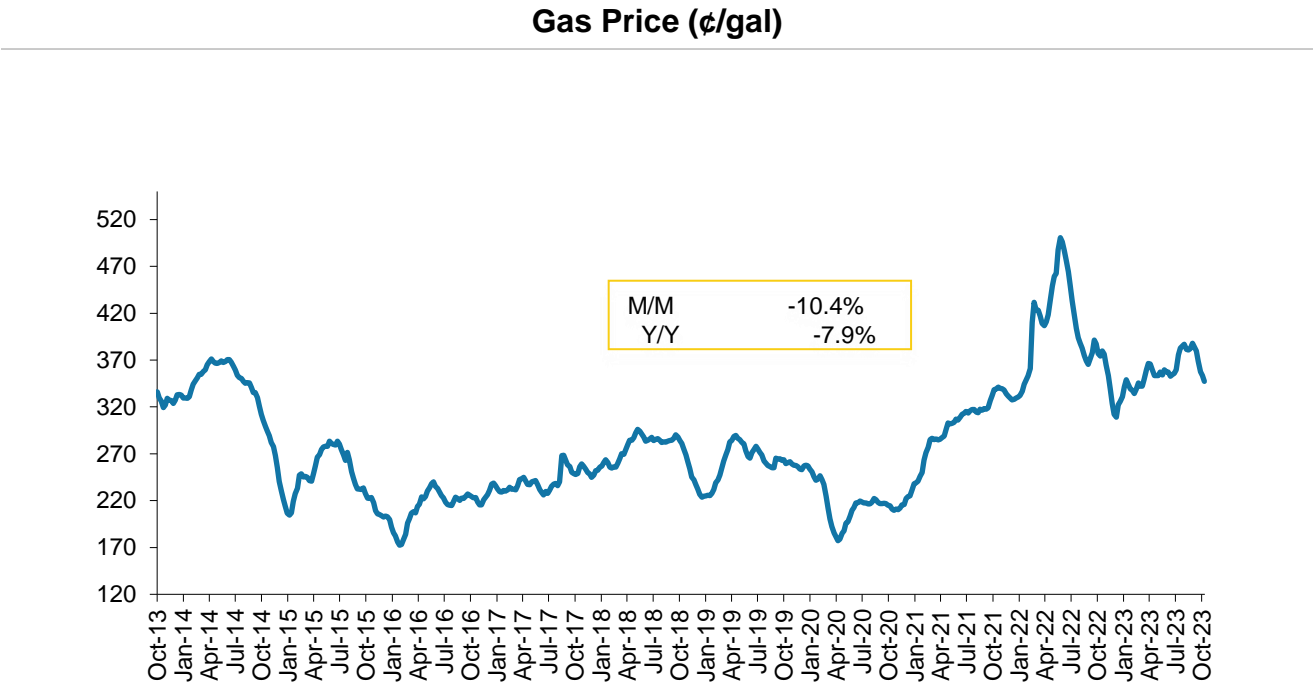
Source: Autodata

Truck Sales Change vs. Truck Inv. Change (Sep 2023 vs. LY)



Source: Autodata

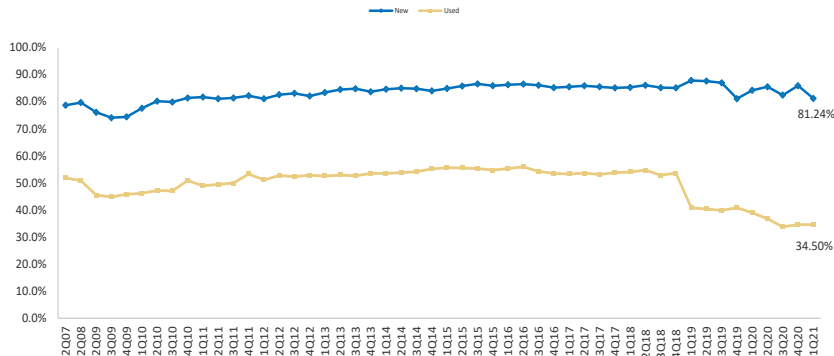
OEMs – US Gas Prices



Source: EIA (U.S. Regular All Formulations Retail Gasoline Prices), Morgan Stanley Research

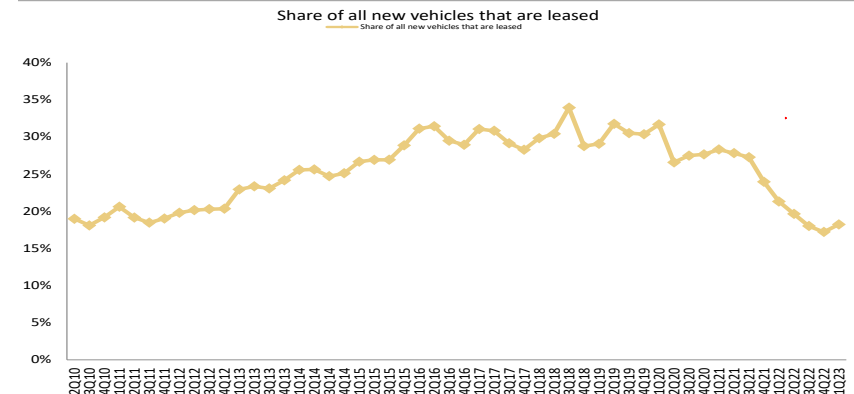
OEMs – Credit

Percentage of vehicles with financing



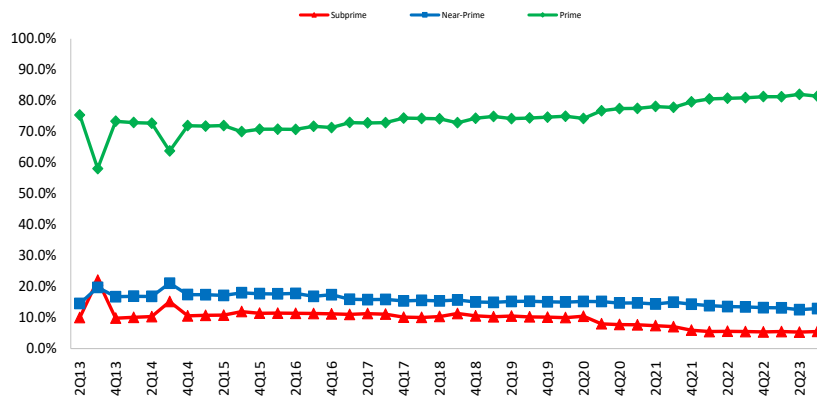
Source: Experian, Morgan Stanley Research

New Lease market share



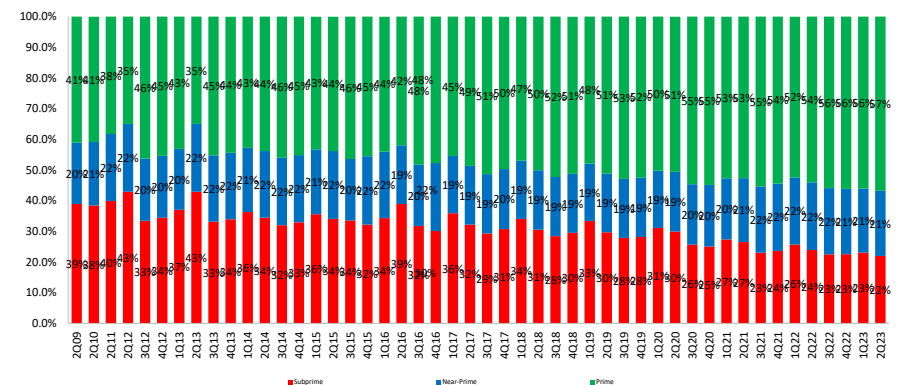
Source: Experian, Morgan Stanley Research

New Loan Originations by Risk Segment



Source: Experian, Morgan Stanley Research

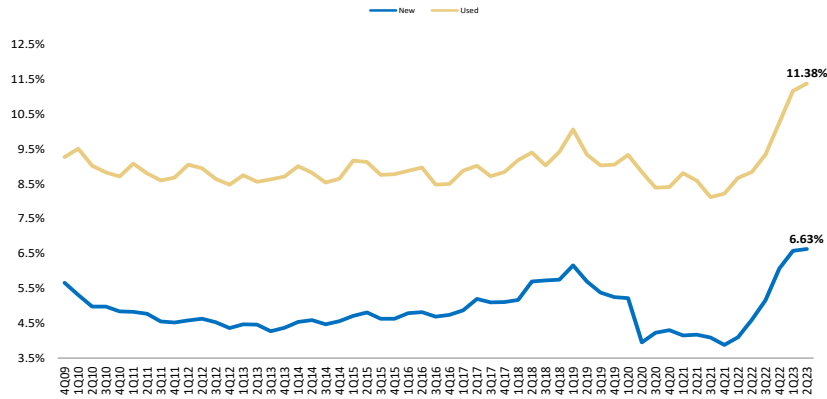
Used Car Loans by Risk Segments



Source: Experian, Morgan Stanley Research. Latest available data 2Q22

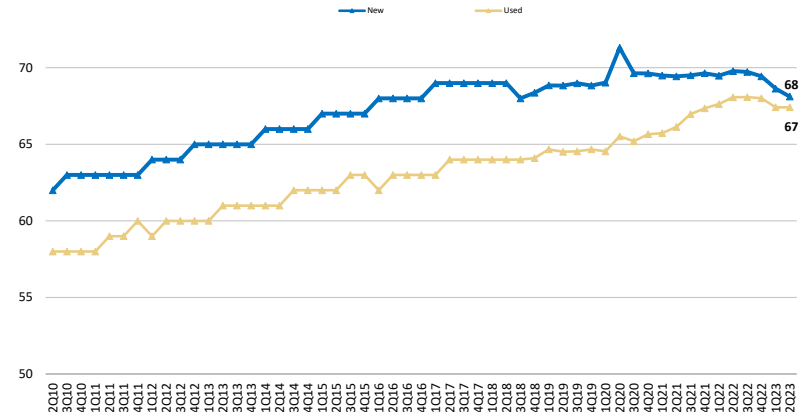
OEMs – Credit

Average Rate on New & Used vehicle loans



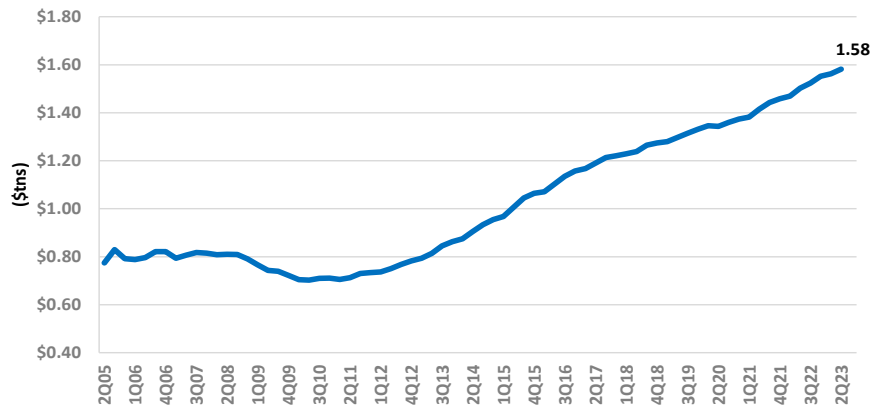
Source: Experian, Morgan Stanley Research

New and Used Financing – Average Term



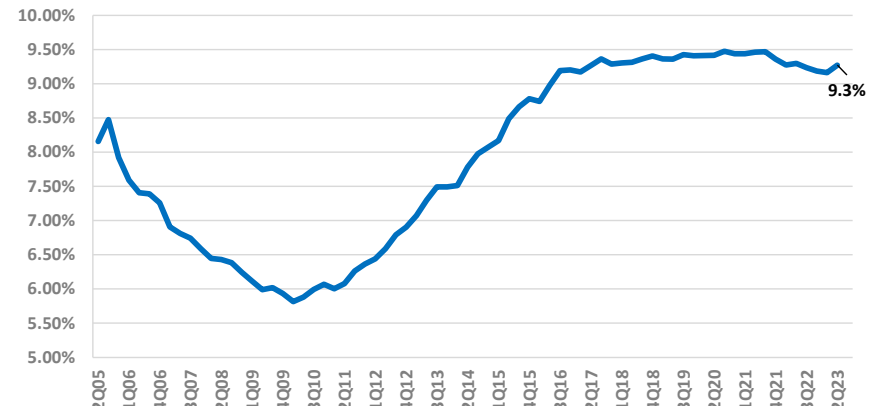
Source: Experian, Morgan Stanley Research

Total Auto Debt Balance (\$tns)



Source: New York Fed Consumer Credit Panel/Equifax

Auto Debt as % of Total Debt



Source: New York Fed Consumer Credit Panel/Equifax

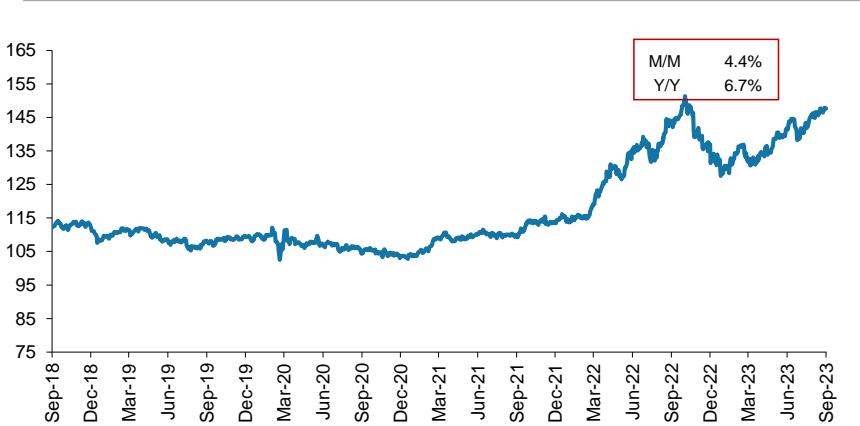
OE Suppliers – Currency

EUR / USD



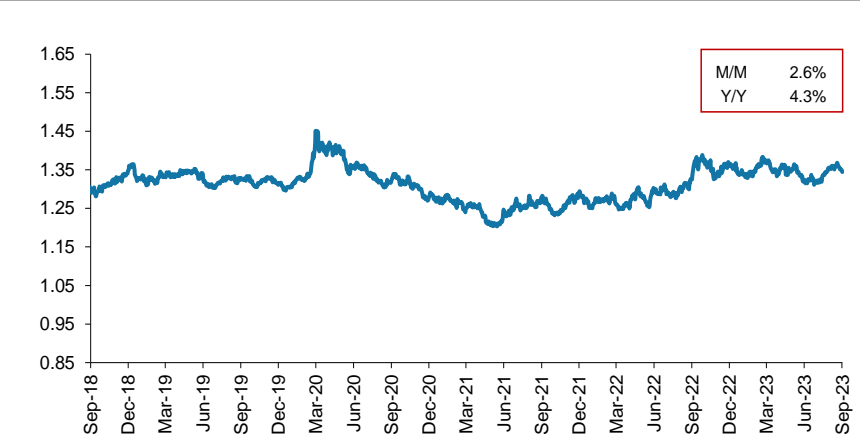
Source: Datastream, Morgan Stanley Research

USD / JPY



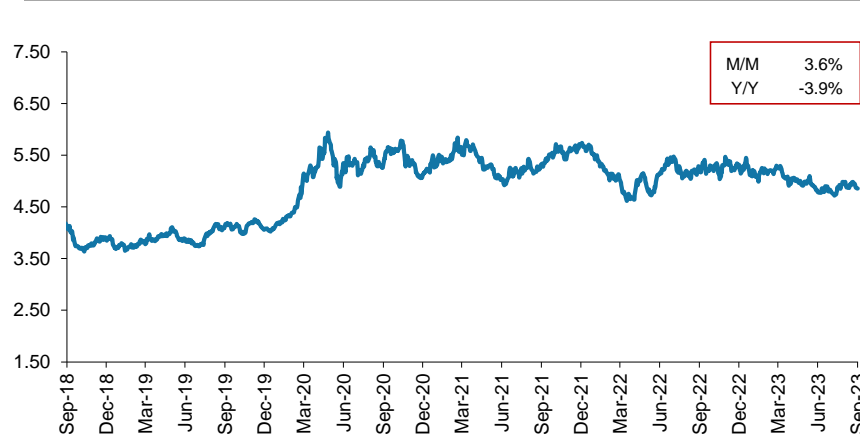
Source: Datastream, Morgan Stanley Research

USD / CAD



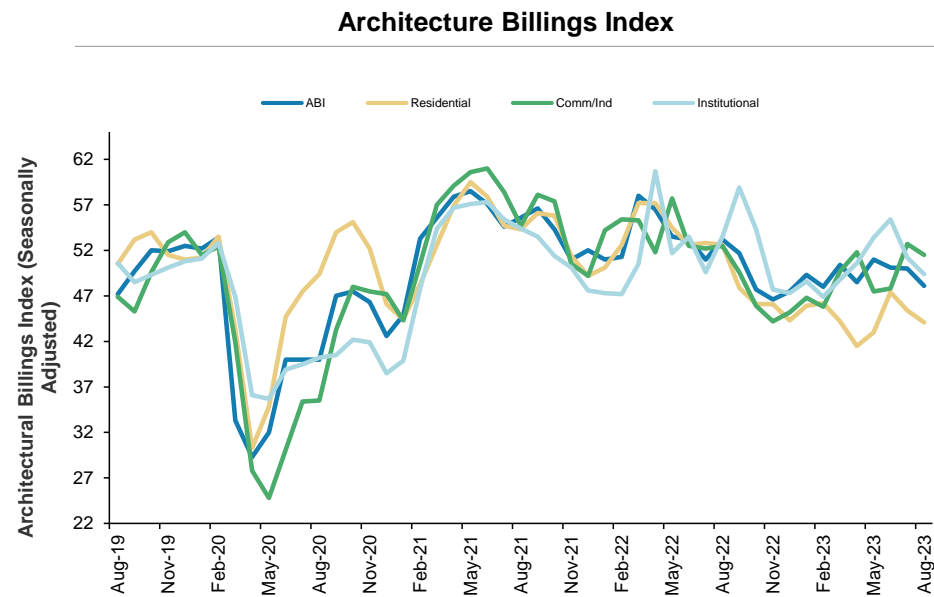
Source: Datastream, Morgan Stanley Research

BRL / USD



Source: Datastream, Morgan Stanley Research

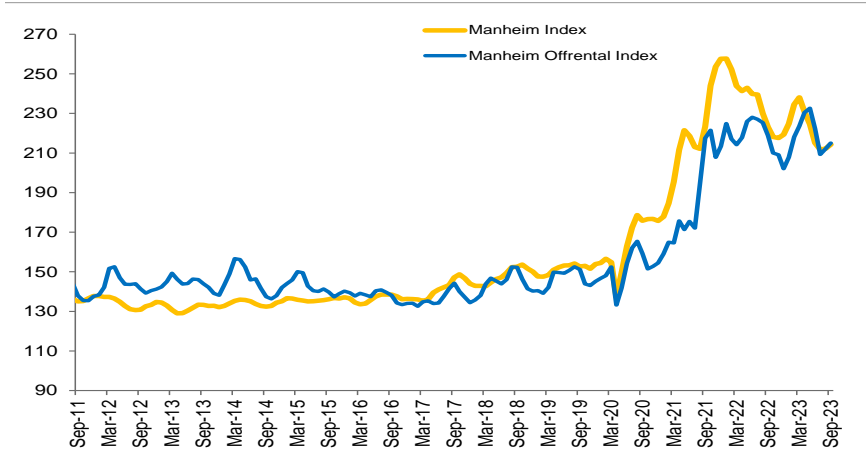
OE Suppliers – Construction Metrics



Source: American Institute of Architects, Morgan Stanley Research

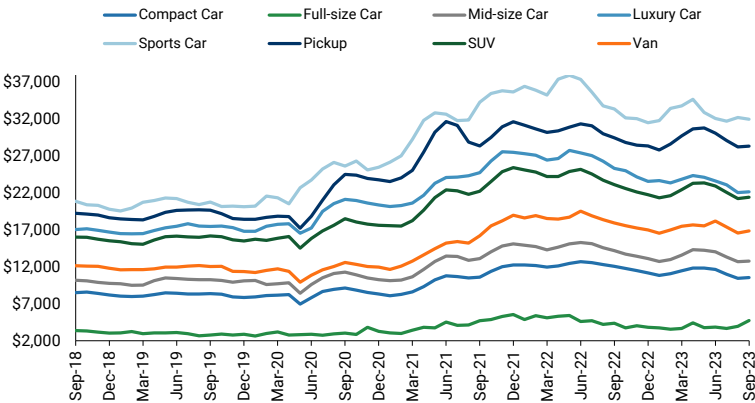
Auto Dealers – US Used Car Data

Manheim Index & Off-Rental Index



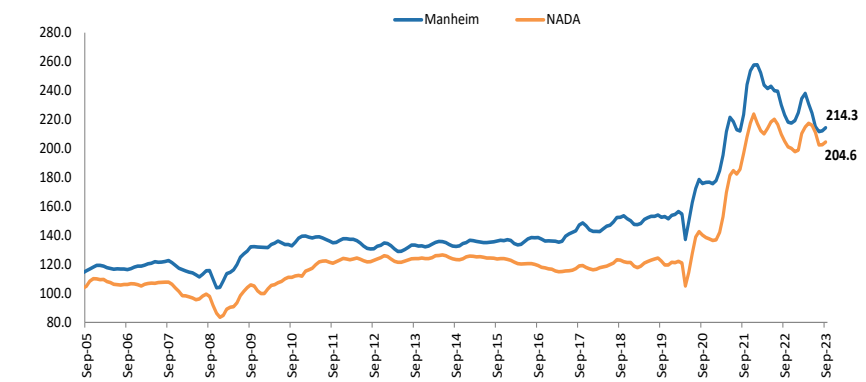
Source: CNW, Morgan Stanley Research

NSA Prices



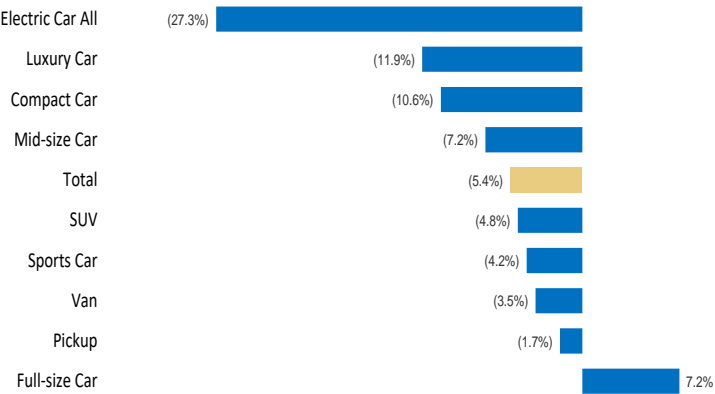
Source: CNW, Morgan Stanley Research

Manheim Vs NADA Used Vehicles Pricing Index



Source: Manheim, NADA, Morgan Stanley Research

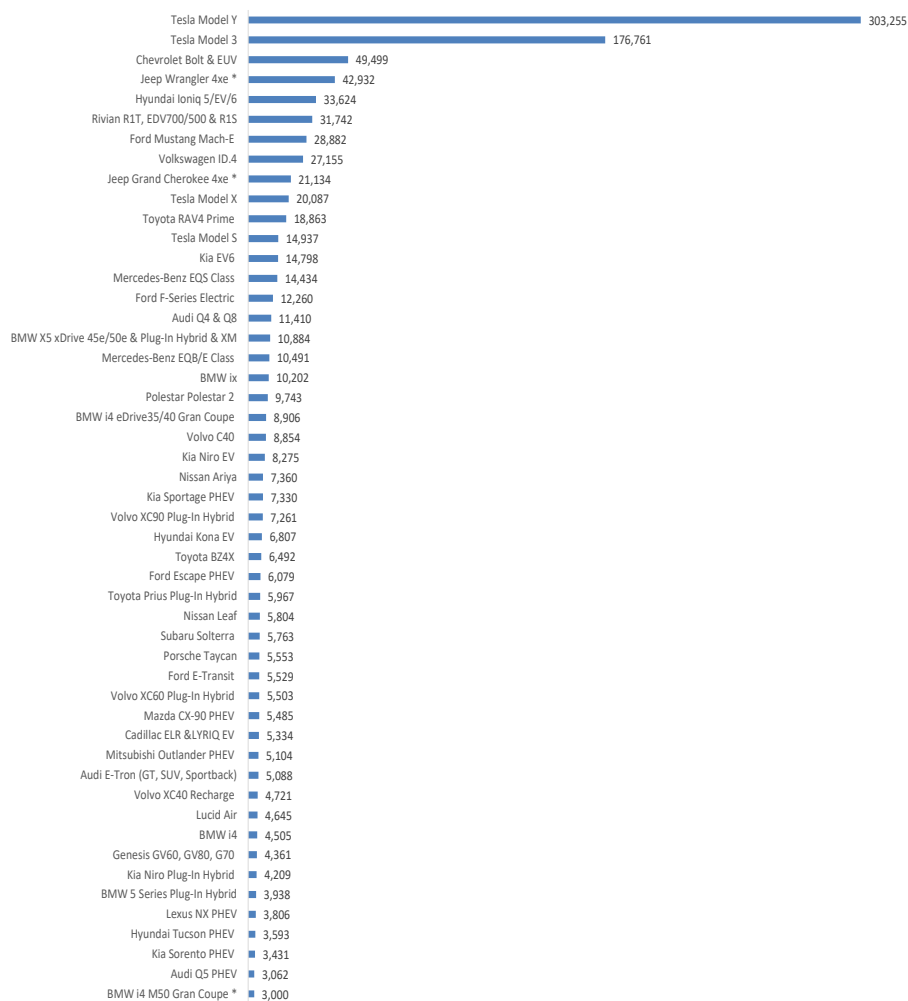
Used Vehicles Prices (Sep 2023 vs. LY)



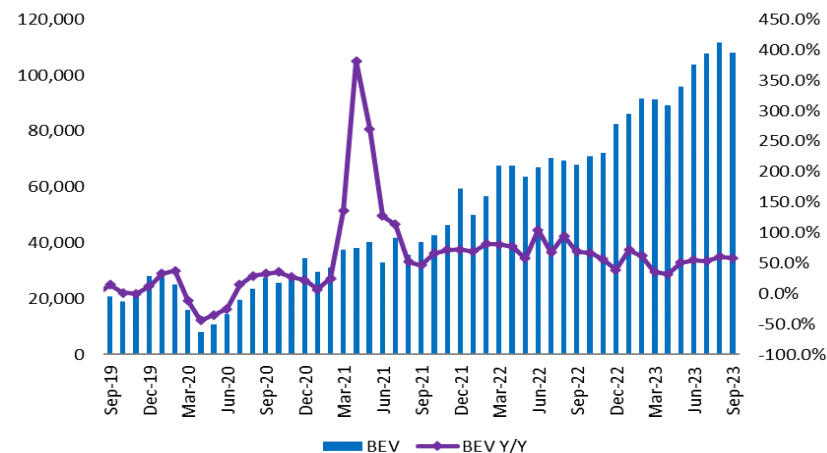
Source: Manheim, Morgan Stanley Research

US Electric Vehicle Sales

US Plug-in sales YTD (2023)

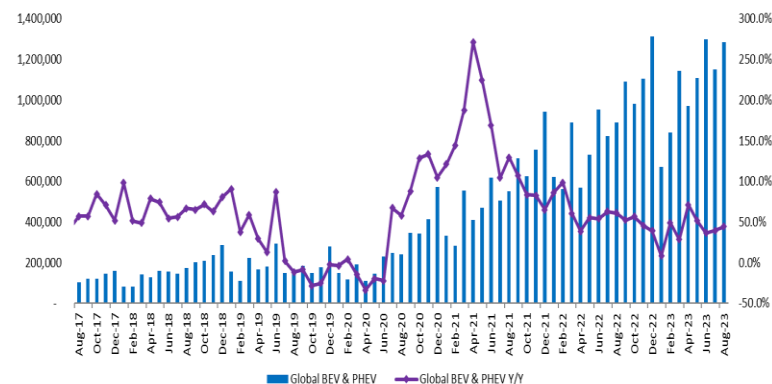


US BEV monthly sales



Source: Motor Intelligence, Morgan Stanley Research

Global Plug-in monthly sales



Source: Motor Intelligence, Morgan Stanley Research:

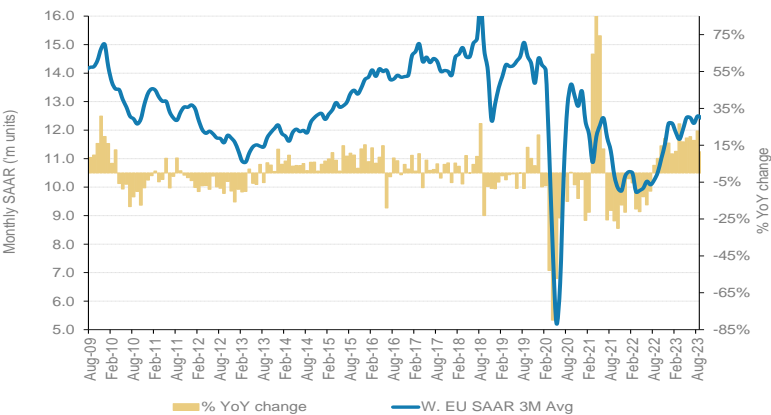
Note: Latest available Worldwide sales data Aug 2023

Source: EV-Volumes, Motor Intelligence 15

Europe

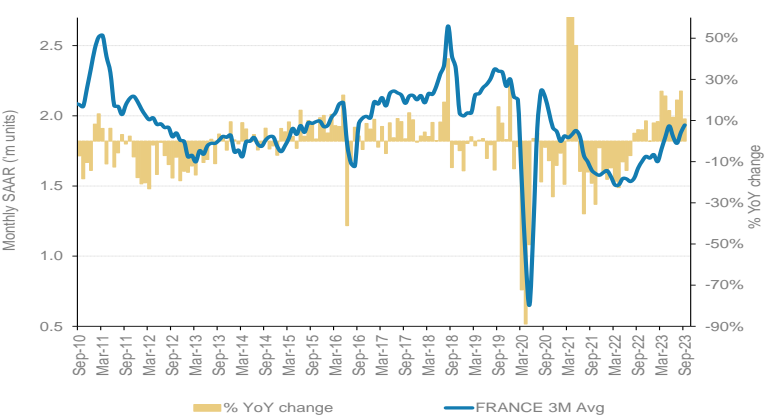
Europe Sales

Western Europe Monthly Sales



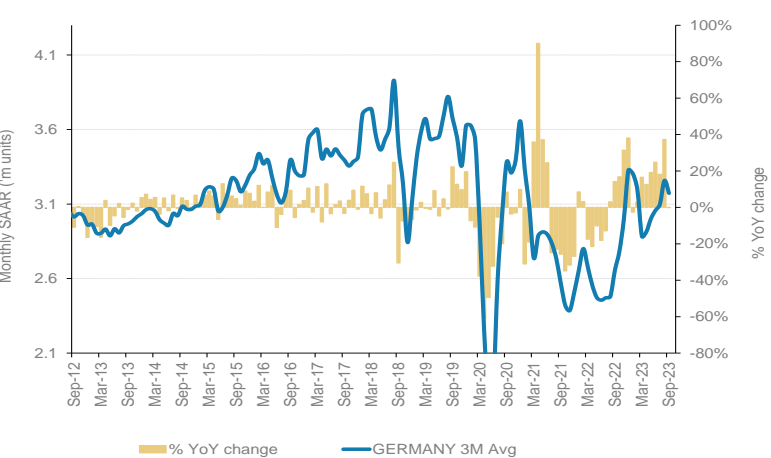
Source: ACEA, Morgan Stanley Research

France Monthly Sales



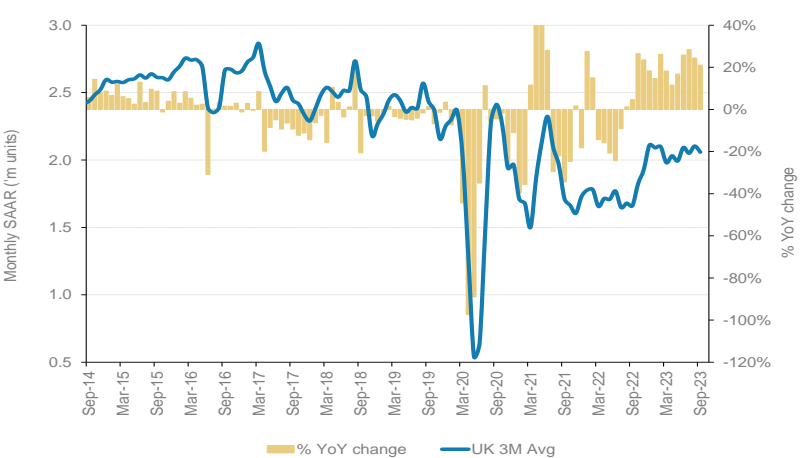
Source: CCFA, Morgan Stanley Research

Germany Monthly Sales



Source: KBA, Morgan Stanley Research

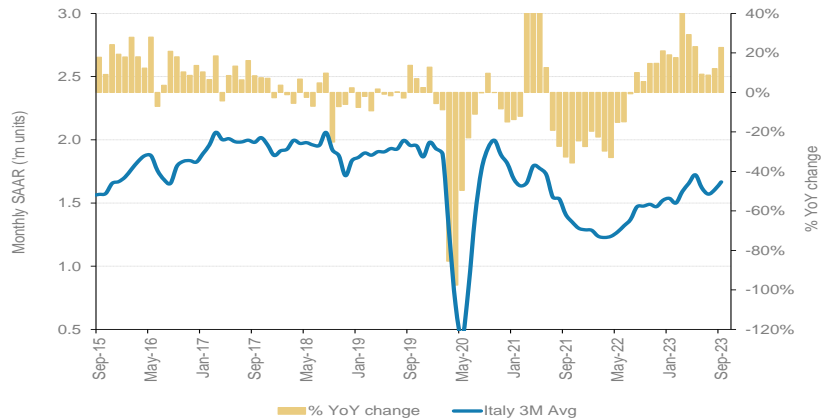
UK Monthly Sales



Source: SMMT, Morgan Stanley Research

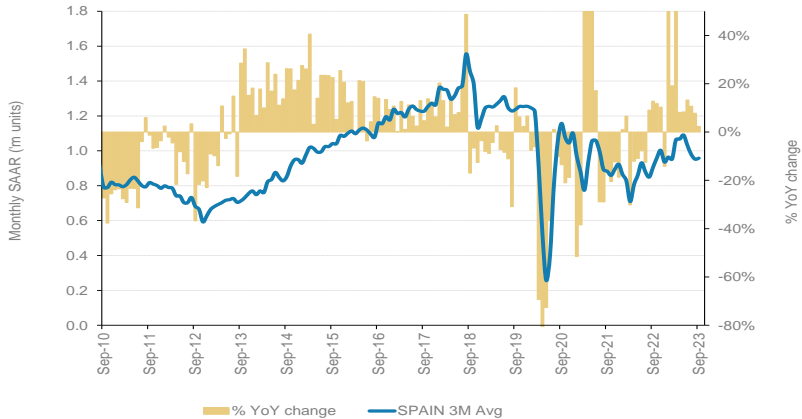
Europe Sales

Italy Monthly Sales



Source: UNRAE, Morgan Stanley Research

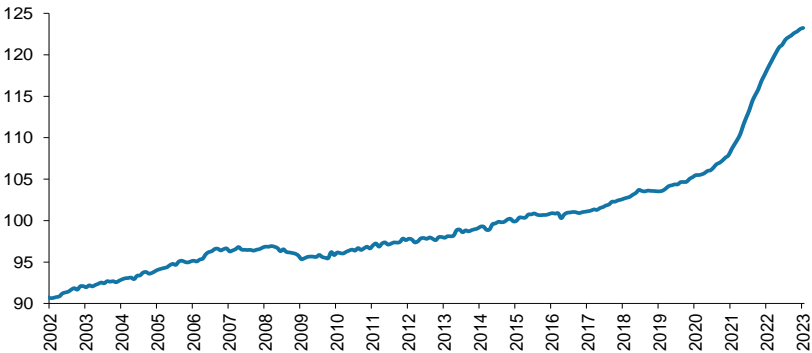
Spain Monthly Sales



Source: ANFAC, Morgan Stanley Research

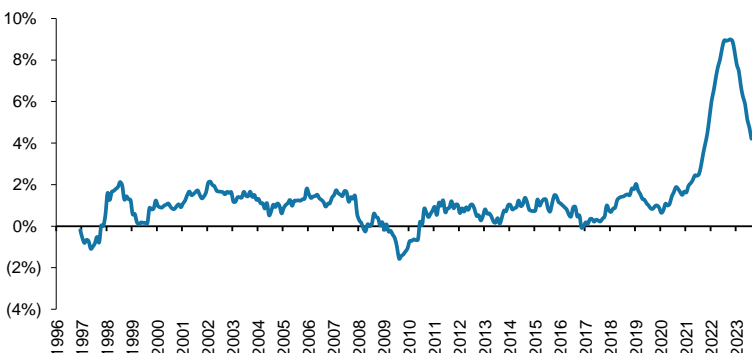
Europe Sales and Pricing

EU New Car Price Index



Source: Eurostat

EU New Car Price Y/Y % Change

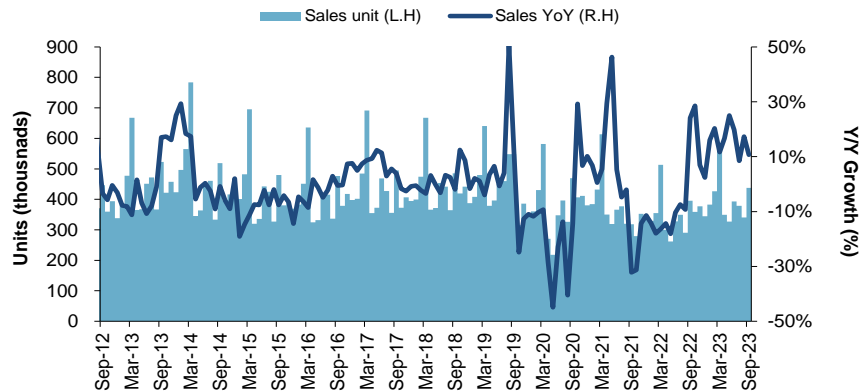


Source: Eurostat

Japan

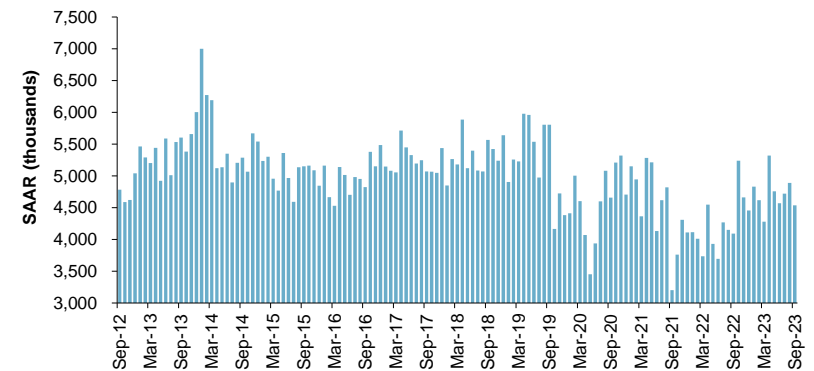
Japan Sales & Share

Japan Monthly Unit Sales



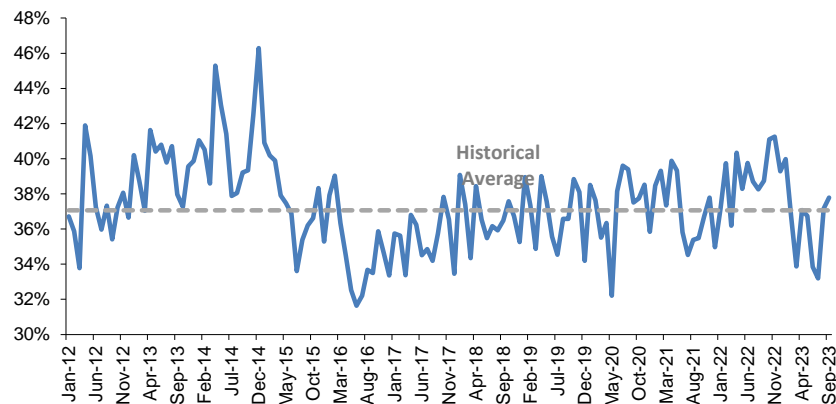
Source: JADA, JMVA, Morgan Stanley Research

Japan Monthly SAAR



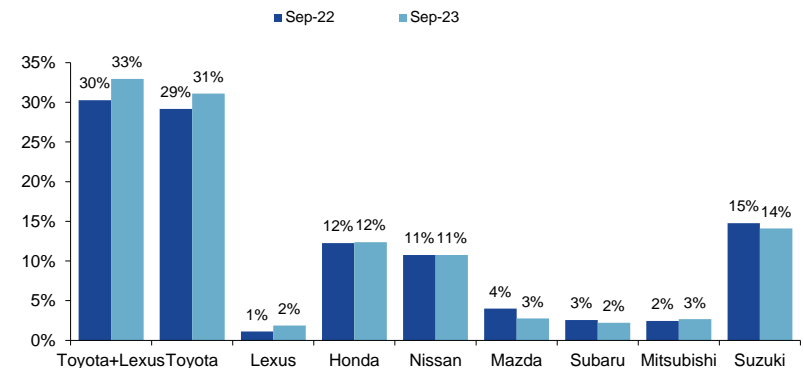
Source: JADA, JMVA, Morgan Stanley Research

Japan Mini % Share of Sales



Source: JADA, JMVA, Morgan Stanley Research

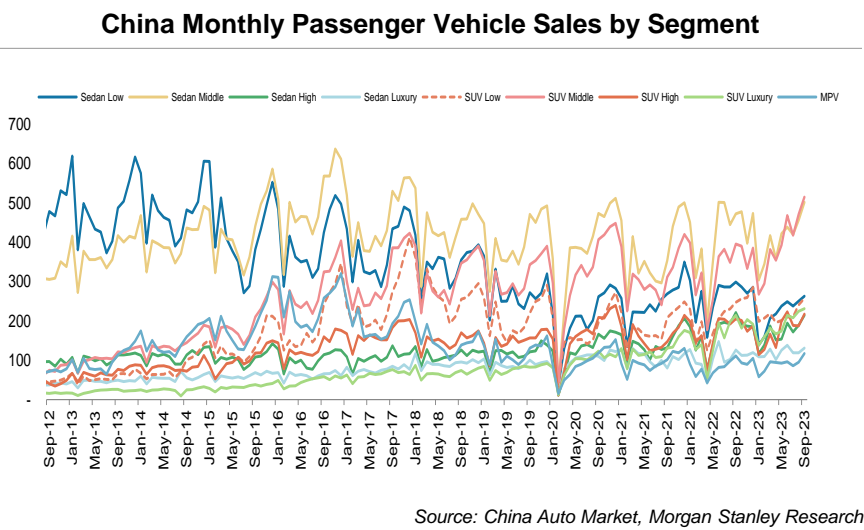
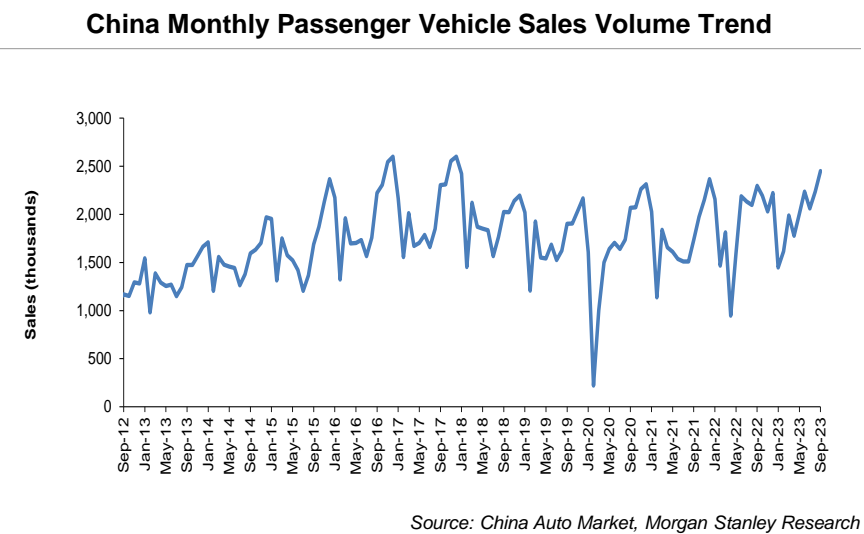
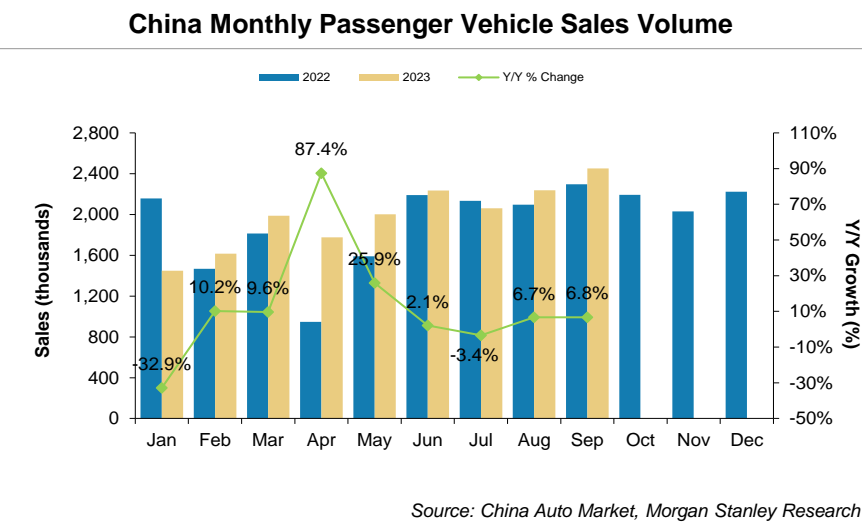
Japan OEM Market Share



Source: JADA, JMVA, Morgan Stanley Research

China

China Passenger Vehicle Sales



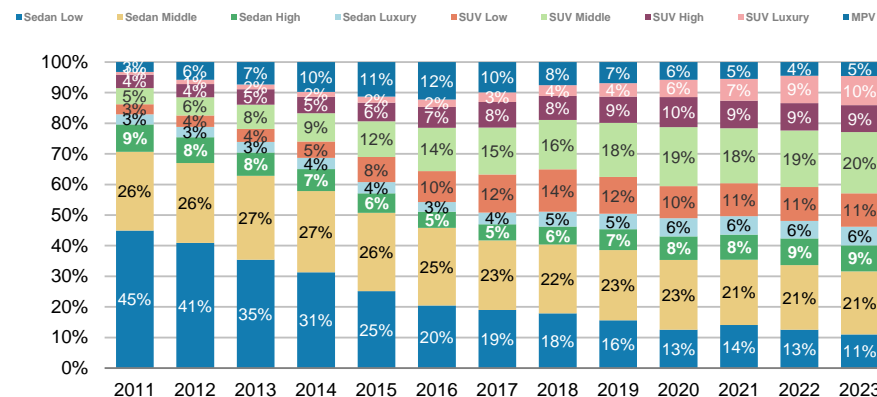
China Passenger Vehicle Segment Data

China PV Market MTD Sales by Segment (Sep 2022)

Segments	Units (K)	YoY %	Mkt Share	Growth Contri.	Growth Share
Sedan Low	263,561	-12.0%	10.8%	-1.6%	-23.2%
Sedan Middle	502,250	6.3%	20.5%	1.3%	19.2%
Sedan High	214,667	-3.3%	8.8%	-0.3%	-4.8%
Sedan Luxury	131,361	3.7%	5.4%	0.2%	3.1%
SUV Low	257,993	4.1%	10.5%	0.4%	6.6%
SUV Middle	515,191	30.2%	21.0%	5.2%	77.0%
SUV High	217,654	5.8%	8.9%	0.5%	7.7%
SUV Luxury	231,652	7.8%	9.4%	0.7%	10.8%
MPV	117,353	5.1%	4.8%	0.2%	3.6%
Grand Total	2,451,682	6.8%	100.0%	6.8%	100.0%

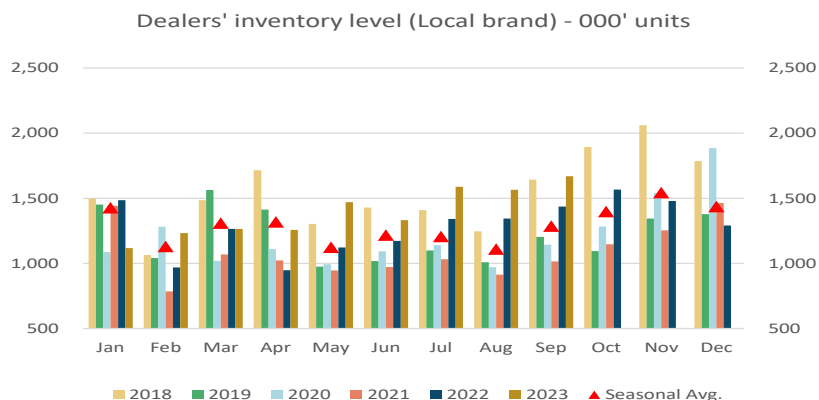
Source: China Auto Market, Morgan Stanley Research

China Passenger Vehicle Market Share by Segment



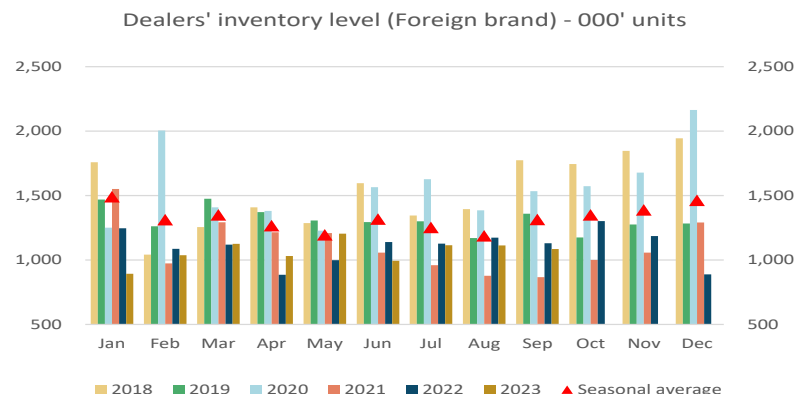
Source: China Auto Market, Morgan Stanley Research

Dealers' inventory (Local brand)



Source: China Auto Market, Morgan Stanley Research

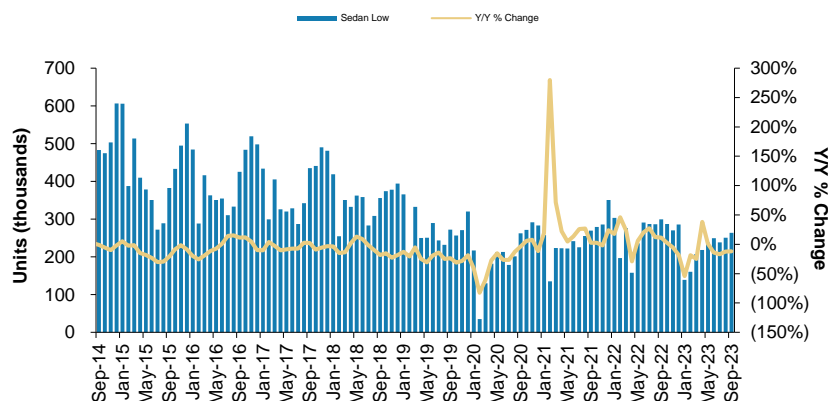
Dealers' inventory (Foreign brand)



Source: CADA, Morgan Stanley Research

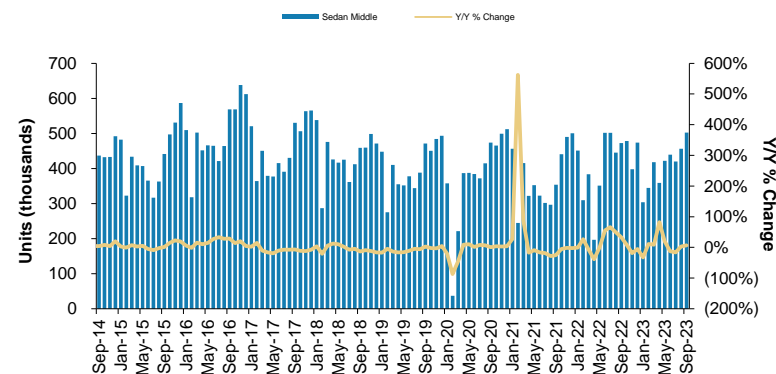
China Passenger Vehicle Sales by Segment

Monthly Passenger Vehicle Sales - Sedan Low Segment



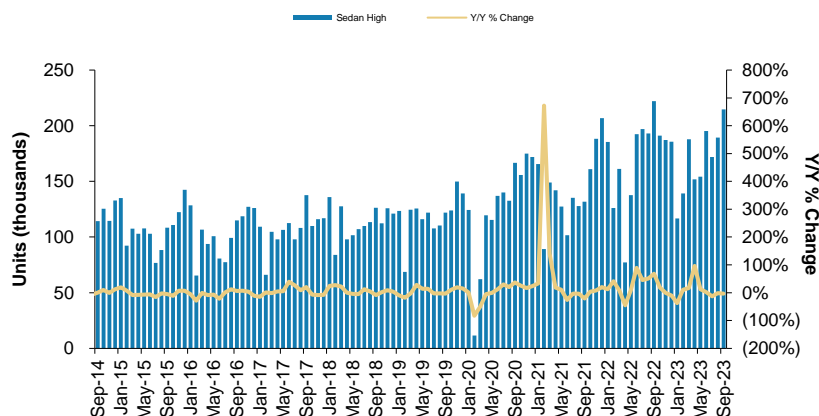
Source: China Auto Market, Morgan Stanley Research

Monthly Passenger Vehicle Sales - Sedan Middle Segment



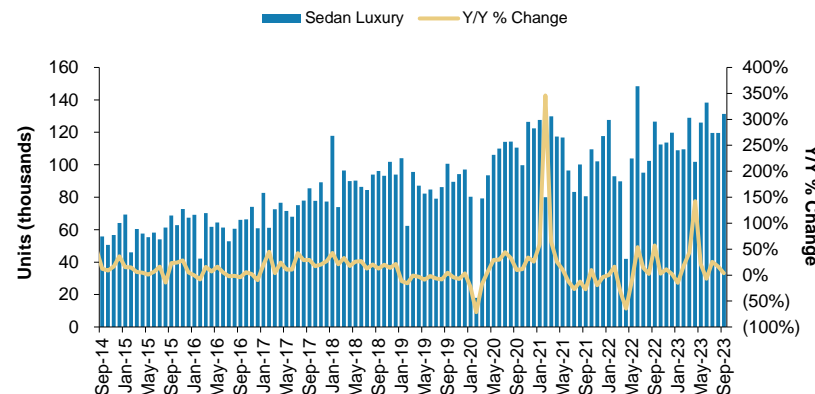
Source: China Auto Market, Morgan Stanley Research

Monthly Passenger Vehicle Sales - Sedan High Segment



Source: China Auto Market, Morgan Stanley Research

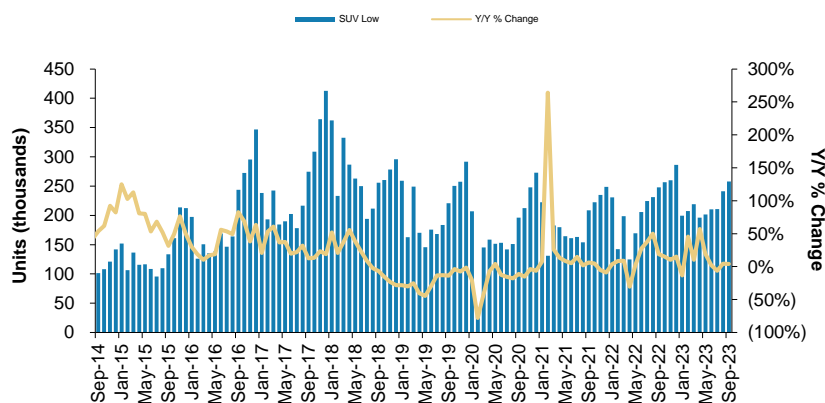
Monthly Passenger Vehicle Sales - Sedan Luxury Segment



Source: China Auto Market, Morgan Stanley Research

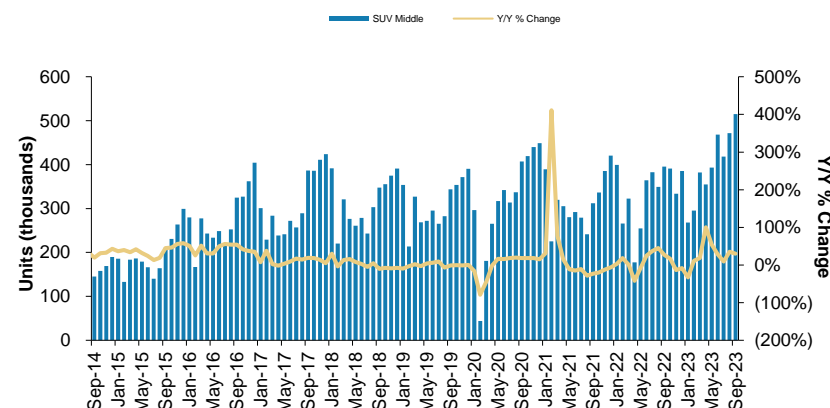
China Passenger Vehicle Sales by Segment (cont.)

Monthly Passenger Vehicle Sales – SUV Low Segment



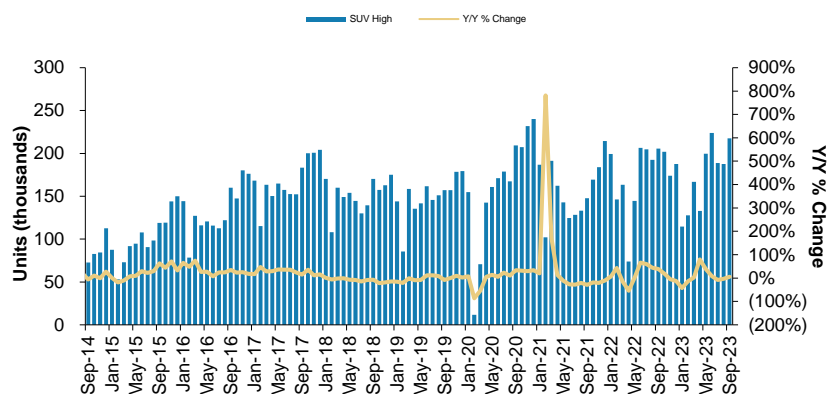
Source: China Auto Market, Morgan Stanley Research

Monthly Passenger Vehicle Sales – SUV Middle Segment



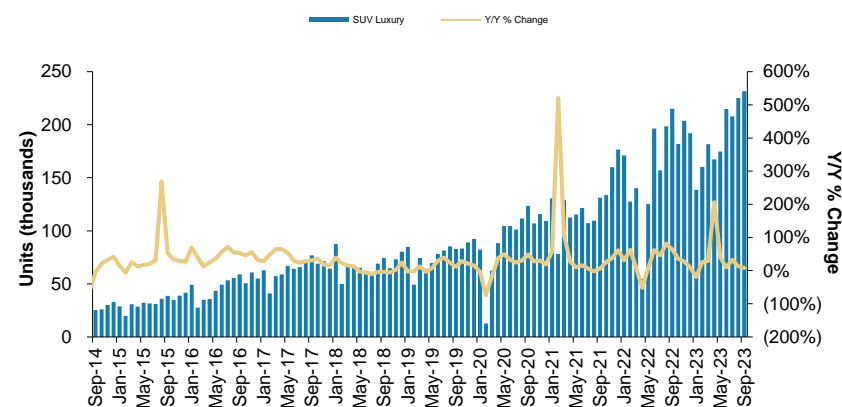
Source: China Auto Market, Morgan Stanley Research

Monthly Passenger Vehicle Sales – SUV High Segment



Source: China Auto Market, Morgan Stanley Research

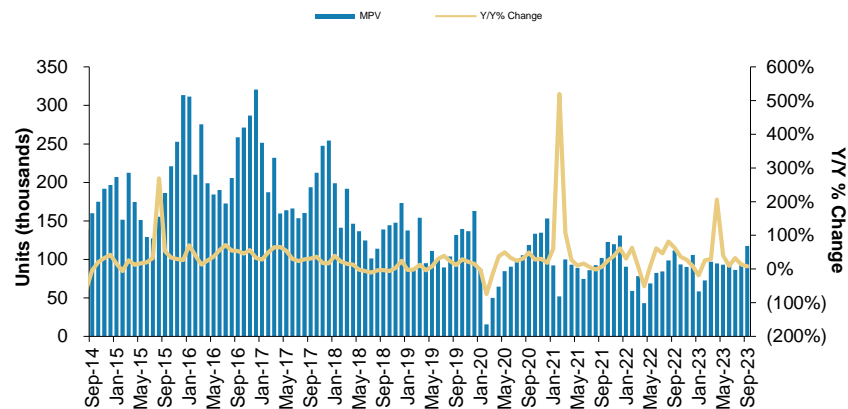
Monthly Passenger Vehicle Sales – SUV Luxury Segment



Source: China Auto Market, Morgan Stanley Research

China Passenger Vehicle Sales by Segment (cont.)

Monthly Passenger Vehicle Sales – MPV Segment

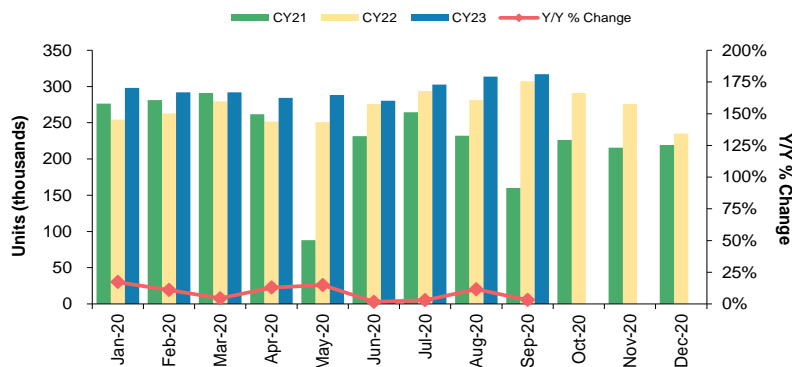


Source: China Auto Market, Morgan Stanley Research

India

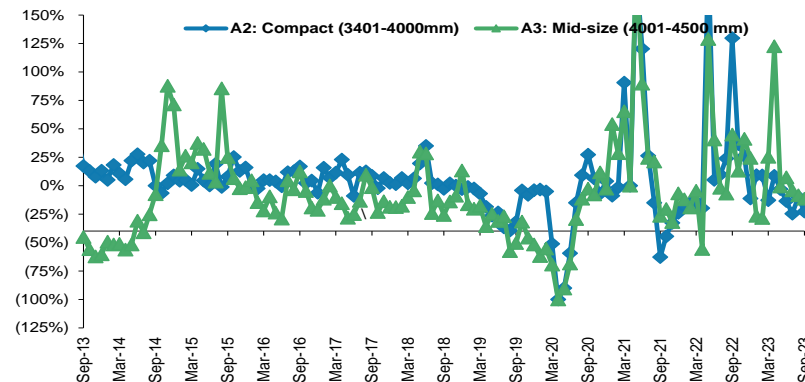
India Car Sales & Exports

India CY Domestic Sales



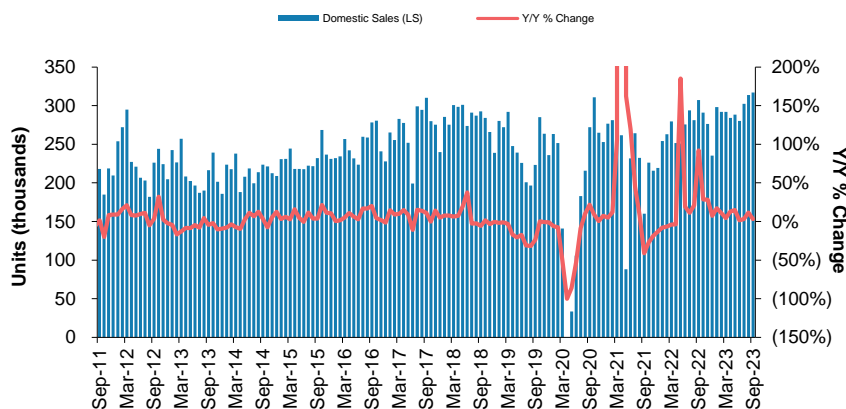
Source: SIAM, Morgan Stanley Research

India A2 and A3 Segment Sales



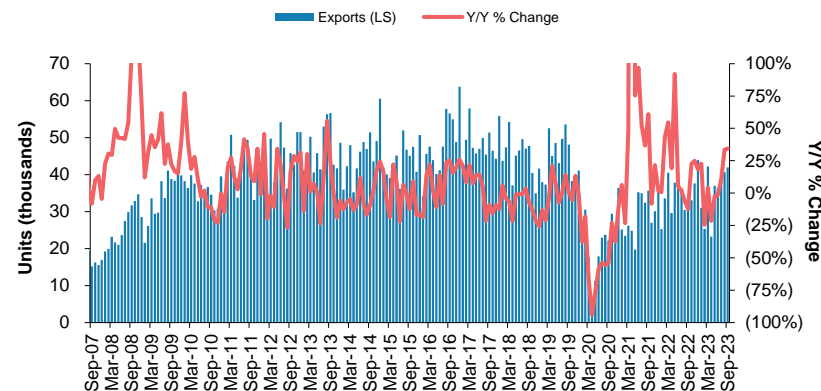
Source: SIAM, Morgan Stanley Research

India Monthly Domestic Sales



Source: SIAM, Morgan Stanley Research

India Monthly Exports

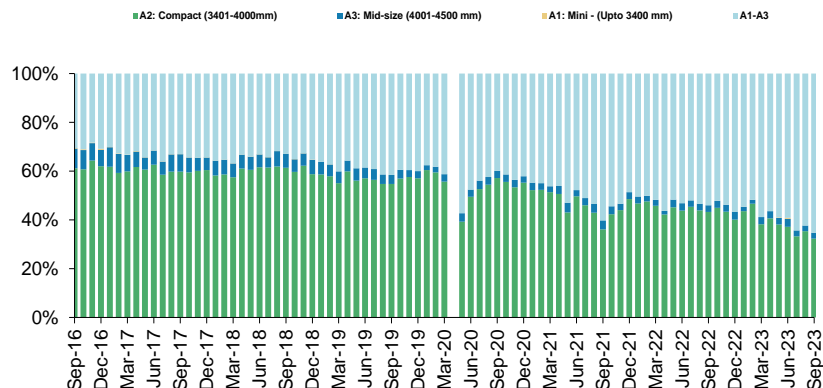


Source: SIAM, Morgan Stanley Research

Note: The monthly auto data is exclusive of Tata motors as they report on quarterly basis

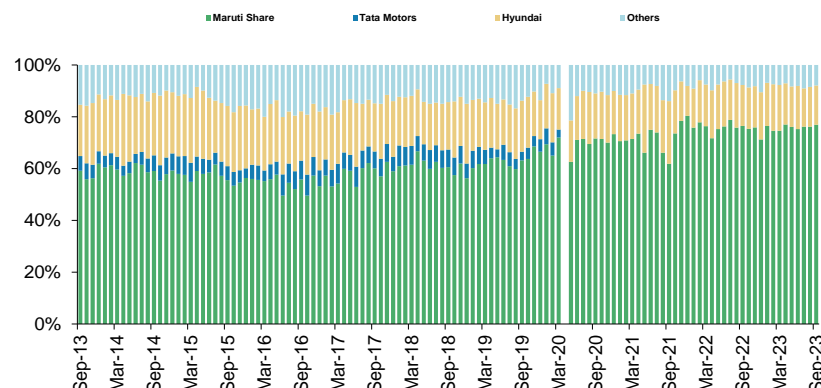
India Car Mix & Share

India Segment Mix



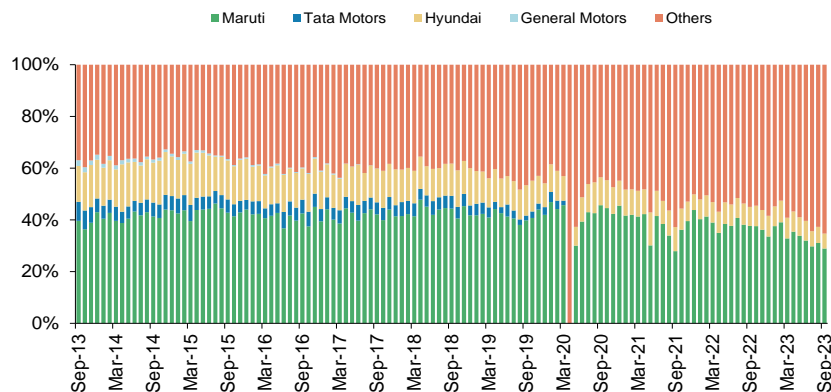
Source: SIAM, Morgan Stanley Research

India A2 Segment Market Share



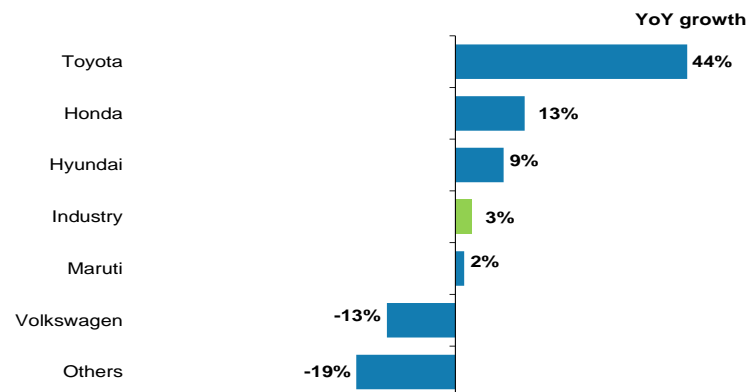
Source: SIAM, Morgan Stanley Research

India Total Domestic Market Share



Source: SIAM

Domestic Passenger Vehicles Sales growth - Sep-23 (ex-Tata)

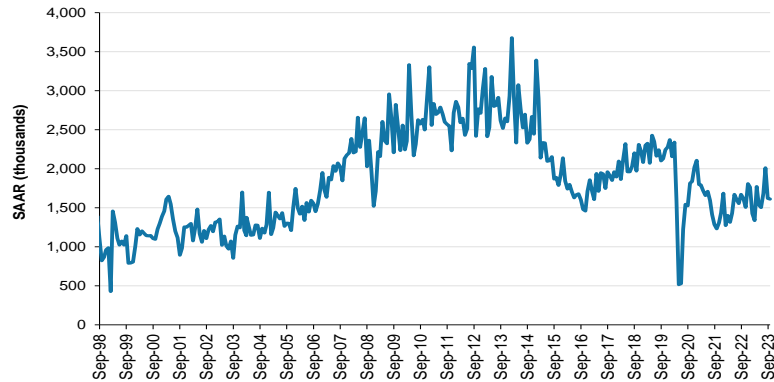


Source: SIAM

Brazil

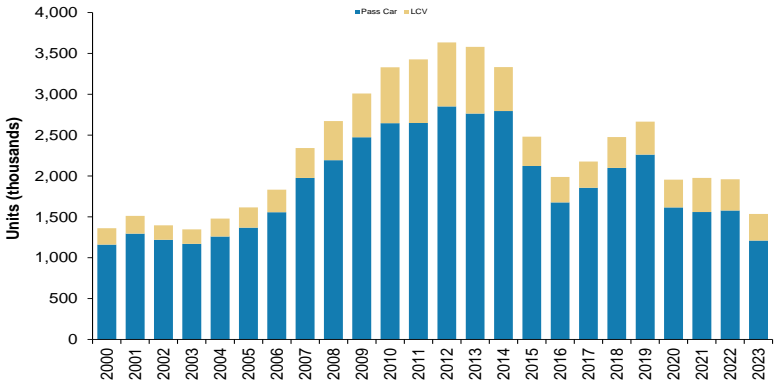
Brazil Car Sales

Brazilian Passenger Car SAAR



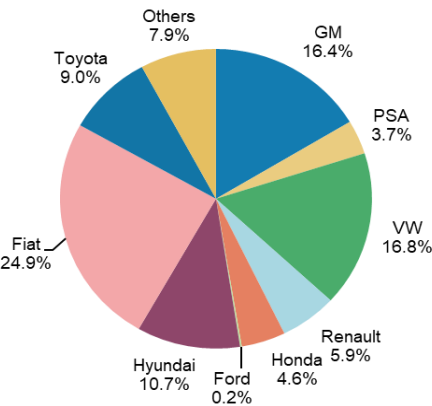
Source: Anfavea, Morgan Stanley Research

Brazilian Light Vehicle Volume, YTD 2000 - 2023



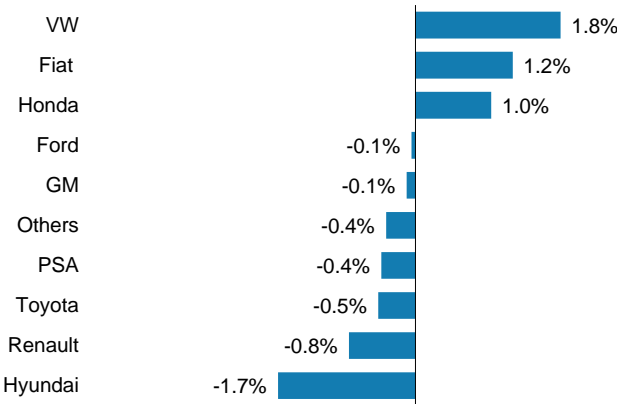
Source: Anfavea, Morgan Stanley Research

YTD 2023 Brazilian Passenger Car Market Share



Source: Anfavea

YTD 2023 Change in Passenger Car Market Share

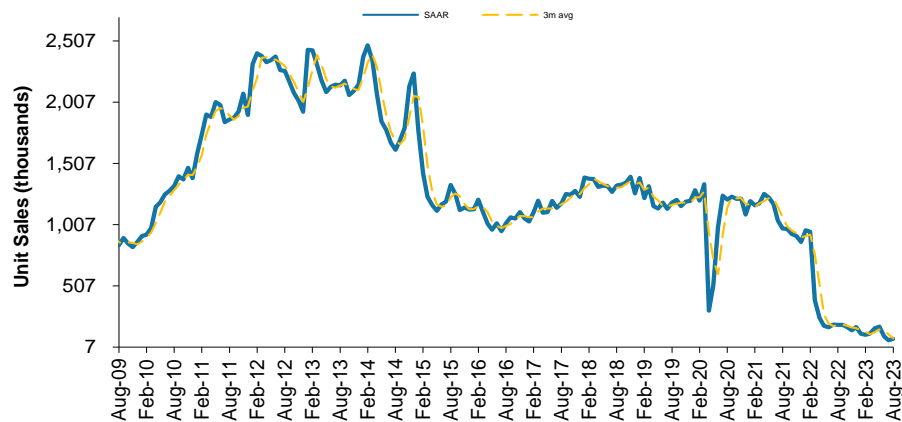


Source: Anfavea

Russia

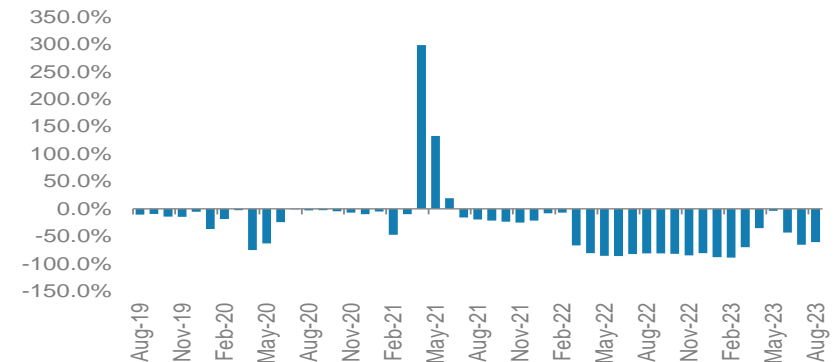
Russia Car Sales

Monthly Russian Non-Domestic SAAR



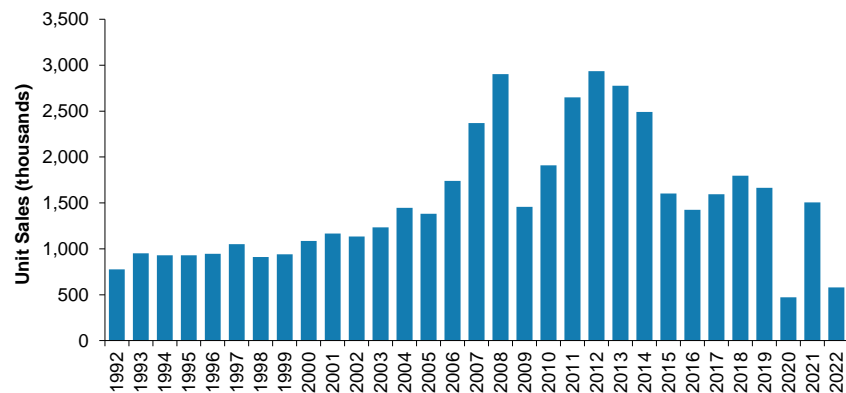
Source: AEB (Association of European Businesses in the Russian Federation), Automobile Manufacturers Committee (AMC), Morgan Stanley Research.

Non-Domestic Adjusted Car Sales Growth



Source: AEB (Association of European Businesses in the Russian Federation), Automobile Manufacturers Committee (AMC), Morgan Stanley Research.

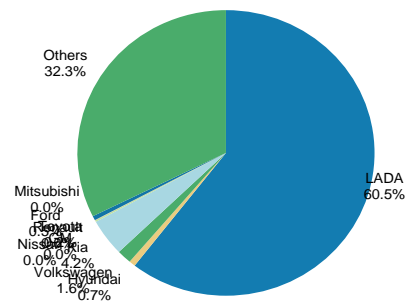
Total Russian Car Market



Source: AEB (Association of European Businesses in the Russian Federation), Automobile Manufacturers Committee (AMC), Morgan Stanley Research

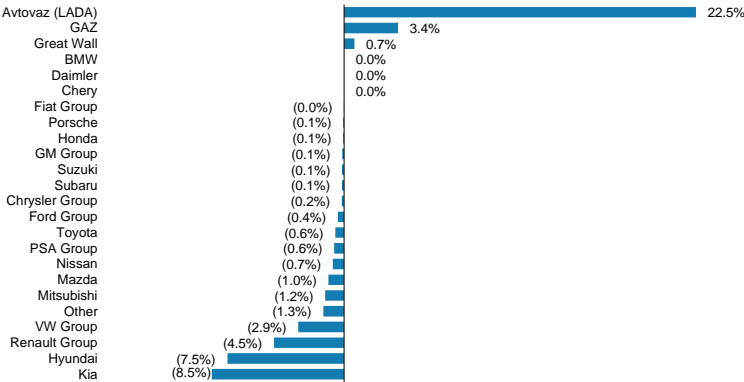
Russia Car Share

Aug-2023 Russian Total Car Sales by OEM



Source: AEB (Association of European Businesses in the Russian Federation), Automobile Manufacturers Committee (AMC).

Changes in Market Share YTD (%), Aug-2022 vs. Aug-2023

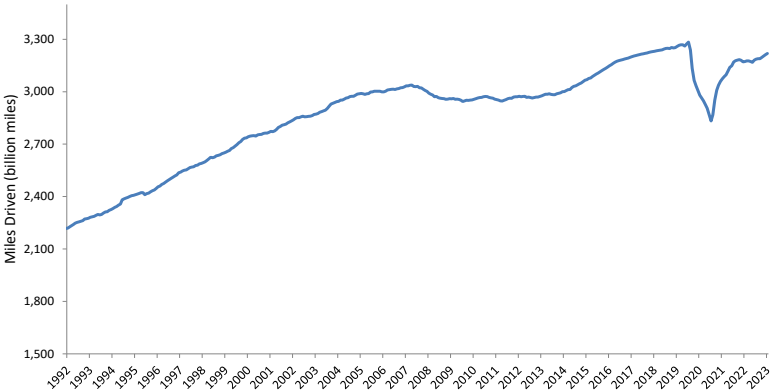


Source: AEB (Association of European Businesses in the Russian Federation), Automobile Manufacturers Committee (AMC).

Global Tires

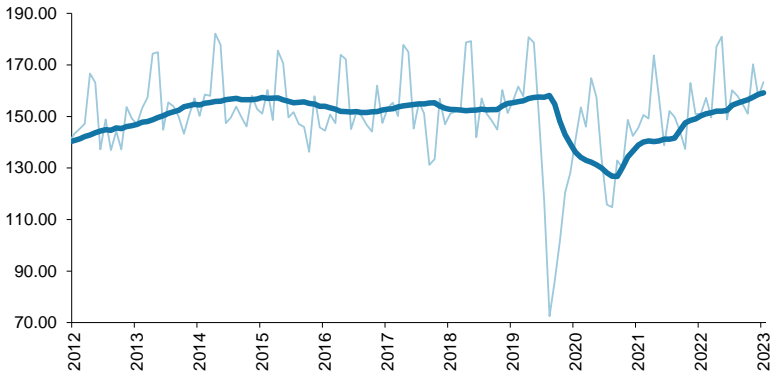
US Miles Driven & Brazil Traffic

US Miles Driven – 12 Months Trailing



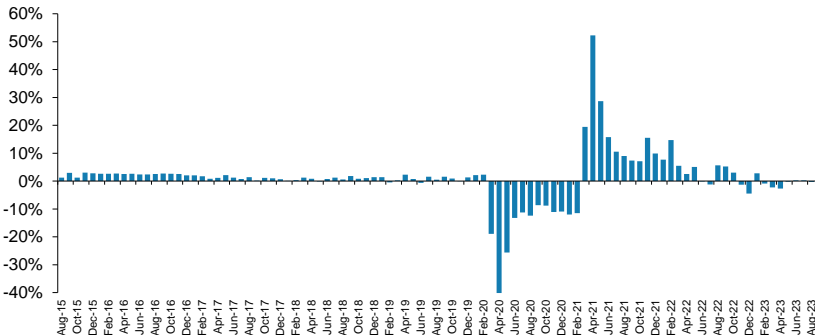
Note: Latest data available Aug 2023
Source: US Department of Transportation

Brazil Light Vehicles Traffic Index



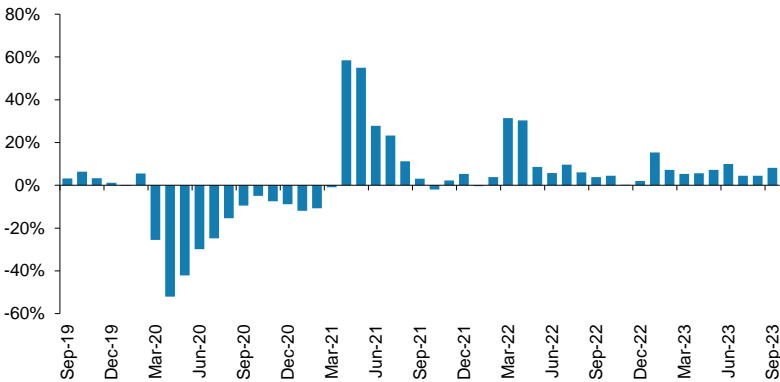
Source: ABCR

US Miles Driven – Y/Y Growth



Note: Latest data available Aug 2023
Source: US Department of Transportation

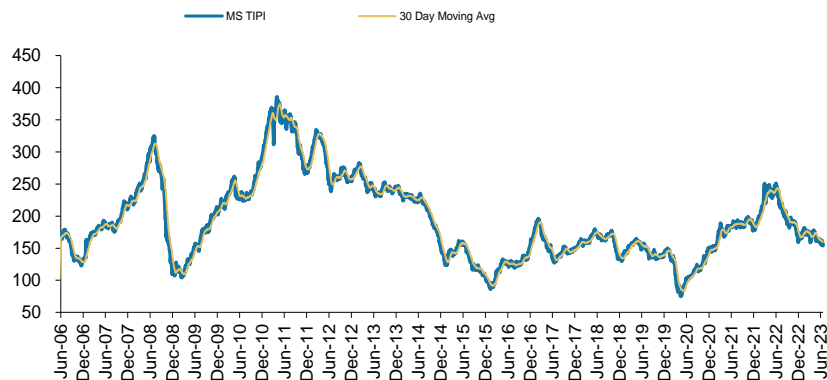
Brazil Light Vehicles Traffic Index – Y/Y Growth



Source: ABCR

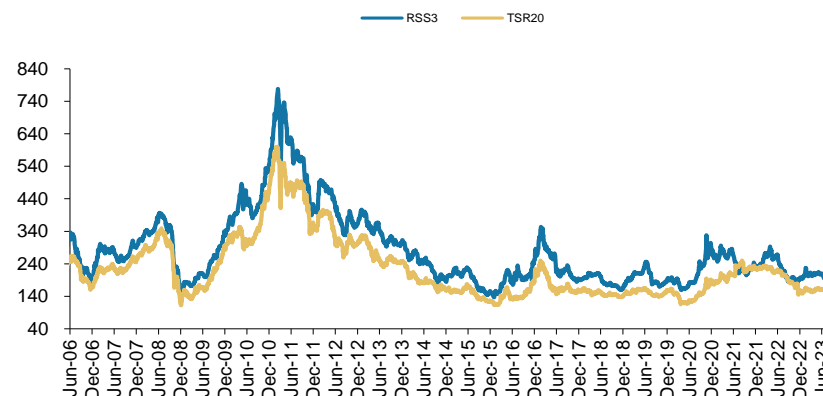
MS Tire Input Price Index & Raw Material Pricing

MS Tire Input Price Index



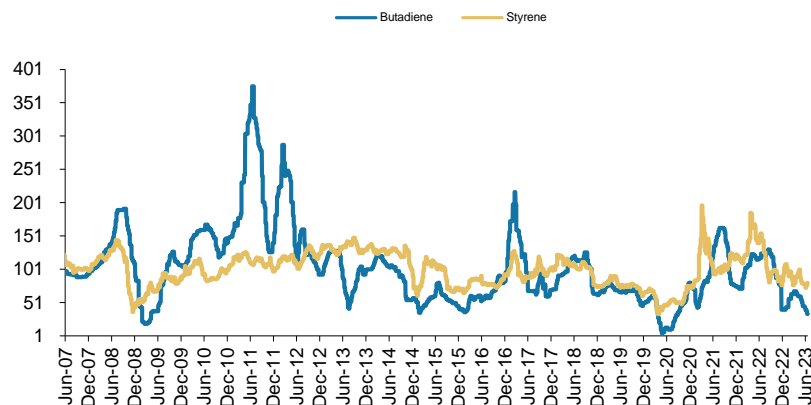
Source: Datastream, Morgan Stanley Research

Natural Rubber Price Index



Source: Datastream, Morgan Stanley Research

Synthetic Rubber Price Index



Source: Datastream, Morgan Stanley Research

Brent Oil Price Index

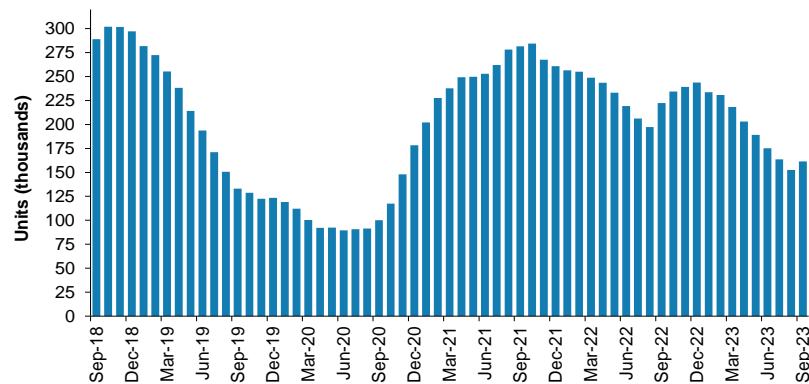


Source: Datastream, Morgan Stanley Research

Global Heavy Trucks

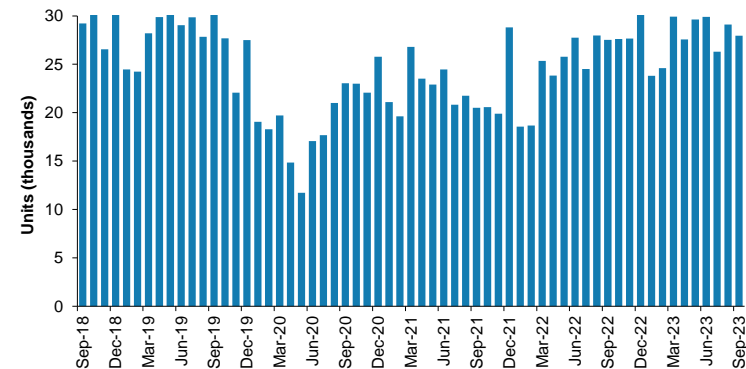
NA Trucks Industry Data

NA Class 8 Backlog



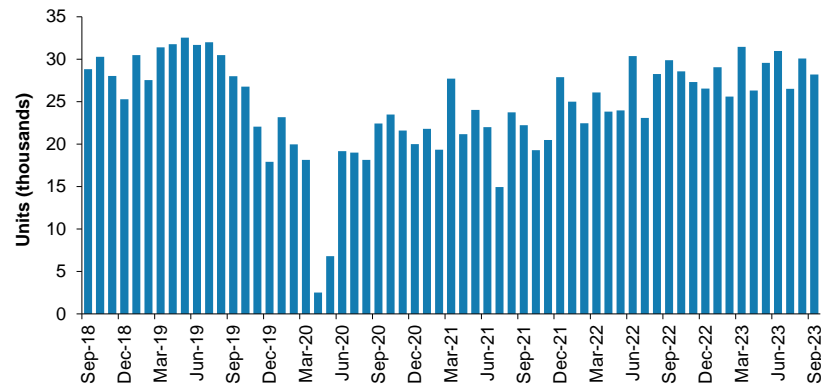
Source: ACT, Morgan Stanley Research

NA Class 8 Retail Sales



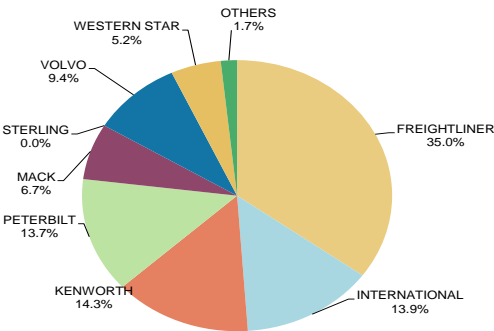
Source: ACT, Morgan Stanley Research

NA Class 8 Builds



Source: ACT, Morgan Stanley Research

NA Class 8 Share

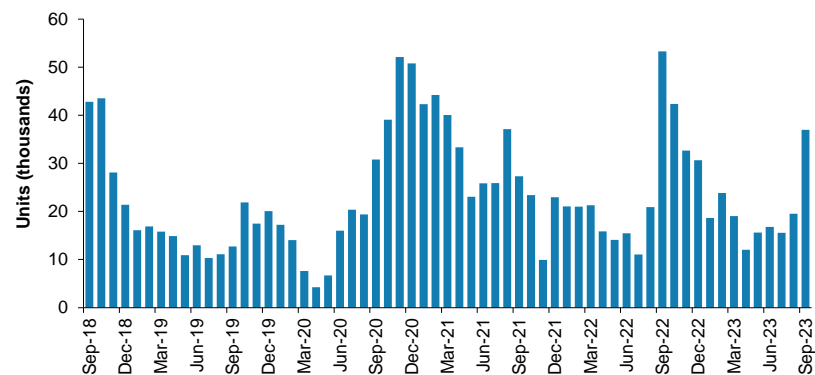


PACCAR = Kenworth + Peterbilt

Source: ACT Research

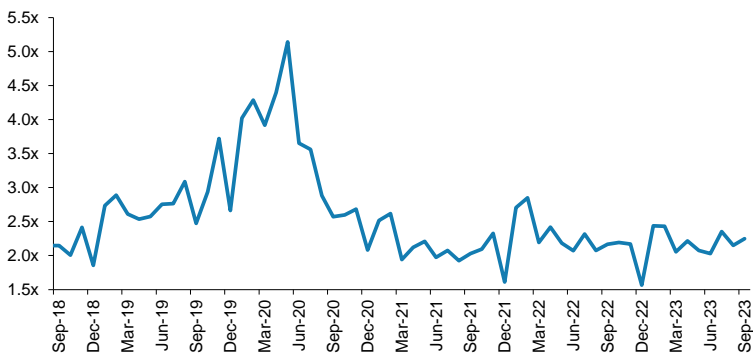
NA Trucks Drivers

NA Class 8 Net Orders



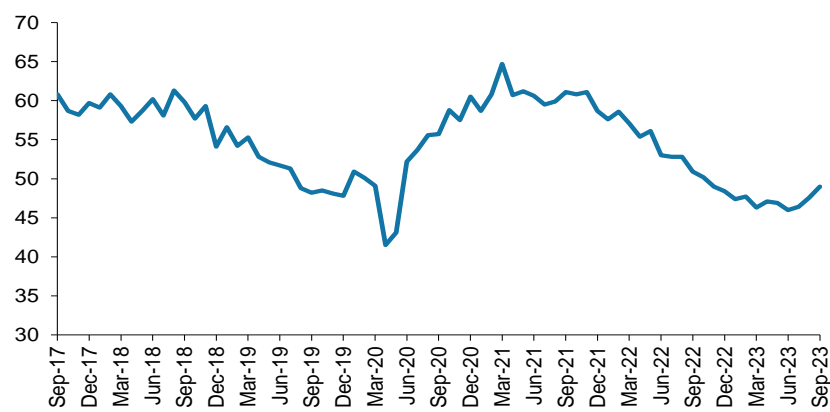
Source: ACT, Morgan Stanley Research

NA Class 8 Months Inventory



Shows Inventory/Monthly Sales
Source: ACT, Morgan Stanley Research

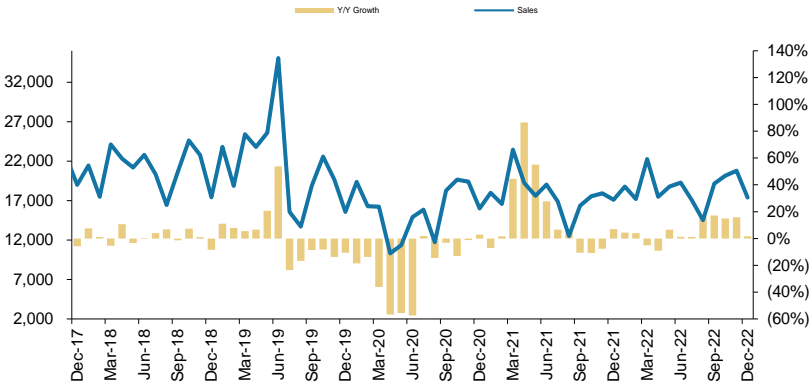
ISM



Source: ISM, Morgan Stanley Research

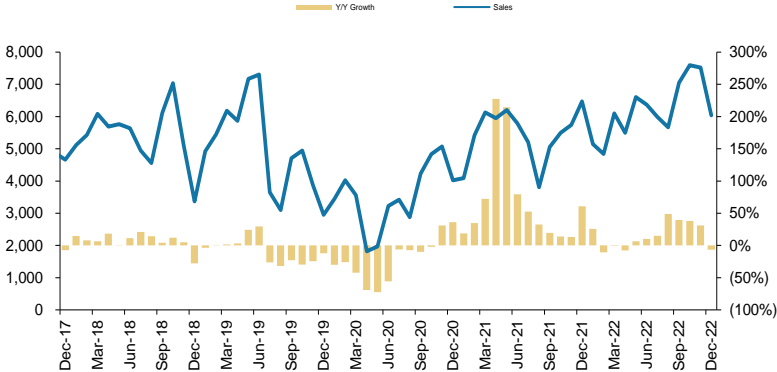
Europe & Brazil Heavy Truck Sales & Share

Western Europe Heavy Truck Monthly Sales



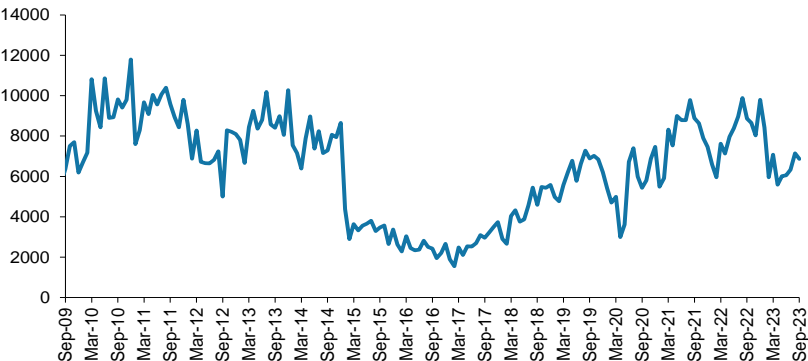
Source: ACEA, Morgan Stanley Research
Note: Data available till Dec-22

Eastern Europe Heavy Truck Monthly Sales



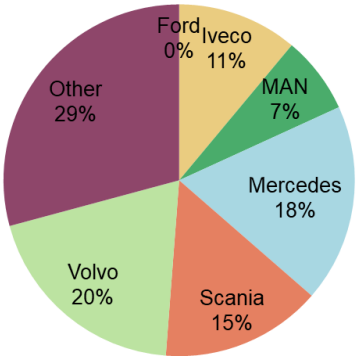
Source: ACEA, Morgan Stanley Research
Note: Data available till Dec-22

Brazil Heavy Truck Sales



Source: Anfavea, Morgan Stanley Research

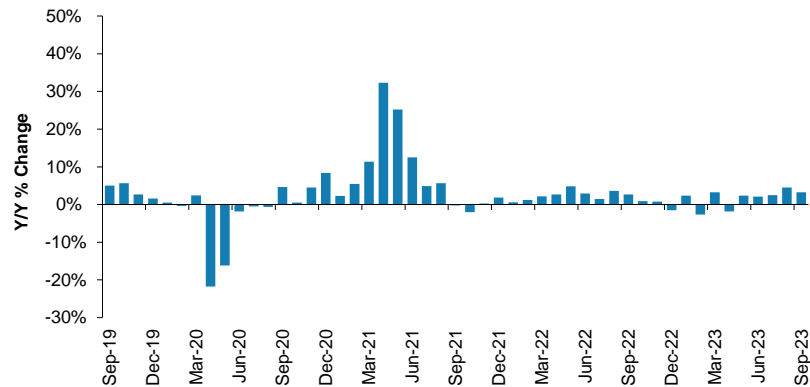
Brazil Oct YTD Heavy Truck Market Share



Source: Anfavea

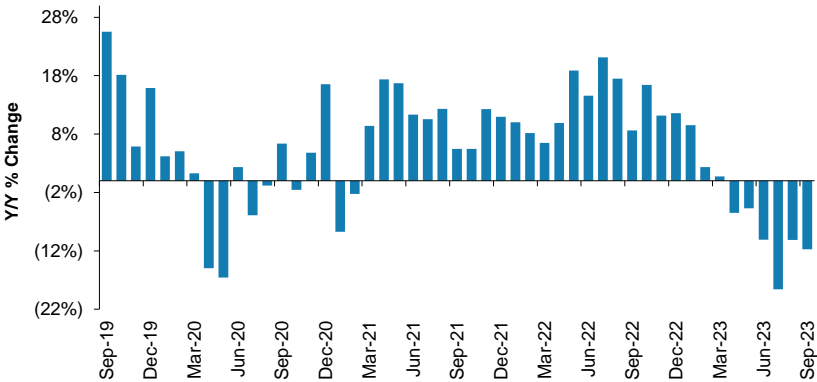
Global Truck Freight Data

Brazil Traffic Index – Heavy Vehicles



Source: ABCR, Morgan Stanley Research

Oresund Bridge* – Trucks On The Bridge



*Bridge between Copenhagen and Malmoe
Source: ATA, Oresundsbron, ABCR, CEIC, Morgan Stanley Research

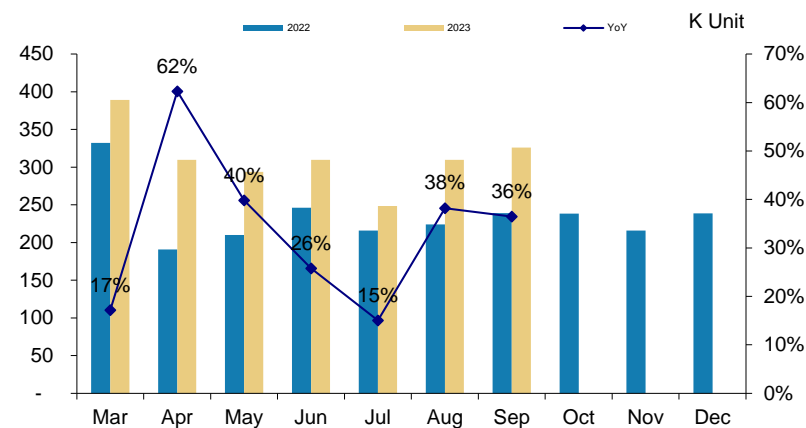
China Commercial Vehicle Sales

China Trucks Sales Volume by Segment

Units	Sales		YoY %	YTD Sales		YoY %
	Sep-22	Sep-23		YTD22	YTD23	
Trucks						
Heavy Trucks	51,778	85,718	65.5%	522,819	721,879	38.1%
Medium Trucks	6,462	9,811	51.8%	77,392	86,839	12.2%
Light Trucks	129,913	163,537	25.9%	1,234,363	1,394,206	12.9%
Mini Trucks	50,656	66,867	32.0%	363,643	432,149	18.8%
Subtotal	238,809	325,933	36.5%	2,198,217	2,635,073	19.9%
Buses						
Large Buses	4,633	4,739	2.3%	29,400	38,367	30.5%
Middle Buses	3,428	3,563	3.9%	22,077	26,778	21.3%
Light Buses	30,646	36,725	19.8%	230,856	282,536	22.4%
Minibuses	30,851	24,056	-22.0%	235,603	189,310	-19.6%
Subtotal	69,558	69,083	-0.7%	517,936	536,991	3.7%
Total	308,367	395,016	28.1%	2,716,153	3,172,064	16.8%

Source: China Auto Market, Morgan Stanley Research

China Trucks Monthly Sales Update



Source: China Auto Market, Morgan Stanley Research

Comps

Global OEM Comps

†

Company	Currency	Price at 1-Nov	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA (3)		EV / Sales (3)		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Mercedes-Benz	EUR	55.43	73.50	33%	EW	59.3	62.7	13.38	12.29	12.96	12.11	4.1x	4.5x	2.3x	2.4x	0.4x	0.4x	0.6x	0.6x
BMW	EUR	87.63	100.00	14%	EW	55.5	58.7	17.14	14.55	18.24	16.61	5.1x	6.0x	1.3x	1.3x	0.2x	0.2x	0.6x	0.6x
Daimler Truck Holding	EUR	29.62	43.00	45%	OW	24.4	25.8	4.45	4.32	4.41	4.29	6.7x	6.8x	5.6x	5.8x	0.7x	0.6x	1.1x	1.0x
Renault	EUR	33.05	44.00	33%	OW	9.8	10.3	13.36	12.75	13.35	13.11	2.5x	2.6x	NA	NA	NA	NA	0.3x	0.3x
Volkswagen	EUR	99.83	130.00	30%	EW	52.7	55.7	31.05	28.96	30.63	31.76	3.2x	3.4x	0.3x	0.3x	0.0x	0.0x	0.3x	0.3x
Stellantis	USD	17.60	22.00	25%	OW	58.5	58.5	5.46	4.90	5.85	5.38	3.2x	3.6x	NA	NA	NA	NA	0.7x	0.6x
Europe Weighted Average												4.1x	4.6x	1.9x	1.9x	0.3x	0.3x	0.6x	0.5x
North America																			
General Motors	USD	28.20	40.00	42%	OW	38.6	38.6	6.05	5.80	7.50	6.72	4.7x	4.9x	1.6x	1.5x	0.2x	0.2x	0.5x	0.5x
Ford Motor	USD	9.75	15.00	54%	OW	38.3	38.3	1.88	1.76	1.92	1.77	5.2x	5.5x	1.7x	1.4x	0.2x	0.2x	0.9x	0.8x
North America Weighted Average												4.9x	5.2x	1.7x	1.5x	0.2x	0.2x	0.7x	0.6x
China																			
BYD	HKD	233.20	242.00	4%	EW	710.3	90.8	8.42	10.32	10.89	14.58	27.7x	22.6x	11.1x	8.3x	1.0x	0.7x	4.7x	3.8x
Great Wall	HKD	11.38	13.00	14%	OW	228.6	29.2	0.62	0.98	0.82	1.08	18.3x	11.7x	18.8x	13.2x	1.3x	1.2x	1.4x	1.3x
Weichai Power	HKD	12.02	12.00	(0%)	EW	126.8	16.2	0.75	0.91	1.03	1.25	16.1x	13.2x	5.1x	4.6x	0.4x	0.4x	1.2x	1.2x
SAIC Motor	CNY	14.52	18.00	24%	OW	169.6	23.2	1.67	1.89	1.34	1.45	8.7x	NA	4.1x	3.2x	0.2x	0.1x	0.6x	0.5x
BAIC Motor	HKD	2.18	1.80	(17%)	UW	5.5	0.7	0.34	0.33	0.52	0.54	6.4x	NA	0.2x	0.5x	0.0x	0.1x	0.3x	0.3x
Sinotruk	HKD	15.00	20.00	33%	OW	41.4	5.3	1.32	1.61	1.53	1.93	11.4x	9.3x	3.7x	3.4x	0.4x	0.4x	1.0x	0.9x
Chongqing Changan	HKD	3.60	5.80	61%	OW	139.8	17.9	0.97	0.59	1.11	0.97	3.7x	6.1x	6.2x	9.4x	0.5x	0.5x	0.5x	0.5x
Jiangling Motors	CNY	6.16	NC	NA	NC	10.4	1.4	NA	NA	1.46	1.52	4.2x	4.1x	2.4x	2.2x	0.2x	0.2x	0.5x	0.5x
Dongfeng	HKD	3.49	4.10	17%	EW	9.2	1.2	1.11	1.02	0.65	0.65	3.1x	3.4x	0.6x	0.7x	0.1x	0.1x	0.2x	0.2x
Anhui Jianghuai	CNY	18.16	11.60	(36%)	EW	39.7	5.4	0.14	0.22	0.13	0.21	126.1x	84.2x	16.6x	15.9x	0.9x	0.8x	2.9x	2.9x
Zhengzhou Yutong Bus C	CNY	13.46	13.70	2%	EW	29.8	4.1	0.59	0.82	0.67	0.90	23.0x	16.4x	8.0x	5.9x	0.8x	0.6x	2.2x	2.0x
China Weighted Average												22.7x	19.2x	10.2x	8.1x	0.8x	0.7x	2.8x	2.3x
South Korea																			
Hyundai Motor	KRW	170,300.00	200,000.00	17%	EW	42,302.5	31.3	60,705.87	45,330.81	49,902.66	46,741.38	2.8x	3.8x	1.8x	2.0x	0.2x	0.2x	0.4x	0.4x
Kia Motors	KRW	77,400.00	105,000.00	36%	OW	31,118.2	23.0	21,964.60	21,506.88	23,247.63	22,196.80	3.5x	3.6x	2.3x	2.3x	0.3x	0.3x	0.7x	0.6x
South Korea Weighted Average												3.1x	3.7x	2.0x	2.2x	0.3x	0.3x	0.5x	0.5x
Japan																			
Toyota Motor	JPY	2,712.00	2,700.00	(0%)	EW	44,246.2	292.2	263.04	269.91	279.70	290.20	10.3x	10.0x	6.0x	5.8x	0.8x	0.8x	1.2x	1.1x
Mazda Motor	JPY	1,424.00	1,600.00	12%	EW	899.7	5.9	291.29	292.84	296.46	291.40	4.9x	4.9x	1.3x	1.1x	0.1x	0.1x	0.6x	0.6x
Suzuki Motor	JPY	5,951.00	6,500.00	9%	OW	2,922.8	19.3	529.74	591.90	586.85	619.24	11.2x	10.1x	4.3x	3.9x	0.5x	0.5x	1.3x	1.2x
Mitsubishi Motors	JPY	482.60	700.00	45%	OW	719.2	4.7	88.25	99.98	98.49	101.20	5.5x	4.8x	1.9x	1.4x	0.2x	0.1x	0.8x	0.7x
Subaru Corp	JPY	2,725.00	2,600.00	(5%)	UW	2,096.0	13.8	357.68	371.72	398.01	379.69	7.6x	7.3x	11.5x	9.8x	0.3x	0.3x	0.9x	0.8x
Nissan Motor	JPY	596.50	620.00	4%	EW	2,517.7	16.6	87.46	95.91	106.42	108.73	6.8x	6.2x	1.8x	1.4x	0.1x	0.1x	0.4x	0.4x
Honda Motor	JPY	1,506.50	1,900.00	26%	OW	8,186.8	54.1	219.04	235.95	213.96	219.14	6.9x	6.4x	2.7x	2.3x	0.2x	0.2x	0.6x	0.6x
Japan Weighted Average												9.5x	9.2x	5.4x	5.1x	0.7x	0.6x	1.1x	1.0x
India																			
Maruti Suzuki	INR	10,223.6	12,304.0	20%	OW	3,088.3	37.1	416.9	463.6	453.0	499.1	24.5x	22.1x	15.6x	13.5x	1.8x	1.6x	4.5x	4.0x
Bajaj Auto	INR	5,342.3	5,449.0	2%	OW	1,511.6	18.2	241.8	290.0	284.7	317.8	22.1x	18.4x	16.6x	14.2x	3.1x	2.7x	5.6x	5.2x
TVS Motor	INR	1,559.8	1,485.0	(5%)	EW	741.0	8.9	39.5	48.5	53.7	63.2	39.5x	32.2x	22.3x	18.4x	2.4x	2.1x	9.7x	7.9x
Hero MotoCorp	INR	3,092.2	2,521.0	(18%)	UW	618.0	7.4	191.9	214.0	203.3	228.8	16.1x	14.5x	9.4x	8.3x	1.3x	1.2x	3.5x	3.2x
Mahindra & Mahindra	INR	1,454.5	1,697.0	17%	OW	1,808.7	21.7	84.9	95.5	86.2	90.2	17.1x	15.2x	11.8x	10.6x	1.6x	1.5x	3.4x	2.9x
Tata Motors	INR	627.4	711.0	13%	OW	2,297.4	27.6	39.5	48.4	52.9	65.2	11.9x	9.6x	4.7x	4.1x	0.7x	0.6x	4.0x	3.0x
Ashok Leyland	INR	165.0	214.0	30%	OW	484.3	5.8	8.3	9.1	9.8	10.9	19.9x	18.1x	11.5x	10.6x	1.3x	1.2x	4.9x	4.2x
Balkrishna Industries	INR	2,559.9	1,928.0	(25%)	UW	494.9	5.9	72.1	97.2	90.8	110.0	35.5x	26.3x	21.9x	16.8x	5.3x	4.5x	5.8x	5.0x
India Weighted Average												21.2x	18.1x	13.1x	11.2x	1.9x	1.6x	4.7x	4.0x
Global Weighted Average												11.4x	10.3x	6.3x	5.5x	0.7x	0.7x	1.6x	1.4x

(1) For Renault EV calculation, Nissan and Volvo stakes are subtracted at 20% discount to their current market cap. (2) For Indian companies, 2022 and 2023 estimates refer to the fiscal years ending March 2022 and March 2023, respectively.

(3) EV/EBITDA excludes the impact from pension and healthcare liabilities with the exception of Ford and GM. Ford and GM are calculated on an EV/EBITDAP and do include pension and healthcare liabilities.

e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered, Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used.

EV OEM Comps

Company	Currency	Price at 1-Nov	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		Current EV LC	MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$		2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
North America																				
Tesla	USD	200.84	380.00	89%	OW	638.5	638.5	680.0	2.48	1.89	3.11	3.94	80.9x	106.0x	51.3x	51.4x	7.0x	5.8x	12.8x	11.4x
Lucid	USD	4.12	5.00	21%	UW	9.4	9.4	5.9	-1.16	-0.75	-1.50	-1.16	NM	NM	NM	NM	8.4x	3.4x	1.8x	2.4x
Fisker	USD	4.50	4.00	(11%)	UW	0.9	0.9	2.8	-1.03	-0.60	-0.85	-0.35	NM	NM	NM	NM	1.5x	1.0x	12.1x	23.1x
Rivian	USD	16.22	24.00	48%	OW	15.3	15.3	13.6	-5.76	-3.60	-5.12	-3.55	NM	NM	NM	NM	3.1x	2.6x	2.0x	2.2x
North America Weighted Average													80.9x	106.0x	51.3x	51.4x	7.0x	5.6x	12.4x	11.1x
China																				
NIO Inc.	USD	7.30	18.70	156%	OW	11.6	11.6	181.7	-5.82	-0.29	-1.48	-0.90	NM	NM	NM	52.6x	2.7x	1.3x	4.4x	4.0x
Li Auto Inc.	USD	33.81	53.00	57%	OW	30.2	30.2	190.5	3.35	6.83	1.02	1.65	10.1x	5.0x	38.7x	19.7x	1.6x	1.1x	4.3x	3.4x
BYD Company	HKD	233.20	242.00	4%	EW	710.3	90.8	588.0	8.42	10.32	10.89	14.58	27.7x	22.6x	11.3x	8.5x	1.0x	0.8x	4.7x	3.8x
Xpeng Inc.	USD	14.48	25.40	75%	OW	10.2	10.2	90.0	-8.21	-7.21	-1.17	-0.81	NM	NM	NM	NM	3.1x	1.6x	3.0x	3.8x
China Weighted Average													23.3x	18.2x	18.2x	14.9x	1.4x	0.9x	4.5x	3.8x
Global Weighted Average													71.7x	92.0x	46.0x	45.1x	6.0x	4.8x	11.0x	9.8x

Global Supplier Comps

Company	Currency	Price at 1-Nov	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Autoliv	USD	91.65	90.00	(2%)	EW	7.7	7.7	6.22	10.18	7.41	9.85	14.7x	9.0x	7.7x	5.4x	0.9x	0.8x	3.0x	2.7x
Europe Weighted Average												14.7x	9.0x	7.7x	5.4x	0.9x	0.8x	3.0x	2.7x
North America (1)																			
APTIV	USD	87.20	100.00	15%	EW	24.7	24.7	4.78	5.54	4.74	6.19	18.2x	15.7x	9.2x	7.9x	1.4x	1.2x	2.5x	2.2x
BorgWarner Inc.	USD	36.90	47.00	27%	OW	8.7	8.7	3.81	4.53	3.85	4.42	9.7x	8.2x	5.3x	4.4x	0.8x	0.7x	1.1x	1.0x
Lear	USD	129.76	140.00	8%	EW	7.6	7.6	11.77	14.87	12.01	15.94	11.0x	8.7x	4.7x	3.9x	0.4x	0.3x	3.0x	2.7x
Mobileye Global Inc	USD	35.67	37.00	4%	EW	3.4	3.4	0.73	0.81	0.75	0.86	48.8x	44.2x	30.1x	20.1x	6.3x	5.0x	1.9x	1.9x
Magna International	USD	48.09	65.00	35%	OW	13.7	13.7	5.40	6.70	5.27	6.57	8.9x	7.2x	3.9x	3.0x	0.3x	0.3x	0.9x	0.8x
Visteon	USD	115.13	145.00	26%	EW	3.2	3.2	6.14	8.10	6.70	9.29	18.8x	14.2x	8.3x	6.6x	0.8x	0.7x	NM	NM
Adient	USD	33.69	38.00	13%	UW	3.2	3.2	2.17	3.01	2.22	3.62	15.5x	11.2x	5.5x	4.7x	0.3x	0.3x	1.6x	1.3x
American Axle	USD	6.75	10.00	48%	OW	0.8	0.8	0.18	0.46	0.08	0.74	37.4x	14.7x	4.2x	3.4x	0.5x	0.4x	1.2x	1.1x
North America Weighted Average												16.0x	13.3x	7.8x	6.3x	1.1x	1.0x	1.9x	1.7x
Japan																			
Denso	JPY	2,360	3,000	27%	OW	7,438	49.1	158	187	181	202	14.9x	12.6x	7.4x	6.4x	1.0x	0.9x	1.5x	1.5x
Toyota Industries	JPY	11,715	14,800	26%	OW	3,817	25.2	723	829	766	852	16.2x	14.1x	11.0x	10.0x	1.4x	1.3x	0.9x	0.9x
Aisin Seiki	JPY	5,487	6,000	9%	EW	1,617	10.7	488	599	602	669	11.2x	9.2x	4.8x	3.8x	0.4x	0.4x	0.8x	0.8x
Koito Mfg.	JPY	2,343	1,900	(19%)	UW	753	5.0	155	172	176	196	15.1x	13.6x	4.6x	4.0x	0.5x	0.4x	1.1x	1.1x
Stanley Electric	JPY	2,696	2,100	(22%)	EW	462	3.0	132	191	205	238	20.5x	14.1x	5.4x	4.7x	0.8x	0.8x	0.9x	0.9x
Toyoda Gosei	JPY	3,192	3,000	(6%)	EW	415	2.7	274	333	332	374	11.7x	9.6x	4.5x	3.7x	0.5x	0.4x	0.9x	0.8x
Toyota Boshoku	JPY	2,728	2,400	(12%)	UW	512	3.4	238	283	306	330	11.5x	9.6x	3.6x	3.1x	0.2x	0.2x	1.2x	1.1x
EXEDY	JPY	2,588	2,300	(11%)	EW	126	0.8	217	255	299	283	11.9x	10.2x	3.5x	3.1x	0.4x	0.4x	0.5x	0.5x
NHK Spring	JPY	1,111	1,300	17%	OW	271	1.8	101	137	125	152	11.0x	8.1x	4.7x	3.8x	0.4x	0.3x	0.7x	0.7x
Nifco	JPY	3,764	4,000	6%	EW	377	2.5	272	286	303	334	13.8x	13.2x	5.7x	5.1x	0.9x	0.8x	1.5x	1.4x
Musashi Seimitsu	JPY	1,494	1,900	27%	OW	98	0.6	102	158	194	230	14.7x	9.4x	6.5x	5.4x	0.6x	0.5x	1.0x	0.9x
Unipres	JPY	1,073	1,150	7%	EW	51	0.3	117	164	148	189	9.2x	6.5x	2.7x	2.1x	0.3x	0.2x	0.3x	0.3x
NOK	JPY	1,833	2,300	26%	OW	317	2.1	93	184	163	217	19.8x	10.0x	5.5x	4.4x	0.5x	0.5x	0.6x	0.6x
Japan Weighted Average												14.8x	12.4x	7.4x	6.5x	0.9x	0.9x	1.2x	1.1x
China																			
Fuyao Glass	HKD	35.30	36.00	2%	EW	107.2	13.7	2.12	2.51	2.17	2.42	16.6x	14.0x	9.5x	7.7x	2.6x	2.2x	2.6x	2.3x
Huayu Automotive	HKD	17.58	25.00	42%	OW	55.4	7.6	2.13	2.30	2.24	2.51	8.2x	7.7x	3.3x	2.6x	0.2x	0.2x	1.0x	0.9x
Mintih Group Limited	HKD	17.36	28.00	61%	OW	21.6	2.8	1.81	2.36	1.80	2.27	9.6x	7.4x	6.1x	4.3x	0.9x	0.7x	0.9x	0.8x
Changzhou Xingyu	HKD	145.56	172.00	18%	OW	41.6	5.7	3.86	5.30	4.07	5.57	37.7x	27.5x	25.2x	18.7x	3.9x	3.2x	4.5x	4.1x
Nexteer Automotive Group	HKD	3.68	7.50	104%	OW	72.3	9.2	0.06	0.09	0.31	0.53	60.3x	41.6x	2.7x	2.3x	0.3x	0.3x	0.6x	0.6x
China Weighted Average												27.9x	20.8x	8.7x	6.8x	1.6x	1.4x	2.0x	1.8x
South Korea																			
Hyundai MOBIS	KRW	212,500	240,000	13%	EW	20,036	14.8	35,346	33,960	38,127	40,023	6.0x	6.3x	5.7x	5.0x	0.3x	0.3x	0.5x	0.5x
LG Chem	KRW	431,000	490,000	14%	EW	32,538	24.1	24,868	41,208	25,599	43,910	17.3x	10.5x	5.6x	4.9x	0.7x	0.8x	0.9x	0.9x
Hanon Systems	KRW	7,000	7,800	11%	UW	3,737	2.8	392	490	495	585	17.8x	14.3x	6.8x	6.1x	0.7x	0.7x	1.5x	1.5x
Mando Corp	KRW	32,700	63,000	93%	OW	1,535	1.1	4,205	4,507	4,011	5,476	7.8x	7.3x	4.9x	4.9x	0.4x	0.4x	0.7x	0.6x
South Korea Weighted Average												13.2x	9.2x	5.7x	5.0x	0.6x	0.6x	0.8x	0.8x
Taiwan																			
Cub Elecparts Inc	TWD	121	140	16%	EW	14	0.4	7.01	9.26	1.60	2.30	17.2x	13.0x	8.0x	6.4x	1.8x	1.5x	1.7x	1.6x
Hu Lane Associate Inc.	TWD	142	140	(1%)	EW	14	0.4	8.26	10.14	1.87	2.40	17.2x	14.0x	10.4x	9.0x	2.3x	2.1x	2.4x	2.2x
Hota Industrial Mfg.	TWD	62	70	13%	EW	17	0.5	2.36	2.55	0.49	0.58	26.2x	24.3x	8.4x	7.4x	2.4x	2.2x	1.9x	1.8x
Taiwan Weighted Average												20.6x	17.6x	8.9x	7.6x	2.2x	1.9x	2.0x	1.9x
India																			
Exide Industries	INR	253	212	(16%)	OW	215	2.6	12.08	14.37	14.91	11.53	20.9x	17.6x	11.3x	9.5x	1.3x	1.1x	1.8x	1.6x
Samvardhana Motherson I	INR	92	91	(1%)	EW	623	7.5	4.62	6.10	5.79	11.53	19.9x	15.1x	9.0x	7.5x	0.8x	0.7x	2.6x	2.3x
Amara Raja	INR	618	579	(6%)	UW	106	1.3	45.43	51.45	53.84	54.69	13.6x	12.0x	7.3x	6.2x	0.9x	0.8x	1.8x	1.6x
India Weighted Average												19.4x	15.3x	9.4x	7.8x	0.9x	0.8x	2.3x	2.1x
Global Weighted Average												16.9x	13.3x	7.5x	6.3x	1.0x	0.9x	1.5x	1.4x

(1) EV/EBITDA excludes the impacts from pension and healthcare liabilities with the exception of our North American coverage, which are calculated using EV/EBITDAP and do include pension and healthcare liabilities.

Notes: e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered, Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used.

Sources: Morgan Stanley Research, Refinitiv

Global Tire Comps

Company	Currency	Price at 1-Nov	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Continental	EUR	62.06	NC	NA	NC	12.4	13.1	NA	NA	7.91	9.57	7.8x	6.5x	4.1x	3.6x	0.4x	0.4x	0.9x	0.8x
Pirelli & C. SpA	EUR	4.25	5.50	30%	OW	4.2	4.5	0.55	0.61	0.51	0.56	7.8x	7.0x	4.6x	4.7x	1.1x	1.0x	0.8x	0.7x
Michelin	EUR	27.98	34.00	22%	OW	20.0	21.1	3.16	3.23	3.21	3.30	8.9x	8.7x	4.1x	3.8x	0.8x	0.7x	1.1x	1.0x
Europe Weighted Average												8.4x	7.7x	4.1x	3.9x	0.7x	0.7x	1.0x	0.9x
Japan																			
Bridgestone	JPY	5,814	5,400	(7%)	EW	4,149	27.4	522	539	533	567	11.1x	10.8x	4.6x	4.2x	0.9x	0.9x	1.3x	1.2x
Toyo Tire & Rubber Co	JPY	2,276	2,200	(3%)	EW	351	2.3	347	276	364	324	6.6x	8.3x	4.7x	4.3x	0.8x	0.7x	1.0x	0.9x
Sumitomo Rubber	JPY	1,560	1,300	(17%)	UW	410	2.7	101	163	106	149	15.4x	9.5x	6.4x	5.4x	0.6x	0.5x	0.7x	0.7x
Yokohama Rubber	JPY	2,810	3,400	21%	OW	476	3.1	403	423	389	428	7.0x	6.6x	6.4x	5.3x	0.9x	0.8x	0.7x	0.6x
Japan Weighted Average												10.8x	10.2x	4.9x	4.4x	0.9x	0.8x	1.2x	1.1x
Korea																			
Hankook Tire	KRW	38,900	33,000	(15%)	UW	4,819	3.6	4,071	4,136	5,518	6,648	9.6x	NA	3.1x	2.8x	0.5x	0.5x	0.5x	0.5x
Korea Weighted Average												9.6x	NA	3.1x	2.8x	0.5x	0.5x	0.5x	0.5x
Global Weighted Average												10.1x	9.0x	4.6x	4.2x	0.8x	0.8x	1.1x	1.1x

Sources(1) EV/EBITDA excludes the impacts from pension and healthcare liabilities with the exception of our North American coverage, which are calculated using EV/EBITDAP and do include pension and healthcare liabilities.

Notes: e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered, Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used.

Sources: Morgan Stanley Research, Refinitiv

Global Dealers Comps

		Price at	MS	Upside to	MS	Market Cap		Current EV	MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
Company	Currency	1-Nov	Price Target	PT (%)	Rating	LC	US\$	LC	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
North America																				
CarMax	USD	61.09	80.00	31%	OW	9.7	9.7	15.5	3.03	3.38	2.96	3.69	20.1x	18.1x	14.1x	11.7x	0.6x	0.5x	2.2x	2.0x
Penske Automotive Group	USD	143.08	107.00	(25%)	UW	9.6	9.6	10.9	16.79	17.68	16.53	15.77	8.5x	8.1x	5.4x	5.3x	0.4x	0.3x	2.0x	1.7x
Lithia Motors	USD	242.21	220.00	(9%)	UW	6.7	6.7	12.3	36.92	36.72	37.56	37.25	6.6x	6.6x	6.6x	7.0x	0.4x	0.4x	1.1x	0.9x
Sonic Automotive	USD	47.85	35.00	(27%)	UW	1.0	1.0	4.1	6.62	7.28	6.85	6.90	7.2x	6.6x	5.7x	5.5x	0.3x	0.3x	2.6x	2.1x
Carvana	USD	27.00	37.00	37%	UW	2.9	2.9	10.6	-2.10	-1.69	-3.41	-2.15	NM	NM	56.9x	35.3x	1.0x	1.0x	10.4x	121.4x
Group 1 Automotive	USD	252.33	200.00	(21%)	UW	3.5	3.5	5.7	46.08	43.96	45.07	41.42	5.5x	5.7x	5.5x	5.1x	0.3x	0.3x	1.2x	1.0x
Asbury	USD	191.37	165.00	(14%)	UW	3.9	3.9	7.0	33.94	31.70	33.18	31.50	5.6x	6.0x	6.1x	6.0x	0.5x	0.4x	1.2x	1.0x
AutoNation	USD	130.08	117.00	(10%)	UW	5.5	5.5	9.2	22.76	20.26	22.87	20.91	5.7x	6.4x	5.1x	4.7x	0.3x	0.3x	2.2x	1.7x
North America Weighted Average													10.0x	9.6x	11.1x	9.0x	0.5x	0.4x	2.4x	9.6x
China																				
MeiDong	HKD	4.31	5.90	37%	OW	5.8	0.7	6.4	0.15	0.47	0.23	0.60	29.6x	9.2x	4.8x	3.6x	0.2x	0.2x	1.2x	1.2x
China Yongda Auto	HKD	3.02	5.10	69%	OW	5.8	0.7	5.3	0.57	0.81	0.62	0.87	5.3x	3.7x	2.6x	2.0x	0.1x	0.1x	0.4x	0.4x
Baoxin Auto	HKD	0.20	0.27	37%	UW	0.6	0.1	5.0	0.13	0.14	0.15	0.18	1.6x	1.4x	3.1x	2.8x	0.2x	0.2x	0.1x	0.1x
Zhongsheng Group	HKD	18.38	37.00	101%	OW	43.9	5.6	50.7	2.50	3.04	2.80	3.26	7.3x	6.0x	4.1x	3.3x	0.3x	0.2x	0.9x	0.8x
China Zhengtong Auto	HKD	0.40	0.39	(3%)	UW	1.1	0.1	18.4	0.08	0.23	-0.39	-0.33	4.9x	1.8x	9.5x	7.9x	0.7x	0.7x	2.4x	1.0x
China Weighted Average													9.3x	6.0x	4.1x	3.3x	0.3x	0.2x	0.9x	0.8x
Global Weighted Average													9.9x	9.0x	10.0x	8.2x	0.4x	0.4x	2.2x	8.3x

Sources(1) EV/EBITDA excludes the impacts from pension and healthcare liabilities with the exception of our North American coverage, which are calculated using EV/EBITDAP and do include pension and healthcare liabilities.

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Sources: Morgan Stanley Research, Refinitiv

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Equal-weight/Hold	1664	46%	299	47%	18%	700	46%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	588	16%	61	10%	10%	220	15%
Total	3592		630			1515	

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