

Global Automobiles

Jun-23 LVS tracker: Global SAAR reaches ytd peak, EU & pricing outlook worsens

Industry Overview

Jun-23: c89.3m SAAR (+14% y/y), China trailing in H1

June 23 global sales topped 89.3m SAAR (+13.7% y/y; +2.5% m/m), driven by EU (+20% y/y) and the US (+21%). China SAAR declined by 3% y/y, mainly because of a high base. Overall, we estimate H1 23 global car sales were 10% higher y/y. EU is experiencing the fastest recovery (+c18% y/y) followed by the US (+c13%), while China only grew c3% YTD (Exhibit 8). We think growth rates should come down from here, mainly because the comparison base is increasing. This also means we expect sales declines in Asia (incl. China) in July 23. In Europe, this should become an issue only in Q4/Dec 23.

By OEM: EU OEMs and TSLA gain over Asian OEMs

More details by OEM in Exhibits 6-7: **1)** In line with the current trend, **Tesla and BYD** continue to gain global market share. BYD's global market share was at 4.1% vs Tesla at 3.2% in June 23. In FY22, Tesla was at 2.1% and BYD at 3.1%. **2)** Who lost share in H1 23? **Japanese & Korean OEMs** but also GM/Ford. **3)** Big exception: **EU OEMs**. It has been a positive semester for them. BMW/Mercedes held on to their share, but VW and Renault have gained back market share. We think it is not driven by product improvements but rather by a higher exposure to Europe, which gained share as a region globally.

Increasing concerns on Europe; order intakes down a lot

We highlight again our rising concerns on Europe. The outlook for H2 23 seems still fine as order backlog secures further sales growth. But: French (Exhibit 34) and German OEMs (Exhibit 35) recorded c15-20% y/y order intake decline in their home country in Q2 23. This order intake decline may result into an abrupt sales deterioration in Dec 2023 (S&P says -15% y/y in the EU). We currently see in Germany that price rebates have moved up higher (from c9% in Q1 to 10% in Q2 23; see Exhibit 36). We think the order weakness in Germany is mainly related to weaker EV sales as subsidies fade. Keep in mind Germany accounts for c50% of EU's EV sales. Last but not least, it strikes us that German car dealers are increasingly unhappy (Exhibit 41).

Other data highlights: S&P revisions, inventories, pricing

1) Exhibit 3: Recent S&P volume forecast changes by OEM: Lots of positive revisions for 2023e since S&P is still catching up with better ytd sales. For 2024e and thereafter it is more differentiated. In general, it strikes us that Volvo Cars, VW, GM, Hyundai & Tesla get the highest revisions (not just for 2023e). **2) Weaker pricing:** AutoNation (AN US), Volvo Cars & Tesla talked about potentially weaker car pricing in H2 23 in their Q2 analyst calls. **3) US inventories** increased again slightly in June 23 and were at 40 days of sales (DS), still c8% lower than the 5y average of 43DS but up 1 day m/m. Inventories for the Detroit 3 OEMs are at c60 DS, c10% above the 5-year average. **4) Used car prices** are coming down in the EU (Exhibit 28) and the US (Exhibit 49-50). **5) Raw material price** should become a tailwind vs increasing pricing concerns. Details: see [Raw material cost tailwinds can boost OEM profitability, 24 July 2023](#).

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 24 to 26.

12582588

Timestamp: 25 July 2023 12:30AM EDT

25 July 2023

Equity
Global
Autos/Car Manufacturers

BofA

Data
Analytics

Horst Schneider >>
Research Analyst
BofA Europe (Frankfurt)
+49 69 5899 5080
horst.schneider@bofa.com

Niccolo Serra >>
Research Analyst
MLI (UK)
+44 20 7996 8139
niccolo.serra@bofa.com

Michael Jacks, CFA >>
Research Analyst
MLI (UK)
+44 20 7996 1085
michael.jacks@bofa.com

John Murphy, CFA
Research Analyst
BofAS
johnj.murphy@bofa.com

Ming Hsun Lee, CFA >>
Research Analyst
Merrill Lynch (Hong Kong)
minghsun.lee@bofa.com

Kei Nihonyanagi >>
Research Analyst
BofAS Japan
kei.nihonyanagi@bofa.com

Joon-Ho Lee >>
Research Analyst
Merrill Lynch (Seoul)
joonho.lee@bofa.com

KJ Hwang >>
Research Analyst
Merrill Lynch (Seoul)
kj.hwang@bofa.com

Jargon buster

SAAR = seasonally adjusted annualised rate
LV(S/P) = Light Vehicle (sales/production)
OEM = Original Equipment Manufacturer
(B)EV = (Battery) Electric Vehicle
PHEV = Plug-in Hybrid Electric Vehicle
ICE(V) = Internal combustion engine (vehicle)
ATP = Average Transaction Prices
M/S = Market Share
TSLA = Tesla
MBC = Mercedes Benz Cars
YTD: year to date
PC: Passenger car

BofA LVS & LVP forecast

Exhibit 1: BofAe Global sales forecast by region

We forecast solid growth in Europe backed by strong order book and expect China sales to pick-up moving forward as reopening effects materialize

Sales forecasts	2019	2020	2021	2022	Q1 2023	Q2 2023	Q3 2023e	Q4 2023e	2023E	2024E	2025E	2026E
West Europe	16,373,964	12,501,308	12,468,081	11,689,085	3,343,976	3,456,323	2,973,169	3,152,384	12,925,853	13,079,703	13,311,120	13,230,262
y-o-y %	0.9%	-23.7%	-0.3%	-6.2%	16.3%	17.7%	8.3%	0.6%	10.6%	1.2%	1.8%	-0.6%
Central Europe	1,730,868	1,336,642	1,390,909	1,305,693	368,825	348,592	323,716	321,320	1,362,453	1,390,401	1,396,791	1,430,907
y-o-y %	5.6%	-22.8%	4.1%	-6.1%	15.9%	0.7%	-0.6%	1.7%	4.3%	2.1%	0.5%	2.4%
EU 28	18,104,832	13,837,950	13,858,990	12,994,778	3,712,801	3,804,915	3,296,885	3,473,704	14,288,305	14,470,104	14,707,910	14,661,170
y-o-y %	1.3%	-23.6%	0.2%	-6.2%	16.3%	16.0%	7.4%	0.7%	10.0%	1.3%	1.6%	-0.3%
East Europe	2,741,677	2,901,033	2,895,735	1,968,927	491,863	600,797	508,866	630,568	2,232,094	2,271,575	2,331,688	2,349,823
y-o-y %	-3.3%	5.8%	-0.2%	-32.0%	-12.6%	39.9%	19.4%	14.5%	13.4%	1.8%	2.6%	0.8%
North America	20,314,687	17,094,349	17,743,931	16,489,790	4,264,235	4,772,654	4,415,821	4,019,671	17,472,381	18,535,485	20,312,778	21,005,883
y-o-y %	-2.0%	-15.9%	3.8%	-7.1%	9.2%	13.1%	8.3%	-6.3%	6.0%	6.1%	9.6%	3.4%
Asia ex-China	13,928,080	11,769,788	12,607,884	13,762,134	3,829,610	3,415,488	3,517,810	3,562,681	14,325,590	14,581,439	14,806,691	15,104,045
y-o-y %	-4.6%	-15.5%	7.1%	9.2%	9.1%	6.8%	0.9%	-0.1%	4.1%	1.8%	1.5%	2.0%
China	25,276,636	24,134,323	24,367,536	24,555,860	5,233,680	6,058,003	6,331,669	7,668,950	25,292,302	25,828,110	26,546,178	27,126,226
y-o-y %	-8.2%	-4.5%	1.0%	0.8%	-13.5%	18.2%	-6.6%	16.1%	3.0%	2.1%	2.8%	2.2%
South America	4,465,410	3,222,872	3,762,964	3,785,093	868,827	876,124	983,967	1,009,110	3,738,028	4,014,052	4,249,511	4,457,796
y-o-y %	-4.6%	-27.8%	16.8%	0.6%	6.2%	-5.7%	-4.2%	-0.2%	-1.2%	7.4%	5.9%	4.9%
MEA	3,886,578	3,228,160	3,834,589	4,126,887	1,103,011	950,745	1,006,509	1,051,555	4,111,820	4,279,048	4,484,297	4,645,469
y-o-y %	-10.3%	-16.9%	18.8%	7.6%	5.4%	-4.2%	-2.4%	-0.5%	-0.4%	4.1%	4.8%	3.6%
Oceania	1,197,552	1,017,238	1,202,398	1,215,349	299,416	332,874	298,595	338,451	1,269,336	1,260,720	1,215,237	1,169,730
y-o-y %	-7.2%	-15.1%	18.2%	1.1%	-1.1%	10.3%	-2.6%	11.3%	4.4%	-0.7%	-3.6%	-3.7%
Global LV Sales	89,915,452	77,205,713	80,274,027	78,898,818	19,803,443	20,811,600	20,360,123	21,754,691	82,729,856	85,240,534	88,654,291	90,520,141
y-o-y %	-4.2%	-14.1%	4.0%	-1.7%	2.1%	12.6%	0.8%	4.4%	4.9%	3.0%	4.0%	2.1%

Source: BofA Global Research estimates, S&P

BofA GLOBAL RESEARCH

Exhibit 2: Summary of BofA LV production forecasts (units)

We forecast LVP growth rate of +4.7%/y for 2023e we are 0.6% below S&P; for 2024e we forecast 1% growth (S&P: 1.4%)

Region	2020	2021	2022	2023E	S&P 2023E	2024E	S&P 2024E	2025E	2026E
Western Europe	10,050,263	9,420,504	9,887,192	11,201,281	11,167,778	10,756,115	10,975,628	10,675,175	10,436,941
Growth	-25.2%	-6.3%	5.0%	13.3%	13.0%	-4.0%	-1.7%	-0.8%	-2.2%
Central Europe	3,533,335	3,407,964	3,638,830	3,994,973	3,943,705	3,837,968	3,884,583	3,746,656	3,681,144
Growth	-18.7%	-3.5%	6.8%	9.8%	8.4%	-3.9%	-1.5%	-2.4%	-1.7%
EU 28	13,583,598	12,828,468	13,526,022	15,196,254	15,111,483	14,594,083	14,860,211	14,421,831	14,118,085
Growth	-23.6%	-5.6%	5.4%	12.3%	11.7%	-4.0%	-1.7%	-1.2%	-2.1%
Eastern Europe	2,987,443	3,062,886	2,302,552	2,315,870	2,323,575	2,338,324	2,411,736	2,394,316	2,516,889
Growth	-11.6%	2.5%	-24.8%	0.6%	0.9%	1.0%	3.8%	2.4%	5.1%
Total Europe	16,571,041	15,891,354	15,828,574	17,512,125	17,435,058	16,932,408	17,271,947	16,816,147	16,634,974
Growth	-21.7%	-4.1%	-0.4%	10.6%	10.1%	-3.3%	-0.9%	-0.7%	-1.1%
North America	13,024,058	13,047,059	14,296,207	14,993,712	15,468,236	16,546,632	15,844,606	17,205,284	18,065,549
Growth	-20.2%	0.2%	9.6%	4.9%	8.2%	10.4%	2.4%	4.0%	5.0%
China	23,349,584	24,585,919	26,150,230	26,150,230	26,303,504	26,909,780	27,875,672	27,765,546	28,372,592
Growth	-4.4%	5.3%	6.4%	0.0%	0.6%	2.9%	6.0%	3.2%	2.2%
Asia ex-China	17,625,994	19,011,783	21,005,000	22,461,361	22,429,921	21,392,948	21,579,358	21,300,024	21,364,166
Growth	-19.1%	7.9%	10.5%	6.9%	6.8%	-4.8%	-3.8%	-0.4%	0.3%
South America	2,245,570	2,606,481	2,824,287	2,832,069	2,832,069	2,954,966	2,999,965	3,206,061	3,395,953
Growth	-31.4%	16.1%	8.4%	0.3%	0.3%	4.3%	5.9%	8.5%	5.9%
Middle East	938,512	1,064,127	1,174,304	1,099,815	1,072,990	1,130,678	1,153,753	1,187,679	1,262,370
Growth	24.8%	13.4%	10.4%	-6.3%	-8.6%	2.8%	7.5%	5.0%	6.3%
Africa	841,021	988,536	1,067,470	1,138,281	1,152,106	1,140,620	1,163,898	1,223,150	1,250,614
Growth	-33.1%	17.5%	8.0%	6.6%	7.9%	0.2%	1.0%	7.2%	2.2%
World	74,595,780	77,195,259	82,346,072	86,187,593	86,693,884	87,008,031	87,889,199	88,703,891	90,346,217
Growth	-16.1%	3.5%	6.7%	4.7%	5.3%	1.0%	1.4%	1.9%	1.9%

Source: BofA Global Research estimates, S&P

BofA GLOBAL RESEARCH

Global Sales forecasts of OEMs by S&P

Exhibit 3: Light vehicle sales forecast by S&P and recent changes in forecast by OEMs (July-23 vs June-23)

S&P revised global volumes upwards for all OEMs except RNO and Nissan in 2023, with VW and GM being the most positively reviewed. For the period 24e-28e, VW enjoys the highest upgrade (c570k units) while Stellantis' outlook worsens (c-560k)

Retail sales (units)	2020	2021	2022	2023e	2024e	2025e	2026e	2027e	2028e
Latest IHS forecasts	2020	2021	2022	2023e	2024e	2025e	2026e	2027e	2028e
VW Group	8,793,014	8,222,131	7,698,423	7,931,940	8,066,731	8,378,830	8,227,024	8,292,075	8,170,751
y-o-y %		-6.5%	-6.4%	3.0%	1.7%	3.9%	-1.8%	0.8%	-1.5%
Mercedes Benz	2,128,041	2,005,986	2,003,201	2,141,449	2,287,037	2,356,252	2,460,225	2,475,006	2,429,843
y-o-y %		-5.7%	-0.1%	6.9%	6.8%	3.0%	4.4%	0.6%	-1.8%
BMW Group	2,327,911	2,494,394	2,378,338	2,458,272	2,583,204	2,685,151	2,647,981	2,636,978	2,686,084
y-o-y %		7.2%	-4.7%	3.4%	5.1%	3.9%	-1.4%	-0.4%	1.9%
Stellantis	6,473,466	6,685,911	5,945,112	6,440,297	6,617,490	6,891,887	7,018,119	6,998,169	6,810,209
y-o-y %		3.3%	-11.1%	8.3%	2.8%	4.1%	1.8%	-0.3%	-2.7%
Renault Group	2,361,178	2,238,566	2,045,720	2,155,223	2,277,111	2,368,577	2,537,623	2,596,775	2,533,522
y-o-y %		-5.2%	-8.6%	5.4%	5.7%	4.0%	7.1%	2.3%	-2.4%
Volvo Cars	661,102	679,469	618,201	638,867	664,094	692,886	728,268	754,486	705,791
y-o-y %		2.8%	-9.0%	3.3%	3.9%	4.3%	5.1%	3.6%	-6.5%
EU Car Makers in total	22,744,712	22,326,457	20,688,995	21,766,048	22,495,667	23,373,583	23,619,240	23,753,489	23,336,200
y-o-y %		-1.8%	-7.3%	5.2%	3.4%	3.9%	1.1%	0.6%	-1.8%
Ford	4,251,992	3,966,305	3,736,551	3,824,036	3,847,393	3,934,691	3,747,369	3,677,155	3,647,976
y-o-y %		-6.7%	-5.8%	2.3%	0.6%	2.3%	-4.8%	-1.9%	-0.8%
GM	5,004,131	4,348,437	4,289,387	4,565,123	4,624,518	4,610,169	4,426,457	4,431,162	4,403,314
y-o-y %		-13.1%	-1.4%	6.4%	1.3%	-0.3%	-4.0%	0.1%	-0.6%
Tesla	499,550	927,256	1,321,697	1,943,769	2,459,127	3,016,547	3,690,343	4,351,729	4,863,344
y-o-y %		85.6%	42.5%	47.1%	26.5%	22.7%	22.3%	17.9%	11.8%
Toyota	8,518,957	9,422,570	9,375,620	9,515,350	9,554,853	9,490,157	9,585,472	9,629,281	9,708,539
y-o-y %		10.6%	-0.5%	1.5%	0.4%	-0.7%	1.0%	0.5%	0.8%
Honda	4,471,814	4,453,966	3,798,312	3,883,922	4,086,732	4,248,058	4,311,501	4,226,200	4,203,021
y-o-y %		-0.4%	-14.7%	2.3%	5.2%	3.9%	1.5%	-2.0%	-0.5%
Nissan	4,638,817	4,631,847	3,924,903	4,029,617	3,986,265	3,978,660	4,011,388	4,247,132	4,240,868
y-o-y %		-0.2%	-15.3%	2.7%	-1.1%	-0.2%	0.8%	5.9%	-0.1%
Hyundai Group	6,253,864	6,796,080	6,551,462	6,826,852	6,865,015	6,827,940	6,897,521	6,860,254	6,975,888
y-o-y %		8.7%	-3.6%	4.2%	0.6%	-0.5%	1.0%	-0.5%	1.7%
Changes in IHS forecasts (July vs June)	2020	2021	2022	2023e	2024e	2025e	2026e	2027e	2028e
VW Group			1,364	160,471	128,914	139,039	86,937	146,991	66,687
% change			0.0%	2.1%	1.6%	1.7%	1.1%	1.8%	0.8%
Mercedes-Benz			49	10,491	6,651	31,029	22,094	-1,610	-21,538
% change			0.0%	0.5%	0.3%	1.3%	0.9%	-0.1%	-0.9%
BMW Group			-14	28,558	-9,090	-13,757	-9,699	-16,819	-26,571
% change			0.0%	1.2%	-0.4%	-0.5%	-0.4%	-0.6%	-1.0%
Stellantis			-45	31,286	-37,677	-144,662	-145,996	-164,710	-66,434
% change			0.0%	0.5%	-0.6%	-2.1%	-2.0%	-2.3%	-1.0%
Renault Group			-4	-7,703	-7,169	-17,900	-13,282	1,651	-13,626
% change			0.0%	-0.4%	-0.3%	-0.8%	-0.5%	0.1%	-0.5%
Volvo Cars			0	26,537	9,110	12,512	12,684	6,950	6,290
% change			0.0%	4.3%	1.4%	1.8%	1.8%	0.9%	0.9%
Ford			-2	40,847	-6,854	-23,690	-30,486	-13,198	-52,760
% change			0.0%	1.1%	-0.2%	-0.6%	-0.8%	-0.4%	-1.4%
GM			4	99,150	81,341	84,464	44,851	9,032	-64,582
% change			0.0%	2.2%	1.8%	1.9%	1.0%	0.2%	-1.4%
Tesla			31	34,124	98,859	70,213	91,257	140,820	28,968
% change			0.0%	1.8%	4.2%	2.4%	2.5%	3.3%	0.6%
Toyota			-3	64,493	14,182	78,930	117,979	87,759	-9,268
% change			0.0%	0.7%	0.1%	0.8%	1.2%	0.9%	-0.1%
Honda			-2	-8,784	11,499	21,435	40,600	54,089	-13,859
% change			0.0%	-0.2%	0.3%	0.5%	1.0%	1.3%	-0.3%
Nissan			24	-45,526	-69,144	-26,540	-5,504	-20,745	-77,159
% change			0.0%	-1.1%	-1.7%	-0.7%	-0.1%	-0.5%	-1.8%
Hyundai Group			-2	61,559	131,479	109,046	114,596	111,484	23,587
% change			0.0%	0.9%	2.0%	1.6%	1.7%	1.7%	0.3%

Source: S&P; all the numbers above are NOT BoFA estimates, but reflect the S&P view; we consider S&P as the most used data source in the automotive industry (by suppliers, OEMs, consultants, etc)

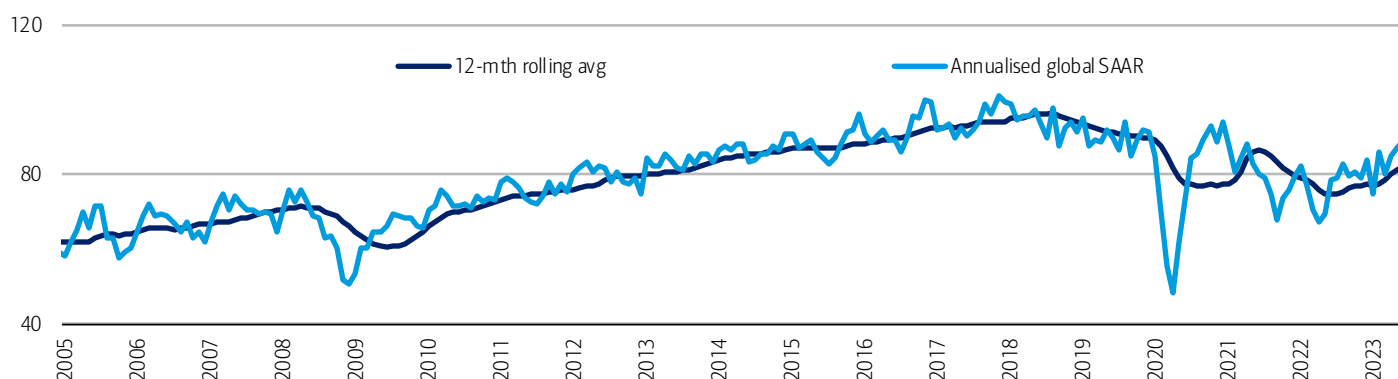
BoFA GLOBAL RESEARCH

BofA Global Auto Sales SAAR

We have built a global SAAR indicator from our analysis of over 70% of global auto sales tracked market by market, assuming that the rest of the world markets develop similarly to countries we track. The sales have weakened since 2021 due to the global supply shortage, but we are seeing a reversal now. June 23 was another strong month with a SAAR of 89.1m (+13.7% y/y, +2.5% m/m), driven by higher sales across regions.

Exhibit 4: Global autos sales SAAR based on tracked sales (light vehicles)

Global SAAR up c13.7% YoY to 89.1m in June-23; +2.5% on m/m – fifth consecutive month above 12-month rolling SAAR

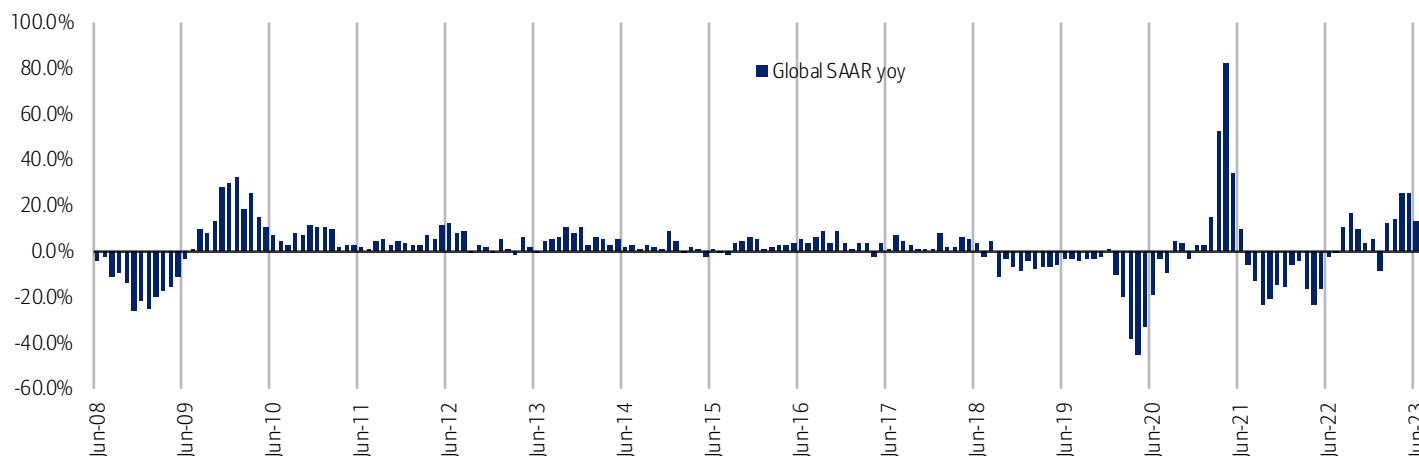


Source: BofA Global Research. The indicator identified as Global auto sales SAAR above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

BofA GLOBAL RESEARCH

Exhibit 5: Global auto SAAR based on tracked sales (y/y%)

June SAAR confirms positive volume uptake, +13.7% y/y and +2.5% m/m, fifth consecutive positive y/y growth



Source: BofA Global Research. The indicator identified as Global auto sales SAAR above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark

BofA GLOBAL RESEARCH

Global Sales & Market share (I) by OEM

Exhibit 6: Sales and market share of key OEMs (Monthly)

Tesla showed the usual end of quarter seasonality and gained the most M/S to reach 3.2%, below Mar-23 (3.4%). EU OEMs also gained share m/m, led by RNO and VW, while BMW and Stellantis underperformed. Asian peers lost M/S m/m.

Units Sales	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
BMW	162,376	150,844	142,014	162,731	155,272	170,417	191,997	139,331	134,892	189,823	156,931	178,892	178,826
Mercedes-Benz	152,114	139,910	130,505	145,670	133,164	137,331	165,097	111,232	128,040	163,320	131,152	142,445	159,466
Stellantis	430,210	361,734	326,302	368,977	352,057	362,902	383,909	316,615	354,721	485,755	383,315	432,871	443,991
RNO	182,134	127,708	115,302	140,040	131,787	155,630	180,263	142,130	143,689	186,554	154,153	160,482	198,103
VW	679,187	604,493	580,904	617,376	572,422	563,514	696,507	511,592	498,516	676,103	594,736	633,719	701,693
Ford	216,691	225,000	221,379	228,793	234,440	220,374	258,657	201,386	218,660	250,938	247,055	238,820	248,818
GM	307,987	297,878	322,190	316,274	319,031	295,753	360,238	258,778	255,126	319,450	328,294	331,735	341,084
Tesla	143,918	53,265	87,283	163,764	66,244	137,977	142,658	90,180	117,697	196,388	109,851	128,893	181,453
TOYOTA	545,631	538,831	503,902	545,850	547,262	506,240	577,213	459,723	511,943	621,888	537,702	553,489	596,049
NISSAN	206,825	198,622	190,926	205,487	209,156	170,550	197,365	172,327	197,960	265,213	198,657	201,589	219,730
HONDA	281,670	273,636	264,348	255,818	253,812	229,079	296,934	211,702	222,876	296,347	266,987	273,728	287,973
SUZUKI	207,860	211,234	200,710	228,751	214,882	210,379	184,370	220,231	222,005	230,078	202,551	232,121	223,263
Hyundai	279,648	270,833	263,495	280,802	262,343	270,570	293,712	241,135	247,589	312,930	274,236	288,259	294,951
KIA	209,140	203,015	184,891	195,327	183,964	191,998	182,552	180,399	191,860	224,726	209,021	207,987	214,685
Chang'An	107,112	113,957	103,791	104,970	123,655	101,458	167,722	117,023	92,802	93,073	100,637	112,795	118,057
BYD	132,553	158,957	168,885	191,237	205,789	217,624	223,678	139,755	176,662	192,289	193,902	220,735	231,230
Geely	119,357	122,658	110,247	120,935	147,950	140,425	152,204	108,730	109,887	115,846	108,850	119,041	130,412
Global sales	5,166,648	4,906,278	4,767,043	5,236,003	5,012,147	4,914,698	5,628,266	4,302,603	4,550,577	5,722,203	4,987,831	5,284,068	5,707,145
YoY growth	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
BMW	-13.3%	-2.9%	2.0%	14.6%	11.7%	13.8%	25.1%	-20.9%	8.1%	21.8%	24.0%	20.4%	10.1%
Mercedes-Benz	8.3%	15.3%	34.9%	46.9%	17.3%	5.9%	12.2%	-23.0%	18.5%	10.6%	5.5%	11.4%	4.8%
Stellantis	-9.0%	-7.2%	0.6%	-0.8%	-3.9%	-0.7%	-5.4%	-6.2%	2.1%	19.2%	6.6%	10.4%	3.2%
RNO	-17.1%	-18.7%	-13.0%	-7.6%	-8.3%	-3.6%	-7.1%	9.1%	7.7%	19.9%	40.1%	35.7%	8.8%
VW	-4.6%	0.8%	12.5%	16.8%	13.2%	9.1%	12.0%	-15.6%	9.5%	23.8%	44.3%	14.4%	3.3%
Ford	8.1%	15.4%	9.0%	-2.3%	-5.7%	-0.7%	4.8%	-5.4%	16.3%	8.5%	4.7%	8.0%	14.8%
GM	-6.5%	-2.3%	42.9%	46.5%	28.7%	11.4%	20.4%	-5.3%	1.7%	8.9%	21.0%	24.4%	10.7%
Tesla	86.4%	50.0%	84.0%	44.2%	38.1%	68.1%	-7.0%	49.4%	43.7%	25.6%	123.8%	145.6%	26.1%
TOYOTA	-8.0%	-12.4%	-0.8%	22.8%	24.4%	-1.9%	-1.8%	-5.0%	11.6%	2.0%	12.5%	13.7%	9.2%
NISSAN	-15.9%	-10.9%	-10.7%	-5.2%	-1.6%	-21.1%	-17.4%	-22.1%	4.6%	7.1%	7.8%	21.9%	6.2%
HONDA	-17.7%	-14.1%	-4.7%	-9.3%	-18.1%	-20.8%	-13.1%	-27.7%	-15.9%	-3.5%	7.0%	25.5%	2.2%
SUZUKI	12.7%	5.6%	20.4%	87.6%	23.5%	15.0%	-3.8%	14.0%	7.7%	1.4%	10.0%	13.4%	7.4%
Hyundai	-12.8%	-10.9%	-1.7%	8.6%	1.3%	5.4%	9.0%	-2.9%	2.3%	23.7%	9.4%	8.8%	5.5%
KIA	-5.7%	-4.7%	3.0%	0.9%	0.4%	8.7%	8.2%	1.3%	9.0%	8.7%	6.9%	10.6%	2.7%
Chang'An	36.0%	31.2%	40.0%	25.1%	26.8%	13.9%	134.4%	-18.5%	52.9%	-22.7%	87.4%	55.2%	10.2%
BYD	171.6%	172.6%	153.5%	144.3%	134.6%	125.1%	128.6%	47.1%	98.3%	86.3%	85.1%	94.0%	74.4%
Geely	-3.2%	10.2%	6.6%	10.1%	28.8%	4.4%	-2.5%	-24.5%	27.6%	-2.3%	55.8%	35.3%	9.3%
Global sales	-2.3%	-0.1%	11.3%	17.3%	10.4%	3.2%	4.6%	-11.8%	9.4%	10.3%	23.0%	21.8%	10.5%
Market Share	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
BMW	3.1%	3.1%	3.0%	3.1%	3.1%	3.5%	3.4%	3.2%	3.0%	3.3%	3.1%	3.4%	3.1%
Mercedes-Benz	2.9%	2.9%	2.7%	2.8%	2.7%	2.8%	2.9%	2.6%	2.8%	2.9%	2.6%	2.7%	2.8%
Stellantis	8.3%	7.4%	6.8%	7.0%	7.0%	7.4%	6.8%	7.4%	7.8%	8.5%	7.7%	8.2%	7.8%
RNO	3.5%	2.6%	2.4%	2.7%	2.6%	3.2%	3.2%	3.3%	3.2%	3.3%	3.1%	3.0%	3.5%
Total VW	13.1%	12.3%	12.2%	11.8%	11.4%	11.5%	12.4%	11.9%	11.0%	11.8%	11.9%	12.0%	12.3%
Ford	4.2%	4.6%	4.6%	4.4%	4.7%	4.5%	4.6%	4.7%	4.8%	4.4%	5.0%	4.5%	4.4%
GM	6.0%	6.1%	6.8%	6.0%	6.4%	6.0%	6.4%	6.0%	5.6%	5.6%	6.6%	6.3%	6.0%
Tesla	2.8%	1.1%	1.8%	3.1%	1.3%	2.8%	2.5%	2.1%	2.6%	3.4%	2.2%	2.4%	3.2%
TOYOTA	10.6%	11.0%	10.6%	10.4%	10.9%	10.3%	10.3%	10.7%	11.3%	10.9%	10.8%	10.5%	10.4%
NISSAN	4.0%	4.0%	4.0%	3.9%	4.2%	3.5%	3.5%	4.0%	4.4%	4.6%	4.0%	3.8%	3.9%
HONDA	5.5%	5.6%	5.5%	4.9%	5.1%	4.7%	5.3%	4.9%	4.9%	5.2%	5.4%	5.2%	5.0%
SUZUKI	4.0%	4.3%	4.2%	4.4%	4.3%	4.3%	3.3%	5.1%	4.9%	4.0%	4.1%	4.4%	3.9%
Hyundai	5.4%	5.5%	5.5%	5.4%	5.2%	5.5%	5.2%	5.6%	5.4%	5.5%	5.5%	5.5%	5.2%
KIA	4.0%	4.1%	3.9%	3.7%	3.7%	3.9%	3.2%	4.2%	4.2%	3.9%	4.2%	3.9%	3.8%
Chang'An	2.1%	2.3%	2.2%	2.0%	2.5%	2.1%	3.0%	2.7%	2.0%	1.6%	2.0%	2.1%	2.1%
BYD	2.6%	3.2%	3.5%	3.7%	4.1%	4.4%	4.0%	3.2%	3.9%	3.4%	3.9%	4.2%	4.1%
Geely	2.3%	2.5%	2.3%	2.3%	3.0%	2.9%	2.7%	2.5%	2.4%	2.0%	2.2%	2.3%	2.3%

Source: BofA Global Research, ACEA, Autodata, CPCA, Anavea, S&P, local car authorities. Note: Market share is calculated as total sales of each OEM in tracked regions divide by total sales of all the tracked regions.

These include EU, US, China, Korea, Japan, Russia, India, Turkiye, Singapore

Global Sales & Market share (II) by OEM

Exhibit 7: Sales and market share of key OEMs (Quarterly and Annually)

YTD, BYD and Tesla y/y growth outpaced competition (+81% & +52%) which came with strong M/S gains in H1 23 vs H1 22 (+1.5ppts & +0.7ppts).

Unit Sales	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	FY 2021	FY 2022	YTD 2023
BMW	542,747	436,632	442,203	456,877	437,615	455,589	517,686	464,046	514,649	1,908,298	1,867,767	978,695
Mercedes-Benz	450,027	317,270	390,453	400,075	404,219	416,085	435,592	402,592	433,063	1,602,878	1,655,971	835,655
Stellantis	1,398,513	1,086,169	1,137,727	1,092,145	1,181,805	1,057,013	1,098,868	1,157,091	1,260,177	4,935,157	4,429,831	2,417,268
RNO	556,386	441,251	499,235	419,297	410,393	383,050	467,680	472,373	512,738	1,976,194	1,680,420	985,111
VW	2,119,300	1,644,790	1,643,972	1,607,468	1,645,543	1,802,773	1,832,443	1,686,211	1,930,148	7,467,895	6,888,227	3,616,359
Ford	727,884	632,317	717,126	632,073	673,860	675,172	713,471	670,984	734,693	2,877,970	2,694,576	1,405,677
GM	1,084,195	746,134	812,730	817,456	845,970	936,342	975,022	833,354	1,001,113	3,707,406	3,574,790	1,834,467
Tesla	175,651	196,532	283,416	298,661	245,477	304,312	346,879	404,265	420,197	825,716	1,195,329	824,462
TOYOTA	1,769,701	1,567,793	1,543,777	1,552,044	1,510,542	1,588,583	1,630,715	1,593,554	1,687,240	6,630,130	6,281,884	3,280,794
NISSAN	756,987	653,269	667,739	657,928	556,382	595,035	577,071	635,500	619,976	2,941,091	2,386,416	1,255,476
HONDA	1,083,455	878,002	940,716	864,817	749,195	793,802	779,825	730,925	828,688	3,894,066	3,187,639	1,559,613
SUZUKI	487,587	488,749	548,658	626,166	596,701	640,695	609,631	672,314	657,935	2,198,466	2,473,193	1,330,249
Hyundai	919,364	830,530	784,976	743,338	795,358	815,130	826,625	801,654	857,446	3,385,251	3,180,451	1,659,100
KIA	662,640	586,043	528,621	560,875	592,819	583,233	558,514	596,985	631,693	2,344,478	2,295,441	1,228,678
Chang'An	265,028	244,854	258,151	324,675	233,508	322,718	392,835	302,898	331,489	1,116,033	1,273,736	634,387
BYD	136,594	203,207	282,266	287,363	351,091	519,079	647,091	508,706	645,867	723,697	1,804,624	1,154,573
Geely	349,241	324,603	405,402	348,717	277,226	353,840	440,579	334,463	358,303	1,466,725	1,420,362	692,766
Global sales	15,807,573	13,658,476	14,684,740	14,224,376	13,559,759	14,909,324	15,555,111	14,575,383	15,979,044	59,896,782	58,248,570	30,554,427
YoY growth	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	FY 2021	FY 2022	YTD 2023
BMW	48.3%	-16.1%	-16.3%	-6.1%	-19.4%	4.3%	17.1%	1.6%	17.6%	6.5%	-2.1%	9.4%
Mercedes-Benz	20.3%	-37.8%	-21.5%	-10.1%	-10.2%	31.1%	11.6%	0.6%	7.1%	-9.5%	3.3%	3.9%
Stellantis	56.2%	-20.9%	-20.0%	-16.8%	-15.5%	-2.7%	-3.4%	5.9%	6.6%	0.9%	-10.2%	6.3%
RNO	34.4%	-24.0%	-20.2%	-12.5%	-26.2%	-13.2%	-6.3%	12.7%	24.9%	-5.6%	-15.0%	18.7%
VW	28.6%	-26.7%	-31.3%	-22.0%	-22.4%	9.6%	11.5%	4.9%	17.3%	-6.3%	-7.8%	11.2%
Ford	14.5%	-29.3%	-18.7%	-21.1%	-7.4%	6.8%	-0.5%	6.2%	9.0%	-9.6%	-6.4%	7.6%
GM	21.6%	-35.8%	-39.8%	-23.2%	-22.0%	25.5%	20.0%	1.9%	18.3%	-14.7%	-3.6%	10.3%
Tesla	153.4%	67.6%	77.2%	75.6%	39.8%	54.8%	22.4%	35.4%	71.2%	87.4%	44.8%	51.5%
TOYOTA	43.3%	-4.8%	-14.4%	-11.3%	-14.6%	1.3%	5.6%	2.7%	11.7%	8.8%	-5.3%	7.1%
NISSAN	22.2%	-16.4%	-22.8%	-23.8%	-26.5%	-8.9%	-13.6%	-3.4%	11.4%	-1.5%	-18.9%	3.4%
HONDA	29.9%	-18.1%	-19.0%	-12.8%	-30.9%	-9.6%	-17.1%	-15.5%	10.6%	1.3%	-18.1%	-3.4%
SUZUKI	182.6%	3.9%	4.2%	-7.0%	22.4%	31.1%	11.1%	7.4%	10.3%	32.5%	12.5%	8.8%
Hyundai	45.8%	2.2%	-10.7%	-12.6%	-13.5%	-1.9%	5.3%	7.8%	7.8%	12.9%	-6.0%	7.8%
KIA	50.2%	4.9%	-1.7%	-1.1%	-10.5%	-0.5%	5.7%	6.4%	6.6%	17.4%	-2.1%	6.5%
Chang'An	21.2%	-6.8%	-15.7%	-6.7%	-11.9%	31.8%	52.2%	-6.7%	42.0%	18.5%	14.1%	13.7%
BYD	43.3%	90.4%	82.6%	182.8%	157.0%	155.4%	129.2%	77.0%	84.0%	73.5%	149.4%	80.8%
Geely	-6.4%	-19.3%	-16.9%	-10.0%	-20.6%	9.0%	8.7%	-4.1%	29.2%	-4.5%	-3.2%	10.7%
Global sales	34.9%	-14.4%	-16.9%	-9.7%	-14.2%	9.2%	5.9%	2.5%	17.8%	2.7%	-2.8%	10.0%
Market Share	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	FY 2021	FY 2022	YTD 2023
BMW	3.4%	3.2%	3.0%	3.2%	3.2%	3.1%	3.3%	3.2%	3.2%	3.2%	3.2%	3.2%
Mercedes-Benz	2.8%	2.3%	2.7%	2.8%	3.0%	2.8%	2.8%	2.8%	2.7%	2.7%	2.8%	2.7%
Stellantis	8.8%	8.0%	7.7%	7.7%	8.7%	7.1%	7.1%	7.9%	7.9%	8.2%	7.7%	7.9%
RNO	3.5%	3.2%	3.4%	2.9%	3.0%	2.6%	3.0%	3.2%	3.2%	3.3%	2.9%	3.2%
Total VW	13.4%	12.0%	11.2%	11.3%	12.1%	12.1%	11.8%	11.6%	12.1%	12.4%	11.8%	11.8%
Ford	4.6%	4.6%	4.9%	4.4%	5.0%	4.5%	4.6%	4.6%	4.6%	4.8%	4.7%	4.6%
GM	6.9%	5.5%	5.5%	5.7%	6.2%	6.3%	6.3%	5.7%	6.3%	6.2%	6.1%	6.0%
Tesla	1.1%	1.4%	1.9%	2.1%	1.8%	2.0%	2.2%	2.8%	2.6%	1.4%	2.0%	2.7%
TOYOTA	11.2%	11.5%	10.5%	10.9%	11.1%	10.7%	10.5%	10.9%	10.6%	11.1%	10.8%	10.7%
NISSAN	4.8%	4.8%	4.5%	4.6%	4.1%	4.0%	3.7%	4.4%	3.9%	4.9%	4.1%	4.1%
HONDA	6.9%	6.4%	6.4%	6.1%	5.5%	5.3%	5.0%	5.0%	5.2%	6.5%	5.5%	5.1%
SUZUKI	3.1%	3.6%	3.7%	4.4%	4.4%	4.3%	3.9%	4.6%	4.1%	3.7%	4.3%	4.4%
Hyundai	5.8%	6.1%	5.3%	5.2%	5.9%	5.5%	5.3%	5.5%	5.4%	5.7%	5.5%	5.4%
KIA	4.2%	4.3%	3.6%	3.9%	4.4%	3.9%	3.6%	4.1%	4.0%	3.9%	4.0%	4.0%
Chang'An	1.7%	1.8%	1.8%	2.3%	1.7%	2.2%	2.5%	2.1%	2.1%	1.9%	2.2%	2.1%
BYD	0.9%	1.5%	1.9%	2.0%	2.6%	3.5%	4.2%	3.5%	4.0%	1.2%	3.1%	3.8%
Geely	2.2%	2.4%	2.8%	2.5%	2.0%	2.4%	2.8%	2.3%	2.2%	2.5%	2.4%	2.3%

Source: BofA Global Research, ACEA, Autodata, CPCA, Anfavea, S&P, local car authorities. Note: Market share is calculated as total sales of each OEM in tracked regions divide by total sales of all the tracked regions. These include EU, US, China, Korea, Japan, Russia, India, Turkey, Singapore

Global auto sales by country

Exhibit 8: Monthly Sales by Country (PV)

Growth momentum decelerated in June-23 y/y but all markets except Italy and India grew m/m

Sales	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Europe	1,066,693	874,947	748,961	1,049,926	910,753	1,014,630	1,091,119	911,064	902,775	1,422,147	964,932	1,121,644	1,265,678
Germany	224,558	205,911	199,183	224,816	208,642	260,512	314,318	179,247	206,210	281,361	202,947	246,966	280,139
Italy	127,232	109,580	71,190	110,976	115,827	119,853	104,915	128,301	130,365	168,294	125,805	149,111	138,927
France	171,087	107,547	91,406	141,142	124,982	133,961	158,027	111,940	126,237	182,713	132,509	145,538	190,848
Spain	89,252	73,378	51,907	67,240	65,966	73,221	73,927	64,147	74,001	99,524	74,749	92,025	101,085
UK	140,958	112,162	68,858	225,269	134,344	142,889	128,462	131,994	74,441	287,825	132,990	145,204	177,266
USA	1,147,279	1,147,748	1,151,239	1,123,939	1,185,280	1,138,169	1,286,589	1,065,938	1,160,895	1,375,518	1,361,289	1,375,248	1,385,862
Korea	121,059	122,134	105,091	113,656	120,026	127,157	131,526	100,448	125,151	140,814	128,360	130,300	133,803
Japan	327,896	349,335	290,042	395,163	359,159	377,079	344,365	382,338	426,726	572,494	349,592	326,730	392,719
Brazil	133,781	135,431	154,753	143,166	136,892	158,720	164,191	103,894	95,867	146,244	118,177	127,508	142,037
Russia	27,761	32,412	41,698	46,698	45,228	46,403	64,072	32,499	41,851	48,414	54,270	51,466	87,357
India	377,601	395,574	383,294	409,866	384,196	376,615	343,645	401,933	381,554	405,281	372,277	387,590	385,229
China	1,964,578	1,848,697	1,891,965	1,953,589	1,870,613	1,675,925	2,202,759	1,304,489	1,415,758	1,611,291	1,638,934	1,763,582	1,914,460
Total	5,166,648	4,906,278	4,767,043	5,236,003	5,012,147	4,914,698	5,628,266	4,302,603	4,550,577	5,722,203	4,987,831	5,284,068	5,707,145
YoY (%)	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Europe	-16.8%	-10.6%	3.3%	7.9%	14.0%	17.4%	14.8%	10.8%	12.2%	26.1%	16.1%	18.2%	18.7%
Germany	-18.1%	-12.9%	3.0%	14.1%	16.8%	31.4%	38.1%	-2.6%	2.8%	16.6%	12.6%	19.2%	24.8%
Italy	-14.9%	-0.6%	10.0%	5.5%	14.7%	14.7%	21.0%	19.0%	17.6%	40.8%	29.2%	22.9%	9.2%
France	-14.2%	-7.1%	3.8%	5.5%	5.5%	9.8%	-0.1%	8.8%	9.4%	24.2%	21.9%	14.8%	11.6%
Spain	-7.8%	-12.5%	9.1%	12.7%	11.7%	10.3%	-14.1%	51.4%	19.2%	66.1%	8.2%	8.3%	13.3%
UK	-24.3%	-9.0%	1.2%	4.6%	26.4%	23.5%	18.3%	14.7%	26.2%	18.2%	11.6%	16.7%	25.8%
USA	-11.5%	-11.2%	5.1%	11.6%	11.5%	11.2%	5.4%	6.3%	9.6%	8.7%	8.0%	22.9%	20.8%
Korea	-10.2%	-1.1%	-1.1%	23.8%	12.8%	3.3%	1.6%	7.0%	21.2%	26.8%	7.4%	8.8%	10.5%
Japan	-10.3%	-7.4%	-9.3%	24.1%	28.6%	7.0%	2.4%	16.0%	20.3%	11.6%	16.7%	25.0%	19.8%
Brazil	0.3%	9.6%	29.1%	31.2%	14.7%	25.9%	5.1%	12.6%	-1.8%	35.1%	7.7%	-8.6%	6.2%
Russia	-82.4%	-75.6%	-63.5%	-60.9%	-64.2%	-63.0%	-52.0%	-64.5%	-63.4%	-12.2%	65.9%	112.1%	214.7%
India	22.3%	14.0%	23.0%	71.1%	28.0%	29.9%	11.0%	19.9%	7.7%	5.7%	9.5%	10.3%	2.0%
China	22.1%	20.2%	26.9%	21.7%	7.0%	-9.7%	2.6%	-38.1%	11.3%	-0.8%	54.3%	28.3%	-2.6%
YoY (%)	-2.3%	-0.1%	11.3%	17.3%	10.4%	3.2%	4.6%	-11.8%	9.4%	10.3%	23.0%	21.8%	10.5%
YTD (%)	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Europe	-13.6%	-13.2%	-11.8%	-9.7%	-7.8%	-5.8%	-4.1%	10.8%	11.5%	17.5%	17.2%	17.4%	17.6%
Germany	-11.0%	-11.3%	-9.8%	-7.4%	-5.5%	-2.4%	1.1%	-2.6%	0.2%	6.5%	7.9%	10.2%	12.8%
Italy	-22.6%	-20.2%	-18.3%	-16.2%	-13.7%	-11.5%	-9.6%	19.0%	18.3%	26.3%	26.9%	26.0%	22.9%
France	-16.3%	-15.3%	-13.8%	-11.8%	-10.3%	-8.7%	-7.8%	8.8%	9.1%	15.2%	16.7%	16.3%	15.3%
Spain	-10.7%	-11.0%	-9.4%	-7.4%	-5.8%	-4.4%	-5.4%	51.4%	32.2%	44.6%	33.8%	27.0%	24.0%
UK	-11.9%	-11.5%	-10.7%	-8.2%	-5.6%	-3.4%	-2.0%	14.7%	18.6%	18.4%	16.9%	16.8%	18.4%
USA	-17.7%	-16.8%	-14.6%	-12.3%	-10.3%	-8.7%	-7.6%	6.3%	8.0%	8.3%	8.2%	11.1%	12.7%
Korea	-11.2%	-9.8%	-8.9%	-6.1%	-4.4%	-3.7%	-3.2%	7.0%	14.4%	18.9%	15.7%	14.2%	13.5%
Japan	-15.4%	-14.3%	-13.8%	-10.3%	-7.4%	-6.2%	-5.6%	16.0%	18.2%	15.4%	15.7%	17.0%	17.5%
Brazil	-15.3%	-12.0%	-7.3%	-3.7%	-1.9%	0.6%	1.0%	12.6%	5.2%	16.1%	13.8%	8.1%	7.7%
Russia	-57.9%	-60.3%	-60.7%	-60.7%	-61.0%	-61.2%	-60.4%	-64.5%	-63.9%	-53.0%	-39.8%	-28.2%	-8.7%
India	17.8%	17.2%	17.9%	22.6%	23.1%	23.7%	22.6%	19.9%	13.6%	10.8%	10.5%	10.5%	9.0%
China	-6.7%	-3.1%	0.3%	2.6%	3.1%	1.8%	1.9%	-38.1%	-19.5%	-13.5%	-1.6%	3.9%	2.6%
YTD (%)	-11.9%	-10.4%	-8.1%	-5.6%	-4.1%	-3.5%	-2.8%	-11.8%	-2.0%	2.5%	7.0%	9.9%	10.0%

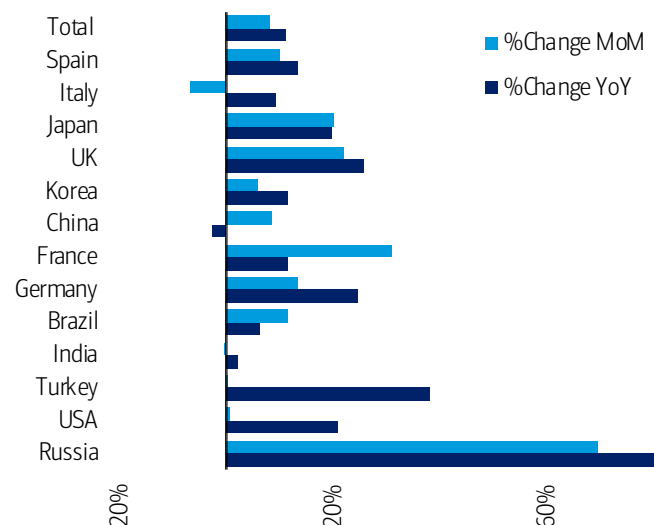
Source: BofA Global Research, ACEA, Autodata, CPCA, Anfavea, S&P, local car authorities

BofA GLOBAL RESEARCH

Global sales summary by country

Exhibit 9: Sales % Change YoY & MoM in June-23

All regions except China reported positive YoY growth

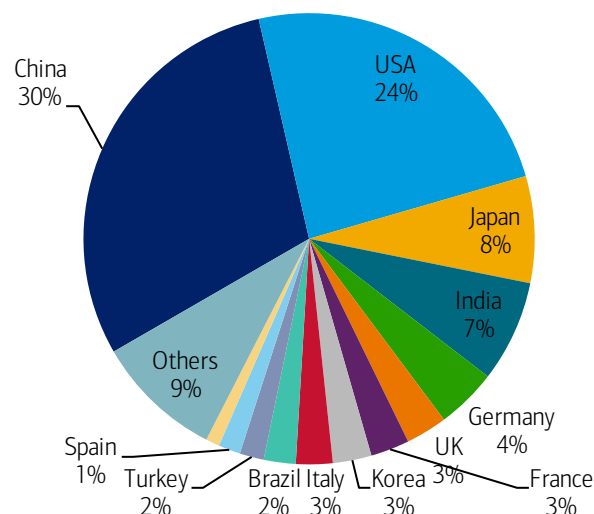


Source: BofA Global Research. Note: Russia grew by 214.7% yoy.

BofA GLOBAL RESEARCH

Exhibit 10: 2023 YTD sales volume split

US and China accounts for c54% of volumes in 2023 – China share down from 36% in FY22 to 30% in 2023 YTD



Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 11: Global markets monthly sales (in units)

All countries except China posted strong y/y growth in June-23

Country	Jun-23	Jun-22	May-23	% YoY	% MoM
Russia	87,357	27,761	51,466	214.7%	69.7%
USA	1,385,862	1,147,279	1,375,248	20.8%	0.8%
Turkey	111,363	80,652	111,356	38.1%	0.0%
India	385,229	377,601	387,590	2.0%	-0.6%
Brazil	142,037	133,781	127,508	6.2%	11.4%
Germany	280,139	224,558	246,966	24.8%	13.4%
France	190,847	171,087	145,536	11.5%	31.1%
China	1,893,732	1,943,778	1,742,063	-2.6%	8.7%
Korea	160,559	143,754	151,639	11.7%	5.9%
UK	177,266	140,958	145,204	25.8%	22.1%
Japan	392,719	327,896	326,730	19.8%	20.2%
Italy	138,901	127,268	149,373	9.1%	-7.0%
Spain	101,085	89,252	92,025	13.3%	9.8%
Total	5,998,452	5,393,751	5,554,890	11.2%	8.0%

Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 12: Global markets YTD sales (in units)

YTD 23 global sales grew driven by EU and US, though still below 2021 levels

Country	Jun-23	Jun-22	% YoY	Jun-21	% YoY
Russia	315,857	345,875	-8.7%	821,120	-57.9%
USA	7,724,750	6,854,158	12.7%	8,325,589	-17.7%
Turkey	556,369	357,904	55.5%	394,701	-9.3%
Brazil	733,727	681,087	7.7%	804,363	-15.3%
Germany	1,396,870	1,237,975	12.8%	1,366,294	-9.4%
France	889,776	771,980	15.3%	916,508	-15.8%
China	9,532,081	9,257,003	3.0%	9,904,323	-6.5%
India	2,333,864	2,141,671	9.0%	1,818,400	17.8%
Korea	889,565	804,508	10.6%	900,870	-10.7%
UK	949,720	802,079	18.4%	948,910	-15.5%
Japan	2,450,599	2,086,178	17.5%	2,464,586	-15.4%
Italy	841,081	684,261	22.9%	875,925	-21.9%
Spain	505,531	407,757	24.0%	440,518	-7.4%
Total	32,047,458	28,965,695	10.6%	33,023,143	-12.3%

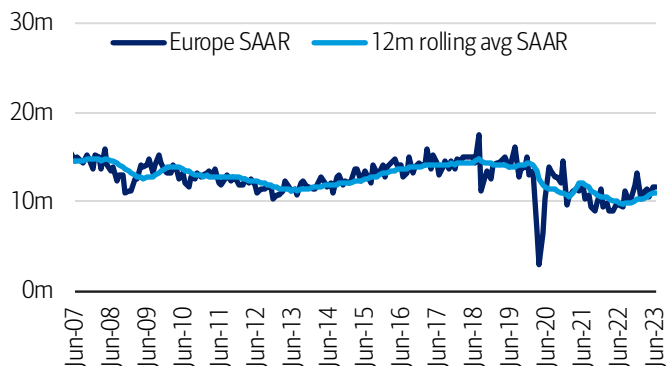
Source: BofA Global Research

BofA GLOBAL RESEARCH

Regional Auto SAARs

Exhibit 13: Europe SAAR trend

EU SAAR remains flat m/m but grew 20% y/y in June-23

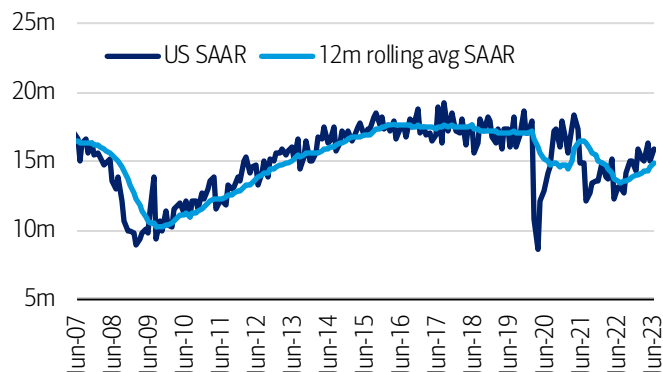


Source: BofA Global Research *Passenger car only

BofA GLOBAL RESEARCH

Exhibit 14: US SAAR trend

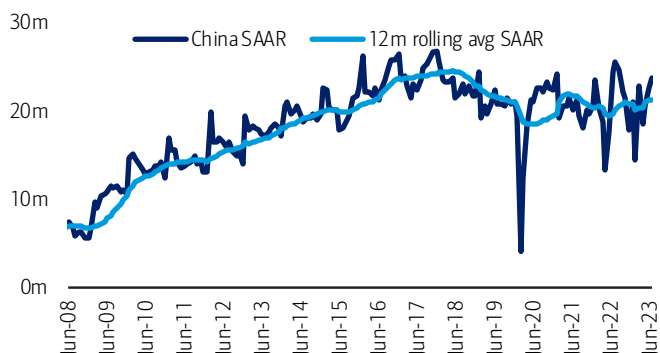
US SAAR rose by 21% y/y and 6% m/m in June-23



BofA GLOBAL RESEARCH

Exhibit 15: China SAAR trend

China SAAR grew 5% m/m in June-23 but down 3% y/y

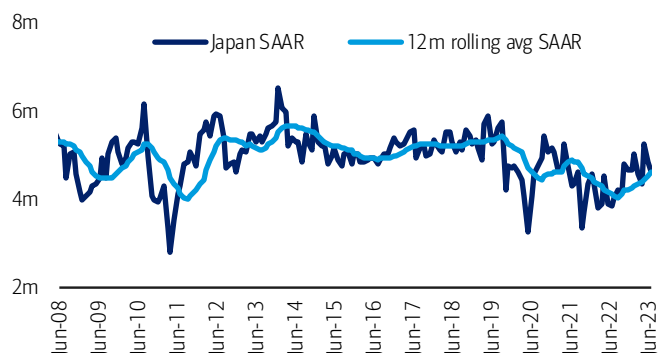


Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 16: Japan SAAR trend

Japan SAAR up 20% y/y while down 5% m/m in June-23

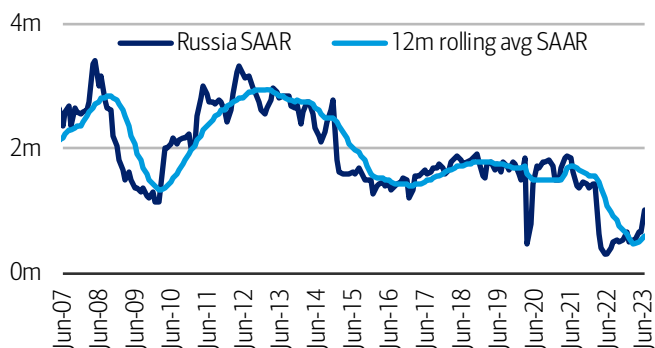


Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 17: Russia SAAR trend

Russia SAAR spiked 215% y/y in June-23

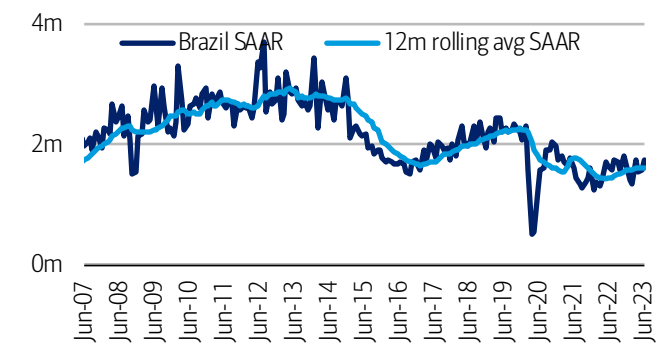


Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 18: Brazil SAAR trend

Brazil SAAR rose by 6% y/y and 10% m/m in June-23



Source: BofA Global Research

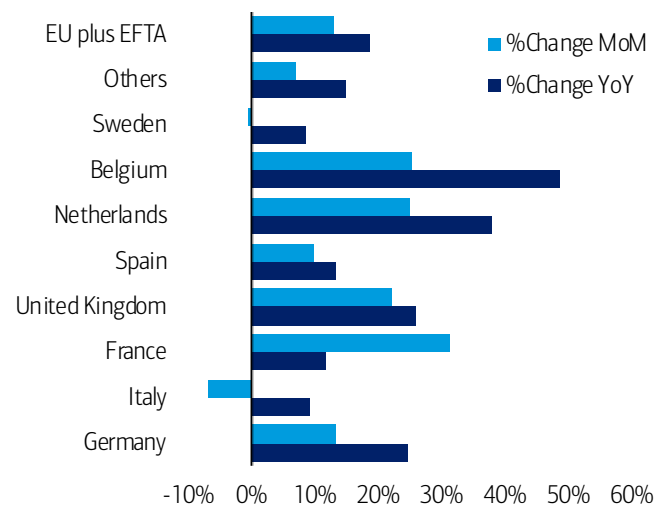
BofA GLOBAL RESEARCH

Sales: Major geographies

Europe by Country: New passenger car registrations

Exhibit 19: Europe monthly sales % Change y/y & MoM in June-23

Sales up YoY and MoM in all EU countries

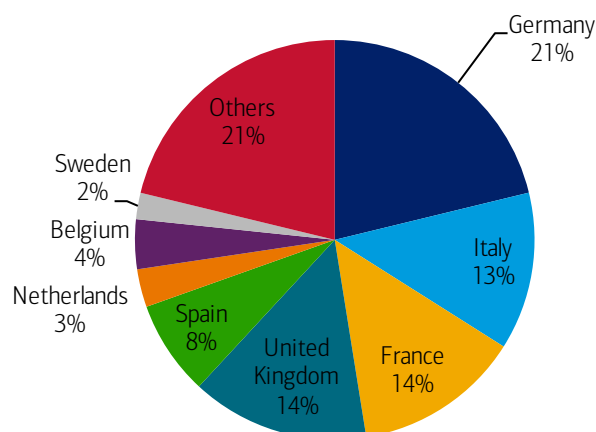


Source: www.acea.be, BofA Global Research.

BofA GLOBAL RESEARCH

Exhibit 20: YTD sales volume split

Top 5 countries account for c70% of European sales



Source: BofA Global Research, ACEA, LMC

BofA GLOBAL RESEARCH

Exhibit 21: European countries monthly new passenger car registration (in units)

Strong European sales underpinned by positive growth across markets

Country	Jun-23	Jun-22	May-23	% YoY	% MoM
Germany	280,139	224,558	246,966	24.8%	13.4%
Italy	138,901	127,268	149,373	9.1%	-7.0%
France	190,847	171,087	145,536	11.5%	31.1%
United Kingdom	177,266	140,958	145,204	25.8%	22.1%
Spain	101,085	89,252	92,025	13.3%	9.8%
Netherlands	41,365	30,016	33,135	37.8%	24.8%
Belgium	51,760	34,814	41,359	48.7%	25.1%
Sweden	28,283	26,088	28,490	8.4%	-0.7%
Others	256,032	222,652	239,556	15.0%	6.9%
EU plus EFTA	1,265,678	1,066,693	1,121,644	18.7%	12.8%

Source: BofA Global Research, www.acea.be.

BofA GLOBAL RESEARCH

Exhibit 22: European countries YTD new passenger car registration (in units)

EU performance is also improving YTD across countries, except for Sweden

Country	Jun-23	Jun-22	% YoY	Jun-21	% YoY
Germany	1,396,870	1,237,975	12.8%	1,366,294	-9.4%
Italy	841,081	684,261	22.9%	875,925	-21.9%
France	889,776	771,980	15.3%	916,508	-15.8%
United Kingdom	949,720	802,079	18.4%	948,910	-15.5%
Spain	505,531	407,757	24.0%	440,518	-7.4%
Netherlands	202,594	153,975	31.6%	176,219	-12.6%
Belgium	264,475	195,387	35.4%	233,590	-16.4%
Sweden	140,663	144,182	-2.4%	170,899	-15.6%
Others	1,397,530	1,203,626	16.1%	1,348,847	-10.8%
EU plus EFTA	6,588,240	5,601,222	17.6%	6,477,710	-13.5%

Source: BofA Global Research, www.acea.be.

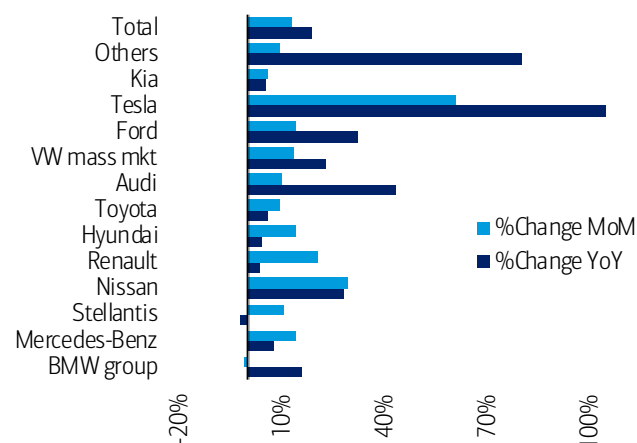
BofA GLOBAL RESEARCH

Europe

Passenger car registrations by company

Exhibit 23: Monthly sales % change YoY & MoM – June-23

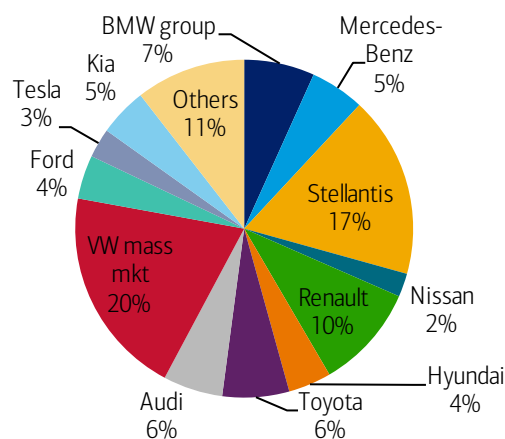
All OEM (except STLA) grew sales y/y, led by Tesla, Nissan, RNO



Source: BofA Global Research, ACEA. Note: Tesla grew 192.0% y/y and 111.0% m/m
BofA GLOBAL RESEARCH

Exhibit 24: YTD sales volume split

Stellantis, VW Group, & RNO accounts for c 47% of sales in Europe



Source: BofA Global Research, ACEA

BofA GLOBAL RESEARCH

Exhibit 25: Europe OEM monthly passenger car registrations

Tesla, Nissan and RNO market post biggest y/y growth in June-23

OEM	Jun-23	Jun-22	May-23	% YoY	% MoM
BMW group	83,730	72,322	84,781	15.8%	-1.2%
Mercedes-Benz	63,239	58,664	55,324	7.8%	14.3%
Stellantis	210,495	215,880	190,688	-2.5%	10.4%
Nissan	26,785	20,865	20,703	28.4%	29.4%
Renault	133,110	128,612	110,549	3.5%	20.4%
Hyundai	51,994	49,896	45,568	4.2%	14.1%
Toyota	75,131	70,885	68,779	6.0%	9.2%
Audi	72,317	50,444	65,673	43.4%	10.1%
VW mass mkt	253,294	206,320	223,778	22.8%	13.2%
Ford	51,234	38,816	44,900	32.0%	14.1%
Tesla	47,606	23,223	29,600	105.0%	60.8%
Kia	54,611	51,806	51,513	5.4%	6.0%
Others	142,132	78,960	129,788	80.0%	9.5%
Total	1,265,678	1,066,693	1,121,644	18.7%	12.8%

Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 26: Europe OEM YTD passenger car registrations (in units)

Tesla and Nissan sales growth stand out on YTD basis

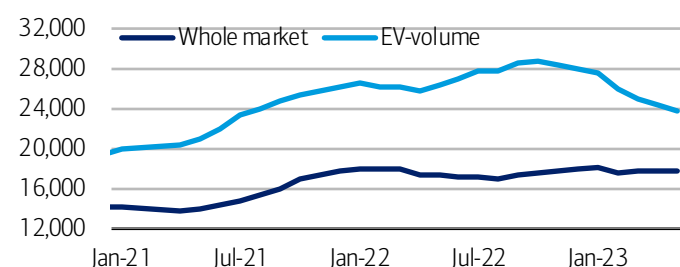
OEM	Jun-23	Jun-22	% YoY	Jun-21	% YoY
BMW group	444,039	405,058	9.6%	469,198	-13.7%
Mercedes-Benz	342,017	327,228	4.5%	368,947	-11.3%
Stellantis	1,144,977	1,083,785	5.6%	1,378,185	-21.4%
Nissan	147,955	116,576	26.9%	136,405	-14.5%
Renault	660,556	531,308	24.3%	561,163	-5.3%
Hyundai	270,946	263,368	2.9%	243,047	8.4%
Toyota	421,040	386,430	9.0%	409,422	-5.6%
Audi	376,552	298,430	26.2%	344,888	-13.5%
VW mass mkt	1,322,099	1,056,767	25.1%	1,353,218	-21.9%
Ford	275,495	258,364	6.6%	307,863	-16.1%
Tesla	185,013	85,656	116.0%	67,866	26.2%
Kia	304,757	293,524	3.8%	251,234	16.8%
Others	692,794	494,728	40.0%	593,774	-16.7%
Total	6,588,240	5,601,222	17.6%	6,485,210	-13.6%

Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 27: Auto Trader Used Car Price Index for the UK market

Prices have remained flat for wholesale market in UK, but declining for EVs

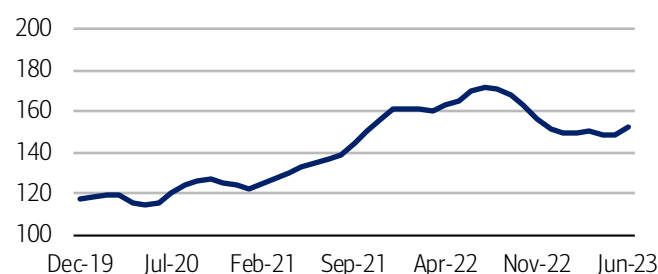


Source: Auto Trader

BofA GLOBAL RESEARCH

Exhibit 28: AUTO1 EU Group price index for used cars (base = 2015)

Prices have been coming down since July-22 highs

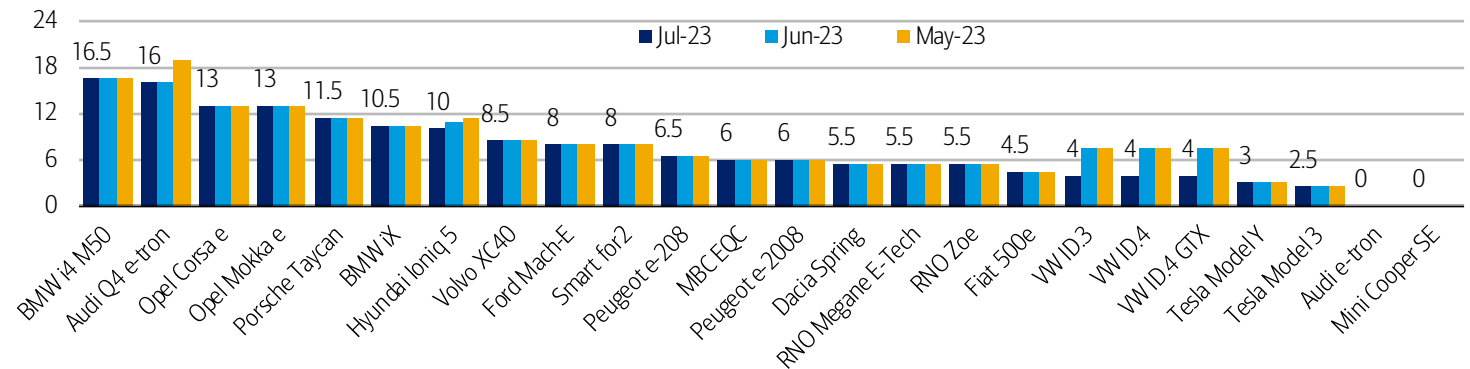


Source: AUTO1 (European Used Car Price Report), BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 29: Germany: Waiting periods for new EV (months)

Waiting periods for new EVs are slowly coming down; mainly driven by improving supply of the VW ID models and Hyundai Ioniq 5

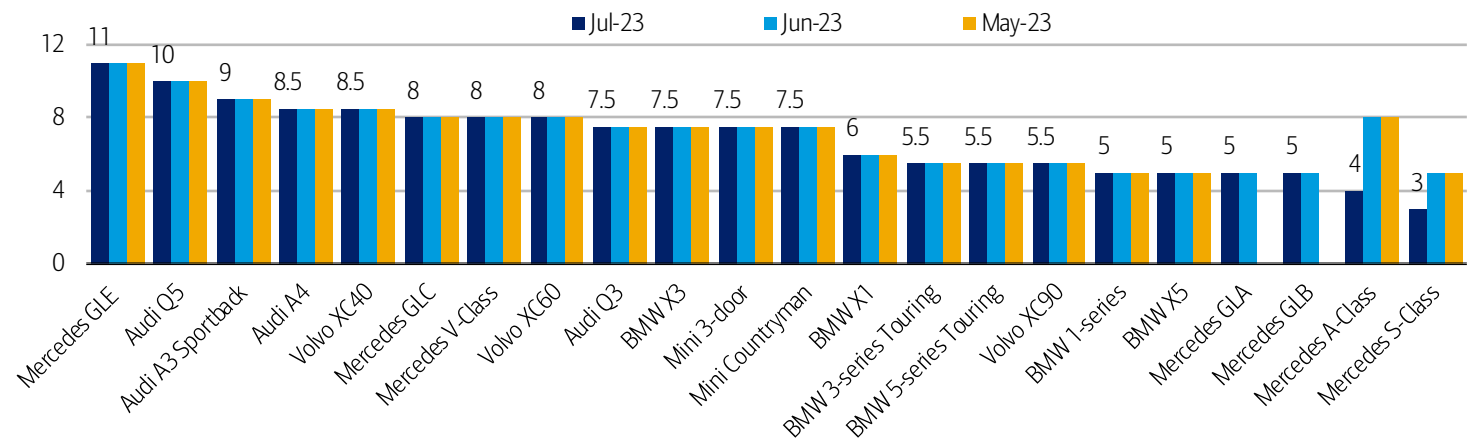


Source: BofA Global Research, carwow.de, *0 = Not available

BofA GLOBAL RESEARCH

Exhibit 30: Germany: How many months you need to wait until you get your ICE premium car ...

Waiting times is also coming down slightly for premium ICE cars as the Mercedes A and S-Class availability improves

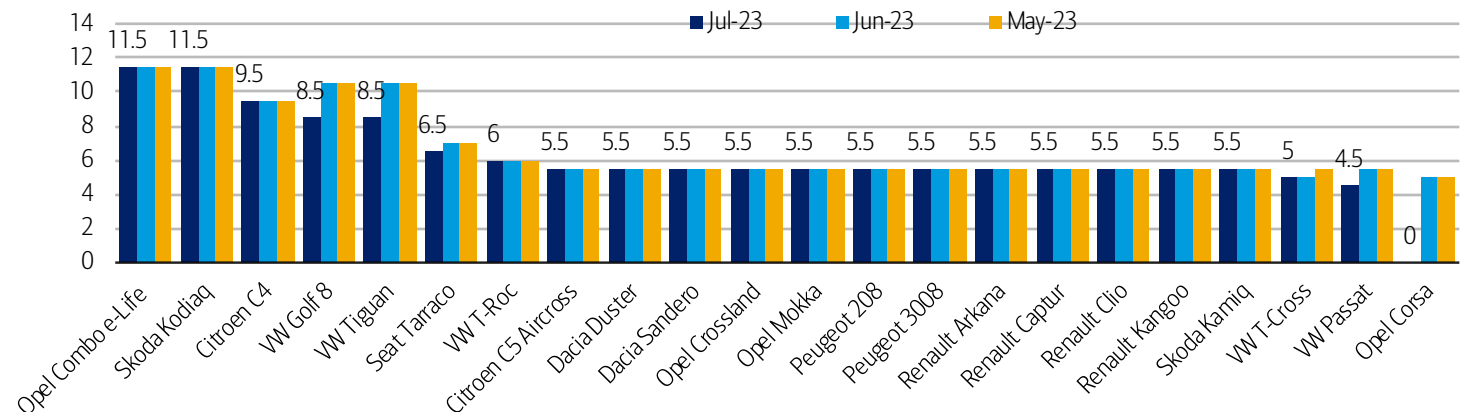


Source: BofA Global Research, carwow.de, *0 = Not available

BofA GLOBAL RESEARCH

Exhibit 31: Germany: How many months you need to wait until you get your ICE mass market car ...

Waiting times are more volatile for mass market but are fairly stable since Jan-23, but VW models seems to become less scarce

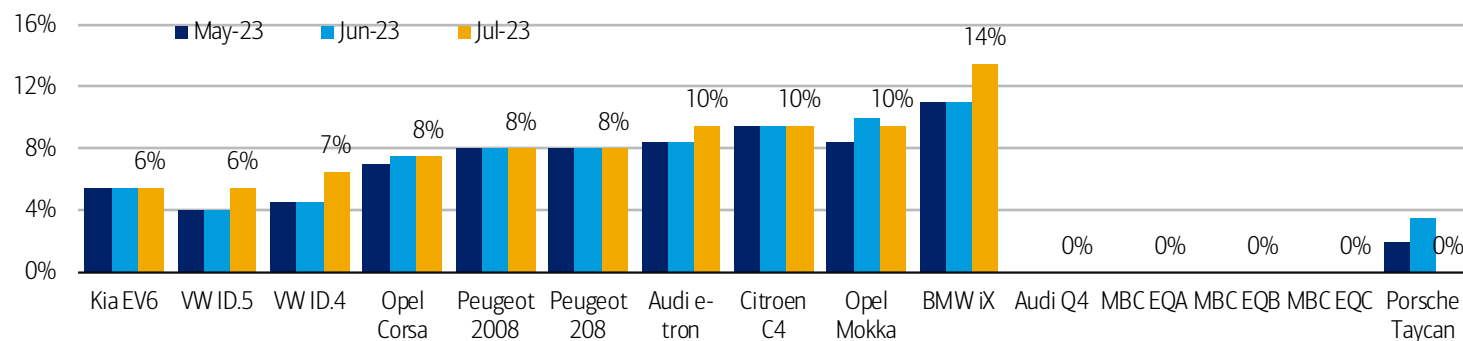


Source: BofA Global Research, carwow.de, *0 = Not available

BofA GLOBAL RESEARCH

Exhibit 32: Average incentives on BEVs in Europe (sorted by July-23)

BEV incentive levels have steadily increased since ar-23, with major increases for BMW and VW's models

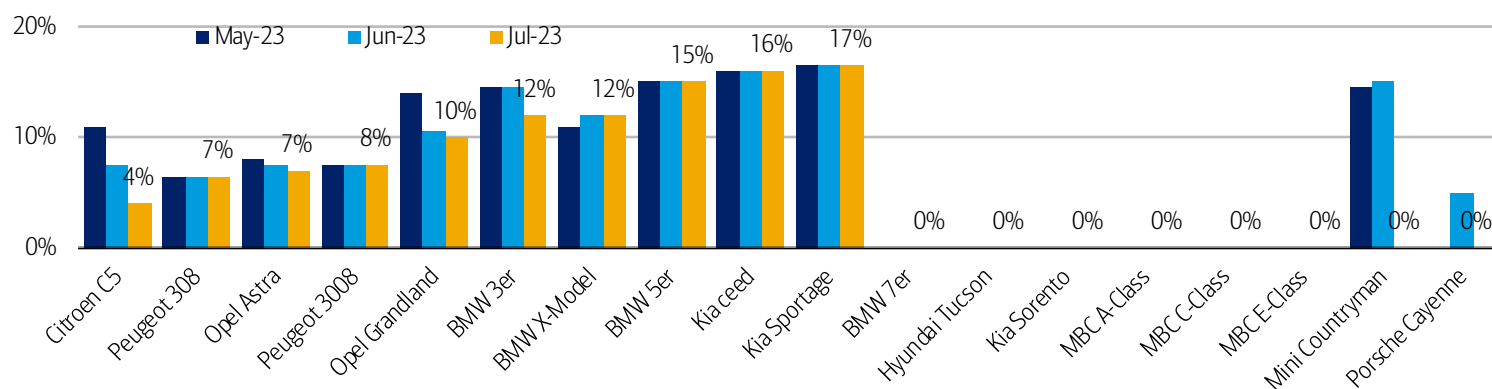


Source: BofA Global Research, carwow.de, *0 = Not available

BofA GLOBAL RESEARCH

Exhibit 33: Average incentives on PHEVs in Europe (sorted by July-23)

PHEV incentives have generally come down, driven by the BMW 3er. Citroen C5 and Opel Astra/Grandland

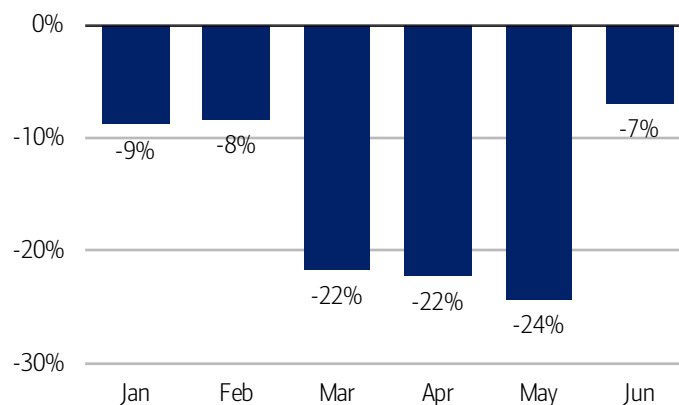


Source: BofA Global Research, carwow.de, *0 = Not available

BofA GLOBAL RESEARCH

Exhibit 34: Order intake in France (French OEMs) y/y growth

Order intake relatively improved in June but is still down c16% YTD

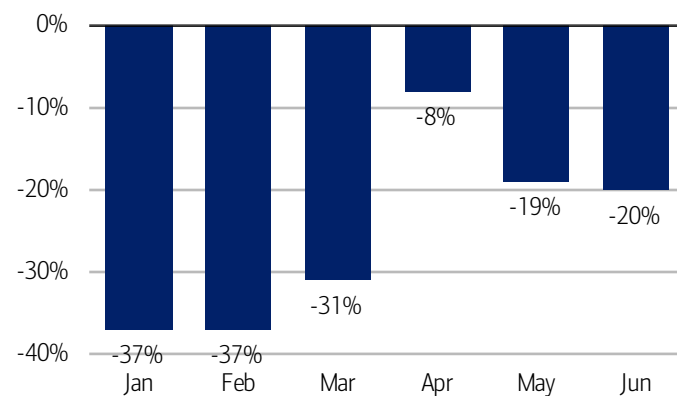


Source: BofA Global Research, CCFA

BofA GLOBAL RESEARCH

Exhibit 35: Order intake in Germany (German OEMs) y/y growth

Order intake is worsening in Germany and already c27% lower vs H1 22



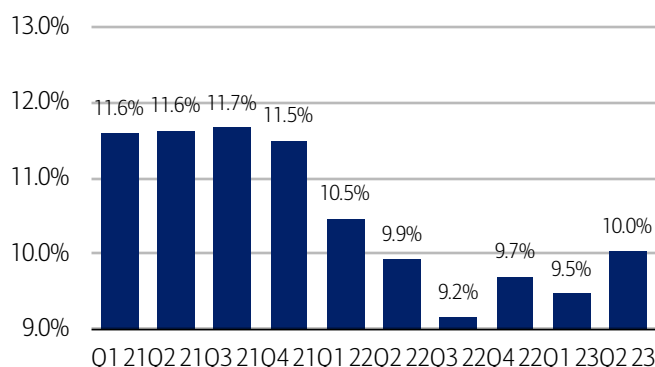
Source: BofA Global Research, VDA

BofA GLOBAL RESEARCH

Germany – car pricing at a glance

Exhibit 36: Average price rebate on list price – Germany

Price rebates rebounds to 10% in Q2 from its previous lows

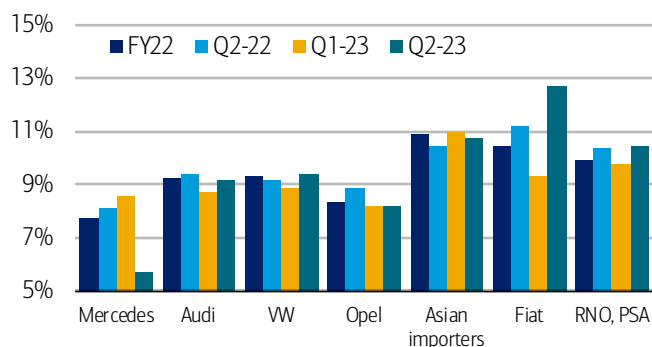


Source: BofA Global Research, Autohaus Pulsschlag

BofA GLOBAL RESEARCH

Exhibit 38: Incentives for car sales in Germany

Incentives are down for MBG and Opel q/q in Q2, but up for VW/Audi/Fiat

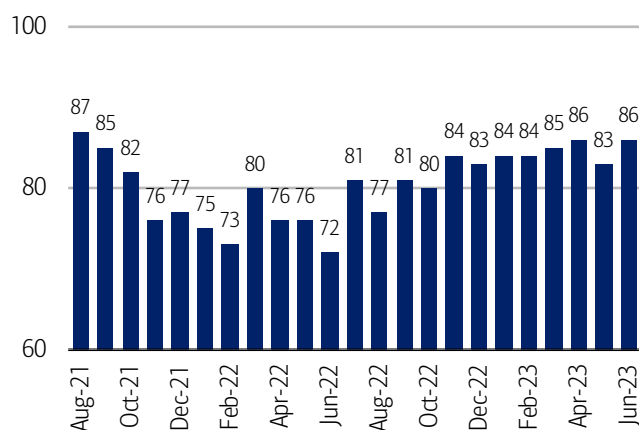


Source: BofA Global Research, Autohaus Pulsschlag.

BofA GLOBAL RESEARCH

Exhibit 40: How many days used cars remain at the dealer lot?

Number of days has increased since Jun-22 lows

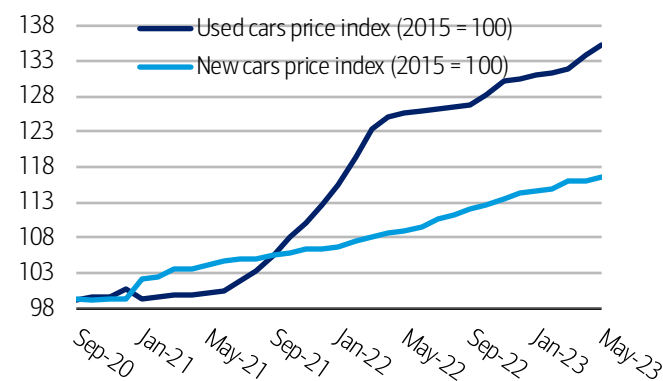


Source: Autohaus Pulsschlag. Sample size : 1,000 BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 37: New vs used car prices

Used car prices increased more than new car prices in May 23

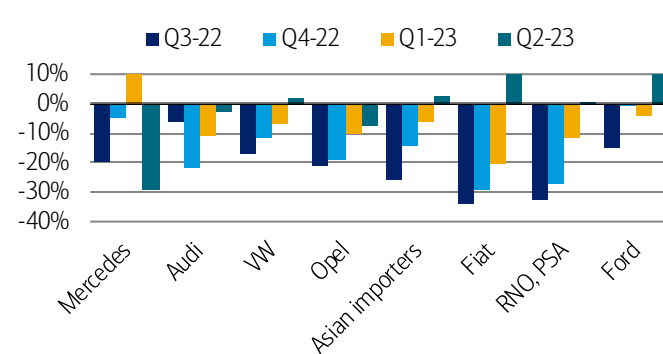


Source: Destatis

BofA GLOBAL RESEARCH

Exhibit 39: Change in incentives y/y

Incentives are generally flat, but much lower for MBG and higher for Fiat/Forc

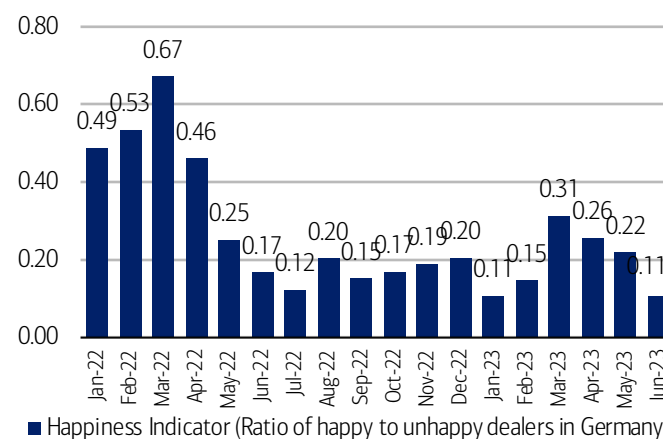


Source: BofA Global Research, Autohaus Pulsschlag.

BofA GLOBAL RESEARCH

Exhibit 41: Dealers happiness indicator in Germany (Monthly)

Dealers happiness worsened in significantly in Q2



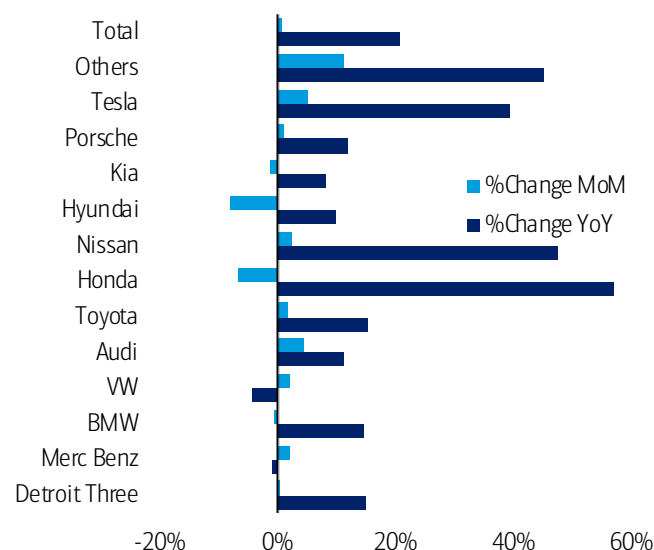
Source: Autohaus Pulsschlag. Sample size : 1,000 BofA Global Research

BofA GLOBAL RESEARCH

US

Exhibit 42: US monthly sales % Change YoY & MoM in June-23

Y/Y sales are up for all OEMs in US (except VW and MBC)

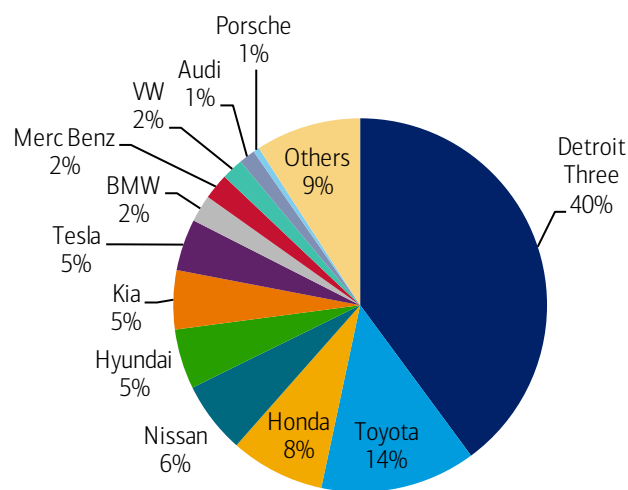


Source: AutoWards

BofA GLOBAL RESEARCH

Exhibit 43: YTD sales volume split

Detroit 3 and Toyota accounts for >50% of US volumes



Source: AutoWards

BofA GLOBAL RESEARCH

Exhibit 44: US monthly registrations by OEM in June-23

Honda and Nissan are growing the most y/y, while Tesla exhibit the strongest m/m growth

OEM	Jun-23	Jun-22	May-23	% YoY	% MoM
Detroit Three	550,892	479,052	548,492	15.0%	0.4%
Merc Benz	32,222	32,494	31,552	-0.8%	2.1%
BMW	32,792	28,615	32,956	14.6%	-0.5%
VW	26,385	27,619	25,876	-4.5%	2.0%
Audi	18,927	17,008	18,118	11.3%	4.5%
Toyota	193,236	167,823	189,738	15.1%	1.8%
Honda	111,498	71,048	119,445	56.9%	-6.7%
Nissan	81,203	55,122	79,404	47.3%	2.3%
Hyundai	69,351	63,091	75,606	9.9%	-8.3%
Kia	70,495	65,142	71,497	8.2%	-1.4%
Porsche	7,176	6,407	7,097	12.0%	1.1%
Tesla	59,635	42,757	56,785	39.5%	5.0%
Others	132,050	91,101	118,682	44.9%	11.3%
Total	1,385,862	1,147,279	1,375,248	20.8%	0.8%

Source: AutoWards

BofA GLOBAL RESEARCH

Exhibit 45: US OEM YTD registrations (in units)

Tesla and Porsche are growing the most YTD, followed by Audi, while Toyota sales are weaker y/y

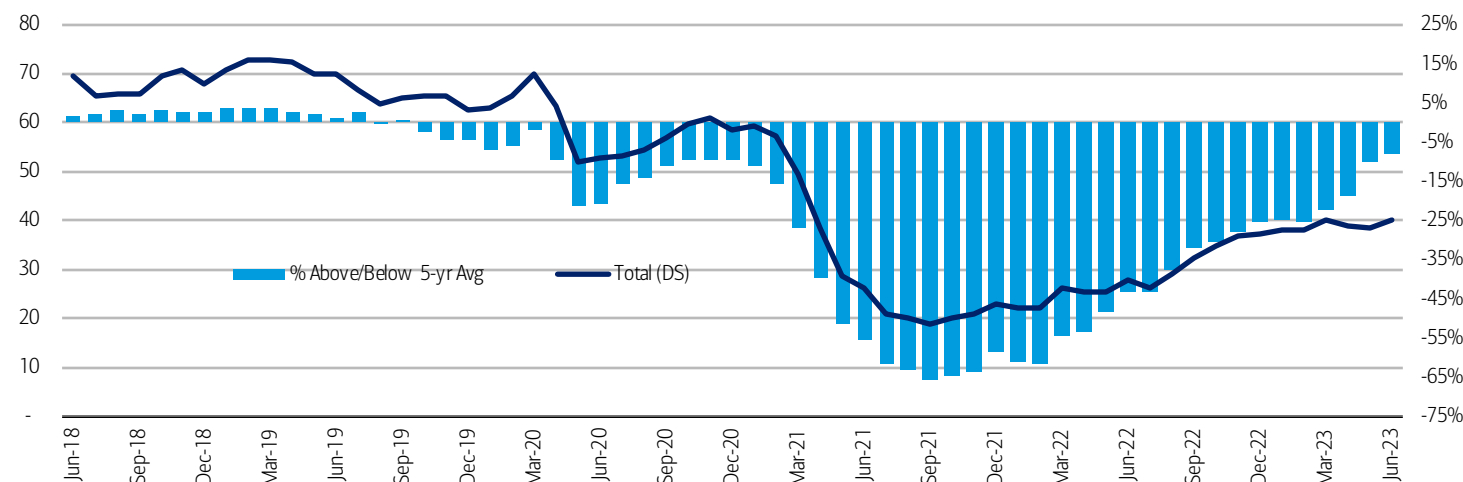
OEM	Jun-23	Jun-22	% YoY	Jun-21	% YoY
Detroit Three	3,081,227	2,800,428	10.0%	3,271,628	-14.4%
Merc Benz	172,461	168,937	2.1%	151,552	11.5%
BMW	181,089	164,626	10.0%	183,619	-10.3%
VW	145,409	143,795	1.1%	211,373	-32.0%
Audi	108,345	83,554	29.7%	121,835	-31.4%
Toyota	1,039,102	1,045,697	-0.6%	1,291,879	-19.1%
Honda	631,532	506,207	24.8%	833,510	-39.3%
Nissan	480,171	384,252	25.0%	583,701	-34.2%
Hyundai	400,218	348,267	14.9%	407,135	-14.5%
Kia	394,333	333,340	18.3%	378,511	-11.9%
Porsche	41,220	31,361	31.4%	33,446	-6.2%
Tesla	345,344	260,907	32.4%	146,877	77.6%
Others	704,299	582,787	20.9%	710,523	-18.0%
Total	7,724,750	6,854,158	12.7%	8,325,589	-17.7%

Source: AutoWards

BofA GLOBAL RESEARCH

Exhibit 46: US inventory – total (DS)

June days' supply of 40DS came in ~8% below the 5-year average



Source: WardsAuto InfoBank

BofA GLOBAL RESEARCH

Exhibit 47: June 2023 inventory summary

June inventory was at ~1.91mm units, with days' supply of 40, roughly 8% below the 5-year average of 43

	Inventory	Days	5-yr	% Above	
	Units	Supply	Avg DS	/Below	Note
Detroit 3 -- Cars	55,443	38	43	-11%	Detroit 3 OEM's total inventory was up 67k MoM and increased 388k units YoY. Aggregate supply remains less constrained than the industry average, across both cars and light trucks.
Detroit 3 -- Lt Trucks	1,099,855	62	56	11%	
Detroit 3 -- Total	1,155,298	60	55	10%	
Japanese -- Cars	117,489	26	35	-28%	Supply at Japanese OEMs was up 25k MoM and increased 204k units YoY. Aggregate supply is more constrained than the industry average across both cars and light trucks.
Japanese -- Lt Trucks	313,317	26	34	-23%	
Japanese -- Total	430,806	26	35	-25%	
European -- Cars	48,438	39	43	-8%	European OEM's inventory decreased 4k units MoM but increased 33k units YoY. Supply of European cars is less constrained than the industry average, while light truck supply is comparable to the market.
European -- Lt Trucks	127,598	41	43	-3%	
European -- Total	176,036	41	43	-5%	
Korean -- Cars	33,910	20	36	-44%	Inventory at Korean OEMs increased 4k units MoM and increased 50k units YoY. Both car and truck inventories remain well below the 5-year average.
Korean -- Lt Trucks	72,215	21	34	-40%	
Korean -- Total	106,125	20	35	-41%	
Industry -- Cars	260,840	27	36	-26%	Total inventory increased 91k units MoM, and 682k units YoY. Car supply tighter than light truck, as OEMs continue to prioritize production and inventory build of high ASP/margin vehicles.
Industry -- Lt Trucks	1,644,205	43	46	-5%	
Industry -- Total	1,905,045	40	43	-8%	

Source: WardsAuto InfoBank, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 48: Most recent month US incentive and ATP trends – major automakers

Industry average incentive was up 64.2% YoY in May, while the average transaction price was up 2.7% YoY

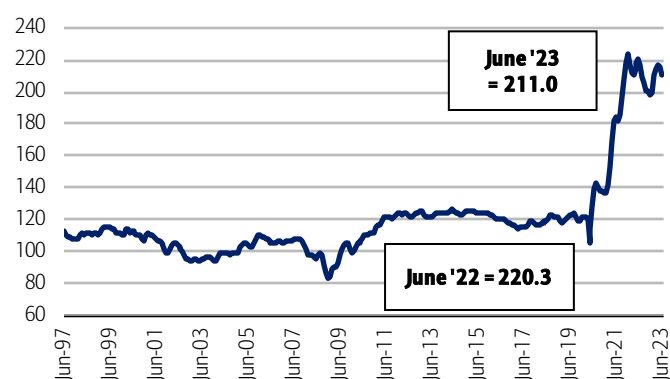
	Average Incentive					Average Transaction Price				
	May-23	Apr-23	MoM % Chg	May-22	YoY % Chg	May-23	Apr-23	MoM % Chg	May-22	YoY % Chg
GM	\$2,255	\$1,959	15.1%	\$1,725	30.7%	\$53,039	\$52,280	1.5%	\$50,582	4.9%
Ford	\$2,270	\$1,800	26.1%	\$1,037	118.9%	\$54,122	\$54,073	0.1%	\$50,878	6.4%
Stellantis	\$3,359	\$2,848	17.9%	\$1,894	77.3%	\$56,207	\$55,951	0.5%	\$53,425	5.2%
Toyota	\$832	\$808	3.0%	\$787	5.7%	\$42,834	\$42,885	-0.1%	\$39,335	8.9%
Honda	\$1,373	\$1,192	15.2%	\$790	73.8%	\$37,793	\$37,801	0.0%	\$38,045	-0.7%
Nissan	\$1,787	\$1,895	-5.7%	\$1,580	13.1%	\$36,729	\$36,506	0.6%	\$36,349	1.0%
Hyundai	\$1,597	\$1,427	11.9%	\$551	189.8%	\$37,399	\$37,540	-0.4%	\$37,208	0.5%
Kia	\$1,116	\$958	16.5%	\$656	70.1%	\$35,064	\$34,232	2.4%	\$35,043	0.1%
Volkswagen	\$2,827	\$2,600	8.7%	\$1,137	148.6%	\$47,126	\$47,424	-0.6%	\$47,571	-0.9%
Industry	\$1,931	\$1,704	13.3%	\$1,176	64.2%	\$45,779	\$45,486	0.6%	\$44,565	2.7%

Source: TrueCar

BofA GLOBAL RESEARCH

Exhibit 49: NADA Used Vehicle Price Index

NADA Used Vehicle Price Index was down 4.2% YoY in June 2023, and decreased 2.3% MoM basis

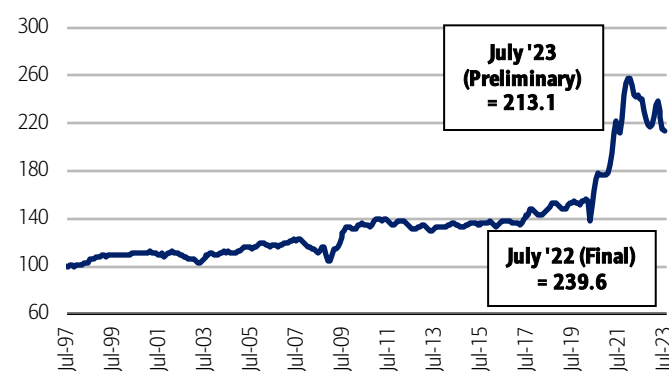


Source: NADA

BofA GLOBAL RESEARCH

Exhibit 50: Manheim Used Vehicle Value Index

Manheim Used Vehicle Value Index was down 11.1% YoY in July 2023 (Final), and decreased 0.9% on a MoM basis

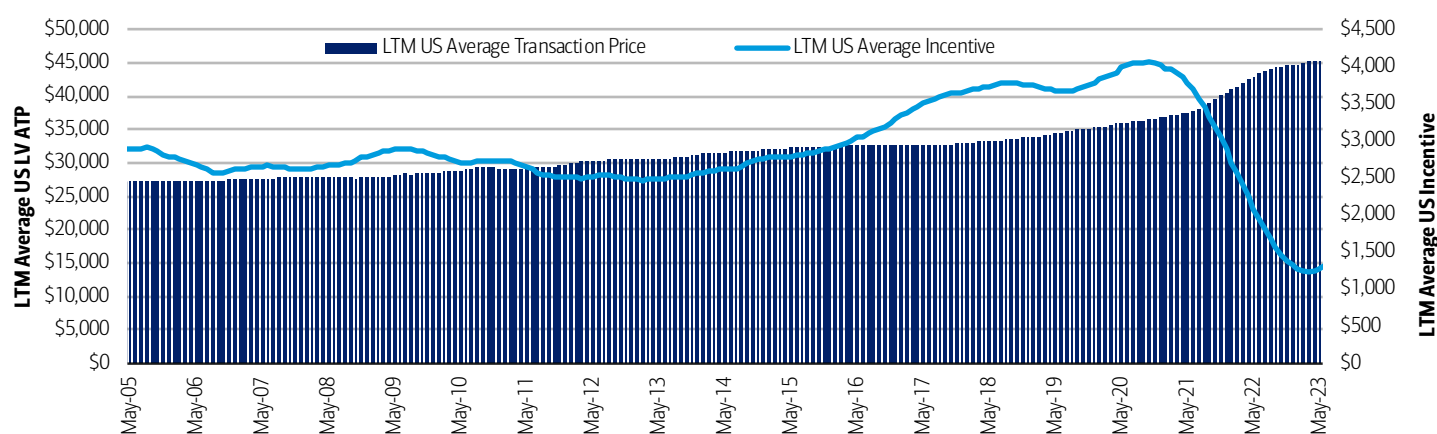


Source: Manheim

BofA GLOBAL RESEARCH

Exhibit 51: Industry average transaction price & average incentive

US average ATPs continued to increase in May



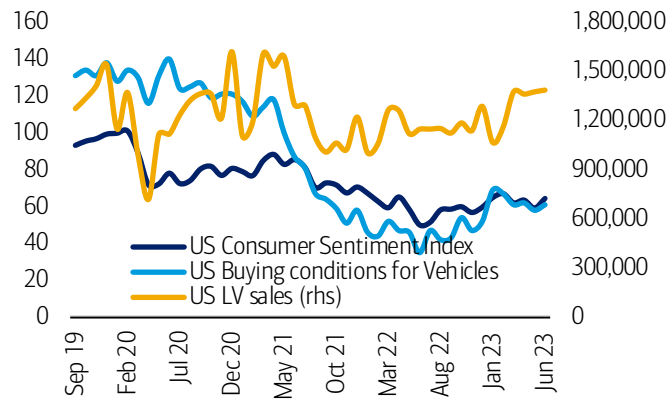
Source: TrueCar, AutoData

BofA GLOBAL RESEARCH

US consumer confidence (University of Michigan)

Exhibit 52: US Consumer Confident Index vs LV Sales (rhs)

US Consumer confidence index remains low relative to historical levels

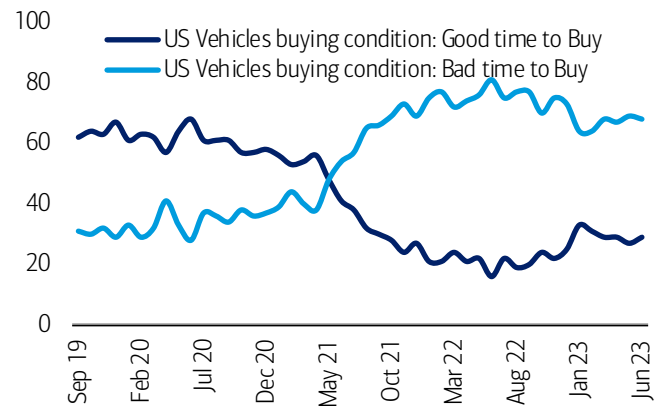


Bloomberg, AutoWards, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 53: Good time vs Bad time to buy Vehicles

Consensus is that it is a bad time to buy vehicle

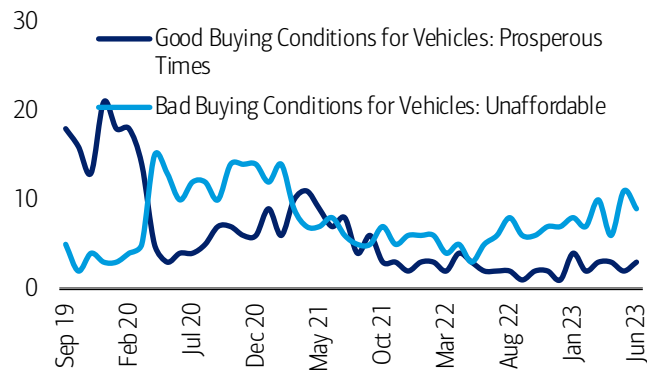


Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 54: Prosperous Times vs Unaffordable times

Vehicles are becoming more unaffordable for consumers

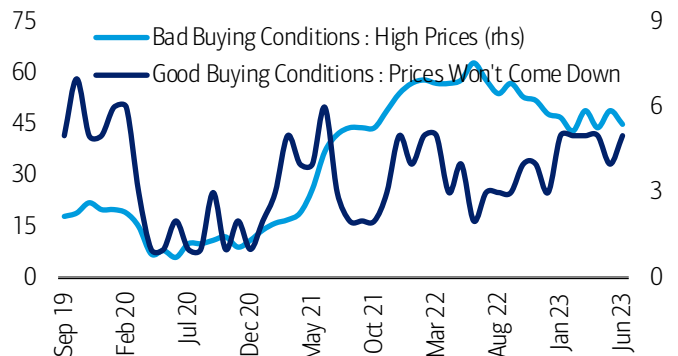


Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 55: Vehicle Pricing expectations

Consumers believing that car prices will remain high is on a declining trend

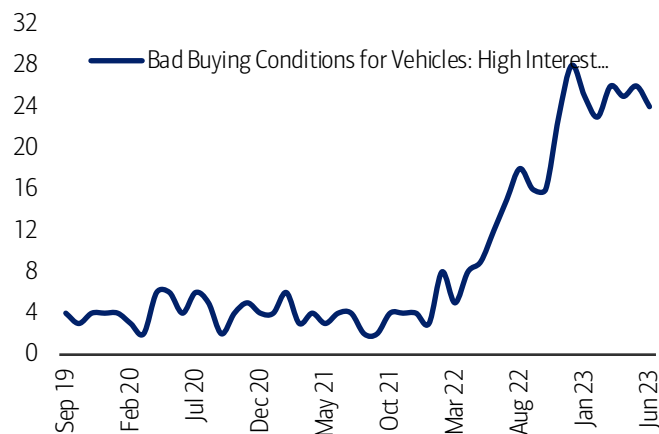


Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 56: Rising Interest rates further hurting buying sentiment

Rising interest rates becoming more of a problem for car sales

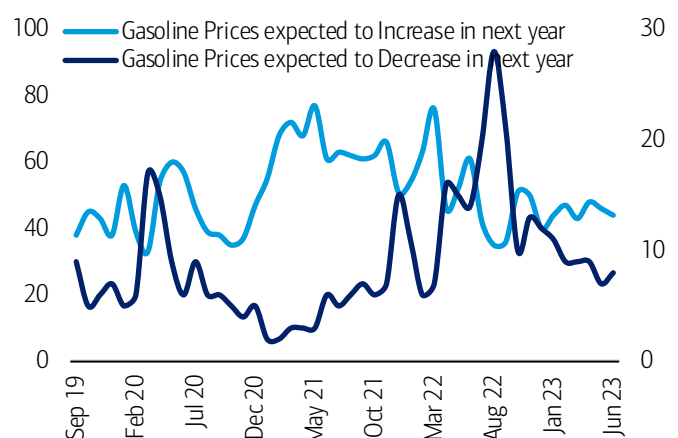


Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 57: Gasoline Prices

Most consumers now think gas prices could increase in 2024



Bloomberg, BofA Global Research

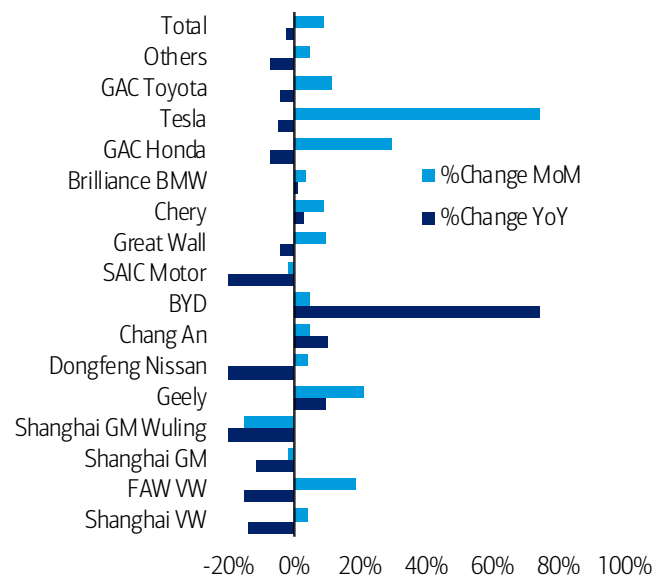
BofA GLOBAL RESEARCH

China

Passenger Car sales including Mini bus

Exhibit 58: China monthly sales % Change YoY & MoM in June -23

BYD, Chang'an and Geely are countering the market decline

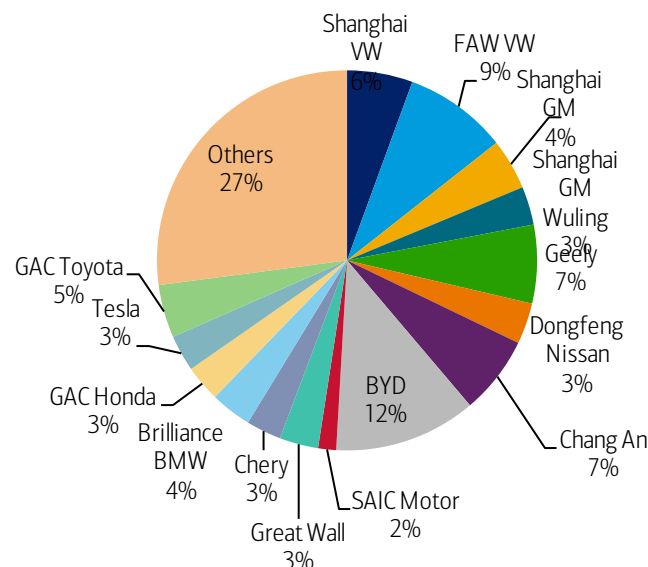


Source: BofA Global Research, Company data.

BofA GLOBAL RESEARCH

Exhibit 59: YTD sales volume split

China market is very competitive, but BYD remains the undisputed market leader



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 60: China PC monthly sales (in units)

Sales continue to improve sequentially in June – y/y winners include BYD, Chang'an and Geely

OEM	Jun-23	Jun-22	May-23	% YoY	% MoM
Shanghai VW	98,833	115,038	95,003	-14.1%	4.0%
FAW VW	178,642	210,175	150,307	-15.0%	18.9%
Shanghai GM	79,521	90,031	81,021	-11.7%	-1.9%
Shanghai GM Wuling	49,209	69,270	58,063	-29.0%	-15.2%
Geely	128,872	117,703	106,688	9.5%	20.8%
Dongfeng Nissan	64,234	91,212	61,731	-29.6%	4.1%
Chang An	118,057	107,112	112,795	10.2%	4.7%
BYD	231,230	132,553	220,735	74.4%	4.8%
SAIC Motor	26,097	38,239	26,613	-31.8%	-1.9%
Great Wall	68,388	71,616	62,357	-4.5%	9.7%
Chery	58,213	56,735	53,382	2.6%	9.0%
Brilliance BMW	59,038	58,396	57,127	1.1%	3.3%
GAC Honda	65,590	70,907	50,729	-7.5%	29.3%
Tesla	74,212	77,938	42,508	-4.8%	74.6%
GAC Toyota	86,354	90,586	77,534	-4.7%	11.4%
Others	507,242	546,267	485,470	-7.1%	4.5%
Total	1,893,732	1,943,778	1,742,063	-2.6%	8.7%

Source: BofA Global Research, CAAM

BofA GLOBAL RESEARCH

Exhibit 61: China PCYTD sales (in units)

Strong momentum in BYD and Tesla sales help Chinese market to grow YTD 2023

OEM	Jun-23	Jun-22	% YoY	Jun-21	% YoY
Shanghai VW	532,509	533,012	-0.1%	713,700	-25.3%
FAW VW	838,723	863,117	-2.8%	1,025,804	-15.9%
Shanghai GM	412,826	468,246	-11.8%	699,570	-33.1%
Shanghai GM Wuling	310,529	379,367	-18.1%	468,321	-19.0%
Geely	637,146	586,380	8.7%	659,865	-11.1%
Dongfeng Nissan	332,603	444,705	-25.2%	569,419	-21.9%
Chang An	634,387	558,183	13.7%	613,028	-8.9%
BYD	1,154,573	638,454	80.8%	238,224	168.0%
SAIC Motor	145,488	214,495	-32.2%	259,374	-17.3%
Great Wall	315,029	380,893	-17.3%	461,764	-17.5%
Chery	284,424	295,208	-3.7%	253,890	16.3%
Brilliance BMW	333,801	310,276	7.6%	362,044	-14.3%
GAC Honda	294,776	352,671	-16.4%	365,443	-3.5%
Tesla	294,105	197,575	48.9%	131,025	50.8%
GAC Toyota	429,662	453,460	-5.2%	425,787	6.5%
Others	2,581,500	2,580,961	0.0%	2,657,065	-2.9%
Total	9,532,081	9,257,003	3.0%	9,904,323	-6.5%

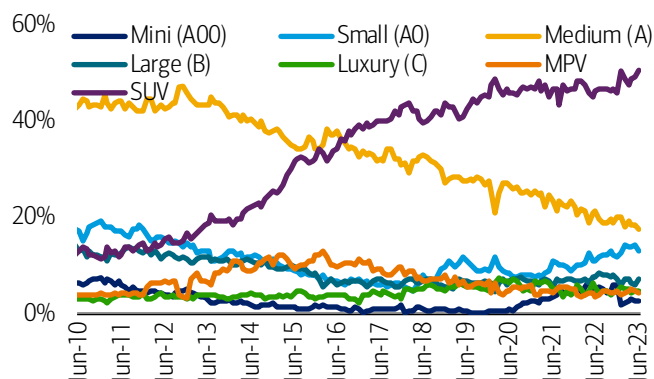
Source: BofA Global Research, CAAM

BofA GLOBAL RESEARCH

China sales break-up by segment and price

Exhibit 62: Break-up by Segment

SUV share remains the highest but small cars (A0) are gaining the most share since 2021

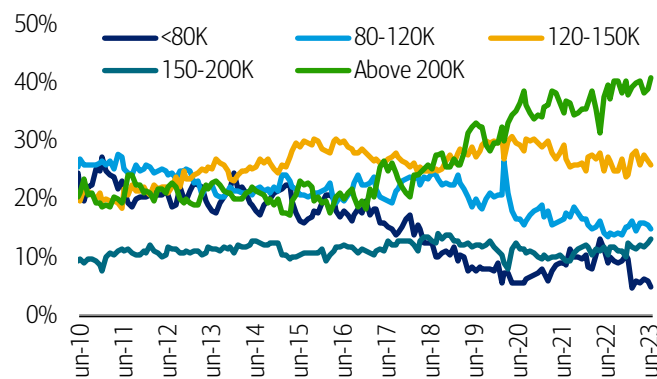


Source: BofA Global Research, Company data, China Auto Market

BofA GLOBAL RESEARCH

Exhibit 63: Break-up by Price

Share of cars sold with price of CNY >200k remains high relative to historical levels

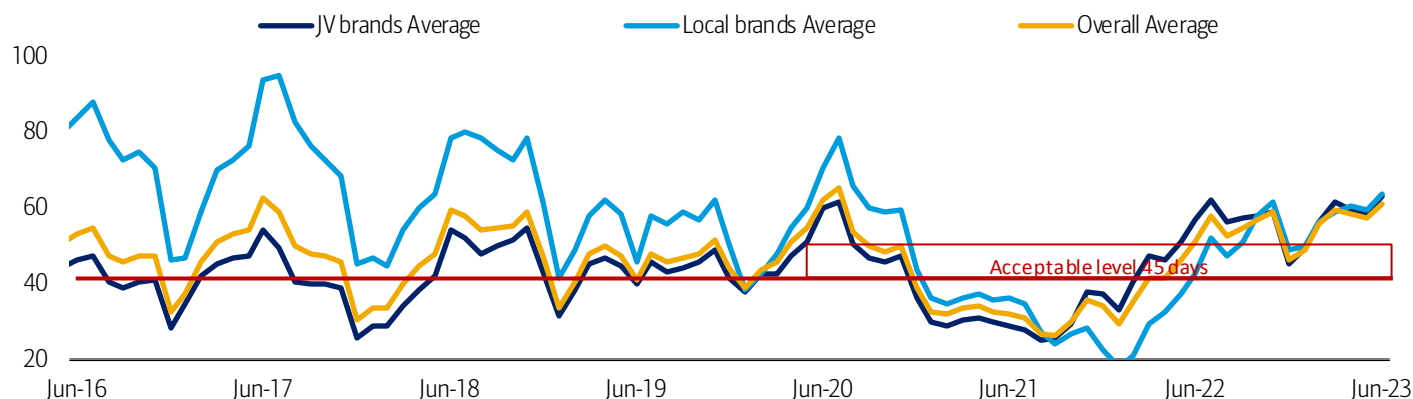


Source: BofA Global Research, Company data, China Auto Market

BofA GLOBAL RESEARCH

Exhibit 64: China inventories level rising

Current inventories levels remain too high and further de-stocking is necessary in China



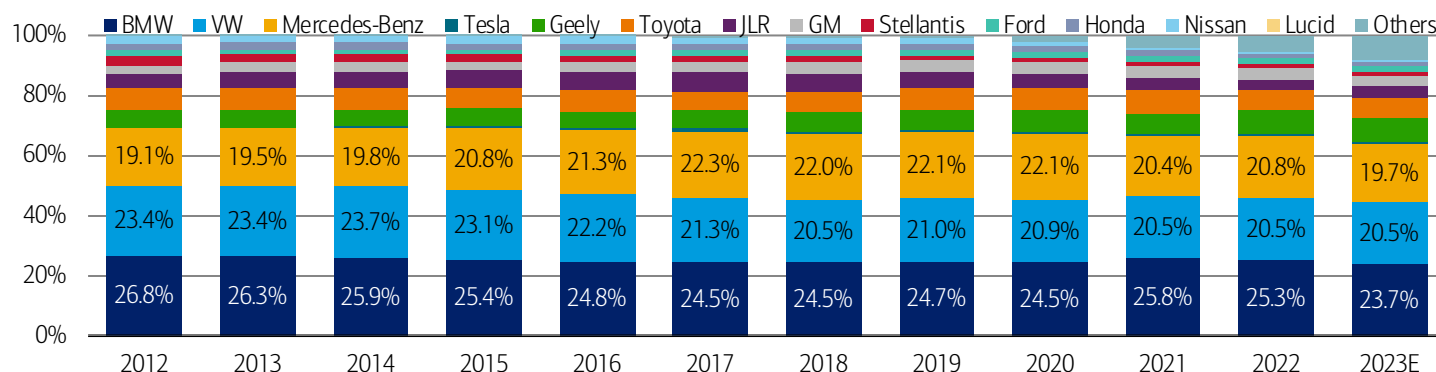
Source: China Auto Market

BofA GLOBAL RESEARCH

Premium Market segment

Exhibit 65: Global Premium market share

Traditional OEMs share in premium cars segment falling due to rise of Tesla, China OEMs – the trend should continue in 2023e



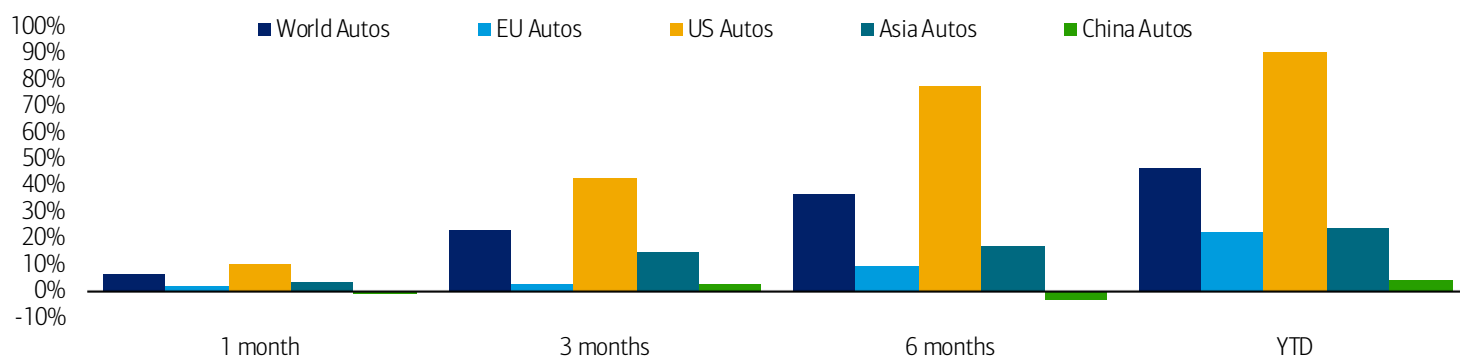
Source: BofA Global Research, S&P

BofA GLOBAL RESEARCH

Global auto share price performances

Exhibit 66: Global Auto stock performance

All auto indices (except China) have gained in the last one month with US witnessing the most significant increase

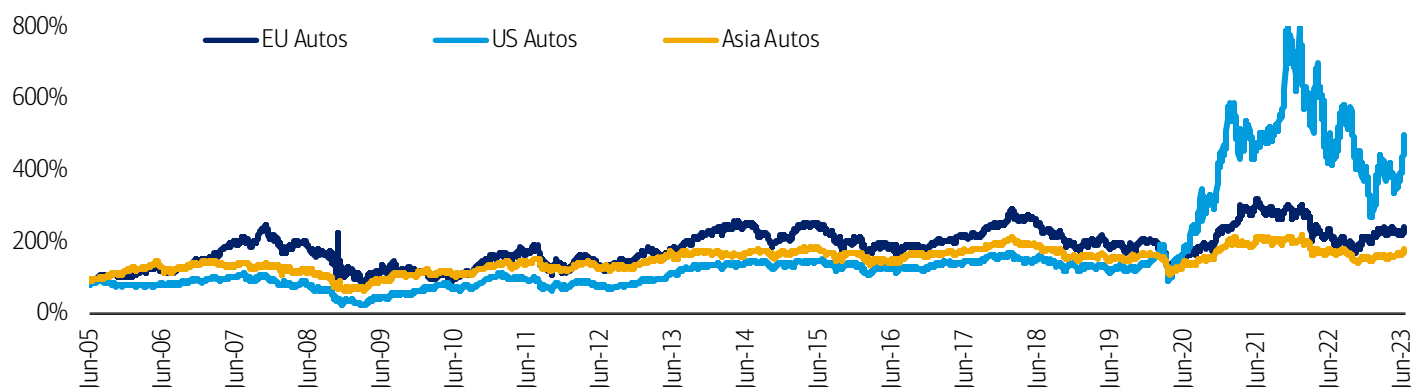


Source: BofA Global Research, Refinitiv Eikon

BofA GLOBAL RESEARCH

Exhibit 67: EU Autos index vs US and Asia

US Auto index is rising rapidly in recent months

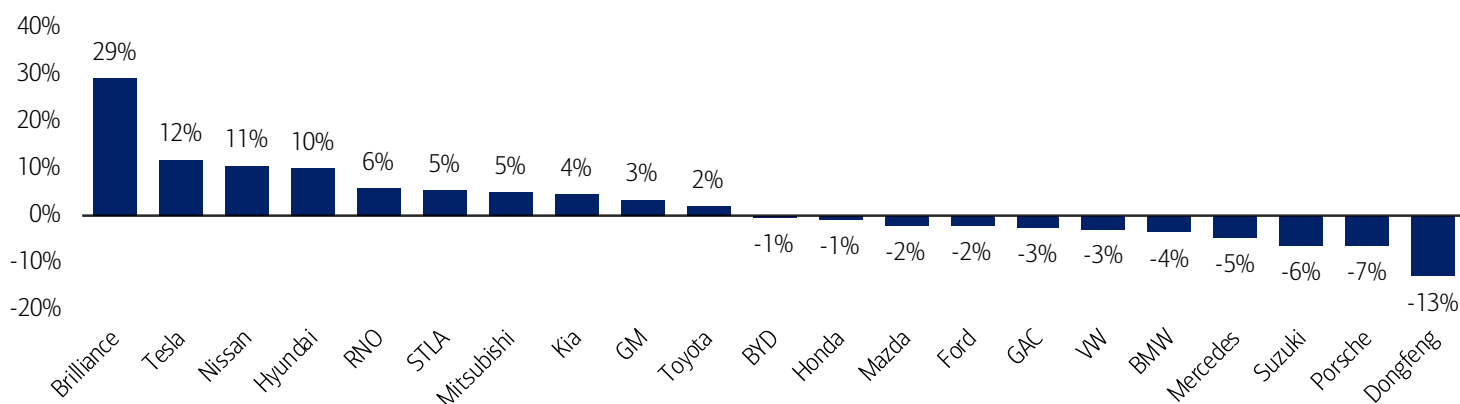


Source: BofA Global Research, Refinitiv Eikon

BofA GLOBAL RESEARCH

Exhibit 68: Auto OEMs stock price change in the last month

Brilliance and Tesla have outperformed, so has Nissan which pulled up share price of RNO



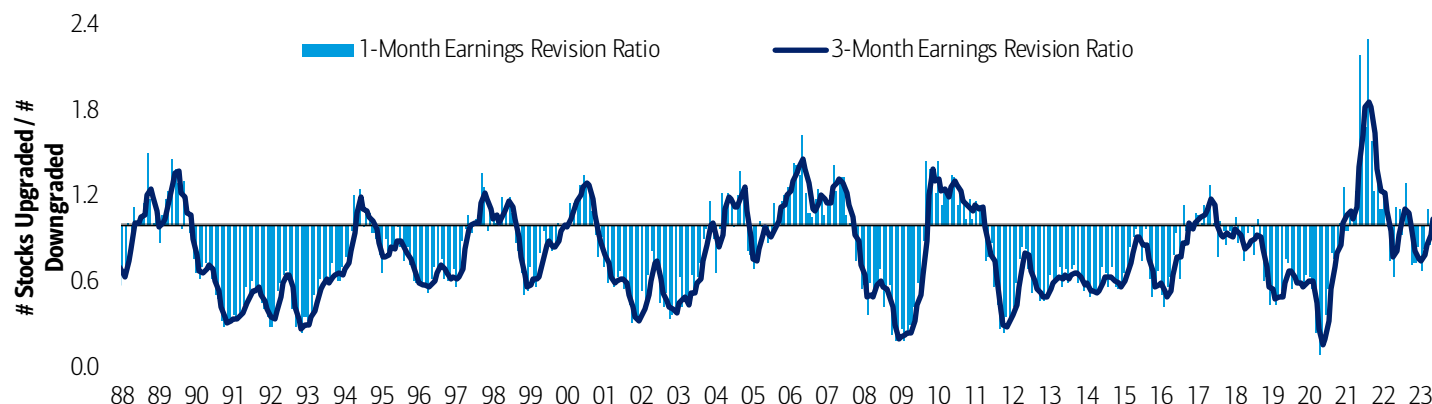
Source: BofA Global Research, Refinitiv Eikon

BofA GLOBAL RESEARCH

EU Autos: Estimate revision trend & Investor sentiment

Exhibit 69: European Autos: 12m forward EPS revision trend

EPS revisions were negative as the economy deteriorates and OEMs experience peak margins

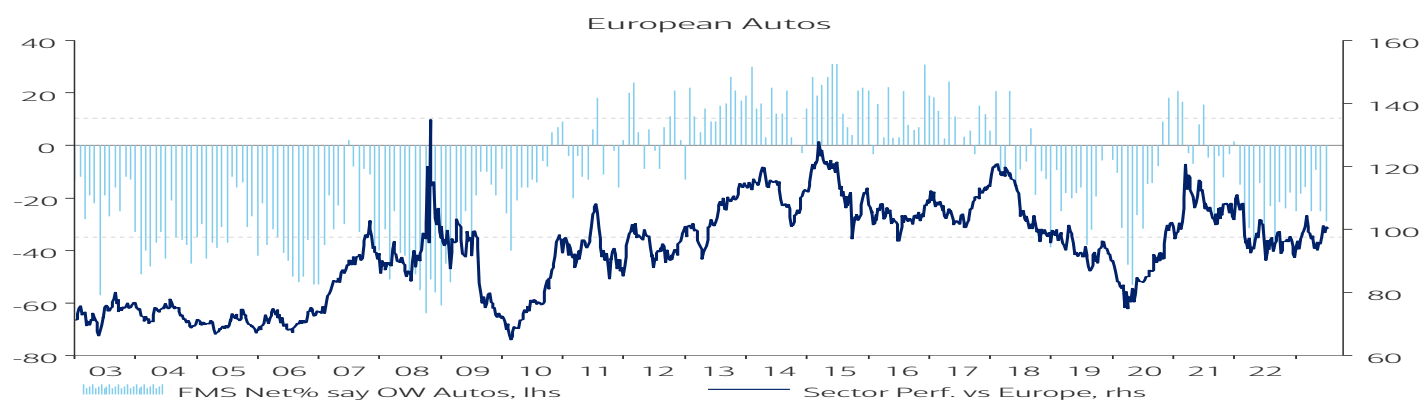


Source: BofA European Equity Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 70: Net % saying they are overweight European Autos

Net 29% of managers said they are underweight the sector and net 26% of them see it as undervalued

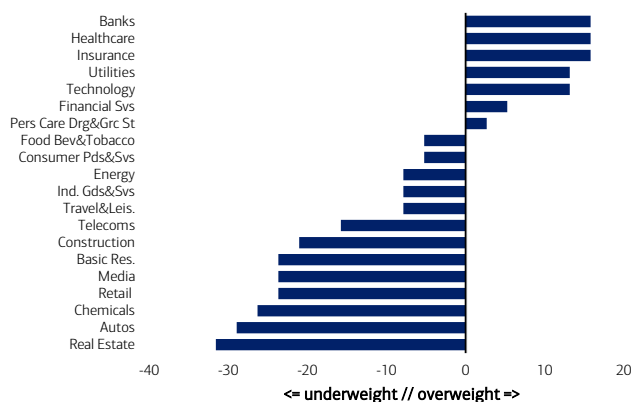


Source: BofA Regional Fund Manager Survey, DataStream

BofA GLOBAL RESEARCH

Exhibit 71: Current European sector snapshot

% saying overweight-% saying underweight

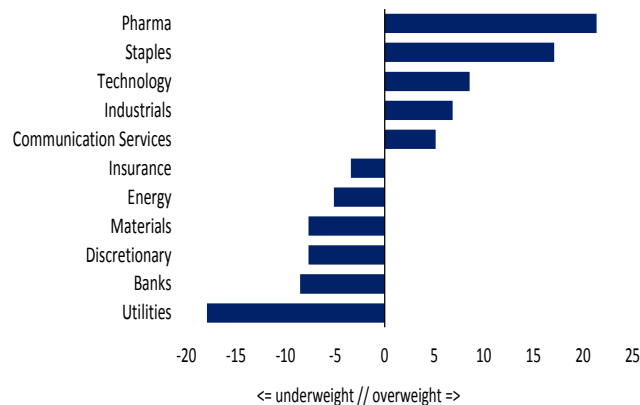


Source: BofA Regional Fund Manager Survey

BofA GLOBAL RESEARCH

Exhibit 72: Global sector sentiment

% saying overweight - % saying underweight



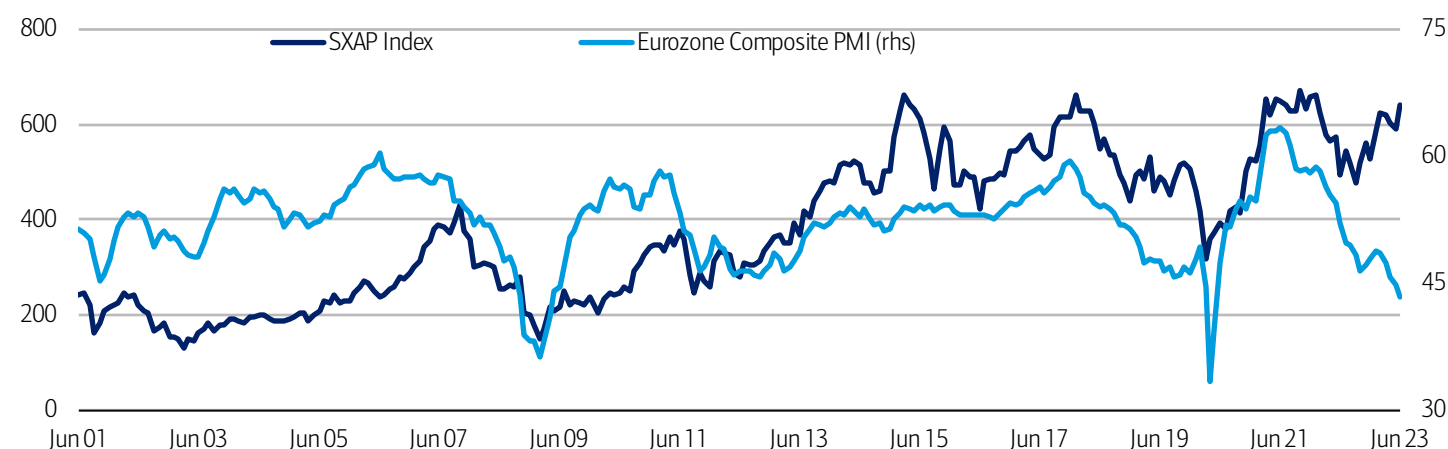
Source: BofA Global Fund Manager Survey

BofA GLOBAL RESEARCH

EU share prices & valuation still in crisis mode

Exhibit 73: SXAP Index (=EU Autos) vs PMI

Historically, the SXAP index moves in tandem with the PMI, but has recently decoupled

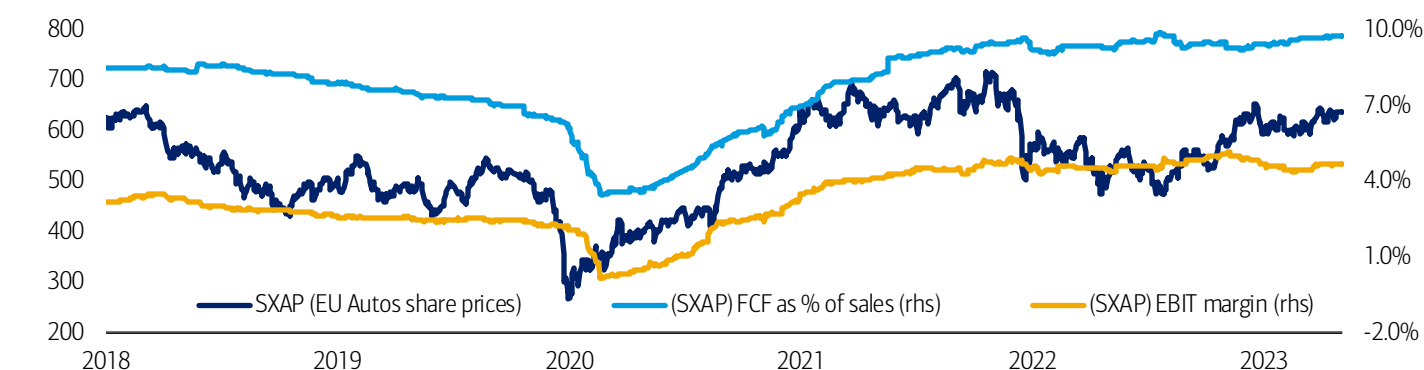


Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 74: SXAP performance relative to margin

The SXAP remains resilient as EBIT margins are not expected to drop-off

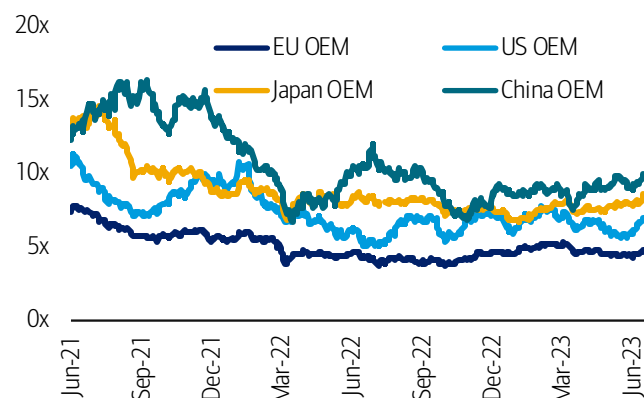


Source: BofA Global Research, FactSet

BofA GLOBAL RESEARCH

Exhibit 75: 12m fwd PE valuation by region for car makers (OEMs)

European Autos now valued so low that they hardly can de-rate further

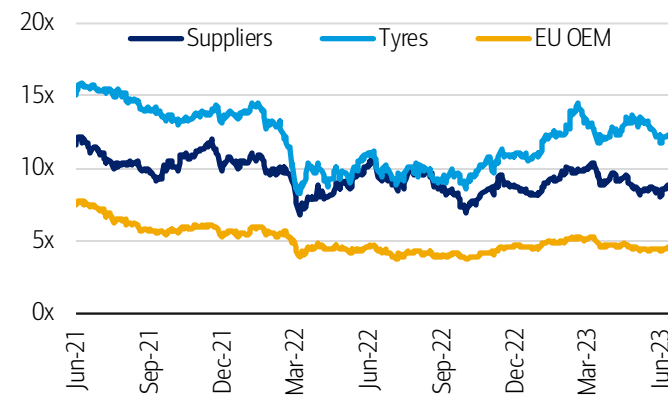


Source: FactSet, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 76: 12m fwd PE by auto sub-segment in Europe

Car makers at trough levels, suppliers and tires are de-rating



Source: FactSet, BofA Global Research

BofA GLOBAL RESEARCH

Disclosures

Important Disclosures

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. **INVESTMENT RATINGS** reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R1}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R1} Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. **Coverage Cluster** is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

Refer to [BofA Global Research policies relating to conflicts of interest](#).

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no. 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofam.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFS); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofA (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofA Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSCF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofA India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofA (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofA and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofA and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofA and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofA and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofA or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofA or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofA for the provision of research services for a separate fee, and in connection therewith BofA may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofA has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofA). If such recipient uses the services of BofA in connection with the sale or purchase of a security referred to herein, BofA may act as principal for its own account or as agent for another person. BofA is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofA or any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing

such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.