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Autos & Shared Mobility | North America

Global Auto Monitor: On-Ramp/Off-Ramp: New Strategies Needed for Western EV Efforts?

It's clear that Western 'legacy' OEMs can't fund multi-billion-\$ EV losses into perpetuity. Legacy players might provide an 'On-Ramp' for EV China exporters and startups, while receiving a much needed 'Off-Ramp' of EV assets in return. Does STLA/Leapmotor set the template?

What Others Are Reading - Our Most Read Reports

[NORTH AMERICA] [Thoughts on GM's Strategy and Execution \(Oct 26\)](#) With shares down ~13% YTD, GM has lagged nearly every legacy OEM despite core ICE business thriving vs. expectations and generating strong FCF. The Auto 2.0 strategy may be the 'right' one but has seen significant execution challenges at Ultium & Cruise. Unlocking hidden value may require change.

[NORTH AMERICA] [China EV On-Ramp/Off-Ramp: STLA/Leapmotor Deal a Template for EV Discipline? \(Oct 26\)](#) As legacy OEMs dial-back loss-making EV investments, management teams will look for more capital efficient ways to address the market. Providing an 'on-ramp' for China EV exports may support a win-win outcome for Western legacy firms and capital China startups.

[NORTH AMERICA] [US Auto Credit Crunch? Clues from Housing and ABS Market \(Oct 24\)](#) Investors should take note of the bifurcation between continued strength of the new car market (value of SAAR at all time highs) in the face of a sharply slowing housing market. The ABS market shows auto delinquencies hit all-time highs with prime DQs approaching pre-COVID levels.

[JAPAN] [Toyota: Domestic Plant Suspension to Be Scaled Down: Impact from Factory Accident at Parts Supplier Limited \(Oct 22\)](#)

[EUROPE] [European Trucks: Cycle Update – Winter is here... but the sun is shining \(Oct 26\)](#) We update our Truck Cycle analysis for September data and Volvo's market outlook. We continue to see support for our view of a mid to high-single-digit decline in FY24 – suggesting Volvo's outlook may be conservative. Daimler Truck remains our preferred Truck play.

[EUROPE] [Stellantis: UAW strikes escalate for Stellantis \(Oct 24\)](#)

[CHINA] [Thoughts on Leapmotor and Stellantis cooperation \(Oct 26\)](#) Leapmotor and Stellantis entered a strategic partnership today. We believe more global OEMs could consider partnerships with China's EV brands, providing them with both a larger content slate and industry presence amid rising protectionism.

[CHINA] [Record EV penetration given lacklustre ICEV sales \(Oct 24\)](#)

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AUTOS & SHARED MOBILITY

North America

Industry View

In-Line

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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
GM	OW	USD 41.00 → USD 40.00
Autoliv	EW	USD 100 → USD 103

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	1.96	8.0%
4 Harley-Davidson	OW	4.59	4.61	(0.5%)
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	0.07	157.7%
8 Rivian	OW	-5.76	-5.12	NM
9 Magna International	OW	5.40	5.27	2.5%
10 BorgWarner Inc.	OW	3.81	3.85	(1.2%)
11 FREYR Battery	OW	-1.39	-1.15	NM
12 General Motors	OW	6.05	7.45	(18.7%)
13 Lear	EW	11.77	11.86	(0.8%)
14 Mobileye Global	EW	0.70	0.71	(1.4%)
15 Hertz	EW	1.93	1.97	(1.9%)
16 Visteon	EW	6.14	6.68	(8.1%)
17 APTIV	EW	4.78	4.74	0.9%
18 Adient	UW	2.17	2.22	(2.3%)
19 Carvana	UW	-3.79	-3.62	NM
20 Penske Automotive Group	UW	16.79	16.54	1.6%
21 Group 1 Automotive	UW	46.08	44.77	2.9%
22 AutoNation	UW	22.76	22.90	(0.6%)
23 Lithia Motors	UW	36.92	37.69	(2.0%)
24 Asbury Automotive	UW	33.94	33.19	2.2%
25 Sonic Automotive	UW	6.62	6.68	(0.9%)
26 Lucid	UW	-1.16	-1.47	NM
27 Li-Cycle	UW	-0.93	-0.92	NM
28 QuantumScape	UW	-0.91	-0.93	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	(1.3%)
2 Daimler Truck Holding	OW	4.45	4.41	0.9%
3 Pirelli	OW	0.55	0.51	7.5%
4 Aramis Autos	EW	-0.25	-0.39	NM
5 Volkswagen	EW	31.05	30.81	0.8%
6 Mercedes-Benz	EW	13.38	13.02	2.8%
7 Autoliv	EW	6.22	7.39	(15.8%)
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	181.19	(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	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	278.01	(5.4%)
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	765.81	(5.6%)
13 Toyoda Gosei	EW	273.82	332.25	(17.6%)
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	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	594.14	(17.8%)
21 Koito Mfg.	UW	155.31	175.80	(11.7%)
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	365.00	(2.0%)

Source: Refinitiv, Morgan Stanley Research estimates

Exhibit 6: 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	381.16	436.45 (12.7%)
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	45.46 (13.2%)
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	26.86 (9.2%)
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	73.39 (1.8%)
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	4679.51 (10.1%)
2	S&T Motiv	OW	7700.40	7102.50 8.4%
3	Kia Motors	OW	21964.60	22964.43 (4.4%)
4	Hyundai MOBIS	EW	31010.45	37358.77 (17.0%)
5	Hyundai Motor	EW	55437.60	49828.45 11.3%
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	2.17 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 Oct 26, 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	
		27-Oct	Price Target	PT (%)	Rating	LC	US\$	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e	2023e	2024e
Europe																			
Mercedes-Benz	EUR	57.84	73.50	27%	EW	61.9	65.2	13.38	12.29	12.99	12.34	4.3x	4.7x	2.4x	2.5x	0.4x	0.4x	0.7x	0.6x
BMW	EUR	88.63	100.00	13%	EW	56.2	59.3	17.14	14.55	18.24	16.61	5.2x	6.1x	1.3x	1.3x	0.2x	0.2x	0.6x	0.6x
Daimler Truck Holding	EUR	29.88	43.00	44%	OW	24.6	25.9	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	32.02	44.00	37%	OW	9.5	10.0	12.17	12.70	13.29	13.11	2.6x	2.5x	NA	NA	NA	NA	0.3x	0.3x
Volkswagen	EUR	99.97	130.00	30%	EW	52.3	55.1	31.05	28.96	30.81	32.04	3.2x	3.5x	0.3x	0.3x	0.0x	0.0x	0.3x	0.3x
Stellantis	USD	17.67	22.00	24%	OW	58.6	58.6	5.46	4.90	5.81	5.37	3.2x	3.6x	NA	NA	NA	NA	0.6x	0.6x
Europe Weighted Average												4.2x	4.6x	1.9x	2.0x	0.3x	0.3x	0.6x	0.6x
North America																			
Ford Motor	USD	11.35	16.00	41%	OW	44.6	44.6	2.12	1.93	1.96	1.78	5.4x	5.9x	1.8x	1.6x	0.2x	0.2x	1.0x	0.9x
General Motors	USD	28.55	40.00	40%	OW	39.1	39.1	6.05	5.80	7.45	6.71	4.7x	4.9x	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	0.8x	0.7x
China																			
BYD	HKD	245.80	249.00	1%	EW	738.7	94.4	7.45	9.88	10.56	14.24	33.0x	24.9x	12.8x	9.6x	1.1x	0.9x	5.0x	4.1x
Great Wall	HKD	10.82	13.00	20%	OW	223.3	28.6	0.62	0.98	0.64	0.91	17.4x	11.1x	18.5x	13.0x	1.3x	1.1x	1.4x	1.3x
Weichai Power	HKD	11.76	12.00	2%	EW	126.6	16.2	0.75	0.91	0.96	1.14	15.7x	12.9x	5.1x	4.5x	0.4x	0.4x	1.2x	1.1x
SAIC Motor	CNY	15.17	18.00	19%	OW	177.2	24.2	1.67	1.89	1.35	1.45	9.1x	NA	4.4x	3.4x	0.2x	0.1x	0.6x	0.6x
BAIC Motor	HKD	2.30	1.80	(22%)	UW	5.8	0.7	0.34	0.33	0.51	0.53	6.8x	NA	0.2x	0.5x	0.0x	0.1x	0.3x	0.3x
Sinotruk	HKD	15.14	20.00	32%	OW	41.8	5.3	1.32	1.61	1.53	1.93	11.5x	9.4x	3.8x	3.4x	0.4x	0.4x	1.0x	0.9x
Chongqing Changan	HKD	3.63	5.80	60%	OW	143.1	18.3	0.97	0.59	0.99	0.97	3.8x	6.1x	6.8x	10.3x	0.6x	0.5x	0.5x	0.5x
Jiangling Motors	CNY	6.36	NC	NA	NC	11.2	1.5	NA	NA	1.30	1.41	4.9x	4.5x	2.7x	2.5x	0.2x	0.2x	0.5x	0.5x
Dongfeng	HKD	3.48	4.10	18%	EW	9.3	1.2	1.11	1.02	0.65	0.65	3.1x	3.4x	0.6x	0.7x	0.1x	0.1x	0.2x	0.2x
Anhui Jianghuai	CNY	19.84	11.60	(42%)	EW	43.3	5.9	0.14	0.22	0.13	0.21	137.8x	92.0x	18.3x	17.6x	1.0x	0.9x	3.2x	3.1x
Zhengzhou Yutong Bus C	CNY	14.00	13.70	(2%)	EW	31.0	4.2	0.59	0.82	0.62	0.87	23.9x	17.1x	8.5x	6.3x	0.8x	0.7x	2.3x	2.1x
China Weighted Average												25.7x	20.9x	11.0x	8.8x	0.9x	0.7x	3.0x	2.5x
South Korea																			
Hyundai Motor	KRW	175,600.00	230,000.00	31%	EW	43,367.6	31.9	55,437.60	46,280.77	49,828.45	46,879.02	3.2x	3.8x	1.9x	2.0x	0.2x	0.2x	0.4x	0.4x
Kia Motors	KRW	79,700.00	105,000.00	32%	OW	32,042.9	23.6	21,964.60	21,506.88	22,964.43	22,030.17	3.6x	3.7x	2.3x	2.4x	0.3x	0.3x	0.7x	0.6x
South Korea Weighted Average												3.4x	3.8x	2.1x	2.2x	0.3x	0.3x	0.5x	0.5x
Japan																			
Toyota Motor	JPY	2,638.50	2,700.00	2%	EW	43,047.1	286.3	263.04	269.91	278.01	289.49	10.0x	9.8x	5.9x	5.6x	0.8x	0.8x	1.2x	1.1x
Mazda Motor	JPY	1,503.50	1,600.00	6%	EW	949.9	6.3	291.29	292.84	296.46	291.40	5.2x	5.1x	1.3x	1.1x	0.1x	0.1x	0.6x	0.6x
Suzuki Motor	JPY	5,838.00	6,500.00	11%	OW	2,867.3	19.1	529.74	591.90	586.85	619.24	11.0x	9.9x	4.3x	3.8x	0.5x	0.5x	1.3x	1.2x
Mitsubishi Motors	JPY	504.00	700.00	39%	OW	751.1	5.0	88.25	99.98	97.26	100.07	5.7x	5.0x	1.9x	1.4x	0.2x	0.1x	0.8x	0.7x
Subaru Corp	JPY	2,645.50	2,600.00	(2%)	UW	2,034.9	13.5	357.68	371.72	397.66	383.25	7.4x	7.1x	11.0x	9.3x	0.3x	0.3x	0.9x	0.8x
Nissan Motor	JPY	593.20	620.00	5%	EW	2,503.7	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	1,594.00	1,900.00	19%	OW	8,662.3	57.6	219.04	235.95	213.96	219.14	7.3x	6.8x	2.8x	2.4x	0.2x	0.2x	0.7x	0.6x
Japan Weighted Average												9.3x	9.0x	5.2x	4.9x	0.7x	0.6x	1.0x	1.0x
India																			
Maruti Suzuki	INR	10,552.9	11,963.0	13%	OW	3,187.8	38.3	381.2	445.4	436.4	481.9	27.7x	23.7x	17.2x	14.5x	1.8x	1.6x	4.6x	4.1x
Bajaj Auto	INR	5,373.7	5,449.0	1%	OW	1,520.5	18.3	241.8	290.0	284.7	317.8	22.2x	18.5x	16.3x	13.9x	3.1x	2.7x	5.5x	5.1x
TVS Motor	INR	1,593.3	1,300.0	(18%)	EW	756.9	9.1	38.8	47.3	53.1	61.2	41.0x	33.7x	23.4x	19.3x	2.5x	2.2x	9.9x	8.1x
Hero MotoCorp	INR	3,112.0	2,521.0	(19%)	UW	622.0	7.5	191.9	214.0	203.3	228.8	16.2x	14.5x	9.5x	8.4x	1.3x	1.2x	3.5x	3.2x
Mahindra & Mahindra	INR	1,510.0	1,697.0	12%	OW	1,877.7	22.6	84.9	95.5	86.2	90.2	17.8x	15.8x	12.3x	11.0x	1.7x	1.5x	3.5x	3.0x
Tata Motors	INR	640.7	711.0	11%	OW	2,343.5	28.2	39.5	48.4	53.0	64.9	12.1x	9.9x	4.6x	4.0x	0.7x	0.6x	4.0x	3.0x
Ashok Leyland	INR	168.1	214.0	27%	OW	493.6	5.9	8.3	9.1	9.8	10.7	20.3x	18.4x	11.6x	10.7x	1.3x	1.2x	4.9x	4.3x
Balkrishna Industries	INR	2,599.0	1,928.0	(26%)	UW	502.4	6.0	72.1	97.2	90.8	110.0	36.1x	26.7x	21.8x	16.7x	5.3x	4.5x	5.8x	5.0x
India Weighted Average												22.4x	18.9x	13.6x	11.6x	1.9x	1.7x	4.8x	4.1x
Global Weighted Average												12.1x	10.6x	6.5x	5.7x	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 26, 2023#

EV OEMs Comps

Exhibit 11: EV OEM Comps

Company	Currency	Price at 27-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	255.76	380.00	85%	OW	654.1	654.1	697.1	2.48	1.89	3.12	3.96	82.8x	108.6x	52.6x	52.7x	7.2x	5.9x	13.1x	11.7x
Lucid	USD	4.07	5.00	23%	UW	9.3	9.3	5.8	-1.16	-0.75	-1.49	-1.16	NM	NM	NM	NM	8.3x	3.4x	1.8x	2.4x
Fisker	USD	4.93	4.00	(19%)	UW	1.0	1.0	2.9	-1.03	-0.60	-0.84	-0.35	NM	NM	NM	NM	1.3x	1.0x	13.3x	25.3x
Rivian	USD	16.17	24.00	48%	OW	15.2	15.2	13.5	-0.79	-0.60	-0.12	-0.55	NM	NM	NM	NM	3.1x	2.6x	2.0x	2.2x
North America Weighted Average													82.8x	108.6x	52.6x	52.7x	7.1x	5.8x	12.7x	11.4x
China																				
NIO Inc.	USD	7.63	18.70	145%	OW	12.0	12.0	192.1	-5.82	-0.29	-1.45	-0.84	NM	NM	NM	NM	55.8x	2.9x	1.4x	4.6x
Li Auto Inc.	USD	34.55	53.00	53%	OW	30.3	30.3	195.6	3.35	6.83	0.97	1.65	10.3x	5.1x	39.8x	20.4x	1.7x	1.1x	4.4x	3.5x
BYD Company	HKD	245.80	249.00	1%	EW	738.7	94.4	628.5	7.45	9.88	10.56	14.24	33.0x	24.9x	13.0x	9.8x	1.1x	0.9x	5.0x	4.1x
Xpeng Inc.	USD	14.58	25.40	74%	OW	10.1	10.1	90.5	-8.21	-7.21	-1.12	-0.78	NM	NM	NM	NM	3.2x	1.6x	3.1x	3.9x
China Weighted Average													27.5x	20.1x	19.5x	16.2x	1.5x	1.0x	4.7x	4.0x
Global Weighted Average													74.0x	94.5x	47.3x	46.4x	6.1x	4.9x	11.3x	10.1x

Source: Refinitiv, Morgan Stanley Research estimates Note: PTs & Ratings are as of Oct 26, 2023

Global Supplier Comps

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

Company	Currency	Price at 27-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	95.28	90.00	(6%)	EW	8.0	8.0	6.22	10.18	7.39	9.83	15.3x	9.4x	7.9x	5.6x	0.9x	0.8x	3.1x	2.8x
Europe Weighted Average												15.3x	9.4x	7.9x	5.6x	0.9x	0.8x	3.1x	2.8x
North America (1)																			
APTIV	USD	89.39	100.00	12%	EW	25.3	25.3	4.78	5.54	4.74	6.19	18.7x	16.1x	9.4x	8.0x	1.4x	1.2x	2.6x	2.2x
BorgWarner Inc.	USD	38.26	47.00	23%	OW	9.0	9.0	3.81	4.53	3.85	4.42	10.1x	8.5x	5.5x	4.5x	0.8x	0.7x	1.1x	1.0x
Lear	USD	133.45	140.00	5%	EW	7.8	7.8	11.77	14.87	11.86	15.96	11.3x	9.0x	4.9x	4.0x	0.4x	0.3x	3.1x	2.7x
Visteon	USD	127.98	145.00	13%	EW	3.6	3.6	6.14	8.10	6.68	9.39	20.9x	15.8x	9.2x	7.4x	0.9x	0.8x	9.6x	7.4x
Magna International	USD	49.48	65.00	31%	OW	14.2	14.2	5.40	6.70	5.27	6.57	9.2x	7.4x	4.0x	3.1x	0.3x	0.3x	1.0x	0.9x
Mobileye Global Inc	USD	36.42	34.00	(7%)	EW	3.4	3.4	0.70	0.75	0.71	0.86	51.7x	48.3x	35.7x	23.7x	6.5x	5.2x	NM	NM
Adient	USD	34.40	38.00	10%	UW	3.2	3.2	2.17	3.01	2.22	3.62	15.8x	11.4x	5.5x	4.7x	0.3x	0.3x	1.6x	1.4x
American Axle	USD	7.15	10.00	40%	OW	0.8	0.8	0.18	0.46	0.08	0.74	39.6x	15.6x	4.3x	3.5x	0.5x	0.4x	1.3x	1.2x
North America Weighted Average												16.6x	13.8x	8.3x	6.6x	1.2x	1.0x	2.4x	2.1x
Japan																			
Denso	JPY	2,332	3,000	29%	OW	7,350	48.9	158	187	181	202	14.7x	12.4x	7.3x	6.4x	1.0x	0.9x	1.5x	1.4x
Toyota Industries	JPY	10,950	14,800	35%	OW	3,568	23.7	723	829	766	852	15.1x	13.2x	10.5x	9.5x	1.3x	1.2x	0.8x	0.8x
Aisin Seiki	JPY	5,474	6,000	10%	EW	1,613	10.7	488	599	594	667	11.2x	9.1x	4.8x	3.8x	0.4x	0.4x	0.8x	0.8x
Koito Mfg.	JPY	2,236	1,900	(15%)	UW	719	4.8	155	172	176	196	14.4x	13.0x	4.2x	3.7x	0.5x	0.4x	1.1x	1.0x
Stanley Electric	JPY	2,418	2,100	(13%)	EW	414	2.8	132	191	205	238	18.4x	12.6x	4.8x	4.1x	0.7x	0.7x	0.8x	0.8x
Toyoda Gosei	JPY	3,033	3,000	(1%)	EW	395	2.6	274	333	332	374	11.1x	9.1x	4.3x	3.5x	0.4x	0.4x	0.8x	0.8x
Toyota Boshoku	JPY	2,580	2,400	(7%)	UW	484	3.2	238	283	303	326	10.8x	9.1x	3.4x	2.9x	0.2x	0.2x	1.1x	1.0x
EXEDY	JPY	2,502	2,300	(8%)	EW	122	0.8	217	255	239	283	11.5x	9.8x	3.3x	3.0x	0.4x	0.3x	0.5x	0.5x
NHK Spring	JPY	1,087	1,300	20%	OW	265	1.8	101	137	125	152	10.8x	7.9x	4.6x	3.7x	0.4x	0.3x	0.7x	0.7x
Nifco	JPY	3,756	4,000	6%	EW	377	2.5	272	286	302	332	13.8x	13.2x	5.7x	5.1x	0.9x	0.8x	1.5x	1.4x
Musashi Seimitsu	JPY	1,469	1,900	29%	OW	96	0.6	102	158	194	230	14.4x	9.3x	6.5x	5.3x	0.5x	0.5x	1.0x	0.9x
Unipres	JPY	1,095	1,150	5%	EW	53	0.3	117	164	148	189	9.4x	6.7x	2.7x	2.1x	0.3x	0.2x	0.4x	0.3x
NOK	JPY	1,851	2,300	24%	OW	320	2.1	93	184	163	217	20.0x	10.1x	5.5x	4.4x	0.5x	0.5x	0.6x	0.6x
Japan Weighted Average												14.3x	12.0x	7.2x	6.3x	0.9x	0.8x	1.2x	1.1x
China																			
Fuyao Glass	HKD	37.40	36.00	(4%)	EW	112.8	14.4	2.12	2.51	2.17	2.42	17.6x	14.9x	10.0x	8.1x	2.7x	2.3x	2.8x	2.5x
Huayu Automotive	HKD	17.80	25.00	40%	OW	56.1	7.7	2.13	2.30	2.25	2.51	8.3x	7.7x	3.3x	2.7x	0.2x	0.2x	1.0x	0.9x
Mint Group Limited	HKD	18.58	28.00	51%	OW	23.1	2.9	1.81	2.36	1.80	2.27	10.2x	7.9x	6.6x	4.6x	0.9x	0.7x	1.0x	0.9x
Changzhou Xingyu	HKD	142.89	172.00	20%	OW	40.8	5.6	3.86	5.30	4.07	5.57	37.0x	27.0x	24.7x	18.3x	3.9x	3.1x	4.4x	4.0x
Lingyin Industrial	CNY	8.80	NC	#VALUE!	NC	8.3	1.1	NA	NA	0.62	0.79	14.2x	11.1x	NA	NA	0.7x	0.6x	NA	NA
China Weighted Average												18.0x	14.5x	10.7x	8.2x	2.1x	1.7x	2.4x	2.2x
South Korea																			
Hyundai MOBIS	KRW	220,000	250,000	14%	EW	20,743	15.3	31,010	31,022	37,359	39,965	7.1x	7.1x	6.3x	5.5x	0.3x	0.3x	0.5x	0.5x
LG Chem	KRW	438,500	530,000	21%	EW	33,143	24.4	25,019	43,186	26,050	47,266	17.5x	10.2x	5.7x	4.8x	0.8x	0.8x	0.9x	0.9x
Hanon Systems	KRW	7,140	7,800	9%	UW	3,811	2.8	392	490	501	597	18.2x	14.6x	6.9x	6.2x	0.7x	0.7x	1.6x	1.5x
Mando Corp	KRW	35,700	63,000	76%	OW	1,676	1.2	4,205	4,507	4,680	5,905	8.5x	7.9x	5.1x	5.1x	0.4x	0.4x	0.7x	0.7x
South Korea Weighted Average												13.7x	9.3x	6.0x	5.1x	0.6x	0.6x	0.8x	0.8x
Taiwan																			
Cub Elecparts Inc	TWD	122	140	15%	EW	14	0.4	7.01	9.26	1.60	2.29	17.3x	13.1x	8.1x	6.4x	1.8x	1.5x	1.7x	1.6x
Hu Lane Associate Inc.	TWD	147	140	(5%)	EW	15	0.5	8.26	10.14	1.87	2.40	17.8x	14.5x	10.7x	9.3x	2.4x	2.1x	2.5x	2.3x
Hota Industrial Mfg.	TWD	62	70	13%	EW	17	0.5	2.36	2.55	0.49	0.58	26.2x	24.3x	8.4x	7.4x	2.4x	2.2x	1.9x	1.8x
Taiwan Weighted Average												20.8x	17.8x	9.0x	7.7x	2.2x	2.0x	2.0x	1.9x
India																			
Exide Industries	INR	251	212	(16%)	OW	214	2.6	12.08	14.37	14.91	11.53	20.8x	17.5x	11.0x	9.3x	1.3x	1.1x	1.7x	1.6x
Samvardhana Motherson	INR	92	91	(2%)	EW	627	7.5	4.62	6.10	5.79	11.53	20.0x	15.2x	9.0x	7.5x	0.8x	0.7x	2.6x	2.3x
Amara Raja	INR	621	623	0%	UW	106	1.3	47.31	51.94	53.88	54.89	13.1x	12.0x	6.4x	5.5x	0.9x	0.8x	1.7x	1.5x
India Weighted Average												19.4x	15.3x	9.2x	7.7x	0.9x	0.8x	2.3x	2.1x
Global Weighted Average												15.5x	12.4x	7.8x	6.5x	1.1x	0.9x	1.7x	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 26, 2023

Global Tire Comps

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

Company	Currency	Price at 27-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	60.16	NC	NA	NC	12.0	12.7	NA	NA	7.74	9.45	7.8x	6.4x	4.0x	3.5x	0.4x	0.4x	0.8x	0.8x
Pirelli & C. SpA	EUR	4.08	5.50	35%	OW	4.1	4.3	0.55	0.61	0.51	0.57	7.5x	6.7x	4.6x	4.6x	1.1x	1.0x	0.7x	0.7x
Michelin	EUR	27.80	35.00	26%	OW	19.9	20.9	3.15	3.26	3.20	3.29	8.8x	8.5x	4.0x	3.7x	0.8x	0.7x	1.1x	1.0x
Europe Weighted Average												8.3x	7.6x	4.1x	3.7x	0.7x	0.6x	1.0x	0.9x
Japan																			
Bridgestone	JPY	5,710	5,400	(5%)	EW	4,075	27.1	522	539	533	567	10.9x	10.6x	4.6x	4.2x	0.9x	0.8x	1.3x	1.2x
Toyo Tire & Rubber Co	JPY	2,270	2,200	(3%)	EW	350	2.3	347	276	364	324	6.5x	8.2x	4.7x	4.3x	0.8x	0.7x	1.0x	0.9x
Sumitomo Rubber	JPY	1,554	1,300	(16%)	UW	409	2.7	101	163	106	149	15.3x	9.5x	6.4x	5.4x	0.6x	0.5x	0.7x	0.7x
Yokohama Rubber	JPY	2,799	3,400	21%	OW	474	3.2	403	423	389	428	7.0x	6.6x	6.4x	5.3x	0.9x	0.8x	0.7x	0.6x
Japan Weighted Average												10.6x	10.0x	4.9x	4.4x	0.9x	0.8x	1.1x	1.1x
Korea																			
Hankook Tire	KRW	37,200	33,000	(11%)	UW	4,608	3.4	4,071	4,136	5,488	6,541	9.1x	NA	3.0x	2.6x	0.5x	0.5x	0.5x	0.5x
Korea Weighted Average												9.1x	NA	3.0x	2.6x	0.5x	0.5x	0.5x	0.5x
Global Weighted Average												10.0x	8.9x	4.6x	4.1x	0.8x	0.7x	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 26, 2023

Global Dealer Comps

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

Company	Currency	Price at 27-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																				
Penske Automotive Group	USD	145.52	107.00	(26%)	UW	9.8	9.8	11.0	16.79	17.68	16.54	15.77	8.7x	8.2x	5.5x	5.4x	0.4x	0.3x	2.0x	1.7x
CarMax	USD	60.39	80.00	32%	OW	9.6	9.6	15.4	3.03	3.38	2.96	3.69	19.9x	17.9x	14.0x	11.6x	0.6x	0.5x	2.2x	2.0x
Lithia Motors	USD	243.21	220.00	(10%)	UW	6.7	6.7	12.3	36.92	36.72	37.69	37.32	6.6x	6.6x	6.6x	7.0x	0.4x	0.4x	1.1x	0.9x
Sonic Automotive	USD	49.16	35.00	(29%)	UW	1.2	1.2	4.2	6.62	7.28	6.68	6.80	7.4x	6.8x	5.8x	5.6x	0.3x	0.3x	2.7x	2.2x
Carvana	USD	29.10	37.00	27%	UW	3.1	3.1	11.0	-2.10	-1.69	-3.62	-2.37	NM	NM	59.0x	36.6x	1.0x	1.1x	11.2x	130.8x
Group 1 Automotive	USD	249.51	200.00	(20%)	UW	3.5	3.5	5.7	46.08	43.96	44.77	40.96	5.4x	5.7x	5.4x	5.1x	0.3x	0.3x	1.2x	1.0x
Asbury	USD	189.04	165.00	(13%)	UW	3.9	3.9	6.9	33.94	31.70	33.19	31.48	5.6x	6.0x	6.1x	5.9x	0.5x	0.4x	1.2x	1.0x
AutoNation	USD	130.42	117.00	(10%)	UW	5.7	5.7	9.2	22.76	20.26	22.90	21.35	5.7x	6.4x	5.1x	4.7x	0.3x	0.3x	2.2x	1.7x
North America Weighted Average													10.0x	9.5x	11.3x	9.2x	0.5x	0.4x	2.5x	10.7x
China																				
China Yongda Auto	HKD	2.98	5.10	71%	OW	5.8	0.7	5.2	0.57	0.81	0.62	0.87	5.3x	3.7x	2.6x	2.0x	0.1x	0.1x	0.4x	0.3x
MeiDong	HKD	4.48	5.90	32%	OW	6.0	0.8	6.6	0.15	0.47	0.24	0.60	30.7x	9.6x	4.9x	3.7x	0.2x	0.2x	1.3x	1.2x
Baoxin Auto	HKD	0.20	0.27	35%	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	19.22	37.00	93%	OW	46.0	5.9	52.6	2.50	3.04	2.80	3.26	7.7x	6.3x	4.3x	3.4x	0.3x	0.3x	0.9x	0.9x
China Zhengtong Auto	HKD	0.43	0.39	(9%)	UW	1.2	0.2	18.5	0.08	0.23	-0.39	-0.33	5.2x	1.9x	9.5x	7.9x	0.7x	0.7x	2.6x	1.1x
China Weighted Average													9.7x	6.3x	4.3x	3.4x	0.3x	0.2x	0.9x	0.8x
Global Weighted Average													9.9x	9.0x	10.3x	8.3x	0.4x	0.4x	2.2x	9.3x

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 26, 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 Oct 26	218.85	90.00	602.00	42.70	160.15
Currency	SEK	TWD	TWD	EUR	USD

Company Name	Tong Yang Industry	Yulon Motor	Zhongsheng Group	Tesla	Hertz
Price at Oct 26	76.40	78.20	18.66	5.22	9.04
Currency	TWD	TWD	CNY	USD	USD

Source: Refinitiv, Morgan Stanley Research

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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 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.

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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 10/26/23 in KRW
Industry : S. Korea Autos & Shared Mobility



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

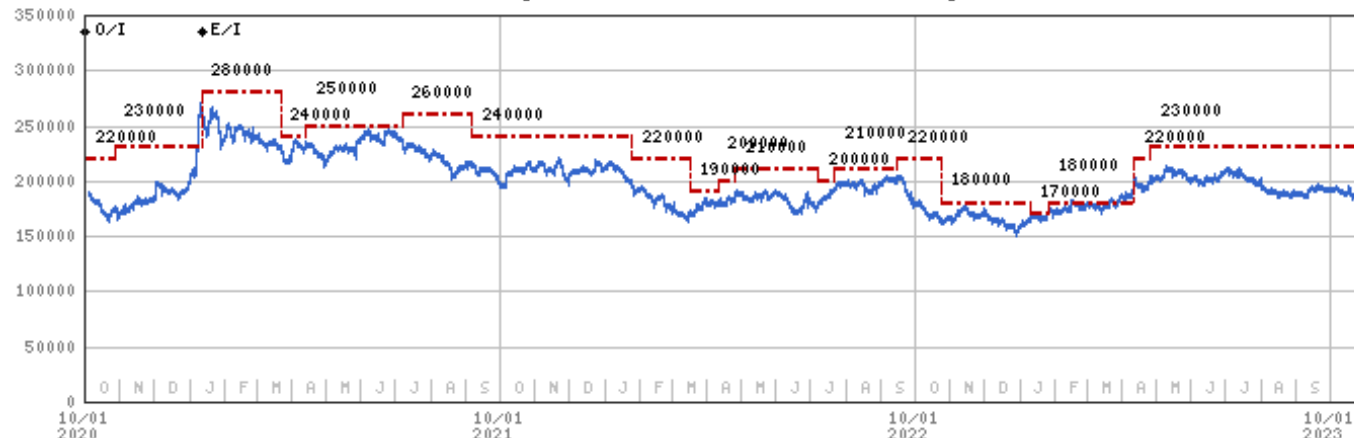
Price Target History: 6/23/18 : 250000; 10/11/18 : 230000; 10/29/18 : 210000; 1/9/19 : 200000; 4/29/19 : 220000; 7/24/19 : 280000; 3/9/20 : 260000; 4/8/20 : 210000; 4/27/20 : 200000; 7/10/20 : 230000; 7/24/20 : 250000; 8/24/20 : 260000; 10/29/20 : 300000; 1/12/21 : 360000; 4/13/21 : 340000; 4/23/21 : 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

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 10/26/23 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

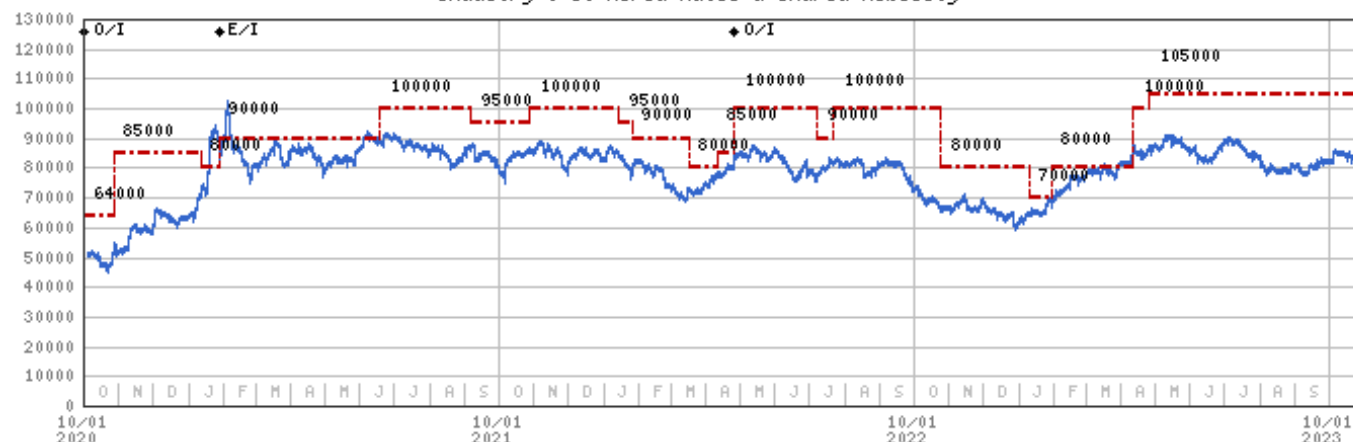
Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) No Rating Available (NA)

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

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 10/26/23 in KRW
Industry : S. Korea Autos & Shared Mobility



Stock Rating History: 10/1/18 : 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 10/26/23 in KRW
Industry : S. Korea Energy & Materials



Stock Rating History: 10/1/18 : 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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Mando (204320.KS) - As of 10/26/23 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* (10/26/2023)
Adam Jonas, CFA		
Adient PLC (ADNT.N)	U (03/17/2021)	\$34.40
American Axle & Manufacturing Holdings Inc (AXL.N)	O (02/28/2022)	\$7.15
Aptiv Plc (APT.V.N)	E (11/28/2022)	\$89.39
Asbury Automotive Group Inc (ABG.N)	U (05/20/2022)	\$189.04
AutoNation Inc. (AN.N)	U (01/17/2023)	\$130.42
Avis Budget Group Inc (CAR.O)	O (06/20/2023)	\$160.15
BorgWarner Inc. (BWA.N)	O (05/15/2023)	\$38.26
Carmax Inc (KMX.N)	O (07/10/2018)	\$60.39
Carvana Co (CVNA.N)	U (07/26/2023)	\$29.10
Ferrari NV (RACE.N)	O (05/09/2019)	\$297.11
Fisker Inc (FSR.N)	U (01/25/2023)	\$4.93
Ford Motor Company (F.N)	O (10/05/2022)	\$11.35
FREYR Battery SA (FREY.N)	O (06/28/2023)	\$3.24
General Motors Company (GM.N)	O (05/01/2023)	\$28.55
Group 1 Automotive, Inc (GPI.N)	U (05/20/2022)	\$249.51
Harley-Davidson Inc (HOG.N)	O (03/21/2023)	\$26.96
Hertz Global Holdings Inc (HTZ.O)	E (12/06/2021)	\$9.04
Lear Corporation (LEA.N)	E (02/28/2022)	\$133.45
Li-Cycle Holdings Corp. (LICY.N)	U (01/25/2023)	\$1.32
Lithia Motors Inc. (LAD.N)	U (02/09/2021)	\$243.21
Lucid Group Inc (LCID.O)	U (09/13/2021)	\$4.07
Magna International Inc. (MGA.N)	O (10/14/2021)	\$49.48
Mobileye Global Inc (MBLY.O)	E (07/24/2023)	\$36.42
Penske Automotive Group, Inc (PAG.N)	U (11/17/2021)	\$145.52
Quantumscape Corp (QS.N)	U (11/09/2022)	\$5.22

Rivian Automotive, Inc. (RIVN.O)	O (12/05/2021)	\$16.17
Sonic Automotive Inc (SAH.N)	U (11/17/2021)	\$49.16
Tesla Inc (TSLA.O)	O (09/10/2023)	\$205.76
Visteon Corporation (VC.O)	E (06/01/2022)	\$127.98

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