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Autos & Shared Mobility | North America

Global Auto Monitor: Tesla Warning = EV Reality Check

If Elon Musk is cautious on the near term outlook for EVs maybe we all should be. Just the latest sign in the ICE revival and potential shift in OEM priorities towards capital discipline and austerity.

What Others Are Reading - Our Most Read Reports

[NORTH AMERICA] **TSLA: Cyber Caution: Earnings Down in FY24? Target to \$380 (Oct 19)** How can we be OW Tesla despite the company's caution on macro, consumer, Cybertruck and Mexico? Can a 'growth stock' work if earnings don't grow in 2024? We think this comes down to where the \$5bn annual of R&D is going.

[NORTH AMERICA] **KMX: Investor Day Takeaways: Omnichannel Rollout Is Key (Oct 18)** KMX reiterates its objective: creating a seamless customer experience. Leveraging tools like AI and Edmunds to improve the omnichannel's efficacy, KMX's focus remains delivering an effective and holistic marketplace for used cars.

[EUROPE] **September Tyres Tracker: A green shoot from NAFTA RT demand (Oct 19)** Global RT demand is +1% YoY, with European RT demand (-6% YoY) still a weak spot. NAFTA RT demand offers some hope at +13% YoY. Unusually, OE demand has worsened. Global truck RT demand remains weak. Raw material costs are clearly not collapsing, so tyre pricing is likely protected to a degree.

[EUROPE] **Big Auto Data – will the consumer absorb increased supply? (Oct 19)** Global sales continue to improve YoY supported by price discounts in China and smoother production trends. These strong unit sales mean a robust 3Q23 results season is likely. However, with production in China surging in 2H23 we question whether we will move into a state of oversupply quite quickly.

[EUROPE] **Natural rubber prices surge, are tyre price cut risks falling? (Oct 18)**

[JAPAN] **F3/24 2Q Preview: Wary of China Stagnation Dragging On (Oct 18)** Prolonged sales stagnation for Japanese OEMs in China is a concern as competition dials up. We see risk to full-year guidance for Koito, Stanley, NHK Spring & NOK, though Stanley & NOK may announce buybacks.

[S.KOREA] **US Marketing Feedback (Oct 16)** We share below our key feedback/questions following a week of meetings with US investors.

[S.KOREA] **Feedback from US Marketing (Oct 16)** Due to broad-based EV demand weakness and production cuts at global OEMs, investors remain concerned on the earnings impact to EV material suppliers. Cathode makers' share prices are down 40-50% from the recent peak in July, but investors do not seem to be in a rush to bottom-fish yet.

[CHINA] **Read-across from Tesla 3Q23 Results (Oct 19)** Tesla reported another

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margin miss in 3Q23, suggesting looming margin pressure on parts suppliers. Cybertruck set to bring meaningful revenue contribution to Tuopu after volume ramp-up, but humanoid robot still looks to be at an early stage for parts suppliers.

[CHINA] **What's Behind XPeng's Share Price Fall? (Oct 19)** XPeng's ADR price was down 10% overnight and is down 25% MTD vs. Nasdaq down 1.6% and up 1%, respectively. We've had lots of investor enquiries about the movement. While trying not to overly focus on near-term volatility, we attribute the fall to three main drivers.

[CHINA] **Slower-than-expected Sales Recovery Post Holidays (Oct 17)**

Global picks: TSLA, Michelin, Zhongsheng, Denso, Mando, and MSIL are our preferred stocks from each major region.

Our global industry views: Our view on India auto is Attractive. We have In-Line views on the North America, Europe, China, Japan, and South Korea industries.

Exhibit 1: What Changed This Past Week?

Company	Rating	Price Target
TSLA	OW	USD 400 → USD 380
Koito Mfg.	UW	¥ 2000 → ¥ 1900
Musashi	OW	¥ 2000 → ¥ 1900
Stanley	EW	¥ 2200 → ¥ 2100
Unipres	EW	¥1250 → ¥ 1150
NHK Spring	OW	¥ 1350 → ¥ 1300
NOK	OW	¥ 2400 → ¥ 2300

Source: Morgan Stanley Research estimates

Global Auto Sales Summary

Exhibit2: Global Auto Sales Summary

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

Source: Morgan Stanley Research estimates, IHS Autolinsight

Global Auto Stock Rankings

Exhibit 3: North America Coverage Rankings

North America		2023e EPS		
		MS	Cons	
1 Tesla	OW	3.00	3.18	(5.7%)
2 Ferrari	OW	€ 6.55	€ 6.89	(4.9%)
3 Ford Motor	OW	2.12	2.04	3.9%
4 Harley-Davidson	OW	4.59	4.57	0.4%
5 CarMax	OW	3.03	2.96	2.5%
6 Avis Budget	OW	37.57	36.73	2.3%
7 American Axle	OW	0.18	0.18	0.2%
8 Rivian	OW	-5.76	-5.12	NM
9 Magna International	OW	5.40	5.28	2.3%
10 BorgWarner Inc.	OW	3.81	3.85	(1.2%)
11 FREYR Battery	OW	-1.39	-1.15	NM
12 General Motors	OW	7.78	7.36	5.7%
13 Lear	EW	11.77	11.73	0.3%
14 Mobileye Global	EW	0.70	0.71	(1.4%)
15 Hertz	EW	1.93	2.13	(9.3%)
16 Visteon	EW	6.14	6.64	(7.6%)
17 APTIV	EW	4.78	4.74	0.9%
18 Adient	UW	2.17	2.21	(1.9%)
19 Carvana	UW	-3.79	-3.63	NM
20 Penske Automotive Group	UW	16.79	16.62	1.0%
21 Group 1 Automotive	UW	46.08	44.60	3.3%
22 AutoNation	UW	22.76	22.91	(0.6%)
23 Lithia Motors	UW	36.92	38.15	(3.2%)
24 Asbury Automotive	UW	33.94	33.44	1.5%
25 Sonic Automotive	UW	6.62	6.65	(0.4%)
26 Lucid	UW	-1.16	-1.47	NM
27 Li-Cycle	UW	-0.93	-0.92	NM
28 QuantumScape	UW	-0.91	-0.74	NM
29 Fisker	UW	-1.03	-0.84	NM

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 5: Europe Coverage Rankings

Europe		2023e EPS		
		MS	Cons	
1 Michelin	OW	3.15	3.20	(1.5%)
2 Daimler Truck Holding	OW	4.45	4.41	0.9%
3 Pirelli	OW	0.55	0.51	7.3%
4 Aramis Autos	EW	-0.25	-0.39	NM
5 Volkswagen	EW	31.05	30.47	1.9%
6 Mercedes-Benz	EW	13.38	13.10	2.1%
7 Autoliv	EW	6.93	6.77	2.3%
8 BMW	EW	17.14	18.24	(6.1%)
9 Volvo	EW	24.88	27.05	(8.0%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 4: Japan Coverage Rankings

Japan		2023e EPS		
		MS	Cons	
1 Denso	OW	158.48	181.10	(12.5%)
2 NHK Spring	OW	101.10	124.62	(18.9%)
3 NOK	OW	92.66	163.45	(43.3%)
4 Mitsubishi Motors	OW	88.25	97.26	(9.3%)
5 Musashi Seimitsu	OW	101.79	193.57	(47.4%)
6 Suzuki Motor	OW	529.74	587.77	(9.9%)
7 Yokohama Rubber	OW	402.62	395.09	1.9%
8 Honda Motor	OW	219.04	213.96	2.4%
9 Toyota Motor	EW	263.04	277.39	(5.2%)
10 Unipres	EW	123.67	94.79	30.5%
11 Mazda Motor	EW	291.29	289.91	0.5%
12 Toyota Industries	OW	722.89	763.23	(5.3%)
13 Toyoda Gosei	EW	273.82	332.25	(17.6%)
14 Toyo Tire & Rubber	EW	347.08	365.58	(5.1%)
15 Bridgestone	EW	521.76	532.99	(2.1%)
16 Stanley Electric	EW	131.70	205.15	(35.8%)
17 EXEDY	EW	217.23	239.05	(9.1%)
18 Nifco	EW	271.89	302.18	(10.0%)
19 Nissan Motor	EW	87.46	106.42	(17.8%)
20 Aisin Seiki	EW	488.37	586.29	(16.7%)
21 Koito Mfg.	UW	155.31	176.08	(11.8%)
22 Toyota Boshoku	UW	238.07	303.31	(21.5%)
23 Sumitomo Rubber	UW	101.23	106.38	(4.8%)
24 Subaru Corp	UW	357.68	3.64	9726.4%

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 6: China Coverage Rankings

China		2023e EPS		
		MS	Cons	
1 Guangzhou Auto	OW	0.57	0.65	(11.3%)
2 Great Wall	OW	0.62	0.65	(4.5%)
3 Yongda Auto	OW	0.57	0.62	(9.0%)
4 Minth Group	OW	1.81	1.80	1.0%
5 Nexteer Automotive	OW	0.06	0.05	20.0%
6 Dongfeng	EW	1.11	0.65	70.9%
7 BYD	EW	7.45	10.36	(28.1%)
8 Baoxin Auto	UW	0.13	0.13	(2.4%)
9 Zhengtong Auto	UW	0.08	0.08	0.0%
10 BAIC Motor	UW	0.34	0.52	(34.3%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit7: India Coverage Rankings

India		2023e EPS		
		MS	Cons	
1	Maruti Suzuki	OW	381.16	436.89 (12.8%)
2	Bharat Forge	OW	21.63	26.36 (17.9%)
3	Ashok Leyland	OW	8.29	9.83 (15.7%)
4	Mahindra & Mahindra	OW	84.92	86.20 (1.5%)
5	Tata Motors	OW	39.48	45.38 (13.0%)
6	Exide Industries	OW	12.08	14.94 (19.1%)
7	Bajaj Auto	OW	241.79	284.45 (15.0%)
8	Apollo Tyres	EW	24.38	26.68 (8.6%)
9	Eicher Motors Ltd.	EW	106.38	101.83 4.5%
10	TVS Motor	EW	38.84	53.06 (26.8%)
11	Hero MotoCorp	UW	191.88	203.28 (5.6%)
12	Balkrishna Industries	UW	72.07	75.20 (4.2%)
13	Amara Raja	UW	43.44	47.73 (9.0%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 9: S.Korea Coverage Rankings

S.Korea		2023e EPS		
		MS	Cons	
1	Mando Corp	OW	4204.74	4705.82 (10.6%)
2	S&T Motiv	OW	7700.40	7102.50 8.4%
3	Kia Motors	OW	21964.60	22918.54 (4.2%)
4	Hyundai MOBIS	EW	31010.45	36940.47 (16.1%)
5	Hyundai Motor	EW	55437.60	48681.49 13.9%
6	Hankook Tire	UW	4071.20	5488.22 (25.8%)
7	Hanon Systems	UW	392.49	500.67 (21.6%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit8: Taiwan Coverage Rankings

Taiwan		2023e EPS		
		MS	Cons	
1	Cheng Shin Rubber	OW	2.24	2.34 (4.0%)
2	Hota Industrial	EW	2.36	2.50 (5.4%)
3	Global PMX	EW	7.01	6.95 0.8%
4	Hu Lane Associates	EW	8.26	8.48 (2.7%)

Source: Refinitiv, Morgan Stanley Research estimates

Note: Coverage Rankings are as of Oct 19, 2023

Global OEM Comps

Exhibit 10: Global OEM Comps - RACE, Guangzhou, Toyota Motors and MSIL are preferred stocks

Company	Currency	Price at	MS	Upside to	MS	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA (3)		EV / Sales (3)		P / B	
		20-Oct	Price Target	PT (%)	Rating	LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Mercedes-Benz	EUR	63.45	73.50	16%	EW	67.9	71.7	13.38	12.29	13.10	12.77	4.7x	5.2x	2.6x	2.8x	0.4x	0.4x	0.7x	0.7x
BMW	EUR	95.31	100.00	5%	EW	60.5	63.9	17.14	14.55	18.24	16.61	5.6x	6.5x	1.5x	1.5x	0.3x	0.2x	0.7x	0.6x
Daimler Truck Holding	EUR	30.36	43.00	42%	OW	25.0	26.4	4.45	4.32	4.41	4.29	6.8x	7.0x	5.7x	5.9x	0.7x	0.6x	1.1x	1.0x
Renault	EUR	33.43	44.00	32%	OW	9.9	10.4	12.17	12.70	13.17	13.07	2.7x	2.6x	NA	NA	NA	NA	0.3x	0.3x
Volkswagen	EUR	105.30	130.00	23%	EW	56.6	59.8	31.05	28.96	30.47	31.88	3.4x	3.6x	0.3x	0.3x	0.0x	0.0x	0.3x	0.3x
Stellantis	USD	18.09	22.00	22%	OW	60.1	60.1	5.46	4.90	5.79	5.35	3.3x	3.7x	NA	NA	NA	NA	0.7x	0.6x
Europe Weighted Average												4.5x	4.9x	2.0x	2.1x	0.3x	0.3x	0.6x	0.6x
North America																			
Ford Motor	USD	11.53	16.00	39%	OW	45.3	45.3	2.12	1.93	2.04	1.78	5.4x	6.0x	1.9x	1.6x	0.2x	0.2x	1.0x	0.9x
General Motors	USD	29.33	41.00	40%	OW	40.4	40.4	7.78	6.52	7.36	6.89	3.8x	4.5x	1.3x	1.3x	0.2x	0.2x	0.5x	0.5x
North America Weighted Average												4.7x	5.3x	1.6x	1.5x	0.2x	0.2x	0.8x	0.7x
China																			
BYD	HKD	244.40	249.00	2%	EW	728.2	93.1	7.45	9.88	10.36	13.98	32.8x	24.7x	12.6x	9.5x	1.1x	0.9x	5.0x	4.1x
Great Wall	HKD	10.02	13.00	30%	OW	215.8	27.6	0.62	0.98	0.65	0.91	16.1x	10.3x	18.1x	12.7x	1.3x	1.1x	1.3x	1.2x
Weichai Power	HKD	10.68	12.00	12%	EW	114.3	14.6	0.75	0.91	0.96	1.12	14.3x	11.7x	4.6x	4.2x	0.4x	0.4x	1.1x	1.0x
SAIC Motor	CNY	14.60	18.00	23%	OW	170.6	23.3	1.67	1.89	1.36	1.47	8.8x	NA	4.1x	3.2x	0.2x	0.1x	0.6x	0.5x
BAIC Motor	HKD	2.30	1.80	(22%)	UW	5.8	0.7	0.34	0.33	0.52	0.54	6.8x	NA	0.2x	0.5x	0.0x	0.1x	0.3x	0.3x
Anhui Jianghuai	CNY	14.33	11.60	(19%)	EW	31.3	4.3	0.14	0.22	0.13	0.20	99.5x	66.5x	12.8x	12.1x	0.7x	0.6x	2.3x	2.3x
Chongqing Changan	HKD	3.42	5.80	70%	OW	131.0	16.7	0.97	0.59	0.99	0.97	3.5x	5.8x	5.5x	8.2x	0.5x	0.4x	0.5x	0.4x
Jiangling Motors	CNY	5.88	NC	NA	NC	10.3	1.4	NA	NA	1.31	1.41	4.5x	4.2x	2.7x	2.5x	0.2x	0.2x	0.5x	0.4x
Dongfeng	HKD	3.26	4.10	26%	EW	8.7	1.1	1.11	1.02	0.65	0.66	2.9x	3.2x	0.5x	0.6x	0.1x	0.1x	0.2x	0.2x
Sinotruk	HKD	13.50	20.00	48%	OW	37.3	4.8	1.32	1.61	1.53	1.94	10.2x	8.4x	3.2x	3.0x	0.4x	0.3x	0.9x	0.8x
Zhengzhou Yutong Bus C	CNY	13.26	13.70	3%	EW	29.4	4.0	0.59	0.82	0.61	0.87	22.6x	16.2x	7.9x	5.8x	0.7x	0.6x	2.2x	2.0x
China Weighted Average												23.7x	19.4x	10.6x	8.3x	0.8x	0.7x	2.9x	2.5x
South Korea																			
Hyundai Motor	KRW	183,500.00	230,000.00	25%	EW	45,227.7	33.3	55,437.60	46,280.77	48,681.49	46,106.69	3.3x	4.0x	2.0x	2.1x	0.2x	0.2x	0.4x	0.4x
Kia Motors	KRW	81,700.00	105,000.00	29%	OW	32,847.0	24.2	21,964.60	21,506.88	22,918.54	21,992.37	3.7x	3.8x	2.4x	2.5x	0.3x	0.3x	0.7x	0.6x
South Korea Weighted Average												3.5x	3.9x	2.1x	2.3x	0.3x	0.3x	0.5x	0.5x
Japan																			
Toyota Motor	JPY	2,617.00	2,700.00	3%	EW	42,696.3	284.8	263.04	269.91	277.39	290.67	9.9x	9.7x	5.8x	5.6x	0.8x	0.8x	1.1x	1.1x
Mazda Motor	JPY	1,554.50	1,600.00	3%	EW	982.1	6.6	291.29	292.84	289.91	286.42	5.3x	5.3x	1.3x	1.1x	0.1x	0.1x	0.6x	0.6x
Suzuki Motor	JPY	5,788.00	6,500.00	12%	OW	2,842.8	19.0	529.74	591.90	587.77	619.83	10.9x	9.8x	4.2x	3.8x	0.5x	0.5x	1.3x	1.2x
Mitsubishi Motors	JPY	529.70	700.00	32%	OW	789.4	5.3	88.25	99.98	97.26	100.07	6.0x	5.3x	2.0x	1.5x	0.2x	0.1x	0.9x	0.8x
Subaru Corp	JPY	2,683.50	2,600.00	(3%)	UW	2,064.1	13.8	357.68	371.72	397.66	383.25	7.5x	7.2x	11.2x	9.5x	0.3x	0.3x	0.9x	0.8x
Nissan Motor	JPY	600.90	620.00	3%	EW	2,536.2	16.9	87.46	95.91	106.42	108.73	6.9x	6.3x	1.8x	1.4x	0.1x	0.1x	0.4x	0.4x
Honda Motor	JPY	1,649.50	1,900.00	15%	OW	8,963.9	59.8	219.04	235.95	213.96	219.14	7.5x	7.0x	2.9x	2.5x	0.3x	0.2x	0.7x	0.6x
Japan Weighted Average												9.3x	8.9x	5.2x	4.9x	0.6x	0.6x	1.0x	0.9x
India																			
Maruti Suzuki	INR	10,727.0	11,963.0	12%	OW	3,240.4	38.9	381.2	445.4	436.9	482.9	28.1x	24.1x	17.8x	15.0x	1.9x	1.7x	4.8x	4.2x
Bajaj Auto	INR	5,488.1	5,449.0	(1%)	OW	1,552.9	18.7	241.8	290.0	284.5	317.4	22.7x	18.9x	17.2x	14.6x	3.2x	2.8x	5.7x	5.3x
TVS Motor	INR	1,597.7	1,300.0	(19%)	EW	759.0	9.1	38.8	47.3	53.1	61.2	41.1x	33.7x	23.7x	19.5x	2.5x	2.2x	10.0x	8.2x
Hero MotoCorp	INR	3,208.0	2,521.0	(21%)	UW	641.2	7.7	191.9	214.0	203.3	228.8	16.7x	15.0x	9.9x	8.7x	1.4x	1.2x	3.6x	3.3x
Mahindra & Mahindra	INR	1,558.3	1,697.0	9%	OW	1,937.7	23.3	84.9	95.5	86.2	90.2	18.3x	16.3x	12.8x	11.4x	1.8x	1.6x	3.6x	3.1x
Tata Motors	INR	662.7	711.0	7%	OW	2,424.4	29.1	39.5	48.4	53.0	64.9	12.5x	10.2x	4.8x	4.2x	0.7x	0.7x	4.2x	3.2x
Balkrishna Industries	INR	2,539.2	1,928.0	(24%)	UW	490.9	5.9	72.1	97.2	92.4	109.2	35.2x	26.1x	21.7x	16.6x	5.2x	4.4x	5.7x	5.0x
Ashok Leyland	INR	172.2	214.0	24%	OW	505.6	6.1	8.3	9.1	9.8	10.7	20.8x	18.9x	12.0x	11.0x	1.3x	1.2x	5.1x	4.4x
India Weighted Average												22.7x	19.2x	14.0x	11.9x	1.9x	1.7x	4.9x	4.2x
Global Weighted Average												11.7x	10.4x	6.4x	5.6x	0.7x	0.7x	1.7x	1.5x

Source: Refinitiv, Morgan Stanley Research estimates

Notes: (1) For Renault EV calculation, Nissan and Volvo stakes are subtracted at 20% discount to their current market cap. (2) For Indian companies, 2030 and 2024 estimates refer to the fiscal years ending March 2024 and March 2025, respectively. (3) EV/EBITDA excludes the impact from pension and healthcare liabilities with the exception of Ford. Ford is calculated on an EV/EBITDAP and includes pension and healthcare liabilities. Notes: e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered. Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used 4) PTs & Ratings are as Oct 19, 2023#

EV OEMs Comps

Exhibit 11: EV OEM Comps

Company	Currency	Price at 20-Oct	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		Current EV	MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	USD		LC	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e
North America																				
Tesla	USD	220.11	380.00	73%	OW	698.6	698.6	747.3	2.48	1.89	3.12	4.06	88.6x	116.3x	56.4x	56.5x	7.7x	6.3x	14.0x	12.5x
Lucid	USD	4.34	5.00	16%	UW	9.9	9.9	6.3	-1.16	-0.75	-1.49	-1.16	NM	NM	NM	NM	9.0x	3.6x	1.9x	2.5x
Flaker	USD	5.71	4.00	(30%)	UW	1.2	1.2	3.2	-1.03	-0.60	-0.84	-0.35	NM	NM	NM	NM	1.7x	1.1x	15.4x	29.3x
Route	USD	17.16	24.00	40%	OW	16.1	16.1	14.6	-0.79	-3.60	-0.12	-3.95	NM	NM	NM	NM	3.3x	2.7x	2.1x	2.3x
North America Weighted Average													88.6x	116.3x	56.4x	56.5x	7.8x	6.2x	13.6x	12.2x
China																				
NIO Inc.	USD	7.69	18.70	143%	OW	12.4	12.4	189.9	-5.82	-0.29	-1.45	-0.83	NM	NM	NM	55.2x	2.8x	1.3x	4.6x	4.2x
Li Auto Inc.	USD	32.38	53.00	64%	OW	28.3	28.3	179.9	3.35	6.83	0.98	1.66	9.7x	4.7x	36.5x	19.5x	1.5x	1.0x	4.1x	3.3x
BYD Company	HKD	244.40	249.00	2%	EW	728.2	93.1	622.2	7.45	9.88	10.36	13.98	32.8x	24.7x	12.9x	9.7x	1.1x	0.9x	5.0x	4.1x
Xpeng Inc.	USD	13.63	25.40	86%	OW	9.5	9.5	84.5	-8.21	-7.21	-1.15	-0.80	NM	NM	NM	NM	2.9x	1.5x	2.9x	3.6x
China Weighted Average													27.4x	20.1x	18.4x	15.9x	1.4x	1.0x	4.6x	3.9x
Global Weighted Average													79.6x	102.0x	50.8x	50.0x	6.6x	5.3x	12.1x	10.8x

Source: Refinitiv, Morgan Stanley Research estimates Note: PTs & Ratings are as of Oct 19, 2023

Global Supplier Comps

Exhibit12: Global Supplier Comps: AXL, Valeo, Huayu, Denso, Mando and Tata Motors are preferred stocks

Company	Currency	Price at 20-Oct	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Autoliv	USD	90.17	90.00	(0%)	EW	7.7	7.7	6.93	9.30	6.77	9.32	13.0x	9.7x	6.8x	5.4x	0.9x	0.8x	2.8x	2.6x
Europe Weighted Average												13.0x	9.7x	6.8x	5.4x	0.9x	0.8x	2.8x	2.6x
North America (1)																			
APTIV	USD	90.25	100.00	11%	EW	25.5	25.5	4.78	5.54	4.74	6.19	18.9x	16.3x	9.5x	8.1x	1.4x	1.3x	2.6x	2.3x
BorgWarner Inc.	USD	38.11	47.00	23%	OW	9.0	9.0	3.81	4.53	3.85	4.42	10.0x	8.4x	5.5x	4.5x	0.8x	0.7x	1.1x	1.0x
Lear	USD	130.37	140.00	7%	EW	7.7	7.7	11.77	14.87	11.73	15.90	11.1x	8.8x	4.8x	3.9x	0.4x	0.3x	3.0x	2.7x
Visteon	USD	125.95	145.00	15%	EW	3.6	3.6	6.14	8.10	6.64	9.47	20.5x	15.5x	9.1x	7.3x	0.9x	0.8x	9.4x	7.3x
Magna International	USD	50.49	65.00	29%	OW	14.4	14.4	5.40	6.70	5.28	6.58	9.3x	7.5x	4.0x	3.2x	0.3x	0.3x	1.0x	0.9x
Mobileye Global Inc	USD	35.01	34.00	(3%)	EW	3.3	3.3	0.70	0.75	0.71	0.86	49.7x	46.5x	32.9x	21.8x	6.0x	4.8x	NM	NM
Adient	USD	34.48	38.00	10%	UW	3.2	3.2	2.17	3.01	2.21	3.66	15.9x	11.5x	5.5x	4.8x	0.3x	0.3x	1.6x	1.4x
American Axle	USD	6.90	10.00	45%	OW	0.8	0.8	0.18	0.46	0.08	0.74	38.2x	15.1x	4.3x	3.4x	0.5x	0.4x	1.3x	1.2x
North America Weighted Average												16.5x	13.7x	8.1x	6.5x	1.1x	1.0x	2.4x	2.1x
Japan																			
Denso	JPY	2,313	3,000	30%	OW	7,288	48.6	158	187	181	202	14.6x	12.3x	7.3x	6.3x	1.0x	0.9x	1.5x	1.4x
Toyota Industries	JPY	11,140	14,800	33%	OW	3,630	24.2	723	829	763	850	15.4x	13.4x	10.6x	9.6x	1.4x	1.2x	0.8x	0.8x
Aisin Seiki	JPY	5,386	6,000	11%	EW	1,587	10.6	488	599	586	659	11.0x	9.0x	4.8x	3.7x	0.4x	0.4x	0.8x	0.7x
Koito Mfg.	JPY	2,220	1,900	(14%)	UW	714	4.8	155	172	176	198	14.3x	12.9x	4.2x	3.7x	0.5x	0.4x	1.1x	1.0x
Stanley Electric	JPY	2,388	2,100	(12%)	EW	409	2.7	132	191	205	238	18.1x	12.5x	4.7x	4.1x	0.7x	0.7x	0.8x	0.8x
Toyoda Gosei	JPY	2,953	3,000	2%	EW	384	2.6	274	333	332	374	10.8x	8.9x	4.2x	3.5x	0.4x	0.4x	0.8x	0.8x
Toyota Boshoku	JPY	2,549	2,400	(6%)	UW	478	3.2	238	283	303	326	10.7x	9.0x	3.3x	2.8x	0.2x	0.2x	1.1x	1.0x
EXEDY	JPY	2,486	2,300	(7%)	EW	121	0.8	217	255	239	283	11.4x	9.8x	3.3x	2.9x	0.4x	0.3x	0.5x	0.5x
NHK Spring	JPY	1,050	1,300	24%	OW	256	1.7	101	137	125	152	10.4x	7.7x	4.5x	3.6x	0.3x	0.3x	0.7x	0.6x
Nifco	JPY	3,729	4,000	7%	EW	374	2.5	272	286	302	332	13.7x	13.1x	5.6x	5.0x	0.9x	0.8x	1.5x	1.4x
Musashi Seimitsu	JPY	1,462	1,900	30%	OW	96	0.6	102	158	194	230	14.4x	9.2x	6.5x	5.3x	0.5x	0.5x	1.0x	0.9x
Unipres	JPY	1,048	1,150	10%	EW	50	0.3	117	164	148	189	9.0x	6.4x	2.6x	2.1x	0.3x	0.2x	0.3x	0.3x
NOK	JPY	1,887	2,300	22%	OW	327	2.2	93	184	163	217	20.4x	10.2x	5.6x	4.5x	0.5x	0.5x	0.6x	0.6x
Japan Weighted Average												14.3x	11.9x	7.2x	6.3x	0.9x	0.8x	1.2x	1.1x
China																			
Fuyao Glass	HKD	36.05	36.00	(0%)	EW	108.3	13.8	2.12	2.51	2.18	2.41	17.0x	14.3x	9.6x	7.7x	2.6x	2.2x	2.7x	2.4x
Huayu Automotive	HKD	18.04	25.00	39%	OW	56.9	7.8	2.13	2.30	2.25	2.58	8.5x	7.9x	3.4x	2.7x	0.2x	0.2x	1.0x	0.9x
Mint Group Limited	HKD	18.60	28.00	51%	OW	23.1	3.0	1.81	2.36	1.80	2.26	10.2x	7.9x	6.6x	4.6x	0.9x	0.7x	1.0x	0.9x
Changzhou Xingyu	HKD	149.39	172.00	15%	OW	42.7	5.8	3.86	5.30	4.10	5.60	38.7x	28.2x	25.9x	19.2x	4.0x	3.3x	4.6x	4.2x
Nexteer Automotive Group	HKD	3.72	7.50	102%	OW	73.1	9.3	0.06	0.09	0.33	0.53	61.0x	42.0x	2.7x	2.3x	0.3x	0.3x	0.6x	0.6x
China Weighted Average												28.3x	21.1x	8.9x	6.9x	1.7x	1.4x	2.0x	1.8x
South Korea																			
Hyundai MOBIS	KRW	218,000	250,000	15%	EW	20,554	15.1	31,010	31,022	36,940	39,810	7.0x	7.0x	6.3x	5.5x	0.3x	0.3x	0.5x	0.5x
LG Chem	KRW	479,000	530,000	11%	EW	36,151	26.6	25,019	43,186	26,002	47,763	19.1x	11.1x	6.0x	5.0x	0.8x	0.8x	1.0x	1.0x
Hanon Systems	KRW	7,110	7,800	10%	UW	3,795	2.8	392	490	501	597	18.1x	14.5x	6.9x	6.2x	0.7x	0.7x	1.6x	1.5x
Mando Corp	KRW	35,750	63,000	76%	OW	1,679	1.2	4,205	4,507	4,706	5,838	8.5x	7.9x	5.1x	5.1x	0.4x	0.4x	0.7x	0.7x
South Korea Weighted Average												14.8x	9.9x	6.1x	5.3x	0.6x	0.6x	0.9x	0.8x
Taiwan																			
Cub Elecparts Inc	TWD	124	140	13%	EW	14	0.4	7.01	9.26	1.61	2.30	17.6x	13.3x	8.2x	6.5x	1.9x	1.6x	1.7x	1.6x
Hu Lane Associate Inc.	TWD	150	140	(6%)	EW	15	0.5	8.26	10.14	1.92	2.43	18.1x	14.7x	10.8x	9.4x	2.4x	2.1x	2.6x	2.3x
Hota Industrial Mfg.	TWD	62	70	12%	EW	17	0.5	2.36	2.55	0.56	0.66	26.4x	24.5x	8.5x	7.4x	2.5x	2.2x	1.9x	1.8x
Taiwan Weighted Average												21.1x	18.0x	9.1x	7.8x	2.3x	2.0x	2.0x	1.9x
India																			
Exide Industries	INR	258	212	(18%)	OW	219	2.6	12.08	14.37	14.94	11.53	21.4x	17.9x	11.5x	9.8x	1.3x	1.2x	1.8x	1.7x
Samvardhana Motherson	INR	93	91	(3%)	EW	633	7.6	4.62	6.10	5.79	11.53	20.2x	15.3x	9.2x	7.6x	0.8x	0.7x	2.6x	2.4x
Amara Raja	INR	629	623	(1%)	UW	107	1.3	47.31	51.94	53.88	54.89	13.3x	12.1x	6.7x	5.7x	0.9x	0.8x	1.8x	1.6x
India Weighted Average												19.7x	15.5x	9.4x	7.9x	0.9x	0.8x	2.3x	2.1x
Global Weighted Average												17.1x	13.5x	7.6x	6.3x	1.0x	0.9x	1.6x	1.5x

Source: Refinitiv, Morgan Stanley Research estimates

Notes: (1) EV/EBITDA excludes the impacts from pension and healthcare liabilities with the exception of our North American coverage, which are calculated using EV/EBITDAP and do include pension and healthcare liabilities. (2) North America weighted averages are calculated without Mobileye. e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered. Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used 3) PTs & Ratings are as of Oct 19, 2023

Global Tire Comps

Exhibit13: Global Tire Comps: Michelin, Bridgestone and Mando are our preferred stocks

Company	Currency	Price at 20-Oct	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Continental	EUR	59.96	NC	NA	NC	12.0	12.7	NA	NA	7.72	9.48	7.8x	6.3x	4.1x	3.6x	0.4x	0.4x	0.8x	0.8x
Pirelli & C. SpA	EUR	4.30	5.50	28%	OW	4.3	4.5	0.55	0.61	0.51	0.57	7.9x	7.1x	4.7x	4.8x	1.1x	1.0x	0.8x	0.8x
Michelin	EUR	27.94	35.00	25%	OW	20.0	21.1	3.15	3.26	3.20	3.31	8.9x	8.6x	4.1x	3.8x	0.8x	0.7x	1.1x	1.0x
Europe Weighted Average												8.4x	7.6x	4.2x	3.8x	0.7x	0.7x	1.0x	0.9x
Japan																			
Bridgestone	JPY	5,808	5,400	(7%)	EW	4,145	27.6	522	539	533	567	11.1x	10.8x	4.6x	4.2x	0.9x	0.9x	1.3x	1.2x
Toyo Tire & Rubber Co	JPY	2,225	2,200	(1%)	EW	343	2.3	347	276	366	320	6.4x	8.1x	4.6x	4.2x	0.7x	0.7x	0.9x	0.9x
Sumitomo Rubber	JPY	1,490	1,300	(13%)	UW	392	2.6	101	163	106	149	14.7x	9.1x	6.2x	5.3x	0.5x	0.5x	0.7x	0.7x
Yokohama Rubber	JPY	2,850	3,400	19%	OW	483	3.2	403	423	395	433	7.1x	6.7x	6.4x	5.4x	0.9x	0.8x	0.7x	0.6x
Japan Weighted Average												10.7x	10.1x	4.9x	4.4x	0.9x	0.8x	1.2x	1.1x
Korea																			
Hankook Tire	KRW	37,150	33,000	(11%)	UW	4,602	3.4	4,071	4,136	5,488	6,541	9.1x	NA	3.0x	2.6x	0.5x	0.4x	0.5x	0.5x
Korea Weighted Average												9.1x	NA	3.0x	2.6x	0.5x	0.4x	0.5x	0.5x
Global Weighted Average												10.0x	9.0x	4.6x	4.2x	0.8x	0.8x	1.1x	1.1x

Source: Refinitiv, Morgan Stanley Research estimates

Notes: e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered. Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used. 2) ++Rating and price target for this company have been removed from consideration in this report because, under applicable law and/or Morgan Stanley policy, Morgan Stanley may be precluded from issuing such information with respect to this company at this time 3) PTs & Ratings are as of Oct 19, 2023

Global Dealer Comps

Exhibit14: Global Dealer Comps: KMX and Zhongsheng are preferred stocks

Company	Currency	Price at 20-Oct	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		Current EV	MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$		LC	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e
North America																				
CarMax	USD	63.42	80.00	26%	OW	10.1	10.1	16.0	3.03	3.38	2.96	3.69	20.9x	18.8x	14.6x	12.1x	0.6x	0.5x	2.3x	2.0x
Penske Automotive Group	USD	147.97	107.00	(28%)	UW	10.0	10.0	11.2	16.79	17.68	16.62	15.91	8.8x	8.4x	5.6x	5.4x	0.4x	0.4x	2.1x	1.7x
Lithia Motors	USD	261.85	220.00	(16%)	UW	7.2	7.2	12.8	36.92	36.72	38.15	37.36	7.1x	7.1x	6.9x	7.3x	0.4x	0.4x	1.1x	1.0x
Sonic Automotive	USD	45.66	35.00	(23%)	UW	1.1	1.1	4.0	6.62	7.28	6.65	6.67	6.9x	6.3x	5.6x	5.4x	0.3x	0.3x	2.5x	2.0x
Carvana	USD	31.59	37.00	17%	UW	3.4	3.4	11.5	-2.10	-1.69	-3.63	-2.38	NM	NM	61.4x	38.1x	1.1x	1.1x	12.2x	142.0x
Group 1 Automotive	USD	247.88	200.00	(19%)	UW	3.5	3.5	5.6	46.08	43.96	44.60	40.68	5.4x	5.6x	5.4x	5.1x	0.3x	0.3x	1.2x	1.0x
Asbury	USD	207.05	165.00	(20%)	UW	4.3	4.3	7.3	33.94	31.70	33.44	31.53	6.1x	6.5x	6.4x	6.3x	0.5x	0.4x	1.3x	1.1x
AutoNation	USD	133.85	117.00	(13%)	UW	5.9	5.9	9.3	22.76	20.26	22.91	21.23	5.9x	6.6x	5.1x	4.8x	0.4x	0.3x	2.3x	1.7x
North America Weighted Average													10.4x	9.9x	11.9x	9.6x	0.5x	0.4x	2.6x	12.0x
China																				
MeiDong	HKD	3.84	5.90	54%	OW	5.2	0.7	5.8	0.15	0.47	0.24	0.60	26.3x	8.2x	4.3x	3.3x	0.2x	0.2x	1.1x	1.0x
China Yongda Auto	HKD	2.79	5.10	83%	OW	5.4	0.7	4.9	0.57	0.81	0.62	0.87	4.9x	3.4x	2.4x	1.8x	0.1x	0.1x	0.3x	0.3x
Baoxin Auto	HKD	0.20	0.27	36%	UW	0.6	0.1	5.0	0.13	0.14	0.15	0.18	1.6x	1.4x	3.1x	2.8x	0.2x	0.2x	0.1x	0.1x
Zhongsheng Group	HKD	18.42	37.00	101%	OW	44.0	5.6	50.7	2.50	3.04	2.80	3.26	7.4x	6.1x	4.1x	3.3x	0.3x	0.2x	0.9x	0.8x
China Zhengtong Auto	HKD	0.48	0.39	(19%)	UW	1.4	0.2	18.6	0.08	0.23	-0.39	-0.33	5.8x	2.1x	9.6x	8.0x	0.7x	0.7x	2.9x	1.2x
China Weighted Average													8.8x	5.9x	4.1x	3.3x	0.3x	0.2x	0.9x	0.8x

Source: Refinitiv, Morgan Stanley Research estimates

Note: 1) e = Morgan Stanley Research est; O = Overweight; E = Equal-weight; U = Underweight; NC = Not Covered. Valuation multiples are based on MS est. unless a company is restricted or NC, in which case cons. est. are used 2) PTs & Ratings are as of Oct 19, 2023

Exhibit15: Auto companies under Morgan Stanley coverage not shown in the comps tables are listed below (with current share price):

Company Name	Volvo	China Motor Corp.	Hotsai Motor	Porsche	Avis Budget
Price at Oct 19	222.85	35.70	628.00	45.81	163.16
Currency	SEK	TwD	TwD	EUR	USD

Company Name	Tong Yang Industry	Yulon Motor	Zhongsheng Group	Tesla	Hertz
Price at Oct 19	81.70	81.40	18.76	6.08	10.58
Currency	TwD	TwD	CNY	USD	USD

Source: Refinitiv, Morgan Stanley Research

Morgan Stanley Global Auto Team

Morgan Stanley Global Auto Team

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Morgan Stanley is acting as financial advisor to Ford Motor Company in connection with its agreement with PT Vale Indonesia Tbk and Zhejiang Huayou Cobalt Co., Ltd., to make a capital investment in PT Kolaka Nickel Indonesia ("KNI") hydrometallurgy (HPAL) project (the "Pomalaa HPAL Project") as announced on March 30, 2023. Ford has agreed to pay fees to Morgan Stanley for its financial services, including transaction fees that are contingent upon the consummation of the transaction. Please refer to the notes at the end of the report.

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The following analysts hereby certify that their views about the companies and their securities discussed in this report are accurately expressed and that they have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report: Adam Jonas, CFA; Ross A MacDonald, CFA; Binay Singh; Shelley Wang, CFA; Joey Xu, CFA.

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In the next 3 months, Morgan Stanley expects to receive or intends to seek compensation for investment banking services from Aisin, American Axle & Manufacturing Holdings Inc, Aptiv Plc, Autohome Inc, Autoliv, AutoNation Inc., Avis Budget Group Inc, BMW, BorgWarner Inc., Bridgestone, BYD Company Limited, Carvana Co, China Yongda Automobiles Services, Denso, EXEDY, Ferrari NV, Ford Motor Company, Geely Automobile Holdings, General Motors Company, Great Wall Motor Company Limited, Guangzhou Automobile Group, Hertz Global Holdings Inc, Honda Motor, Huayu Automotive, Hyundai Motor, Koito Mfg., Korea Electric Power, Lear Corporation, Lithia Motors Inc., Lucid Group Inc, Magna International Inc., Mahindra & Mahindra, Michelin, Minth Group Limited, Mobileye Global Inc, NHK Spring, Nifco, NIO Inc., Nissan Motor, NOK, Pirelli & C SpA, Quantumscape Corp, Renault, Rivian Automotive, Inc., SAIC Motor Corp. Ltd., Stanley Electric, Stellantis, Sumitomo Rubber, Tata Motors, Tesla Inc, Toyoda Gosei, Toyota Boshoku, Toyota Industries, Toyota Motor, Unipres, Visteon Corporation, Volkswagen, Volvo, Zhongsheng Group Holdings.

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Global Stock Ratings Distribution

(as of September 30, 2023)

The Stock Ratings described below apply to Morgan Stanley's Fundamental Equity Research and do not apply to Debt Research produced by the Firm.

For disclosure purposes only (in accordance with FINRA requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight, Not-Rated and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, Not-Rated and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Not-Rated to hold and Underweight to sell recommendations, respectively.

Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1350	37%	281	43%	21%	608	39%
Equal-weight/Hold	1673	46%	303	46%	18%	709	46%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	608	17%	68	10%	11%	225	15%
Total	3,634		652			1543	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Not-Rated (NR). Currently the analyst does not have adequate conviction about the stock's total return relative to the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

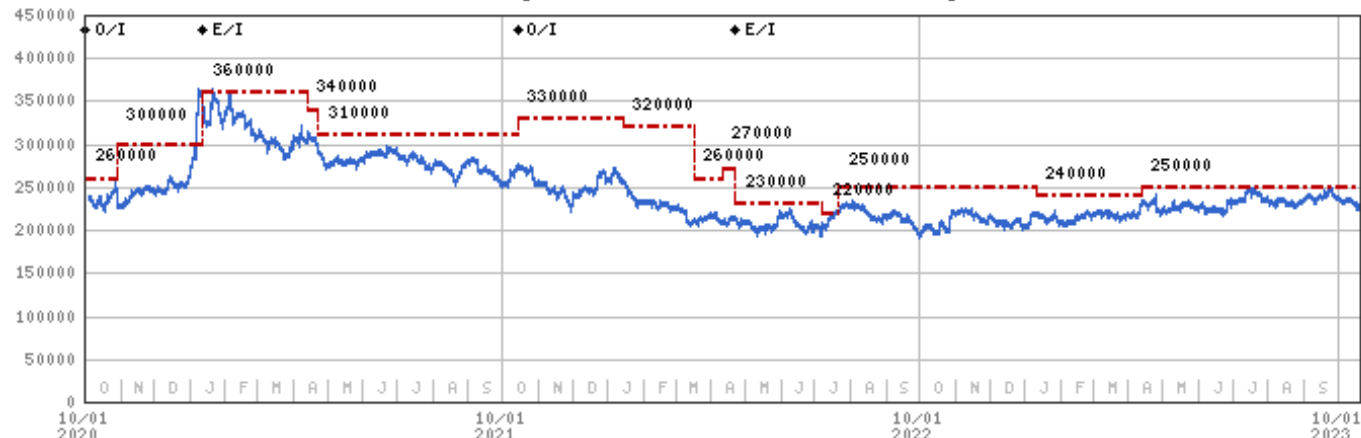
In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

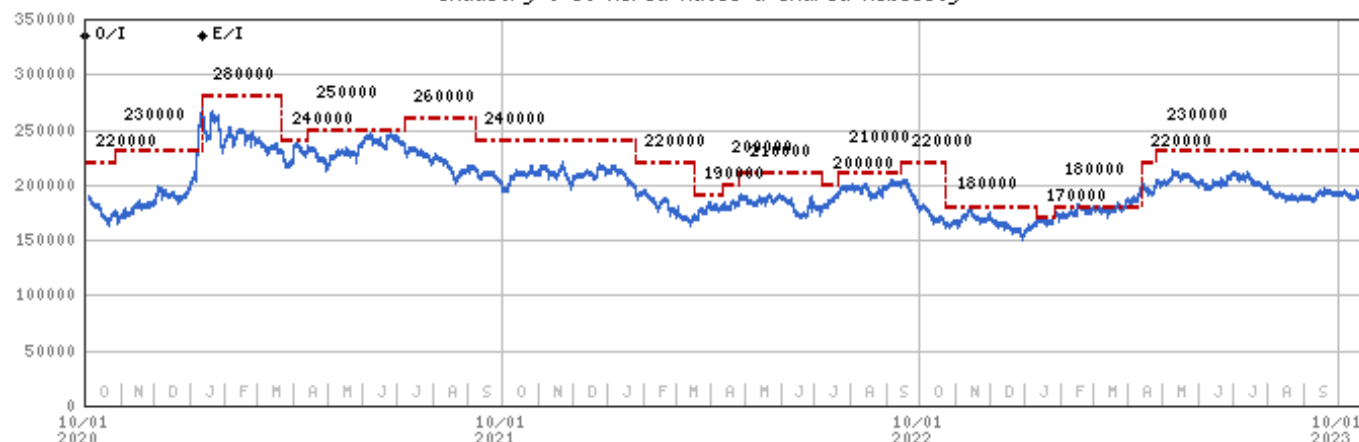
Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Stock Price, Price Target and Rating History (See Rating Definitions)

Hyundai MOBIS (012330.KS) - As of 10/19/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Hyundai Motor (005380.KS) - As of 10/19/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 10/1/18 : O/I; 10/11/18 : E/I; 7/24/20 : O/I; 1/12/21 : E/I

Price Target History: 6/23/18 : 170000; 10/11/18 : 135000; 10/25/18 : 120000; 4/24/19 : 150000; 10/3/19 : 140000; 1/9/20 : 120000; 1/23/20 : 130000; 3/9/20 : 120000; 4/8/20 : 100000; 4/24/20 : 90000; 7/10/20 : 110000; 7/24/20 : 160000; 8/24/20 : 190000; 9/16/20 : 220000; 10/27/20 : 230000; 1/12/21 : 280000; 3/22/21 : 240000; 4/13/21 : 250000; 7/7/21 : 260000; 9/7/21 : 240000; 1/25/22 : 220000; 3/17/22 : 190000; 4/11/22 : 200000; 4/26/22 : 210000; 7/8/22 : 200000; 7/22/22 : 210000; 9/15/22 : 220000; 10/24/22 : 180000; 1/10/23 : 170000; 1/26/23 : 180000; 4/12/23 : 220000; 4/26/23 : 230000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target — No Price Target Assigned (NA)

Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —

Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View

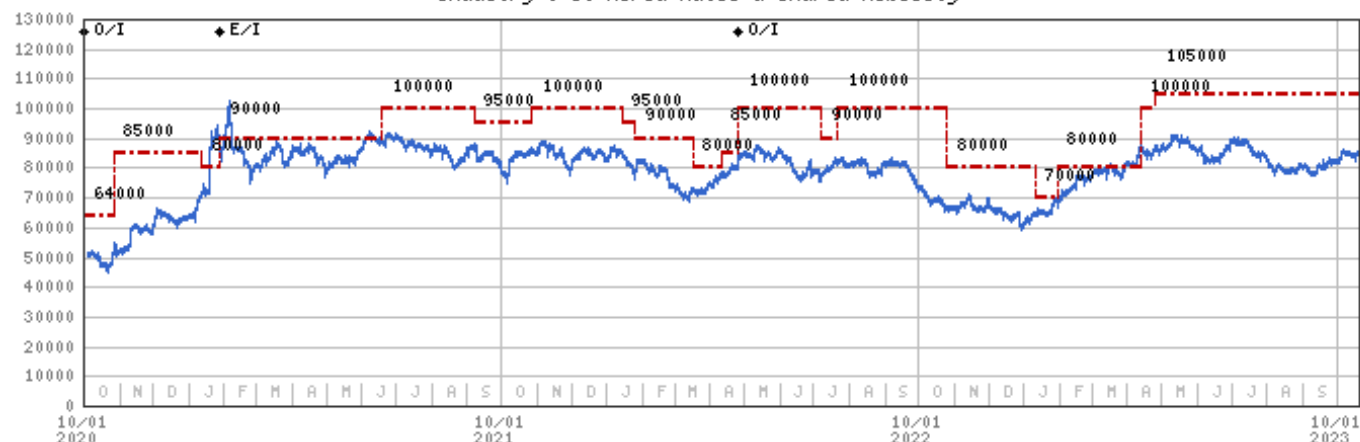
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)

Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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Effective January 13, 2014, the industry view benchmarks for Morgan Stanley Asia Pacific are as follows: relevant MSCI country index or MSCI sub-regional index or MSCI AC Asia Pacific ex Japan Index.

Kia Corp. (000270.KS) - As of 10/19/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Korea Electric Power (015760.KS) - As of 10/19/23 in KRW
Industry : S. Korea Energy & Materials



Mando (204320.KS) - As of 10/19/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 10/1/18 : E/I; 1/31/19 : U/I; 7/26/19 : O/I; 4/8/20 : E/I; 10/14/21 : O/I; 3/17/22 : E/I; 8/1/22 : O/I

Price Target History: 6/23/18 : 40000; 10/11/18 : 32000; 1/9/19 : 30000; 1/31/19 : 27000; 7/26/19 : 42000; 9/17/19 : 44000; 3/9/20 : 38000; 4/8/20 : 23000; 7/10/20 : 24000; 8/24/20 : 30000; 10/19/20 : 35000; 10/29/20 : 40000; 1/12/21 : 80000; 2/4/21 : 77000; 4/13/21 : 72000; 4/30/21 : 66000; 7/7/21 : 70000; 10/14/21 : 82000; 1/14/22 : 80000; 2/9/22 : 70000; 3/17/22 : 48000; 4/11/22 : 54000; 4/29/22 : 60000; 7/8/22 : 52000; 8/1/22 : 74000; 10/28/22 : 70000; 1/10/23 : 60000; 4/12/23 : 56000; 7/7/23 : 62000; 7/27/23 : 63000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
 Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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INDUSTRY COVERAGE: Autos & Shared Mobility

COMPANY (TICKER)	RATING (AS OF)	PRICE* (10/19/2023)
Adam Jonas, CFA		
Adient PLC (ADNT.N)	U (03/17/2021)	\$34.48
American Axle & Manufacturing Holdings Inc (AXL.N)	O (02/28/2022)	\$6.90
Aptiv Plc (APT.V.N)	E (11/28/2022)	\$90.25
Asbury Automotive Group Inc (ABG.N)	U (05/20/2022)	\$207.05
AutoNation Inc. (AN.N)	U (01/17/2023)	\$133.85
Avis Budget Group Inc (CAR.O)	O (06/20/2023)	\$169.16
BorgWarner Inc. (BWA.N)	O (05/15/2023)	\$38.11
Carmax Inc (KMX.N)	O (07/10/2018)	\$63.42
Carvana Co (CVNA.N)	U (07/26/2023)	\$31.59
Ferrari NV (RACE.N)	O (05/09/2019)	\$301.39
Fisker Inc (FSR.N)	U (01/25/2023)	\$5.71
Ford Motor Company (F.N)	O (10/05/2022)	\$11.53
FREYR Battery SA (FREY.N)	O (06/28/2023)	\$3.74
General Motors Company (GM.N)	O (05/01/2023)	\$29.33
Group 1 Automotive, Inc (GPI.N)	U (05/20/2022)	\$247.88
Harley-Davidson Inc (HOG.N)	O (03/21/2023)	\$29.79
Hertz Global Holdings Inc (HTZ.O)	E (12/06/2021)	\$10.58
Lear Corporation (LEA.N)	E (02/28/2022)	\$130.37
Li-Cycle Holdings Corp. (LICY.N)	U (01/25/2023)	\$2.37
Lithia Motors Inc. (LAD.N)	U (02/09/2021)	\$261.85
Lucid Group Inc (LCID.O)	U (09/13/2021)	\$4.34
Magna International Inc. (MGA.N)	O (10/14/2021)	\$50.49
Mobileye Global Inc (MBLY.O)	E (07/24/2023)	\$35.01
Penske Automotive Group, Inc (PAG.N)	U (11/17/2021)	\$147.97
Quantumscape Corp (QS.N)	U (11/09/2022)	\$6.08
Rivian Automotive, Inc. (RIVN.O)	O (12/05/2021)	\$17.16
Sonic Automotive Inc (SAH.N)	U (11/17/2021)	\$45.66

Tesla Inc (TSLA.O)	O (09/10/2023)	\$220.11
Visteon Corporation (VC.O)	E (06/01/2022)	\$125.95

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