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Autos & Shared Mobility | North America

Global Auto Monitor: Can Legacy Auto Strike 'Hybrid' Deals With China and EV Upstarts?

Old guard OEMs have capital and need capability. Many EV players have capability and lack capital. Can harmony be found in working together?

What Others Are Reading - Our Most Read Reports

[NORTH AMERICA] **Global EV Tracker: Tesla Cedes Share to Chinese, Others**

(Sep 06) In the US, EV penetration is grinding higher while Tesla share falls towards 50%. In Europe, EV penetration has softened with BYD gaining share. In China, domestic brands are taking share from TSLA. BYD tops Tesla as world's biggest EV player.

[JAPAN] **Announcement of Executive Structure Changes at Software Sub Woven by Toyota; Ties with Denso Are Being Reinforced****(Sep 07)**

Upgrading Honda to OW: N America Strength vs China Risk Firm US demand and slower-than-expected growth in vehicle incentives. Fears for decline in J-OEMs' sales in China dragging out, but given recovering US/Japan shipments & product mix improvement, we raise OEM earnings forecasts.

Upgrade Honda, where new platform may improve margins, to OW.

[INDIA] Inventory Build to Support QoQ Margin Expansion Retail sales momentum remained steady during the quarter while restocking demand drove wholesales. Four-wheeler OEMs like MSIL to lead on QoQ margin expansion in F2Q23.

[CHINA] FAW: Discontinuation of Coverage Effective immediately, we are discontinuing coverage of FAW Car Company (000800.SZ), due to reallocation of resources. All prior research on FAW should no longer be relied upon.

[CHINA] China EV - A Strong Statement in Europe China auto brands made a buzz-worthy impact at the IAA Mobility Show in Munich this week, on the back of competitive EV launches and advanced intelligent technology. Establishing a meaningful presence offshore is likely to be a long journey, but Chinese EV makers are moving at full throttle.

[CHINA] BYD: Seal DM-i launch - Undercutting mainstream competition BYD launched its Seal DM-i at a lower starting price of Rmb166.8k (vs. BEV's price of Rmb189.8k), aiming to take on JV brands such as Honda, Toyota, and VW by undercutting comparable models in the B-class sedan segment.

MORGAN STANLEY & CO. LLC

Adam Jonas, CFA

Equity Analyst

Adam.Jonas@morganstanley.com

+1 212 761-1726

MORGAN STANLEY MUFG SECURITIES CO., LTD.+

Shinji Kakiuchi

Equity Analyst

Shinji.Kakiuchi@morganstanleymufg.com

+81 3 6836-5416

MORGAN STANLEY & CO. INTERNATIONAL PLC+

Ross A MacDonald, CFA

Equity Analyst

Ross.MacDonald@morganstanley.com

+44 20 7425-0240

MORGAN STANLEY INDIA COMPANY PRIVATE LIMITED+

Binay Singh

Equity Analyst

Binay.Singh@morganstanley.com

+91 22 6118-1158

MORGAN STANLEY ASIA LIMITED+

Tim Hsiao

Equity Analyst

Tim.Hsiao@morganstanley.com

+852 2848-1982

MORGAN STANLEY & CO. INTERNATIONAL PLC, SEOUL BRANCH+

Young Suk Shin

Equity Analyst

Young.Shin@morganstanley.com

+82 2 399-4994

MORGAN STANLEY ASIA LIMITED+

Shelley Wang, CFA

Equity Analyst

Shelley.Wang@morganstanley.com

+852 3963-0047

Joey Xu, CFA

Equity Analyst

Joey.Xu@morganstanley.com

+852 3963-0337

MORGAN STANLEY INDIA COMPANY PRIVATE LIMITED+

Sushrut Ghalsashi, CFA

Research Associate

Sushrut.Ghalsashi@morganstanley.com

+91 22 6118-1073

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Global picks: RACE, 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
Maruti Suzuki	OW	RS 11,164 → RS 11,963
FAW	UW	CNY 5.00 → CNY 6.40

Source: Morgan Stanley Research estimates

Global Auto Sales Summary

Exhibit2: Global Auto Sales Summary

Country	LIGHT VEHICLE SALES FORECASTS								GROWTH %								CAGR '22-25E
	2018	2019	2020	2021	2022	2023e	2024e	2025e	2018	2019	2020	2021	2022	2023e	2024e	2025e	
Asia																	
China	23.7	21.4	20.1	21.5	23.7	23.6	22.9	23.4	-4.2%	-9.5%	-6.1%	6.6%	10.2%	0.0%	-3.2%	2.2%	-0.4%
Japan	5.2	5.1	4.5	4.3	4.9	4.9	5.0	5.2	1.0%	-1.5%	-12.7%	-3.1%	13.7%	0.2%	0.8%	5.0%	2.0%
South Korea	1.6	1.5	1.6	1.4	1.4	1.4	1.5	1.5	5.0%	-2.0%	4.4%	-10.4%	-4.5%	5.0%	2.0%	2.0%	3.0%
India	3.4	3.0	2.4	3.1	3.8	4.2	4.5	4.9	5.1%	-12.7%	-17.9%	26.7%	23.0%	9.6%	7.9%	10.0%	9.2%
Indonesia	1.1	0.9	0.5	0.8	0.9	0.9	0.9	0.9	4.9%	-9.8%	-47.8%	65.9%	6.2%	2.3%	1.7%	1.7%	1.9%
Australia	1.1	1.0	0.9	1.0	1.1	1.0	1.0	1.1	-3.2%	-7.7%	-13.9%	15.7%	3.8%	-8.5%	4.1%	2.3%	-0.9%
Thailand	1.0	1.0	0.8	0.7	0.8	0.8	0.9	0.9	19.9%	-3.1%	-21.3%	-5.3%	11.8%	2.5%	3.4%	1.8%	2.6%
Rest of Asia	2.5	2.7	2.2	1.5	1.7	1.8	1.8	1.9	14.1%	7.9%	-19.4%	-29.5%	12.5%	3.9%	0.4%	5.1%	3.1%
Total Asia	39.6	36.8	33.0	34.5	38.3	38.7	38.4	39.8	-0.7%	-7.1%	-10.2%	4.4%	11.0%	1.2%	-0.7%	3.6%	1%
North America																	
US	17.3	17.1	14.6	15.1	13.9	15.0	16.0	16.2	-0.2%	-1.3%	-14.5%	3.4%	-7.6%	7.7%	6.7%	1.0%	5.1%
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	16.7	17.8	18.9	19.2	-0.9%	-1.9%	-15.6%	3.9%	-5.7%	6.3%	6.4%	1.4%	4.7%
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	15.4	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	Ferrari	OW	€ 6.40	€ 7.02	(8.8%)
2	Harley-Davidson	OW	4.59	4.60	(0.2%)
3	Ford Motor	OW	2.12	2.09	1.5%
4	General Motors	OW	7.78	7.68	1.3%
5	American Axle	OW	0.47	0.37	24.6%
6	Magna International	OW	5.40	5.32	1.5%
7	BorgWarner Inc.	OW	3.81	3.82	(0.4%)
8	Avis Budget	OW	37.57	36.94	1.7%
9	FREYR Battery	OW	-1.39	-1.15	NM
10	CarMax	OW	3.03	3.02	0.6%
11	Rivian	OW	-5.65	-5.19	NM
12	Tesla	EW	3.26	3.42	(4.7%)
13	Hertz	EW	1.93	2.38	(18.7%)
14	Lear	EW	11.77	11.91	(1.2%)
15	Visteon	EW	6.14	6.72	(8.7%)
16	APTIV	EW	4.78	4.72	1.4%
17	Mobileye Global	EW	0.70	0.70	0.0%
18	Carvana	UW	-3.79	-3.70	NM
19	Adient	UW	2.17	2.16	0.6%
20	AutoNation	UW	22.76	22.87	(0.5%)
21	Penske Automotive Group	UW	16.79	16.55	1.5%
22	Group 1 Automotive	UW	46.08	44.25	4.1%
23	Lithia Motors	UW	36.92	38.26	(3.5%)
24	Asbury Automotive	UW	33.94	33.50	1.3%
25	Sonic Automotive	UW	6.62	6.67	(0.7%)
26	Lucid	UW	-1.21	-1.49	NM
27	Li-Cycle	UW	-0.93	-0.92	NM
28	QuantumScape	UW	-0.89	-0.82	NM
29	Fisker	UW	-0.96	-0.84	NM

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 5: Europe Coverage Rankings

Europe			2023e EPS		
			MS	Cons	
1	Michelin	OW	3.15	3.16	(0.2%)
2	Daimler Truck Holding	OW	4.45	4.44	0.2%
3	Pirelli	OW	0.56	0.51	10.9%
4	Aramis Autos	EW	-0.25	-0.39	NM
5	Volkswagen	EW	31.05	31.29	(0.8%)
6	Mercedes-Benz	EW	13.38	13.11	2.0%
7	Autoliv	EW	6.93	6.71	3.3%
8	BMW	EW	17.14	17.57	(2.5%)
9	Volvo	EW	24.88	25.49	(2.4%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 4: Japan Coverage Rankings

Japan			2023e EPS		
			MS	Cons	
1	Denso	OW	621.16	717.32	(13.4%)
2	NHK Spring	OW	109.93	131.24	(16.2%)
3	NOK	OW	140.52	172.09	(18.3%)
4	Mitsubishi Motors	OW	88.25	94.65	(6.8%)
5	Musashi Seimitsu	OW	136.22	203.90	(33.2%)
6	Suzuki Motor	OW	529.74	571.78	(7.4%)
7	Yokohama Rubber	OW	352.84	371.81	(5.1%)
8	Toyota Motor	EW	263.04	268.98	(2.2%)
9	Unipres	EW	114.67	92.99	23.3%
10	Mazda Motor	EW	291.29	277.83	4.8%
11	Toyota Industries	EW	682.82	756.20	(9.7%)
12	Toyoda Gosei	EW	266.44	308.65	(13.7%)
13	Toyo Tire & Rubber	EW	233.93	332.15	(29.6%)
14	Bridgestone	EW	527.86	542.48	(2.7%)
15	Stanley Electric	EW	164.79	224.35	(26.5%)
16	Honda Motor	OW	658.79	608.95	8.2%
17	EXEDY	EW	202.32	230.01	(12.0%)
18	Koito Mfg.	EW	164.71	179.38	(8.2%)
19	Nissan Motor	EW	87.46	104.36	(16.2%)
20	Aisin Seiki	UW	408.13	575.70	(29.1%)
21	Nifco	UW	230.01	294.29	(21.8%)
22	Toyota Boshoku	UW	232.76	290.98	(20.0%)
23	Sumitomo Rubber	UW	90.78	99.62	(8.9%)
24	Subaru Corp	UW	357.68	357.00	0.2%

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 6: China Coverage Rankings

China			2023e EPS		
			MS	Cons	
1	Guangzhou Auto	OW	0.69	0.70	(1.4%)
2	Great Wall	OW	0.62	0.67	(7.6%)
3	Yongda Auto	OW	0.57	0.62	(9.3%)
4	Minth Group	OW	1.81	1.81	0.2%
5	Nexteer Automotive	OW	0.06	0.05	20.0%
6	Dongfeng	EW	1.11	0.71	57.3%
7	BYD	EW	7.45	9.72	(23.3%)
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	(34.1%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit7: India Coverage Rankings

India		2023e EPS		
		MS	Cons	
1	Maruti Suzuki	OW	381.16	432.02 (11.8%)
2	Bharat Forge	OW	25.38	26.80 (5.3%)
3	Ashok Leyland	OW	8.29	9.72 (14.7%)
4	Mahindra & Mahindra	OW	84.92	86.02 (1.3%)
5	Tata Motors	OW	39.48	45.13 (12.5%)
6	Exide Industries	OW	12.08	14.95 (19.2%)
7	Bajaj Auto	OW	240.25	278.23 (13.7%)
8	Apollo Tyres	EW	26.05	26.13 (0.3%)
9	Eicher Motors Ltd.	EW	106.53	101.83 4.6%
10	TVS Motor	EW	39.86	52.47 (24.0%)
11	Hero MotoCorp	UW	179.33	200.54 (10.6%)
12	Balkrishna Industries	UW	75.31	75.20 0.1%
13	Amara Raja	UW	43.44	47.95 (9.4%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 9: S.Korea Coverage Rankings

S.Korea		2023e EPS		
		MS	Cons	
1	Mando Corp	OW	4204.74	4717.58 (10.9%)
2	S&T Motiv	OW	7700.40	7379.60 4.3%
3	Kia Motors	OW	21964.60	22387.90 (1.9%)
4	Hyundai MOBIS	EW	31010.45	36278.51 (14.5%)
5	Hyundai Motor	EW	55437.60	46896.04 18.2%
6	Hankook Tire	UW	4071.20	5345.35 (23.8%)
7	Hanon Systems	UW	392.49	515.05 (23.8%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit8: Taiwan Coverage Rankings

Taiwan		2023e EPS		
		MS	Cons	
1	Macauto Industrial	OW	9.78	9.38 4.3%
2	Hota Industrial	OW	3.32	2.98 11.4%
3	Global PMX	EW	10.93	7.93 37.8%
4	Hu Lane Associates	EW	9.89	8.81 12.3%
5	Cheng Shin Rubber	UW	2.23	2.35 (4.8%)

Source: Refinitiv, Morgan Stanley Research estimates

Note: Coverage Rankings are as of Sep 07, 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	
		8-Sep	Price Target	PT (%)	Rating	LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Mercedes-Benz	EUR	65.30	73.50	13%	EW	69.9	74.8	13.38	12.29	13.11	12.86	4.9x	5.3x	2.7x	2.9x	0.5x	0.5x	0.7x	0.7x
BMW	EUR	95.03	100.00	5%	EW	60.3	64.5	17.14	14.55	17.57	16.55	5.5x	6.5x	1.5x	1.5x	0.3x	0.2x	0.7x	0.6x
Daimler Truck Holding	EUR	32.35	43.00	33%	OW	26.6	28.5	4.45	4.32	4.44	4.25	7.3x	7.5x	6.0x	6.2x	0.7x	0.7x	1.2x	1.1x
Renault	EUR	36.30	44.00	21%	OW	10.7	11.5	12.17	12.70	12.78	12.83	3.0x	2.9x	NA	NA	NA	NA	0.3x	0.3x
Stellantis	USD	16.95	22.00	30%	OW	57.1	57.1	5.46	4.90	5.66	5.18	3.1x	3.5x	NA	NA	NA	NA	0.6x	0.6x
Volkswagen	EUR	105.76	130.00	23%	EW	57.3	61.3	31.05	28.96	31.29	32.25	3.4x	3.7x	0.3x	0.3x	0.0x	0.0x	0.3x	0.3x
Europe Weighted Average												4.5x	5.0x	2.1x	2.2x	0.3x	0.3x	0.6x	0.6x
North America																			
Ford Motor	USD	11.96	16.00	34%	OW	47.0	47.0	2.12	1.93	2.09	1.92	5.6x	6.2x	2.0x	1.7x	0.2x	0.2x	1.1x	1.0x
General Motors	USD	32.57	41.00	26%	OW	44.8	44.8	7.78	6.52	7.68	6.77	4.2x	5.0x	1.5x	1.5x	0.2x	0.2x	0.6x	0.5x
North America Weighted Average												4.9x	5.6x	1.8x	1.6x	0.2x	0.2x	0.8x	0.7x
China																			
BYD	HKD	247.20	249.00	1%	EW	753.3	96.1	7.45	9.88	9.72	13.26	33.2x	25.0x	12.8x	9.6x	1.1x	0.9x	5.0x	4.1x
Great Wall	HKD	9.37	13.00	39%	OW	197.2	25.2	0.62	0.98	0.67	0.92	15.1x	9.6x	16.1x	11.2x	1.1x	0.9x	1.1x	1.0x
Weichai Power	HKD	10.62	12.00	13%	EW	109.7	14.0	0.75	0.91	0.92	1.12	14.2x	11.7x	4.2x	3.8x	0.4x	0.3x	1.1x	1.0x
SAIC Motor	CNY	14.59	18.00	23%	OW	170.5	23.3	1.67	1.89	1.37	1.53	8.7x	NA	4.1x	3.2x	0.2x	0.1x	0.6x	0.5x
BAIC Motor	HKD	2.22	1.80	(19%)	UW	5.6	0.7	0.34	0.33	0.51	0.52	6.6x	NA	0.2x	0.5x	0.0x	0.1x	0.3x	0.3x
Zhengzhou Yutong Bus C	CNY	13.17	14.00	6%	EW	29.2	4.0	1.24	NA	0.61	0.88	10.6x	NA	4.9x	NA	0.6x	NA	1.6x	NA
Chongqing Changan	HKD	3.52	5.80	65%	OW	120.6	15.4	0.97	0.59	1.05	1.00	3.6x	6.0x	4.6x	6.7x	0.4x	0.4x	0.5x	0.4x
Jiangling Motors	CNY	6.26	NC	NA	NC	10.9	1.5	NA	NA	1.30	1.43	4.8x	4.4x	3.2x	2.5x	0.2x	0.2x	0.5x	0.5x
Dongfeng	HKD	2.93	4.10	40%	EW	8.1	1.0	1.11	1.02	0.71	0.73	2.6x	2.9x	0.3x	0.4x	0.0x	0.1x	0.1x	0.1x
Guangzhou	HKD	4.06	8.30	104%	OW	93.2	11.9	1.42	1.56	0.70	0.78	2.9x	2.6x	17.2x	7.3x	0.5x	0.4x	0.3x	0.3x
Anhui Jianghuai	CNY	13.30	11.60	(13%)	EW	29.0	4.0	0.14	0.22	0.12	0.22	92.4x	61.7x	11.7x	11.1x	0.6x	0.6x	2.1x	2.1x
China Weighted Average												22.8x	18.8x	10.8x	8.1x	0.8x	0.7x	2.9x	2.4x
South Korea																			
Hyundai Motor	KRW	185,700.00	230,000.00	24%	EW	45,536.8	34.1	55,437.60	46,280.77	46,896.04	44,811.53	3.3x	4.0x	2.0x	2.1x	0.2x	0.2x	0.4x	0.4x
Kia Motors	KRW	77,800.00	105,000.00	35%	OW	31,279.0	23.4	21,964.60	21,506.88	22,387.90	21,532.96	3.5x	3.6x	2.3x	2.3x	0.3x	0.3x	0.7x	0.6x
South Korea Weighted Average												3.4x	3.9x	2.1x	2.2x	0.3x	0.3x	0.5x	0.5x
Japan																			
Toyota Motor	JPY	2,603.00	2,700.00	4%	EW	42,467.9	288.7	263.04	269.91	268.98	280.39	9.9x	9.6x	5.8x	5.6x	0.8x	0.8x	1.1x	1.0x
Mazda Motor	JPY	1,643.00	1,600.00	(3%)	EW	1,038.1	7.1	291.29	292.84	277.83	281.40	5.6x	5.6x	1.5x	1.3x	0.1x	0.1x	0.7x	0.6x
Suzuki Motor	JPY	5,901.00	6,500.00	10%	OW	2,898.3	19.7	529.74	591.90	571.78	599.02	11.1x	10.0x	4.3x	3.8x	0.5x	0.5x	1.3x	1.2x
Mitsubishi Motors	JPY	588.40	700.00	19%	OW	876.9	6.0	88.25	99.98	94.65	98.96	6.7x	5.9x	2.3x	1.8x	0.2x	0.2x	1.0x	0.8x
Subaru Corp	JPY	2,888.50	2,600.00	(10%)	UW	2,221.8	15.1	357.68	371.72	377.76	378.16	8.1x	7.8x	12.5x	10.8x	0.3x	0.3x	1.0x	0.9x
Nissan Motor	JPY	623.50	620.00	(1%)	EW	2,631.6	17.9	87.46	95.91	104.36	108.40	7.1x	6.5x	1.9x	1.5x	0.1x	0.1x	0.5x	0.4x
Honda Motor	JPY	4,931.00	5,700.00	16%	OW	8,932.2	60.7	658.79	710.04	608.95	630.95	7.5x	6.9x	2.9x	2.6x	0.3x	0.2x	0.7x	0.6x
Japan Weighted Average												9.3x	8.9x	5.3x	4.9x	0.6x	0.6x	1.0x	1.0x
India																			
Maruti Suzuki	INR	10,332.6	11,963.0	16%	OW	3,121.3	37.5	381.2	445.4	432.0	474.5	27.1x	23.2x	16.9x	14.2x	1.8x	1.6x	4.6x	4.0x
Bajaj Auto	INR	4,760.0	5,063.0	6%	OW	1,346.9	16.2	240.2	285.0	278.2	310.6	19.8x	16.7x	15.6x	12.7x	2.9x	2.5x	5.0x	4.6x
TVS Motor	INR	1,480.3	1,171.0	(21%)	EW	703.2	8.5	39.9	44.8	52.5	59.6	37.1x	33.0x	21.0x	18.5x	2.4x	2.1x	9.3x	7.7x
Hero MotoCorp	INR	3,008.6	2,344.0	(22%)	UW	601.3	7.2	179.3	197.4	200.5	225.8	16.8x	15.2x	9.4x	8.3x	1.3x	1.1x	3.3x	3.0x
Mahindra & Mahindra	INR	1,567.7	1,697.0	8%	OW	1,949.5	23.4	84.9	95.5	86.0	90.0	18.5x	16.4x	12.8x	11.5x	1.8x	1.6x	3.6x	3.1x
Tata Motors	INR	627.2	711.0	13%	OW	2,297.2	27.6	39.5	48.4	53.0	64.5	11.8x	9.7x	4.6x	4.0x	0.7x	0.6x	3.9x	3.0x
Balkrishna Industries	INR	2,402.5	1,765.0	(27%)	UW	464.4	5.6	75.3	96.5	92.5	108.6	31.9x	24.9x	19.9x	15.8x	4.8x	4.2x	5.4x	4.7x
Ashok Leyland	INR	183.6	214.0	17%	OW	538.9	6.5	8.3	9.1	9.7	10.3	22.1x	20.1x	12.7x	11.7x	1.4x	1.3x	5.4x	4.6x
India Weighted Average												21.5x	18.5x	13.2x	11.3x	1.8x	1.6x	4.6x	3.9x
Global Weighted Average												11.3x	10.1x	6.3x	5.4x	0.7x	0.6x	1.6x	1.4x

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, 2020 and 2021 estimates refer to the fiscal years ending March 2021 and March 2022, 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 Sep 07, 2023

EV OEMs Comps

Exhibit 11: EV OEM Comps

Company	Currency	Price at 8-Sep	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	251.49	250.00	(1%)	EW	798.2	798.2	852.5	2.77	3.24	3.35	4.75	90.7x	77.5x	57.7x	42.7x	8.5x	6.5x	15.9x	13.2x
Lucid	USD	6.00	5.00	(17%)	UW	13.7	13.7	9.5	-1.21	-0.76	-1.48	-1.15	NM	NM	NM	NM	12.1x	4.8x	2.7x	3.6x
Flaker	USD	6.23	4.00	(36%)	UW	1.3	1.3	3.3	-0.96	-0.60	-0.84	-0.40	NM	NM	NM	NM	1.7x	1.2x	14.1x	23.1x
Rivian	USD	23.42	24.00	2%	OW	22.0	22.0	21.4	-0.65	-3.49	-0.19	-3.97	NM	NM	NM	NM	4.9x	3.9x	2.8x	3.1x
North America Weighted Average													90.7x	77.5x	57.7x	42.7x	8.5x	6.4x	15.4x	12.8x
China																				
NIO Inc.	USD	10.08	18.70	86%	OW	16.4	16.4	251.3	-5.82	-0.29	-1.36	-0.78	NM	NM	NM	74.3x	3.7x	1.8x	6.0x	5.5x
Li Auto Inc.	USD	38.97	53.00	37%	OW	34.8	34.8	222.2	3.35	6.83	0.89	1.59	11.5x	5.6x	45.2x	23.5x	1.9x	1.3x	4.8x	3.9x
BYD Company	HKD	247.20	249.00	1%	EW	753.3	96.1	630.2	7.45	9.88	9.72	13.26	33.2x	25.0x	13.1x	9.9x	1.1x	0.9x	5.0x	4.1x
Xpeng Inc.	USD	17.46	25.40	45%	OW	12.9	12.9	107.8	-8.21	-7.21	-1.16	-0.78	NM	NM	NM	NM	3.8x	1.9x	3.6x	4.6x
China Weighted Average													27.4x	19.9x	21.6x	20.3x	1.8x	1.2x	5.0x	4.2x
Global Weighted Average													81.8x	69.4x	52.6x	39.2x	7.4x	5.5x	13.7x	11.4x

Source: Refinitiv, Morgan Stanley Research estimates Note: PTs & Ratings are as of Sep 07, 2023

Global Supplier Comps

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

Company	Currency	Price at 8-Sep	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	2023e
Europe																				
Hella KGAA Hueck	EUR	64.90		NC	NA	NC	7.2	7.7	NA	NA	3.80	4.80	17.1x	13.5x	6.8x	6.0x	0.9x	0.9x	2.2x	1.9x
Europe Weighted Average												17.1x	13.5x	6.8x	6.0x	0.9x	0.9x	2.2x	1.9x	
North America (1)																				
APTIV	USD	100.68	100.00	(1%)	EW	28.5	28.5	4.78	5.54	4.72	6.22	21.1x	18.2x	10.5x	9.0x	1.6x	1.4x	2.9x	2.5x	
BorgWarner Inc.	USD	39.75	47.00	18%	OW	9.3	9.3	3.81	4.53	3.82	4.40	10.4x	8.8x	5.6x	4.6x	0.8x	0.7x	1.2x	1.1x	
Lear	USD	139.77	140.00	0%	EW	8.2	8.2	11.77	14.87	11.91	16.37	11.9x	9.4x	5.1x	4.2x	0.4x	0.3x	3.2x	2.9x	
Visteon	USD	136.66	145.00	6%	EW	3.9	3.9	6.14	8.10	6.72	9.71	22.3x	16.9x	9.9x	7.9x	0.9x	0.8x	10.2x	7.9x	
Magna International	USD	57.70	65.00	13%	OW	16.5	16.5	5.40	6.70	5.32	6.62	10.7x	8.6x	4.5x	3.5x	0.4x	0.3x	1.1x	1.0x	
Adient	USD	38.10	38.00	(0%)	UW	3.6	3.6	2.17	3.01	2.16	3.69	17.5x	12.7x	5.6x	5.1x	0.3x	0.3x	NM	NM	
Mobileye Global Inc	USD	35.83	34.00	(5%)	EW	3.4	3.4	0.70	0.75	0.70	0.86	50.8x	47.5x	34.5x	22.9x	6.3x	5.0x	1.9x	1.9x	
American Axle	USD	7.72	12.00	55%	OW	0.9	0.9	0.47	0.60	0.37	0.80	16.6x	12.9x	4.0x	3.4x	0.5x	0.4x	1.3x	1.2x	
North America Weighted Average												17.6x	14.8x	8.7x	7.0x	1.2x	1.0x	2.6x	2.3x	
Japan																				
Denso	JPY	10,065	11,600	15%	OW	7,931	\$3.9	621	725	717	807	16.2x	13.9x	7.9x	7.0x	1.1x	1.0x	1.6x	1.6x	
Toyota Industries	JPY	10,435	10,000	(4%)	EW	3,400	23.1	683	754	756	835	15.3x	13.8x	10.5x	9.8x	1.3x	1.3x	0.8x	0.8x	
Aisin Seiki	JPY	4,929	4,100	(17%)	UW	1,452	9.9	408	456	576	614	12.1x	10.8x	4.9x	4.4x	0.4x	0.4x	0.8x	0.7x	
Koito Mfg.	JPY	2,390	2,500	5%	EW	768	5.2	165	209	179	201	14.5x	11.4x	4.2x	3.5x	0.5x	0.4x	1.2x	1.1x	
Nifco	JPY	4,266	3,100	(27%)	UW	459	3.1	230	257	294	325	18.5x	16.6x	7.2x	6.5x	1.1x	1.0x	1.7x	1.6x	
Stanley Electric	JPY	2,455	2,800	14%	EW	420	2.9	165	234	224	264	14.9x	10.5x	4.3x	3.6x	0.7x	0.7x	0.8x	0.8x	
Toyota Boshoku	JPY	2,755	2,200	(20%)	UW	517	3.5	233	260	291	319	11.8x	10.6x	3.7x	3.3x	0.2x	0.2x	1.2x	1.1x	
EXEDY	JPY	2,711	1,900	(30%)	EW	132	0.9	202	236	230	253	13.4x	11.5x	3.7x	3.3x	0.4x	0.4x	0.6x	0.6x	
NHK Spring	JPY	1,131	1,250	11%	OW	276	1.9	110	157	131	161	10.3x	7.2x	4.3x	3.4x	0.4x	0.3x	0.7x	0.7x	
Toyoda Gosei	JPY	3,213	2,800	(13%)	EW	418	2.8	266	310	309	335	12.1x	10.3x	4.5x	3.8x	0.5x	0.4x	0.9x	0.8x	
Musashi Seimitsu	JPY	1,692	2,100	24%	OW	111	0.8	136	182	204	239	12.4x	9.3x	6.1x	5.2x	0.6x	0.5x	1.1x	1.0x	
Unipres	JPY	1,172	1,100	(6%)	EW	56	0.4	108	182	151	193	10.9x	6.4x	2.8x	2.1x	0.3x	0.2x	0.4x	0.4x	
NOK	JPY	2,061	2,250	9%	OW	357	2.4	141	205	172	226	14.7x	10.1x	4.9x	4.3x	0.5x	0.5x	0.7x	0.6x	
Japan Weighted Average												15.2x	13.0x	7.5x	6.7x	1.0x	0.9x	1.3x	1.2x	
China																				
Fuyao Glass	HKD	35.95	32.00	(11%)	EW	111.9	14.3	1.87	2.45	2.12	2.39	19.2x	14.7x	10.3x	8.2x	2.7x	2.3x	2.7x	2.4x	
Huayu Automotive	HKD	18.93	25.00	32%	OW	59.7	8.1	2.13	2.30	2.21	2.52	8.9x	8.2x	3.7x	3.0x	0.2x	0.2x	1.0x	1.0x	
Mintih Group Limited	HKD	21.95	28.00	28%	OW	27.3	3.5	1.81	2.36	1.81	2.28	12.1x	9.3x	7.7x	5.5x	1.1x	0.9x	1.2x	1.0x	
Changzhou Xingyu	HKD	151.80	172.00	13%	OW	43.4	5.9	3.86	5.30	4.08	5.42	39.4x	28.6x	26.3x	19.6x	4.1x	3.3x	4.7x	4.2x	
Nexteer Automotive Group	HKD	4.94	7.50	52%	OW	97.2	12.4	0.06	0.09	0.34	0.53	80.9x	55.8x	3.6x	3.0x	0.4x	0.4x	0.8x	0.8x	
China Weighted Average												36.8x	26.5x	9.1x	7.1x	1.7x	1.4x	2.0x	1.8x	
South Korea																				
Hyundai MOBIS	KRW	235,500	250,000	6%	EW	22,204	16.6	31,010	31,022	36,279	38,792	7.6x	7.6x	6.8x	5.9x	0.4x	0.3x	0.6x	0.5x	
LG Chem	KRW	564,000	620,000	10%	EW	42,309	31.7	27,472	50,540	27,090	52,227	20.5x	11.2x	6.6x	5.2x	0.9x	0.9x	1.2x	1.1x	
Hanon Systems	KRW	9,020	7,800	(14%)	UW	4,815	3.6	392	490	515	619	23.0x	18.4x	7.9x	7.2x	0.8x	0.8x	2.0x	1.9x	
Mando Corp	KRW	40,850	63,000	54%	OW	1,918	1.4	4,205	4,507	4,718	5,883	9.7x	9.1x	5.5x	5.5x	0.4x	0.4x	0.8x	0.8x	
South Korea Weighted Average												16.4x	10.5x	6.7x	5.6x	0.7x	0.7x	1.0x	1.0x	
Taiwan																				
Hu Lane Associate Inc.	TWD	150	140	(7%)	EW	15	0.5	9.89	10.83	2.02	2.49	15.2x	13.9x	10.8x	9.4x	2.4x	2.1x	2.5x	2.3x	
Cub Elecparts Inc	TWD	139	148	7%	EW	16	0.5	10.93	13.30	1.60	2.41	12.7x	10.4x	7.1x	5.8x	1.7x	1.5x	1.8x	1.6x	
Hota Industrial Mfg.	TWD	65	85	31%	OW	18	0.6	3.32	3.84	0.68	0.82	19.6x	17.0x	7.6x	6.8x	2.3x	2.0x	1.4x	1.4x	
Taiwan Weighted Average												16.0x	13.9x	8.4x	7.2x	2.1x	1.9x	1.9x	1.8x	
India																				
Exide Industries	INR	273	212	(22%)	OW	232	2.8	12.08	14.37	14.95	11.53	22.6x	19.0x	12.3x	10.4x	1.4x	1.2x	1.9x	1.8x	
Samvardhana Motherson	INR	100	80	(20%)	EW	675	8.1	4.95	6.16	5.81	11.53	20.1x	16.2x	9.0x	7.7x	0.8x	0.7x	2.8x	2.5x	
Amara Raja	INR	656	623	(5%)	UW	112	1.3	47.31	51.94	54.31	54.89	13.9x	12.6x	7.1x	6.1x	1.0x	0.8x	1.9x	1.7x	
India Weighted Average												20.0x	16.4x	9.5x	8.2x	1.0x	0.9x	2.5x	2.2x	
Global Weighted Average												19.3x	15.1x	8.0x	6.7x	1.1x	1.0x	1.7x	1.6x	

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 Sep 07, 2023

Global Tire Comps

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

Company	Currency	Price at 8-Sep	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	65.72	NC	NA	NC	13.1	14.1	NA	NA	7.49	9.53	8.8x	6.9x	4.1x	3.6x	0.5x	0.5x	0.9x	0.8x
Pirelli & C. SpA	EUR	4.64	5.50	18%	OW	4.6	5.0	0.56	0.62	0.51	0.57	8.3x	7.5x	4.9x	4.9x	1.1x	1.1x	0.9x	0.8x
Michelin	EUR	29.37	35.00	19%	OW	21.0	22.5	3.15	3.26	3.16	3.28	9.3x	9.0x	4.3x	4.0x	0.8x	0.8x	1.2x	1.1x
Europe Weighted Average												9.0x	8.1x	4.3x	4.0x	0.7x	0.7x	1.0x	1.0x
Japan																			
Bridgestone	JPY	5,681	5,700	0%	EW	4,055	27.6	528	569	542	571	10.8x	10.0x	4.4x	4.0x	0.9x	0.8x	1.2x	1.2x
Toyo Tire & Rubber Co	JPY	2,221	1,850	(17%)	EW	342	2.3	234	265	332	304	9.5x	8.4x	4.8x	4.4x	0.8x	0.7x	1.0x	0.9x
Sumitomo Rubber	JPY	1,573	1,100	(30%)	UW	414	2.8	91	138	100	141	17.3x	11.4x	6.9x	5.8x	0.6x	0.5x	0.7x	0.7x
Yokohama Rubber	JPY	2,909	3,400	17%	OW	493	3.4	353	423	372	419	8.2x	6.9x	6.6x	5.5x	0.9x	0.8x	0.7x	0.6x
Japan Weighted Average												11.0x	9.7x	4.8x	4.3x	0.9x	0.8x	1.1x	1.1x
Korea																			
Hankook Tire	KRW	38,800	33,000	(15%)	UW	4,806	3.6	4,071	4,136	5,345	6,276	9.5x	NA	3.1x	2.8x	0.5x	0.5x	0.5x	0.5x
Korea Weighted Average												9.5x	NA	3.1x	2.8x	0.5x	0.5x	0.5x	0.5x
Global Weighted Average												10.2x	8.8x	4.6x	4.0x	0.8x	0.7x	1.1x	1.1x

Source: Refinitiv, Morgan Stanley Research estimates

Notes: 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) ++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 Sep 07, 2023

Global Dealer Comps

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

Company	Currency	Price at 8-Sep	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	81.59	80.00	(2%)	OW	12.9	12.9	20.2	3.03	3.36	3.02	3.74	26.9x	24.3x	18.5x	15.0x	0.7x	0.6x	3.0x	2.6x
Penske Automotive Group	USD	158.95	107.00	(33%)	UW	10.7	10.7	11.9	16.79	17.68	16.55	15.90	9.5x	9.0x	5.9x	5.8x	0.4x	0.4x	2.2x	1.9x
Lithia Motors	USD	297.81	220.00	(26%)	UW	8.2	8.2	13.8	36.92	36.72	38.26	37.64	8.1x	8.1x	7.4x	7.8x	0.5x	0.5x	1.3x	1.1x
Sonic Automotive	USD	51.84	35.00	(32%)	UW	1.2	1.2	4.4	6.62	7.28	6.67	6.79	7.8x	7.1x	6.0x	5.8x	0.3x	0.3x	2.8x	2.3x
Group 1 Automotive	USD	259.09	200.00	(23%)	UW	3.6	3.6	5.8	46.08	43.96	44.25	40.70	5.6x	5.9x	5.6x	5.2x	0.3x	0.3x	1.3x	1.0x
Asbury	USD	219.20	165.00	(25%)	UW	4.5	4.5	7.5	33.94	31.70	33.50	30.98	6.5x	6.9x	6.7x	6.5x	0.5x	0.5x	1.3x	1.1x
Carvana	USD	47.63	37.00	(22%)	UW	5.1	5.1	14.5	-2.10	-1.69	-3.70	-2.52	NM	NM	77.3x	47.6x	1.4x	1.4x	18.3x	214.1x
AutoNation	USD	152.44	117.00	(23%)	UW	6.7	6.7	10.2	22.76	20.26	22.87	21.30	6.7x	7.5x	5.6x	5.2x	0.4x	0.4x	2.6x	2.0x
North America Weighted Average													12.9x	12.3x	16.1x	12.3x	0.6x	0.5x	3.7x	22.2x
China																				
China Yongda Auto	HKD	3.22	5.10	58%	OW	6.2	0.8	5.6	0.57	0.81	0.62	0.86	5.7x	4.0x	2.8x	2.1x	0.1x	0.1x	0.4x	0.4x
MeiDong	HKD	5.30	14.80	179%	OW	7.1	0.9	6.9	0.49	0.80	0.33	0.70	10.9x	6.6x	3.8x	2.9x	0.2x	0.2x	1.3x	1.2x
Baoxin Auto	HKD	0.24	0.27	13%	UW	0.7	0.1	5.1	0.13	0.14	0.15	0.18	1.9x	1.7x	3.2x	2.9x	0.2x	0.2x	0.1x	0.1x
Zhongsheng Group	HKD	23.00	37.00	61%	OW	55.0	7.0	60.7	2.50	3.04	2.79	3.25	9.2x	7.6x	4.9x	4.0x	0.3x	0.3x	1.1x	1.0x
China Zhengtong Auto	HKD	0.45	0.39	(12%)	UW	1.3	0.2	18.5	0.08	0.23	-0.35	-0.26	5.4x	2.0x	9.5x	7.9x	0.7x	0.7x	2.7x	1.1x
China Weighted Average													8.9x	7.0x	4.7x	3.8x	0.3x	0.3x	1.1x	1.0x
Global Weighted Average													12.3x	11.4x	14.4x	11.1x	0.5x	0.5x	3.4x	19.1x

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 Sep 07, 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 Sep 07	219.30	103.50	672.00	48.35	137.66
Currency	SEK	TWD	TWD	EUR	USD

Company Name	Tong Yang Industry	Yulon Motor	Zhongsheng Group	Tesla	Hertz
Price at Sep 07	67.40	84.50	23.00	6.96	15.76
Currency	TWD	TWD	CNY	USD	USD

Source: Refinitiv, Morgan Stanley Research

Morgan Stanley Global Auto Team

Morgan Stanley Global Auto Team

NORTH AMERICA



Adam Jonas, CFA
+1 212 761-1726
adam.jonas@morganstanley.com



Daniela M. Haigian
+1 212 761 6071
Daniela.Haigian@morganstanley.com

KOREA



Young Suk Shin
+82 2 399-9907
young.shin@morganstanley.com

EUROPE



Ross MacDonald
+44 20 7425-0240
Ross.MacDonald@morganstanley.com



Shaqeal A. Kirunda
+44 20 7425-0736
Shaqeal.Kirunda@morganstanley.com

CHINA



Shelley Wang
+852 3963-0047
Shelley.Wang@morganstanley.com



Eddy Wang
+852 2239-7339
eddy.wang@morganstanley.com

TAIWAN



Tim Hsiao
+852 2848-1982
tim.hsiao@morganstanley.com

JAPAN



Shinji Kakiuchi
+81 3 5424-5914
shinji.kakiuchi@morganstanleymufg.com

INDIA



Binay Singh
+91 22 6118-1158
Binay.Singh@morganstanley.com



Sushrut Ghalsashi
+91 22 6118-1073
Sushrut.Ghalsashi@morganstanley.com

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Global Stock Ratings Distribution

(as of August 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	1345	37%	273	43%	20%	606	39%
Equal-weight/Hold	1686	46%	301	47%	18%	719	47%
Not-Rated/Hold	3	0%	0	0%	0%	1	0%
Underweight/Sell	594	16%	67	10%	11%	218	14%
Total	3,628		641			1544	

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.

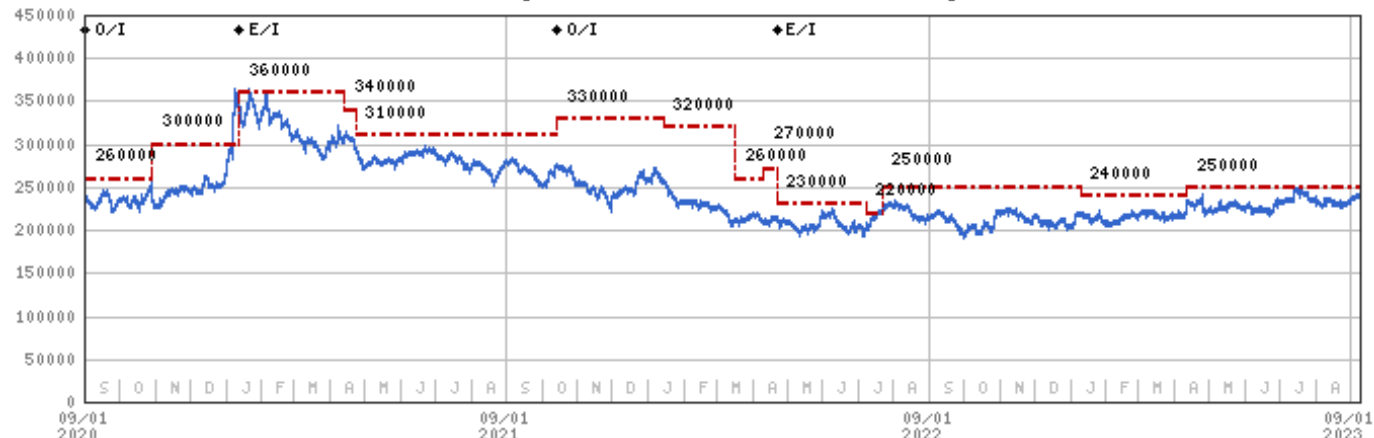
In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

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)

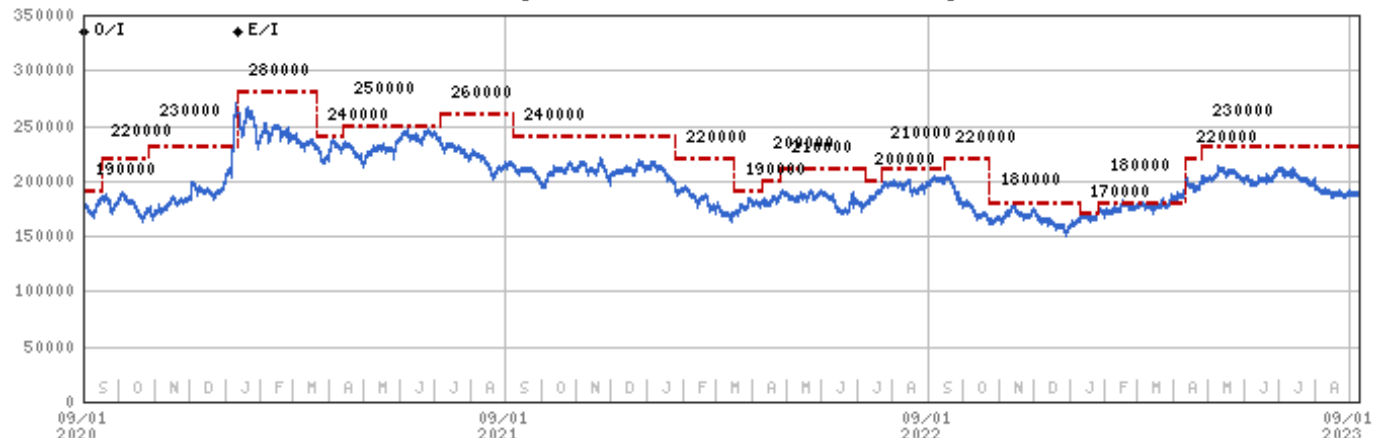
Hyundai MOBIS (012330.KS) - As of 9/7/23 in KRW
Industry : S. Korea Autos & Shared Mobility



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 9/7/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 9/1/18 : 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)

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.

Kia Corp. (000270.KS) - As of 9/7/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 9/1/18 : 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

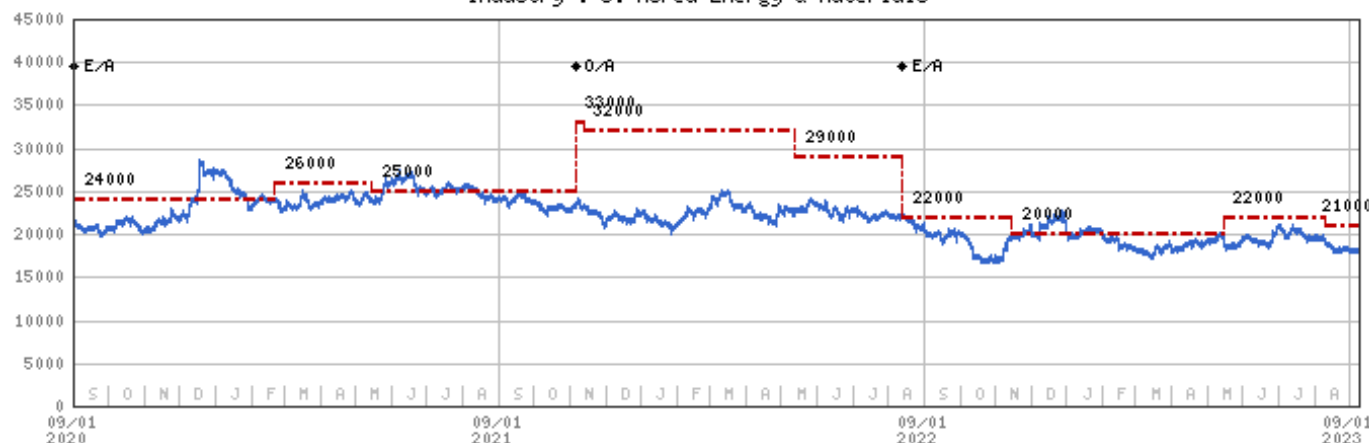
Price Target History: 1/26/18 : 30000; 10/11/18 : 35000; 10/26/18 : 31000; 1/9/19 : 34000; 4/9/19 : 37000; 4/25/19 : 40000; 10/24/19 : 45000; 1/9/20 : 34000; 3/9/20 : 32000; 3/26/20 : 29000; 4/8/20 : 28000; 6/2/20 : 40000; 7/24/20 : 45000; 8/24/20 : 52000; 9/14/20 : 64000; 10/27/20 : 85000; 1/12/21 : 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

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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Korea Electric Power (015760.KS) - As of 9/7/23 in KRW
Industry : S. Korea Energy & Materials



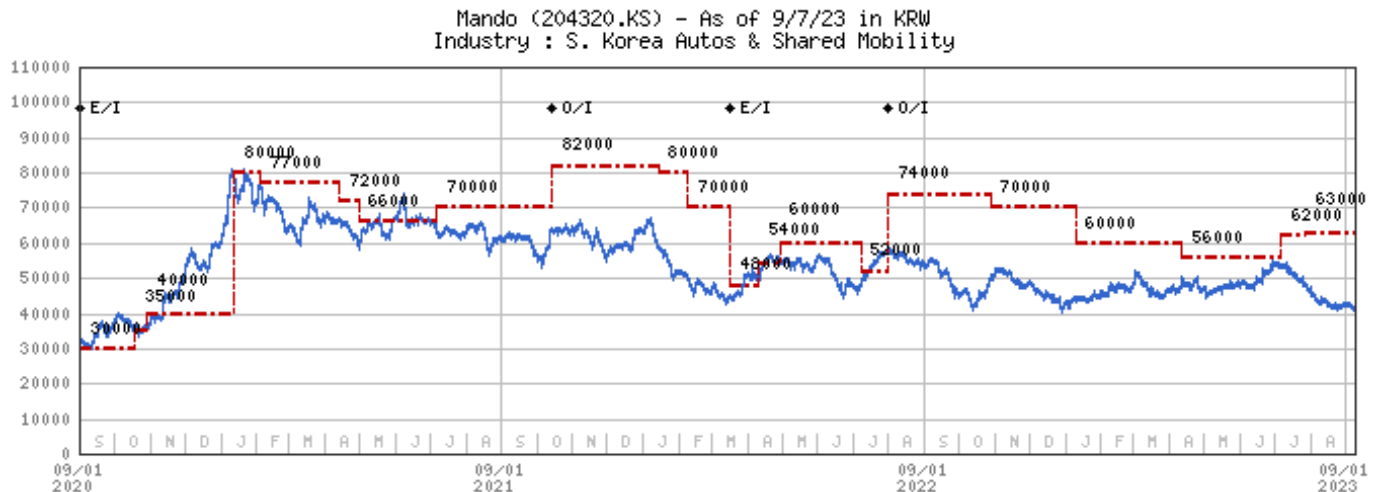
Stock Rating History: 9/1/18 : E/A; 12/7/18 : O/A; 5/14/19 : E/A; 11/5/21 : O/A; 8/12/22 : E/A

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)

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Stock Rating History: 9/1/18 : 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* (09/07/2023)
Adam Jonas, CFA		
Adient PLC (ADNT.N)	U (03/17/2021)	\$38.10
American Axle & Manufacturing Holdings Inc (AXL.N)	O (02/28/2022)	\$7.72
Aptiv Plc (APTV.N)	E (11/28/2022)	\$100.68
Asbury Automotive Group Inc (ABG.N)	U (05/20/2022)	\$219.20
AutoNation Inc. (AN.N)	U (01/17/2023)	\$152.44
Avis Budget Group Inc (CAR.O)	O (06/20/2023)	\$197.66
BorgWarner Inc. (BWA.N)	O (05/15/2023)	\$39.75
Carmax Inc (KMX.N)	O (07/10/2018)	\$81.59
Carvana Co (CVNA.N)	U (07/26/2023)	\$47.63
Ferrari NV (RACE.N)	O (05/09/2019)	\$298.79
Fisker Inc (FSR.N)	U (01/25/2023)	\$6.23
Ford Motor Company (F.N)	O (10/05/2022)	\$11.96
FREYR Battery SA (FREY.N)	O (06/28/2023)	\$6.35
General Motors Company (GM.N)	O (05/01/2023)	\$32.57
Group 1 Automotive, Inc (GPI.N)	U (05/20/2022)	\$259.09
Harley-Davidson Inc (HOG.N)	O (03/21/2023)	\$33.51
Hertz Global Holdings Inc (HTZ.O)	E (12/06/2021)	\$15.76
Lear Corporation (LEA.N)	E (02/28/2022)	\$139.77
Li-Cycle Holdings Corp. (LICY.N)	U (01/25/2023)	\$4.56
Lithia Motors Inc. (LAD.N)	U (02/09/2021)	\$297.81
Lucid Group Inc (LCID.O)	U (09/13/2021)	\$6.00
Magna International Inc. (MGA.N)	O (10/14/2021)	\$57.70
Mobileye Global Inc (MBLY.O)	E (07/24/2023)	\$35.83
Penske Automotive Group, Inc (PAG.N)	U (11/17/2021)	\$158.95
Quantumscape Corp (QS.N)	U (11/09/2022)	\$6.96
Rivian Automotive, Inc. (RIVN.O)	O (12/05/2021)	\$23.42

Sonic Automotive Inc (SAH.N)	U (11/17/2021)	\$51.84
Tesla Inc (TSLA.O)	E (06/22/2023)	\$251.49
Visteon Corporation (VC.O)	E (06/01/2022)	\$136.66

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