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Autos & Shared Mobility | North America

Global Auto Monitor: The Toggle

EV once the favored strategy, a challenged execution. 3Q shows the harsh reality, autos seek a new solution. Frugality and partnerships, a time to change model. Seek value in agility, the time has come to toggle.

What Others Are Reading - Our Most Read Reports

[NORTH AMERICA] **3Q23 US Auto Dealer Report Card: Over-Earning but Benefit from Slow EV Roll (Nov 02)** With all 6 franchise dealers results posted for 3Q23, we assess the state of the new and used market. ASPs remain elevated and Parts & Service margins are proving resilient, yet Used GPUs are beginning to miss. Slowing EV adoption pushes out the secular direct-to-consumer bear thesis at the margin.

[NORTH AMERICA] **If Everyone's an EV Bear, What's Next? (Nov 01)** 3Q results appear to have been a collective acknowledgment that the EV strategy just isn't working. And investor sentiment on EVs is as low as we've ever seen. We think there can still be ways for legacy auto firms to participate in the EV revolution in a more capital disciplined way. But the clock is ticking.

[NORTH AMERICA] **What's Driving the Auto De-Rating? Costs Up, Macro Risk, Electric Shock (Oct 31)** Tentative UAW agreements and EV 'capitulation' have triggered selling across autos. At the crux of the problem is a capital-intensive sector investing in unproven EV strategies amid a world of rising costs, lower prices, rising rates and slower demand. Change the narrative or change the portfolio?

[NORTH AMERICA] **Ford: Life After the UAW Strike: Costs Rising, EVs Revising (Oct 30)** Ford and its D3 peers reached tentative agreements with the UAW. Now, mgmt. decisions on EV investment will matter just as much as the macro to dictate whether Ford can grow earnings in FY24. We see scope for significantly improved capital efficiency but it will require decisive action and new partnerships.

[EUROPE] **Tesla's Semi is a threat to Truck OEMs worldwide (Nov 03)** We benchmarked the Tesla Semi against incumbent heavy duty BEV trucks. We expect the Tesla Semi to deliver a competitive payload, creating a highly efficient, high range, fast charging, software-defined, Class 8 truck. This poses a threat to Truck OEMs worldwide – we see Volvo as best protected.

[JAPAN] **Toyota: Announces Additional \$8bn Investment Towards Automotive Batteries in North Carolina (Nov 01)**

[S.KOREA] **Hankook: 3Q23 Results: Major Beat (Nov 01)** HT delivered a major beat, benefitting from a good mix, resilient ASPs and falling costs. Moreover, management remained confident on its ability to weather through challenging market conditions. We reflect a more resilient earnings outlook and upgrade HT

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AUTOS & SHARED MOBILITY

North America

Industry View

In-Line

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to EW.

[INDIA] **TVS: In-Line Quarter; Executing Well (Oct 31)** TVS reported an in-line quarter but posted impressive gross margin expansion that was partly offset by high new launch costs. We raise our FY24-26e earnings ~2% as we build in slightly higher margins. Trading at a FY25e P/E of 33x (vs 10-year median of 27x), risk reward looks balanced. Remain EW.

[INDIA] **Maruti: F2Q24: Impressive Quarter; What's Next?(Oct 29)** F2Q24 EBIT was 20% ahead of MSe and EBIT margins reached 10.8%, a 20-quarter high. Upgrades to consensus earnings, rising market share supported by a new model cycle and gradual first time buyer recovery keep us OW.

[CHINA] **Autos Overview (Nov 03)**

[CHINA] **BYD: Peak 3Q23 margin sets high bar (Oct 30)** BYD's 3Q23 results imply per vehicle profit of Rmb11.4k. Superior scale provides the company with stronger bargaining power vs. suppliers/dealers, mitigating the impact from sector-wide pricing pressures. But how sustainable is it?

[CHINA] **China EV - 3Q23 earnings preview (Oct 30)** While 3Q results are backward-looking, yet investors still hope management comments on demand and competition provide clarity. As Tesla appears to have adopted more disciplined pricing, challenges from tech rivals, like Huawei and Xiaomi, is likely to dominate the narrative.

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
HTZ	EW	USD 20.00 → USD 16.00
RACE	OW	USD 340 → USD 350
F	OW	USD 16.0 → USD 15.0
MBLY	EW	USD 34 → USD 37
Porsche	EW	€ 105.00 → € 100.00
Michelin	OW	€ 35.00 → € 34.00
Mando	OW	W63,000 → W54,000
Kia Motors	OW	W105,000 → W98,000
Hyundai Motor	EW	W230,000 → W200,000
S&T Motiv	OW	W67,000 → W57,000
Hankook Tire	UW → EW	W33,000 → W44,000
Hyundai MOBIS	EW	W250,000 → W240,000
Amara Raja Batteries	UW	RS 623 → RS 579
TVS Motors	EW	RS 1,300 → RS 1,485
Maruti Suzuki	OW	RS 11,963 → RS 12,304
BYD	EW	HKD249 → HKD242

Source: Morgan Stanley Research estimates

Global Auto Sales Summary

Exhibit2: Global Auto Sales Summary

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

Global Auto Stock Rankings

Exhibit 3: North America Coverage Rankings

North America		2023e EPS		
		MS	Cons	
1 Tesla	OW	3.00	3.16	(5.1%)
2 Ferrari	OW	€ 6.59	€ 7.04	(6.4%)
3 Ford Motor	OW	1.88	1.92	(2.2%)
4 Harley-Davidson	OW	4.59	4.61	(0.4%)
5 CarMax	OW	3.03	2.96	2.5%
6 Avis Budget	OW	40.15	38.15	5.2%
7 American Axle	OW	0.18	0.03	501.3%
8 Rivian	OW	-5.76	-5.12	NM
9 Magna International	OW	5.40	5.27	2.5%
10 BorgWarner Inc.	OW	3.81	3.83	(0.6%)
11 FREYR Battery	OW	-1.39	-1.15	NM
12 General Motors	OW	6.05	7.49	(19.1%)
13 Lear	EW	11.77	12.01	(2.0%)
14 Mobileye Global	EW	0.73	0.77	(5.2%)
15 Hertz	EW	1.86	1.93	(3.8%)
16 Visteon	EW	6.14	6.70	(8.5%)
17 APTIV	EW	4.78	4.73	1.1%
18 Adient	UW	2.17	2.21	(1.6%)
19 Carvana	UW	-3.79	-3.41	NM
20 Penske Automotive Group	UW	16.57	16.51	0.4%
21 Group 1 Automotive	UW	45.57	44.99	1.3%
22 AutoNation	UW	22.85	22.88	(0.1%)
23 Lithia Motors	UW	36.85	37.45	(1.6%)
24 Asbury Automotive	UW	33.25	33.08	0.5%
25 Sonic Automotive	UW	6.95	6.90	0.8%
26 Lucid	UW	-1.16	-1.47	NM
27 Li-Cycle	UW	-0.93	-0.92	NM
28 QuantumScape	UW	-0.98	-0.96	NM
29 Fisker	UW	-1.03	-0.85	NM

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit5: Europe Coverage Rankings

Europe		2023e EPS		
		MS	Cons	
1 Michelin	OW	3.16	3.21	(1.6%)
2 Daimler Truck Holding	OW	4.45	4.41	0.9%
3 Pirelli	OW	0.55	0.51	6.8%
4 Aramis Autos	EW	-0.25	-0.39	NM
5 Volkswagen	EW	31.05	30.63	1.4%
6 Mercedes-Benz	EW	13.38	12.91	3.6%
7 Autoliv	EW	6.22	7.45	(16.5%)
8 BMW	EW	17.14	18.24	(6.1%)
9 Volvo	EW	24.88	27.24	(8.7%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit4: Japan Coverage Rankings

Japan		2023e EPS		
		MS	Cons	
1 Denso	OW	158.48	180.92	(12.4%)
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	99.03	(10.9%)
5 Musashi Seimitsu	OW	101.79	193.57	(47.4%)
6 Suzuki Motor	OW	529.74	586.85	(9.7%)
7 Yokohama Rubber	OW	402.62	388.93	3.5%
8 Honda Motor	OW	219.04	213.96	2.4%
9 Toyota Motor	EW	263.04	289.50	(9.1%)
10 Unipres	EW	123.67	94.79	30.5%
11 Mazda Motor	EW	291.29	296.46	(1.7%)
12 Toyota Industries	OW	722.89	770.36	(6.2%)
13 Toyoda Gosei	EW	273.82	332.58	(17.7%)
14 Toyo Tire & Rubber	EW	347.08	363.54	(4.5%)
15 Bridgestone	EW	521.76	532.99	(2.1%)
16 Stanley Electric	EW	131.70	206.03	(36.1%)
17 EXEDY	EW	217.23	239.05	(9.1%)
18 Nifco	EW	271.89	303.40	(10.4%)
19 Nissan Motor	EW	87.46	106.42	(17.8%)
20 Aisin Seiki	EW	488.37	602.11	(18.9%)
21 Koito Mfg.	UW	155.31	175.80	(11.7%)
22 Toyota Boshoku	UW	238.07	306.21	(22.3%)
23 Sumitomo Rubber	UW	101.23	106.38	(4.8%)
24 Subaru Corp	UW	357.68	375.00	(4.6%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit6: China Coverage Rankings

China		2023e EPS		
		MS	Cons	
1 Guangzhou Auto	OW	0.57	0.61	(6.1%)
2 Great Wall	OW	0.62	0.64	(3.6%)
3 Yongda Auto	OW	0.57	0.62	(8.9%)
4 Minth Group	OW	1.81	1.80	0.8%
5 Nexteer Automotive	OW	0.06	0.04	50.0%
6 Dongfeng	EW	1.11	0.65	71.1%
7 BYD	EW	7.45	10.56	(29.4%)
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	0.51	(34.3%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit7: India Coverage Rankings

India		2023e EPS		
		MS	Cons	
1	Maruti Suzuki	OW	416.87	453.03 (8.0%)
2	Bharat Forge	OW	21.63	26.36 (17.9%)
3	Ashok Leyland	OW	8.29	9.45 (12.2%)
4	Mahindra & Mahindra	OW	84.92	86.20 (1.5%)
5	Tata Motors	OW	39.48	45.89 (14.0%)
6	Exide Industries	OW	12.08	14.91 (18.9%)
7	Bajaj Auto	OW	241.79	284.75 (15.1%)
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	39.46	53.98 (26.9%)
11	Hero MotoCorp	UW	191.88	207.42 (7.5%)
12	Balkrishna Industries	UW	72.07	73.44 (1.9%)
13	Amara Raja	UW	43.44	47.84 (9.2%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 9: S.Korea Coverage Rankings

S.Korea		2023e EPS		
		MS	Cons	
1	Mando Corp	OW	3702.29	3990.17 (7.2%)
2	S&T Motiv	OW	8238.52	7329.70 12.4%
3	Kia Motors	OW	22846.37	23278.12 (1.9%)
4	Hyundai MOBIS	EW	35345.87	38126.68 (7.3%)
5	Hyundai Motor	EW	60705.87	49902.66 21.6%
6	Hankook Tire	EW	6376.73	6226.31 2.4%
7	Hanon Systems	UW	392.49	495.22 (20.7%)

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	2.17 9.0%
3	Global PMX	EW	7.01	6.95 0.8%
4	Hu Lane Associates	EW	8.26	8.31 (0.6%)

Source: Refinitiv, Morgan Stanley Research estimates

Note: Coverage Rankings are as of Nov 03, 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	
		3-Nov	Price Target	PT (%)	Rating	LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Mercedes-Benz	EUR	57.52	73.50	28%	EW	61.5	65.3	13.38	12.29	12.91	12.10	4.3x	4.7x	2.3x	2.5x	0.4x	0.4x	0.7x	0.6x
BMW	EUR	91.09	100.00	10%	EW	57.7	61.3	17.14	14.55	18.24	16.61	5.3x	6.3x	1.4x	1.4x	0.2x	0.2x	0.6x	0.6x
Daimler Truck Holding	EUR	29.75	43.00	45%	OW	24.5	26.0	4.45	4.32	4.41	4.29	6.7x	6.9x	5.7x	5.8x	0.7x	0.6x	1.1x	1.0x
Renault	EUR	33.88	44.00	30%	OW	10.0	10.6	13.36	12.75	13.35	13.11	2.5x	2.7x	NA	NA	NA	NA	0.3x	0.3x
Volkswagen	EUR	102.98	130.00	26%	EW	55.0	58.4	31.05	28.96	30.63	31.76	3.3x	3.6x	0.3x	0.3x	0.0x	0.0x	0.3x	0.3x
Stellantis	USD	18.34	22.00	20%	OW	61.2	61.2	5.81	5.00	5.90	5.41	3.2x	3.7x	NA	NA	NA	NA	0.7x	0.6x
Europe Weighted Average												4.2x	4.7x	1.9x	2.0x	0.3x	0.3x	0.6x	0.6x
North America																			
Ford Motor	USD	10.14	15.00	48%	OW	39.9	39.9	1.88	1.76	1.92	1.77	5.4x	5.8x	1.8x	1.5x	0.2x	0.2x	0.9x	0.8x
General Motors	USD	28.80	40.00	39%	OW	39.4	39.4	6.05	5.80	7.49	6.64	4.8x	5.0x	1.6x	1.5x	0.2x	0.2x	0.5x	0.5x
North America Weighted Average												5.1x	5.4x	1.7x	1.5x	0.2x	0.2x	0.7x	0.7x
China																			
BYD	HKD	241.00	242.00	0%	EW	737.4	94.2	8.42	10.32	10.90	14.56	28.6x	23.3x	11.3x	8.5x	1.0x	0.8x	4.8x	4.0x
Great Wall	HKD	11.48	13.00	13%	OW	221.2	28.3	0.62	0.98	0.83	1.09	18.5x	11.8x	18.8x	13.2x	1.3x	1.2x	1.4x	1.3x
Weichai Power	HKD	12.10	12.00	(1%)	EW	123.7	15.8	0.75	0.91	1.04	1.25	16.2x	13.3x	5.2x	4.6x	0.4x	0.4x	1.2x	1.2x
SAIC Motor	CNY	14.83	18.00	21%	OW	173.3	23.7	1.67	1.89	1.34	1.45	8.9x	NA	4.2x	3.3x	0.2x	0.1x	0.6x	0.6x
BAIC Motor	HKD	2.24	1.80	(20%)	UW	5.6	0.7	0.34	0.33	0.52	0.54	6.6x	NA	0.2x	0.5x	0.0x	0.1x	0.3x	0.3x
Sinotruk	HKD	14.28	20.00	40%	OW	39.4	5.0	1.37	1.69	1.54	1.94	10.4x	8.4x	2.6x	1.1x	0.2x	0.1x	0.9x	0.9x
Chongqing Changan	HKD	3.59	5.80	62%	OW	140.5	18.0	0.97	0.59	1.12	0.99	3.7x	6.1x	6.4x	9.7x	0.6x	0.5x	0.5x	0.5x
Jiangling Motors	CNY	6.20	NC	NA	NC	10.5	1.4	NA	NA	1.46	1.52	4.2x	4.1x	2.4x	2.3x	0.2x	0.2x	0.5x	0.5x
Dongfeng	HKD	3.53	4.10	16%	EW	9.3	1.2	1.11	1.02	0.65	0.65	3.2x	3.5x	0.6x	0.8x	0.1x	0.1x	0.2x	0.2x
Anhui Jianghuai	CNY	18.54	11.60	(37%)	EW	40.5	5.5	0.14	0.22	0.13	0.21	128.8x	86.0x	17.0x	16.3x	0.9x	0.9x	3.0x	2.9x
Zhengzhou Yutong Bus C	CNY	13.58	13.70	1%	EW	30.1	4.1	0.59	0.82	0.67	0.90	23.2x	16.6x	8.1x	6.0x	0.8x	0.6x	2.2x	2.0x
China Weighted Average												23.4x	19.9x	10.3x	8.2x	0.8x	0.7x	2.9x	2.4x
South Korea																			
Hyundai Motor	KRW	173,400.00	200,000.00	15%	EW	43,070.9	32.1	60,705.87	45,330.81	49,902.66	46,741.38	2.9x	3.8x	1.8x	2.1x	0.2x	0.2x	0.4x	0.4x
Kia Motors	KRW	77,600.00	98,000.00	26%	OW	31,198.6	23.2	22,846.37	21,714.89	23,278.12	22,203.97	3.4x	3.6x	2.2x	2.3x	0.3x	0.3x	0.7x	0.6x
South Korea Weighted Average												3.1x	3.7x	2.0x	2.2x	0.3x	0.3x	0.5x	0.5x
Japan																			
Toyota Motor	JPY	2,760.00	2,700.00	(2%)	EW	45,029.4	299.2	263.04	269.91	289.50	299.36	10.5x	10.2x	6.2x	5.9x	0.9x	0.8x	1.2x	1.1x
Mazda Motor	JPY	1,476.00	1,600.00	8%	EW	932.5	6.2	291.29	292.84	296.46	291.40	5.1x	5.0x	1.3x	1.0x	0.1x	0.1x	0.6x	0.6x
Suzuki Motor	JPY	5,939.00	6,500.00	9%	OW	2,916.9	19.4	529.74	591.90	586.85	619.24	11.2x	10.0x	4.3x	3.9x	0.5x	0.5x	1.3x	1.2x
Mitsubishi Motors	JPY	485.80	700.00	44%	OW	724.0	4.8	88.25	99.98	99.03	102.33	5.5x	4.9x	1.8x	1.3x	0.2x	0.1x	0.8x	0.7x
Subaru Corp	JPY	2,673.00	2,600.00	(3%)	UW	2,056.0	13.7	357.68	371.72	407.62	393.55	7.5x	7.2x	11.1x	9.4x	0.3x	0.3x	0.9x	0.8x
Nissan Motor	JPY	595.00	620.00	4%	EW	2,511.3	16.7	87.46	95.91	106.42	108.73	6.8x	6.2x	1.8x	1.3x	0.1x	0.1x	0.4x	0.4x
Honda Motor	JPY	1,573.00	1,900.00	21%	OW	8,548.1	56.8	219.04	235.95	213.96	219.14	7.2x	6.7x	2.7x	2.3x	0.2x	0.2x	0.7x	0.6x
Japan Weighted Average												9.7x	9.3x	5.5x	5.1x	0.7x	0.6x	1.1x	1.0x
India																			
Maruti Suzuki	INR	10,272.2	12,304.0	20%	OW	3,103.0	37.3	416.9	463.6	453.0	499.1	24.6x	22.2x	15.7x	13.6x	1.8x	1.6x	4.5x	4.0x
Bajaj Auto	INR	5,359.2	5,449.0	2%	OW	1,516.4	18.2	241.8	290.0	284.8	317.8	22.2x	18.5x	16.7x	14.3x	3.2x	2.7x	5.6x	5.2x
TVS Motor	INR	1,599.5	1,485.0	(7%)	EW	759.9	9.1	39.5	48.5	54.0	63.7	40.5x	33.0x	22.8x	18.8x	2.5x	2.2x	10.0x	8.1x
Hero MotoCorp	INR	3,090.8	2,521.0	(18%)	UW	617.8	7.4	191.9	214.0	207.4	235.3	16.1x	14.4x	9.4x	8.3x	1.3x	1.2x	3.5x	3.2x
Mahindra & Mahindra	INR	1,468.6	1,697.0	16%	OW	1,826.2	21.9	84.9	95.5	86.2	90.2	17.3x	15.4x	12.0x	10.7x	1.7x	1.5x	3.4x	2.9x
Tata Motors	INR	647.8	711.0	10%	OW	2,375.7	28.5	39.5	48.4	55.0	66.3	11.8x	9.8x	4.8x	4.2x	0.7x	0.6x	4.1x	3.1x
Balkrishna Industries	INR	2,541.5	1,928.0	(24%)	UW	491.3	5.9	72.1	97.2	90.8	110.0	35.3x	26.1x	21.7x	16.7x	5.2x	4.4x	5.7x	5.0x
Ashok Leyland	INR	168.3	214.0	27%	OW	494.2	5.9	8.3	9.1	9.4	11.8	20.3x	18.4x	11.8x	10.8x	1.3x	1.2x	5.0x	4.3x
India Weighted Average												21.3x	18.2x	13.1x	11.3x	1.9x	1.7x	4.8x	4.1x
Global Weighted Average												11.6x	10.5x	6.3x	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 Nov 03, 2023.

EV OEMs Comps

Exhibit 11: EV OEM Comps

Company	Currency	Price at 3 Nov	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	223.88	380.00	70%	OW	711.7	711.7	741.7	2.48	1.89	3.11	3.94	90.1x	118.2x	56.0x	56.1x	7.7x	6.3x	13.9x	12.4x
Lucid	USD	4.70	5.00	6%	UW	10.7	10.7	6.7	-1.16	-0.75	-1.50	-1.16	NM	NM	NM	NM	9.5x	3.7x	2.0x	2.6x
Flaker	USD	4.75	4.00	(16%)	UW	1.0	1.0	2.9	-1.03	-0.60	-0.85	-0.35	NM	NM	NM	NM	1.3x	1.0x	12.8x	24.4x
Route	USD	17.95	24.00	33%	OW	16.9	16.9	15.1	-0.76	-3.60	-0.12	-3.55	NM	NM	NM	NM	3.4x	2.8x	2.1x	2.3x
North America Weighted Average													90.1x	118.2x	56.0x	56.1x	7.6x	6.2x	13.5x	12.0x
China																				
NIO Inc.	USD	8.03	18.70	133%	OW	12.0	12.0	195.4	-5.83	-0.30	-1.48	-0.93	NM	NM	NM	NM	57.8x	3.1x	1.8x	4.7x
Li Auto Inc.	USD	36.20	53.00	46%	OW	31.6	31.6	201.3	3.35	6.83	1.03	1.67	10.8x	5.3x	40.7x	21.0x	1.7x	1.2x	4.5x	3.6x
BYD Company	HKD	241.00	242.00	0%	EW	737.4	94.2	602.2	8.42	10.32	10.90	14.56	28.6x	23.3x	11.6x	8.7x	1.1x	0.8x	4.8x	4.0x
Xpeng Inc.	USD	17.28	25.40	47%	OW	11.4	11.4	102.9	-8.21	-7.21	-1.18	-0.62	NM	NM	NM	NM	3.6x	1.8x	3.5x	4.4x
China Weighted Average													24.2x	18.5x	19.0x	15.5x	1.6x	1.0x	4.6x	3.9x
Global Weighted Average													80.2x	103.3x	50.4x	49.6x	6.6x	5.3x	12.0x	10.7x

Source: Refinitiv, Morgan Stanley Research estimates Note: PTs & Ratings are as of Nov 03, 2023

Global Supplier Comps

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

Company	Currency	Price at 3-Nov	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Autoliv	USD	96.45	90.00	(7%)	EW	8.1	8.1	6.22	10.18	7.45	9.84	15.5x	9.5x	7.8x	5.5x	0.9x	0.8x	3.0x	2.7x
Europe Weighted Average												15.5x	9.5x	7.8x	5.5x	0.9x	0.8x	3.0x	2.7x
North America (1)																			
APTIV	USD	79.82	100.00	25%	EW	22.6	22.6	4.78	5.54	4.73	6.00	16.7x	14.4x	8.3x	7.0x	1.2x	1.1x	2.2x	1.9x
BorgWarner Inc.	USD	33.13	47.00	42%	OW	7.8	7.8	3.81	4.53	3.83	4.37	8.7x	7.3x	4.8x	3.9x	0.7x	0.6x	1.0x	0.9x
Lear	USD	132.97	140.00	5%	EW	7.7	7.7	11.77	14.87	12.01	15.94	11.3x	8.9x	4.7x	3.8x	0.3x	0.3x	2.9x	2.6x
Mobileye Global Inc	USD	36.50	37.00	1%	EW	3.4	3.4	0.73	0.81	0.77	0.85	49.9x	45.3x	31.5x	21.0x	6.6x	5.3x	2.0x	1.9x
Magna International	USD	55.86	65.00	16%	OW	15.9	15.9	5.40	6.70	5.27	6.57	10.3x	8.3x	3.9x	3.1x	0.3x	0.3x	1.0x	0.9x
Adient	USD	36.56	38.00	4%	UW	3.4	3.4	2.17	3.01	2.21	3.62	16.8x	12.2x	5.5x	4.8x	0.3x	0.3x	NM	NM
Visteon	USD	114.54	145.00	27%	EW	3.2	3.2	6.14	8.10	6.70	9.29	18.7x	14.1x	8.0x	6.3x	0.7x	0.7x	8.3x	6.5x
American Axle	USD	7.49	10.00	34%	OW	0.9	0.9	0.18	0.46	0.08	0.74	41.5x	16.3x	4.2x	3.4x	0.5x	0.4x	1.2x	1.1x
North America Weighted Average												15.7x	12.9x	7.4x	5.8x	1.1x	0.9x	2.1x	1.8x
Japan																			
Denso	JPY	2,308	3,000	30%	OW	7,273	48.3	158	187	181	202	14.6x	12.3x	7.3x	6.3x	1.0x	0.9x	1.5x	1.4x
Toyota Industries	JPY	11,535	14,800	28%	OW	3,759	25.0	723	829	770	852	16.0x	13.9x	10.9x	9.8x	1.4x	1.3x	0.9x	0.9x
Aisin Seiki	JPY	5,364	6,000	12%	EW	1,581	10.5	488	599	602	669	11.0x	9.0x	4.7x	3.7x	0.4x	0.4x	0.8x	0.7x
Koito Mfg.	JPY	2,377	1,900	(20%)	UW	764	5.1	155	172	176	196	15.3x	13.8x	4.7x	4.1x	0.5x	0.5x	1.1x	1.1x
Stanley Electric	JPY	2,670	2,100	(21%)	EW	457	3.0	132	191	206	239	20.3x	14.0x	5.4x	4.6x	0.8x	0.8x	0.9x	0.9x
Toyoda Gosei	JPY	3,240	3,000	(7%)	EW	421	2.8	274	333	333	374	11.8x	9.7x	4.5x	3.8x	0.5x	0.4x	0.9x	0.8x
Toyota Boshoku	JPY	2,746	2,400	(13%)	UW	515	3.4	238	283	306	330	11.5x	9.7x	3.6x	3.1x	0.2x	0.2x	1.2x	1.1x
EXEDY	JPY	2,565	2,300	(10%)	EW	125	0.8	217	255	239	283	11.8x	10.1x	3.4x	3.1x	0.4x	0.4x	0.5x	0.5x
NHK Spring	JPY	1,119	1,300	16%	OW	273	1.8	101	137	125	152	11.1x	8.2x	4.7x	3.8x	0.4x	0.3x	0.7x	0.7x
Nifco	JPY	3,725	4,000	7%	EW	373	2.5	272	286	303	334	13.7x	13.0x	5.6x	5.0x	0.9x	0.8x	1.5x	1.4x
Musashi Seimitsu	JPY	1,499	1,900	27%	OW	98	0.7	102	158	194	230	14.7x	9.5x	6.5x	5.4x	0.6x	0.5x	1.0x	0.9x
Unipres	JPY	1,093	1,150	5%	EW	52	0.3	117	164	148	189	9.3x	6.7x	2.7x	2.1x	0.3x	0.2x	0.4x	0.3x
NOK	JPY	1,814	2,300	27%	OW	314	2.1	93	184	163	217	19.6x	9.8x	5.4x	4.4x	0.5x	0.5x	0.6x	0.6x
Japan Weighted Average												14.5x	12.2x	7.3x	6.4x	0.9x	0.8x	1.2x	1.1x
China																			
Fuyao Glass	HKD	35.75	36.00	1%	EW	109.1	13.9	2.12	2.51	2.17	2.42	16.9x	14.2x	9.6x	7.8x	2.6x	2.2x	2.6x	2.4x
Huayu Automotive	HKD	17.71	25.00	41%	OW	55.8	7.6	2.13	2.30	2.24	2.51	8.3x	7.7x	3.3x	2.6x	0.2x	0.2x	1.0x	0.9x
Mintih Group Limited	HKD	17.62	28.00	59%	OW	21.9	2.8	1.81	2.36	1.80	2.27	9.7x	7.5x	6.2x	4.4x	0.9x	0.7x	0.9x	0.8x
Changzhou Xingyu	HKD	145.66	172.00	18%	OW	41.6	5.7	3.86	5.30	4.07	5.57	37.8x	27.5x	25.2x	18.7x	3.9x	3.2x	4.5x	4.1x
Nexteer Automotive Group	HKD	3.82	7.50	96%	OW	75.0	9.6	0.06	0.09	0.31	0.53	62.6x	43.1x	2.8x	2.4x	0.3x	0.3x	0.6x	0.6x
China Weighted Average												28.8x	21.4x	8.7x	6.8x	1.6x	1.4x	2.0x	1.8x
South Korea																			
Hyundai MOBIS	KRW	218,000	240,000	10%	EW	20,554	15.3	35,346	33,960	38,127	40,023	6.2x	6.4x	5.8x	5.2x	0.3x	0.3x	0.5x	0.5x
LG Chem	KRW	471,000	490,000	4%	EW	35,602	26.5	24,868	41,208	25,599	43,910	18.9x	11.4x	5.9x	5.2x	0.8x	0.8x	1.0x	0.9x
Hanon Systems	KRW	7,080	7,800	10%	UW	3,779	2.8	392	490	495	585	18.0x	14.5x	6.8x	6.2x	0.7x	0.7x	1.6x	1.5x
Mando Corp	KRW	33,500	54,000	61%	OW	1,573	1.2	3,702	4,490	3,990	5,475	9.0x	7.5x	5.0x	5.0x	0.4x	0.4x	0.7x	0.6x
South Korea Weighted Average												14.4x	9.8x	5.9x	5.2x	0.6x	0.6x	0.9x	0.8x
Taiwan																			
Cub Elecparts Inc	TWD	121	140	16%	EW	14	0.4	7.01	9.26	1.61	2.30	17.2x	13.0x	8.0x	6.4x	1.8x	1.5x	1.7x	1.6x
Hu Lane Associate Inc.	TWD	148	140	(5%)	EW	15	0.5	8.26	10.14	1.88	2.41	17.9x	14.6x	10.8x	9.3x	2.4x	2.1x	2.5x	2.3x
Hota Industrial Mfg.	TWD	63	70	11%	EW	18	0.5	2.36	2.55	0.49	0.58	26.7x	24.7x	8.5x	7.5x	2.5x	2.2x	1.9x	1.9x
Taiwan Weighted Average												21.0x	18.0x	9.1x	7.8x	2.3x	2.0x	2.0x	1.9x
India																			
Exide Industries	INR	256	212	(17%)	OW	218	2.6	12.08	14.37	14.91	11.53	21.2x	17.8x	11.4x	9.7x	1.3x	1.1x	1.8x	1.7x
Samvardhana Motherson	INR	91	91	0%	EW	614	7.4	4.62	6.10	5.79	11.53	19.6x	14.9x	8.9x	7.5x	0.8x	0.7x	2.5x	2.3x
Amara Raja	INR	621	579	(7%)	UW	106	1.3	45.43	51.45	53.29	55.99	13.7x	12.1x	7.3x	6.2x	0.9x	0.8x	1.8x	1.6x
India Weighted Average												19.3x	15.2x	9.3x	7.8x	0.9x	0.8x	2.3x	2.1x
Global Weighted Average												17.1x	13.4x	7.4x	6.2x	1.0x	0.9x	1.6x	1.4x

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 Nov 03, 2023

Global Tire Comps

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

Company	Currency	Price at 3-Nov	MS Price Target	Upside to PT (%)	MS Rating	Market Cap		MS EPS		Consensus EPS		P / E		EV / EBITDA		EV / Sales		P / B	
						LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Continental	EUR	63.04	NC	NA	NC	12.6	13.4	NA	NA	7.91	9.57	8.0x	6.6x	4.1x	3.7x	0.5x	0.4x	0.9x	0.8x
Pirelli & C. SpA	EUR	4.39	5.50	25%	OW	4.4	4.7	0.55	0.61	0.51	0.56	8.0x	7.2x	4.7x	4.8x	1.1x	1.0x	0.8x	0.7x
Michelin	EUR	28.33	34.00	20%	OW	20.2	21.5	3.16	3.23	3.21	3.30	9.0x	8.8x	4.1x	3.9x	0.8x	0.7x	1.1x	1.0x
Europe Weighted Average												8.5x	7.9x	4.2x	3.9x	0.7x	0.7x	1.0x	0.9x
Japan																			
Bridgestone	JPY	5,778	5,400	(7%)	EW	4,124	27.4	522	539	533	567	11.1x	10.7x	4.6x	4.2x	0.9x	0.9x	1.3x	1.2x
Toyo Tire & Rubber Co	JPY	2,219	2,200	(1%)	EW	342	2.3	347	276	364	324	6.4x	8.0x	4.6x	4.2x	0.7x	0.7x	0.9x	0.9x
Sumitomo Rubber	JPY	1,556	1,300	(16%)	UW	409	2.7	101	163	106	149	15.4x	9.5x	6.4x	5.4x	0.6x	0.5x	0.7x	0.7x
Yokohama Rubber	JPY	2,837	3,400	20%	OW	481	3.2	403	423	389	428	7.0x	6.7x	6.4x	5.3x	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	42,000	44,000	5%	EW	5,203	3.9	6,377	7,311	6,226	7,334	6.6x	NA	2.4x	2.0x	0.5x	0.4x	0.5x	0.5x
Korea Weighted Average												6.6x	NA	2.4x	2.0x	0.5x	0.4x	0.5x	0.5x
Global Weighted Average												10.1x	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 Nov 03, 2023

Global Dealer Comps

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

Company	Currency	Price at 3-Nov	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																				
Penske Automotive Group	USD	156.53	107.00	(32%)	UW	10.5	10.5	11.4	16.57	17.35	16.51	15.73	9.4x	9.0x	5.7x	5.6x	0.4x	0.4x	2.1x	1.8x
CarlMax	USD	66.96	80.00	19%	OW	10.6	10.6	16.1	3.03	3.38	2.96	3.69	22.1x	19.8x	14.6x	12.2x	0.6x	0.5x	2.3x	2.1x
Lithia Motors	USD	268.44	220.00	(18%)	UW	7.4	7.4	12.1	36.85	37.09	37.45	37.53	7.3x	7.2x	6.3x	7.0x	0.4x	0.4x	1.1x	1.0x
Sonic Automotive	USD	53.07	35.00	(34%)	UW	1.2	1.2	4.4	6.95	6.99	6.90	6.86	7.6x	7.6x	6.3x	5.4x	0.3x	0.3x	3.0x	2.4x
Carvana	USD	32.63	37.00	13%	UW	3.5	3.5	11.2	-2.10	-1.69	-0.82	-1.91	NM	NM	59.8x	37.1x	1.1x	1.1x	11.5x	134.5x
Group 1 Automotive	USD	277.58	200.00	(28%)	UW	3.8	3.8	5.8	45.57	41.49	44.99	41.07	6.1x	6.7x	5.8x	5.4x	0.3x	0.3x	1.3x	1.1x
Asbury	USD	210.57	165.00	(22%)	UW	4.3	4.3	7.2	33.25	31.20	33.08	31.43	6.3x	6.7x	6.4x	6.2x	0.5x	0.4x	1.2x	1.0x
AutoNation	USD	139.86	117.00	(16%)	UW	5.9	5.9	9.4	22.85	20.29	22.88	20.91	6.1x	6.9x	5.2x	4.7x	0.3x	0.3x	2.5x	1.8x
North America Weighted Average													11.0x	10.6x	11.8x	9.5x	0.5x	0.4x	2.6x	11.4x
China																				
China Yongda Auto	HKD	3.17	5.10	61%	OW	6.1	0.8	5.6	0.57	0.81	0.62	0.87	5.6x	3.9x	2.7x	2.1x	0.1x	0.1x	0.4x	0.4x
MeiDong	HKD	5.14	5.90	15%	OW	6.9	0.9	7.4	0.15	0.47	0.23	0.60	35.3x	11.0x	5.6x	4.1x	0.3x	0.3x	1.5x	1.4x
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	19.74	37.00	87%	OW	47.2	6.0	53.8	2.50	3.04	2.80	3.26	7.9x	6.5x	4.4x	3.5x	0.3x	0.3x	1.0x	0.9x
China Zhengtong Auto	HKD	0.41	0.39	(5%)	UW	1.2	0.2	18.4	0.08	0.23	-0.39	-0.33	5.0x	1.8x	9.5x	7.9x	0.7x	0.7x	2.5x	1.0x
China Weighted Average													10.6x	6.6x	4.4x	3.5x	0.3x	0.2x	1.0x	0.9x
Global Weighted Average													11.0x	10.0x	10.7x	8.7x	0.4x	0.4x	2.4x	9.9x

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 Nov 03, 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.	Hesai Motor	Porsche	Avis Budget
Price at Nov 03	225.80	33.20	630.00	45.06	134.60
Currency	SEK	TWD	TWD	EUR	USD

Company Name	Tong Yang Industry	Yulon Motor	Zhongsheng Group	Tesla	Hertz
Price at Nov 03	75.80	78.20	19.74	5.31	3.23
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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Global Stock Ratings Distribution

(as of October 31, 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	1337	37%	270	43%	20%	594	39%
Equal-weight/Hold	1664	46%	299	47%	18%	700	46%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	588	16%	61	10%	10%	220	15%
Total	3,592		630			1515	

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 11/2/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 11/1/18 : E/I; 7/24/19 : O/I; 1/12/21 : E/I; 10/14/21 : O/I; 4/22/22 : E/I

Price Target History: 10/29/18 : 210000; 1/9/19 : 200000; 4/29/19 : 220000; 7/24/19 : 280000; 3/9/20 : 260000; 4/8/20 : 210000; 4/27/20 : 200000; 7/10/20 : 230000; 7/24/20 : 250000; 8/24/20 : 260000; 10/29/20 : 300000; 1/12/21 : 360000; 4/13/21 : 340000; 4/23/21 : 310000; 10/14/21 : 330000; 1/14/22 : 320000; 3/17/22 : 260000; 4/11/22 : 270000; 4/22/22 : 230000; 7/8/22 : 220000; 7/22/22 : 250000; 1/10/23 : 240000; 4/12/23 : 250000; 10/31/23 : 240000

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)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

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.

Hyundai Motor (005380.KS) - As of 11/2/23 in KRW
Industry : S. Korea Autos & Shared Mobility



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

Price Target History: 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; 10/31/23 : 200000

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

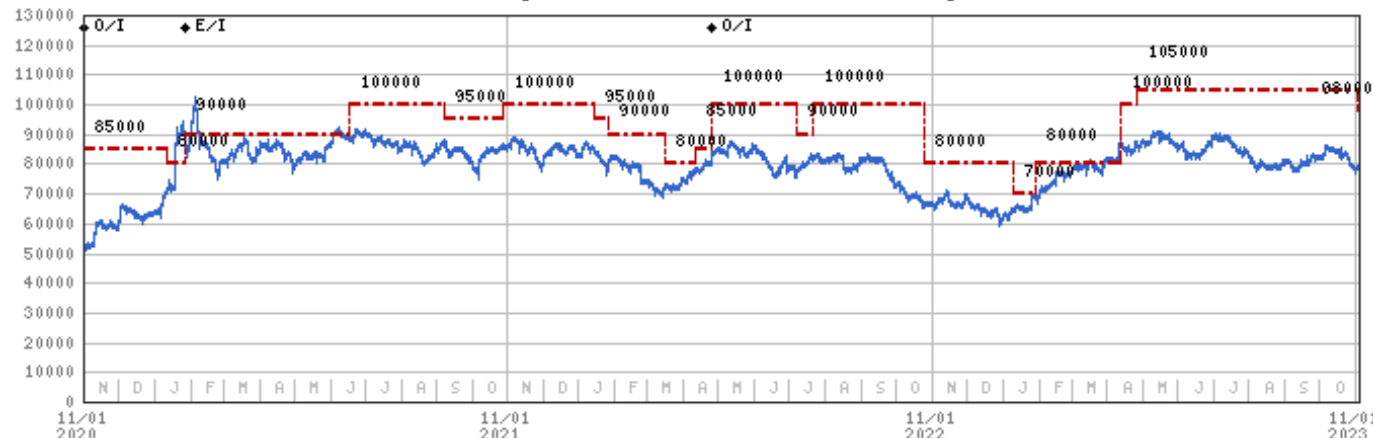
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)

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 11/2/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 11/1/18 : E/I; 1/9/20 : U/I; 3/26/20 : E/I; 6/2/20 : O/I; 1/28/21 : E/I; 4/26/22 : O/I

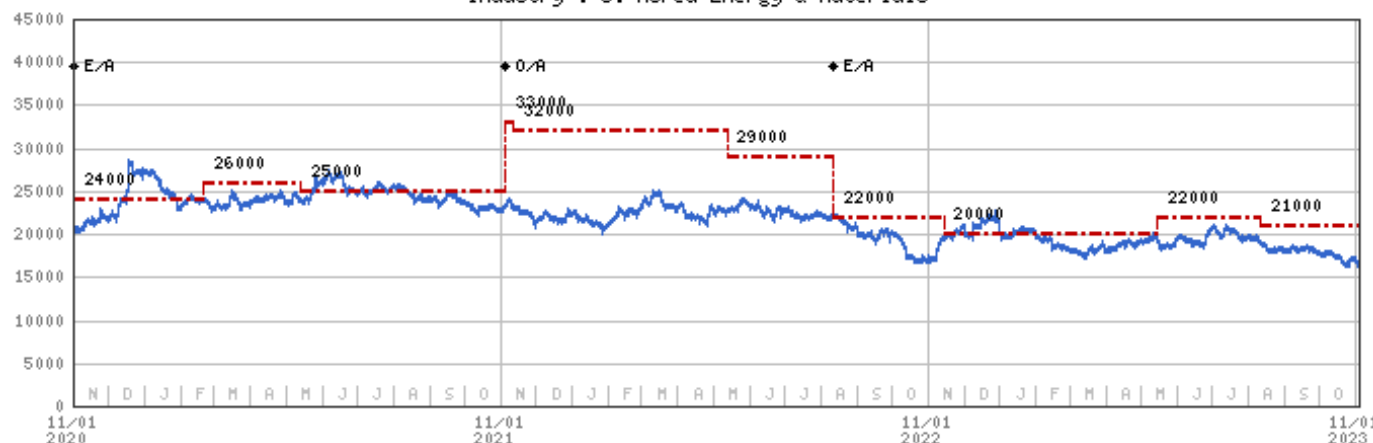
Price Target History: 10/26/18 : 31000; 1/9/19 : 34000; 4/9/19 : 37000; 4/25/19 : 40000; 10/24/19 : 45000; 1/9/20 : 34000;
3/9/20 : 32000; 3/26/20 : 29000; 4/8/20 : 28000; 6/2/20 : 40000; 7/24/20 : 45000; 8/24/20 : 52000; 9/14/20 : 64000; 10/27/20 : 85000;
1/12/21 : 80000; 1/28/21 : 90000; 6/18/21 : 100000; 9/7/21 : 95000; 10/28/21 : 100000; 1/14/22 : 95000; 1/26/22 : 90000;
3/17/22 : 80000; 4/11/22 : 85000; 4/26/22 : 100000; 7/8/22 : 90000; 7/22/22 : 100000; 10/25/22 : 80000; 1/10/23 : 70000;
1/30/23 : 80000; 4/12/23 : 100000; 4/26/23 : 105000; 11/2/23 : 98000

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)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

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.

Korea Electric Power (015760.KS) - As of 11/2/23 in KRW
Industry : S. Korea Energy & Materials



Stock Rating History: 11/1/18 : E/A; 12/7/18 : O/A; 5/14/19 : E/A; 11/5/21 : O/A; 8/12/22 : E/A

Price Target History: 8/13/18 : 33000; 12/7/18 : 39000; 1/4/19 : 45000; 5/14/19 : 30000; 8/15/19 : 28000; 3/2/20 : 24000;
2/20/21 : 26000; 5/14/21 : 25000; 11/5/21 : 33000; 11/12/21 : 32000; 5/13/22 : 29000; 8/12/22 : 22000; 11/14/22 : 20000;
5/15/23 : 22000; 8/11/23 : 21000

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)

Effective January 13, 2014, the stocks covered by Morgan Stanley Asia Pacific will be rated relative to the analyst's industry (or industry team's) coverage.

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INDUSTRY COVERAGE: Autos & Shared Mobility

COMPANY (TICKER)	RATING (AS OF)	PRICE* (11/02/2023)
Adam Jonas, CFA		
Adient PLC (ADNT.N)	U (03/17/2021)	\$34.54
American Axle & Manufacturing Holdings Inc (AXL.N)	O (02/28/2022)	\$6.50
Aptiv Plc (APT.V.N)	E (11/28/2022)	\$77.20
Asbury Automotive Group Inc (ABG.N)	U (05/20/2022)	\$201.77
AutoNation Inc. (AN.N)	U (01/17/2023)	\$135.12
Avis Budget Group Inc (CAR.O)	O (06/20/2023)	\$186.98
BorgWarner Inc. (BWA.N)	O (05/15/2023)	\$32.26
Carmax Inc (KMX.N)	O (07/10/2018)	\$63.64
Carvana Co (CVNA.N)	U (07/26/2023)	\$29.92
Ferrari NV (RACE.N)	O (05/09/2019)	\$323.42
Fisker Inc (FSR.N)	U (01/25/2023)	\$4.77
Ford Motor Company (F.N)	O (10/05/2022)	\$10.14
FREYR Battery SA (FREY.N)	O (06/28/2023)	\$3.43
General Motors Company (GM.N)	O (05/01/2023)	\$28.80
Group 1 Automotive, Inc (GPI.N)	U (05/20/2022)	\$267.41
Harley-Davidson Inc (HOG.N)	O (03/21/2023)	\$27.85
Hertz Global Holdings Inc (HTZ.O)	E (12/06/2021)	\$9.15
Lear Corporation (LEA.N)	E (02/28/2022)	\$127.79
Li-Cycle Holdings Corp. (LICY.N)	U (01/25/2023)	\$1.61
Lithia Motors Inc. (LAD.N)	U (02/09/2021)	\$254.63
Lucid Group Inc (LCID.O)	U (09/13/2021)	\$4.54
Magna International Inc. (MGA.N)	O (10/14/2021)	\$49.04
Mobileye Global Inc (MBLY.O)	E (07/24/2023)	\$36.45
Penske Automotive Group, Inc (PAG.N)	U (11/17/2021)	\$150.79
Quantumscape Corp (QS.N)	U (11/09/2022)	\$5.68

Rivian Automotive, Inc. (RIVN.O)	O (12/05/2021)	\$17.59
Sonic Automotive Inc (SAH.N)	U (11/17/2021)	\$51.01
Tesla Inc (TSLA.O)	O (09/10/2023)	\$218.51
Visteon Corporation (VC.O)	E (06/01/2022)	\$111.30

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