

Global Automobiles

Electric Vehicles: What's Next IX: Time for Hybrids

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Global EV uptake is at a turning point. In this report, the ninth installment of our “Electric Vehicles: What’s Next” series, we focus on the competitiveness of hybrids (HEVs) and plug-in hybrids (PHEVs) amid the slowdown for EVs. We also discuss the outlook for the ASEAN market, where the competitive landscape is changing due to the worsening EV oversupply in China. We spotlight Buy-rated Toyota (raising our TP by 22%), Honda, and Hyundai Motor (on APAC Conviction List). We think Asian automakers that have adopted a multi-powertrain strategy have the advantage in HEVs. We also maintain our Buy rating on BYD as we believe its growth strategy will gain momentum if it succeeds in tapping into the ASEAN market.

Why are EV sales slowing?

We think our bear scenario calling for a yoy decline in EV sales volume in 2024 has become more realistic. Europe, which has driven EV growth so far, has shown signs of stagnation since the beginning of 2024. We believe this is due to concerns about three factors: (1) EV capital costs due to lower prices for used EVs, (2) poor visibility on government policy, and (3) a shortage of rapid-charging stations. Under these circumstances, we clarify our relative preference for PHEVs and HEVs.

Why are hybrid sales accelerating?

While EV sales have lacked momentum lately, HEVs and PHEVs are being more readily accepted by consumers given considerations of range, infrastructure rollout, and total cost of ownership (TCO). In particular, we think motor assistance when accelerating is a feature that may be helping HEVs gain more recognition in terms of performance. We think shift in trends focusing solely on EV will be more positive for manufacturers that offer multiple powertrain options, including PHEVs and HEVs.

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China looking to step up EV exports, battle for ASEAN market to heat up

There is a concern that EV competition will intensify in China, where excess production capacity stands at over 5mn vehicles, in the future. Chinese makers enjoy cost advantages given the country's concentrated EV supply chain (including for batteries), and we think they are also the most competitive in LFP (lithium iron phosphate) batteries. Meanwhile, many government policies in the US, Europe, and India seek to block Chinese and other foreign EVs from gaining a foothold in their EV supply chains. Against this backdrop, the battle for dominance in the ASEAN EV market is intensifying.

Now is the time for upfront investment in vertical integration

As we expect demand will eventually shift to EVs in pursuit of achieving carbon neutrality, we believe it will be important for automakers to move decisively over the next few years to accumulate core EV technologies (batteries, power semiconductors, motors, etc.). We also think balance sheet strength and the ability to generate free cash flow from existing businesses will be crucial in supporting this ongoing investment. We are bullish on automakers with strong balance sheets and lineups with multiple powertrains (e.g., HEVs).

Exhibit 1: Our bear case scenario becoming more realistic

Powertrain forecasts

	2020	2021	2022	2023	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2035E	2040E
EV Penetration													
Total	3%	6%	9%	11%	13%	16%	20%	23%	26%	30%	34%	50%	62%
USA	2%	3%	6%	8%	9%	14%	20%	25%	33%	40%	50%	70%	85%
Japan	0%	0%	1%	1%	3%	6%	8%	10%	12%	16%	20%	50%	80%
China	5%	12%	20%	24%	28%	32%	35%	38%	41%	44%	46%	55%	66%
EU	6%	10%	14%	16%	20%	25%	31%	39%	48%	56%	68%	100%	100%
India	0%	0%	1%	2%	3%	4%	7%	10%	13%	17%	21%	38%	57%
Others	1%	2%	3%	5%	5%	6%	6%	6%	6%	7%	7%	25%	43%
Hyper adoption	3%	6%	9%	11%	17%	21%	26%	30%	33%	37%	45%	65%	84%
Bear	3%	6%	9%	11%	11%	13%	15%	17%	20%	22%	25%	35%	46%
EV sales (mn)													
Total	2.0	4.6	7.3	9.8	11.9	15.0	18.4	21.7	25.6	29.6	34.4	56.0	76.5
USA	0.3	0.4	0.8	1.2	1.5	2.3	3.2	4.0	5.2	6.4	8.0	11.2	13.6
Japan	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.5	0.6	0.7	0.9	2.3	3.5
China	0.9	2.4	4.1	5.1	6.1	7.2	8.2	9.1	9.9	10.7	11.5	13.6	16.2
EU	0.7	1.2	1.6	2.0	2.5	3.4	4.6	5.8	7.2	8.5	10.3	15.1	15.1
India	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.8	1.1	1.3	3.0	5.5
Others	0.1	0.5	0.7	1.4	1.5	1.6	1.7	1.8	2.0	2.2	2.4	10.8	22.5
Hyper adoption	2.0	4.6	7.3	9.8	15.4	19.4	24.3	28.3	32.3	36.6	45.7	72.1	102.5
Bear	2.0	4.6	7.3	9.8	9.7	11.7	13.7	16.5	19.4	21.9	25.3	38.8	57.0
LiB demand (GWh)													
Total	162	327	530	737	919	1,203	1,432	1,741	2,098	2,457	2,868	4,665	6,599
Hyper adoption	-	-	-	-	1,240	1,609	1,953	2,343	2,740	3,149	3,865	6,811	9,848
Bear	-	-	-	-	774	969	1,143	1,365	1,612	1,828	2,115	3,238	4,933
	2020	2021	2022	2023	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2035E	2040E
Powertrain outlook (mn)													
HEV	3.0	5.2	5.7	7.5	8.8	9.6	10.0	10.2	9.8	9.6	9.2	6.4	4.8
PHEV	1.0	1.9	2.9	4.0	5.0	6.2	7.0	7.8	8.6	9.4	10.2	10.2	11.8
EV	2.0	4.6	7.3	9.8	11.9	15.0	18.4	21.7	25.6	29.6	34.4	56.0	76.5
ICE and others	73.8	73.8	68.7	72.1	71.4	70.0	67.6	65.4	62.6	59.7	56.1	45.1	34.5
Powertrain ratio													
HEV	4%	7%	7%	9%	10%	11%	11%	11%	10%	10%	9%	6%	4%
PHEV	1%	2%	4%	5%	6%	7%	8%	8%	9%	9%	10%	9%	10%
EV	3%	6%	9%	11%	13%	16%	20%	23%	26%	30%	34%	50%	62%
ICE and others	96%	92%	87%	84%	81%	77%	73%	69%	65%	60%	56%	41%	28%
YoY													
HEV	18%	74%	9%	31%	18%	9%	4%	1%	-4%	-2%	-4%	-	-
PHEV	73%	91%	54%	40%	24%	24%	13%	10%	10%	9%	9%	-	-
EV	36%	126%	60%	35%	21%	26%	22%	18%	18%	16%	16%	-	-
ICE and others	-16%	0%	-7%	5%	-1%	-2%	-3%	-3%	-4%	-5%	-6%	-	-
Scenario analysis (YoY)													
Base	-	-	-	-	21%	26%	22%	18%	18%	16%	16%	-	-
Hyper adoption	-	-	-	-	56%	26%	26%	16%	14%	13%	25%	-	-
Bear	-	-	-	-	-2%	21%	17%	20%	18%	13%	16%	-	-

Source: IHS Global Insight, MarkLines, Goldman Sachs Global Investment Research

Exhibit 2: Stocks in focus

EV enablers

Company	Ticker	Rating	Market Cap (bn\$)	Share price	Target Price	Upside/ Downside	P/E			P/B			Powertrain Mix FY24E			
							FY23(E)	FY24E	FY25E	FY23(E)	FY24E	FY25E	HEV	PHEV	BEV	ICE
Toyota	7203.T	Buy	343.6	¥3,850	¥4,400	14.3%	11.3x	10.3x	9.3x	1.7x	1.5x	1.3x	43%	1%	3%	53%
Honda	7267.T	Buy	57.7	¥1,880	¥2,100	11.7%	9.0x	7.9x	7.1x	0.8x	0.8x	0.7x	25%	0%	3%	72%
Hyundai	005380.KS	Buy*	53.6	₩240,500	₩290,000	20.6%	4.0x	5.7x	5.6x	0.5x	0.6x	0.6x	11%	1%	13%	75%
BYD	002594.SZ	Buy	88.6	CNY 219.60	CNY 304.00	38.4%	24.1x	19.0x	14.6x	5.2x	3.9x	3.2x	0%	52%	48%	0%
Tesla	TSLA	Neutral	620.4	\$177.67	\$190.00	6.9%	83.5x	82.8x	46.7x	13.8x	8.6x	7.2x	0%	0%	100%	0%

Note: Price as of March 26, 2024 close

* denotes stocks on APAC Conviction List.

Source: Factset, Goldman Sachs Global Investment Research

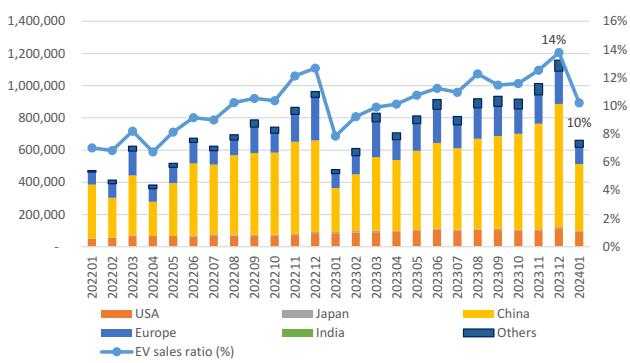
Why is EV growth slowing? Why is hybrid growth accelerating?

Three factors blunting EV penetration

EV sales momentum is slowing globally. Europe, which has driven EV growth up to now, has shown signs of stagnation since the beginning of 2024. We believe this is due to concerns about three factors: (1) EV capital costs due to lower prices for used EVs, (2) poor visibility on government policy, and (3) a shortage of rapid-charging stations. Under these circumstances, we clarify our relative preference for HEVs and PHEVs.

Exhibit 3: EV sales momentum is weak

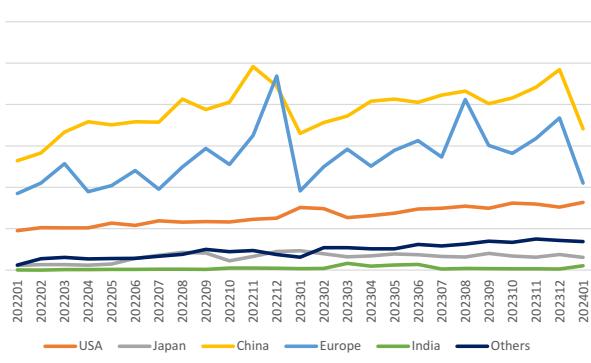
Monthly EV sales (units)



Source: MarkLines

Exhibit 4: China/Europe EV sales weightings fell sharply in early 2023 and 2024

EV sales weightings by region (%)

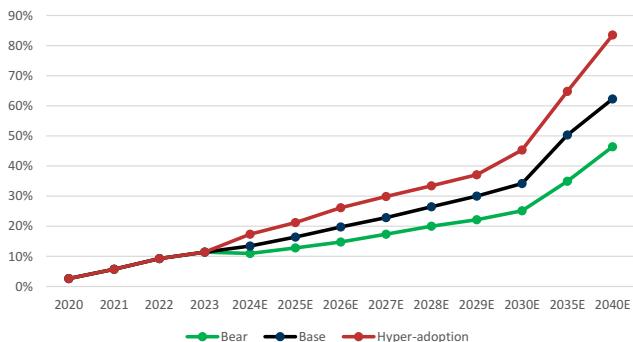


Source: MarkLines

Bear-case scenario becoming more realistic

We have previously suggested that EV penetration could vary considerably under various conditions. Despite the current slowdown in EVs, our base-case scenario still calls for EV sales volume to rise 21% yoy in 2024. On the other hand, we think our bear-case scenario has become more realistic given the three negative factors outlined above. Under our bear-case scenario, we see EV sales volume declining 2% yoy in 2024, and negative growth would likely result in oversupply across the EV supply chain.

Exhibit 5: Even under our bear-case scenario, EV penetration would still be 25% in 2030
EV penetration rate by scenario (%)



Source: IHS Global Insight, ACEA, CPCA, Goldman Sachs Global Investment Research

Exhibit 6: Our bear case scenario assumes negative EV sales volume growth in 2024
EV sales growth assumptions by scenario (% yoy)



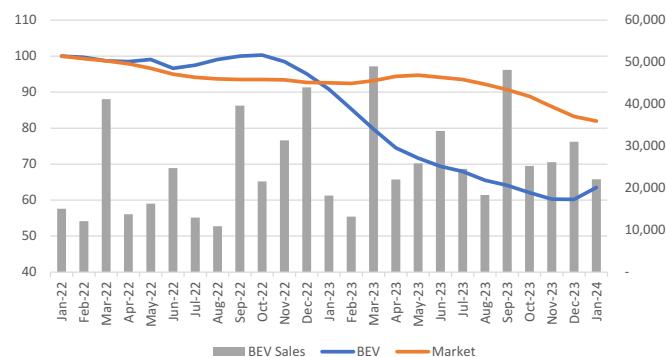
Source: IHS Global Insight, ACEA, CPCA, Goldman Sachs Global Investment Research

(1) Concerns about EV capital costs due to lower prices for used EVs

EVs are nearing a turning point in terms of economic viability due to: (1) potential changes to government subsidies that have lowered initial investment; (2) aggressive pricing strategies undertaken by Chinese makers, and (3) running cost benefits (fuel cost savings). On the other hand, we think capital costs upon sale are emerging as a new concern, as has been shown by the decline in EV used car prices in the UK.

Exhibit 7: EV used car prices have fallen sharply

UK: Used car retail prices (January 2022 = 100)



Source: Autorola, MarkLines

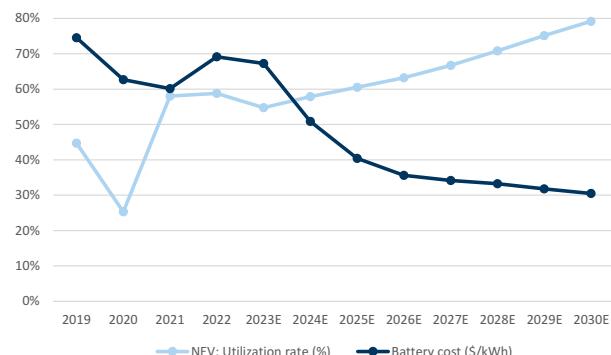
While it is difficult to forecast when used EV prices will bottom out, we think innovation in batteries, which account for 30%-40% of EV CoGS, will be a key factor. If consumers think tomorrow's batteries will be superior to today's batteries in terms of performance, used EV prices are unlikely to stabilize. That said, we believe recent battery price declines have been driven not only by technological innovation but also by oversupply in China's EV supply chain.

In 2027-2028, current liquid-based lithium-ion batteries could see innovations that improve energy density by 20-30% per our estimate. This will be driven by the shift to cathodes with higher nickel content and the evolution of silicon anodes. While we see a

step up to all-solid-state batteries thereafter, we think quick penetration will be difficult in terms of costs and mass production technologies. We think EV used car prices will need at least another two to three years to stabilize.

Exhibit 8: Battery prices expected to continue trending downward

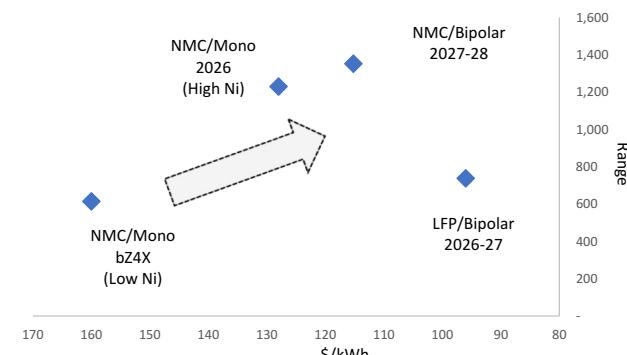
Global battery cost and China NEV utilization



Source: CPCA, CAAM, Ministry of Public Security, SNE, Goldman Sachs Global Investment Research

Exhibit 9: Technological innovation continues

Battery innovation: Our estimates for driving range and cost

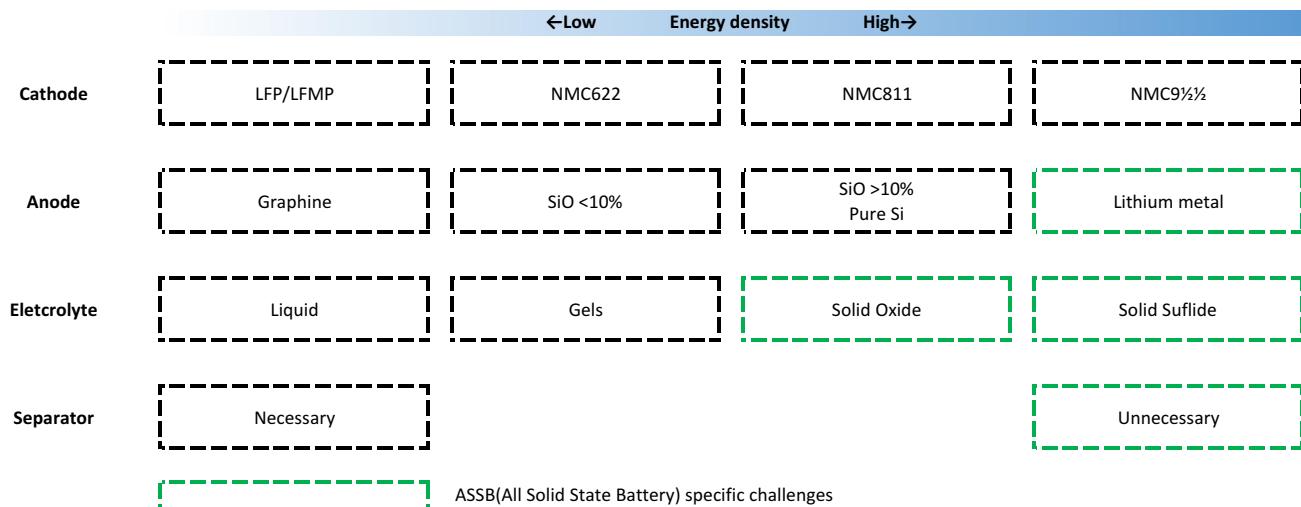


NMC and LFP respectively stand for nickel manganese cobalt and lithium iron phosphate

Source: Goldman Sachs Global Investment Research

Exhibit 10: There is still a room for improvement in energy density

Battery material evolution



Source: Goldman Sachs Global Investment Research

(2) Poor visibility on government policy

We believe uncertainty around a number of elections this year has decreased visibility on potential changes to government policies affecting the EV industry. Indonesia's presidential election ended in February, and the focus is now on whether EV policy will change once the cabinet gets to work. India will hold general elections in April-May, and the European parliamentary elections are scheduled for June. In the US, the presidential election is scheduled for November 5. We believe this uncertainty could result in consumers holding off on EV purchases until visibility on potential changes to government incentives and policies becomes clearer. Similarly, automakers could also take a wait-and-see stance on product launches and capex.

On March 20 (US time), the US Environmental Protection Agency (EPA) announced final emissions standards for 2027-2032 (as reported in the *Nikkei* and discussed in our [March 21 report](#)). The EPA has kept the final target of halving CO2 emissions by 2032 that was included in the draft proposals released in April 2023 ([link](#)), but the CO2 reduction target for 2027-2029 has been eased. Under the new standards, automakers will be able to meet emissions targets via diverse electrification solutions that include PHEVs and HEVs, not only BEVs. The rapid shift to EVs is having a large impact on the broad-based automobile industry. Also, with the recent slowdown in EV adoption, the United Auto Workers union (UAW) and auto dealers, particularly at the Big 3 US automakers, have called for the easing of the EPA standards.

Specifically, the EPA has outlined a scenario in which the requirement for EV sales as a percentage of new passenger vehicle sales in 2032 is 56%, down from 67% in the draft proposals, and instead the PHEV sales ratio would need to be 13% and the HEV ratio 3%. In a scenario where the ratio of HEV/PHEV sales is high, the 2032 target could be met with sales weightings of 35% for BEVs, 36% for PHEVs, and 13% for HEVs.

Exhibit 11: Short-term EV targets eased

US emissions standards

Pathway	Technology	2027	2028	2029	2030	2031	2032	
							GSE Base	GSE Bear
							2032	2032
Pathway A (Higher BEV)	ICE	64%	58%	49%	43%	35%	29%	
	HEV	4%	5%	5%	4%	3%	3%	
	PHEV	6%	6%	8%	9%	11%	13%	
	BEV	26%	31%	39%	44%	51%	56%	
Pathway B (Moderate HEV/PHEV)	ICE	62%	56%	49%	39%	28%	21%	
	HEV	4%	4%	3%	6%	7%	6%	
	PHEV	10%	12%	15%	18%	24%	29%	
	BEV	24%	29%	33%	37%	41%	43%	
Pathway C (Higher HEV/PHEV)	ICE	61%	41%	35%	27%	19%	17%	
	HEV	4%	15%	13%	16%	15%	13%	
	PHEV	10%	17%	22%	27%	32%	36%	
	BEV	24%	26%	30%	31%	34%	35%	

Source: EPA, data compiled by Goldman Sachs Global Investment Research

European automakers are calling for more open and constructive discussions on current EV policies. VW raised the issue that there was scope to reconsider the ban on the sale of gasoline vehicles in Europe, which is scheduled to come into force in 2035. BMW also expressed the view that it sees a need for a comprehensive industry review of European CO2 regulations.

Exhibit 12: Key political events in 2024

2024	Global	United States	Europe	Japan	Asia / Others
Jan	15th - Davos 2024				13th - Taiwanese General Election
Feb					Indonesian General Election
Mar		5th - Super Tuesday			
Apr					Apr-May - Indian General Election
May					
Jun	G7 in Italy				
Jul	Paris 2024 Summer Olympics	Republican National Convention	6-9th European Parliament Elections		
Aug		Democratic National Convention			
Sep					Expiration of Kishida's term as LDP President
Oct					
Nov	G20 in Brazil	US presidential election			
Dec					

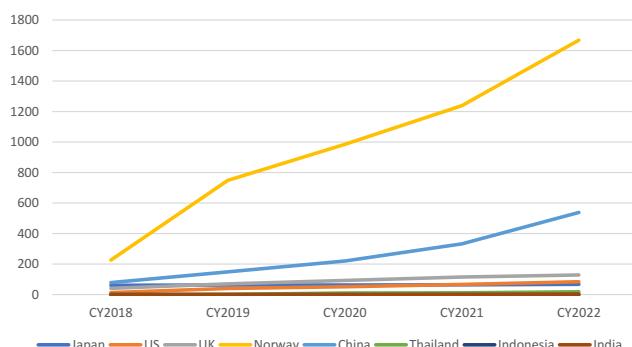
Source: Data compiled by Goldman Sachs Global Investment Research

(3) Shortage of rapid-charging stations

As EV penetration accelerates, rapid charging station infrastructure issues have emerged as a more tangible problem. For example, several automakers (such as Nissan and Mitsubishi Motors) have said that concerns about driving range and charging infrastructure increased when people returned home to rural areas during the new year holidays, particularly in China and Thailand. Moreover, with the exception of countries like Norway, where robust infrastructure is being developed, local issues, which include but are not limited to charging infrastructure density, may lead consumers to have second thoughts about buying an EV.

Exhibit 13: Regions other than Norway and China are not making progress

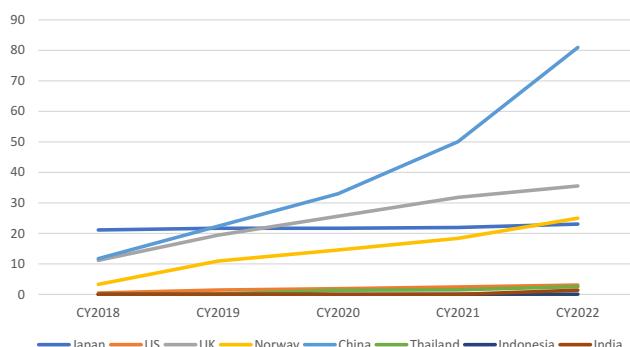
Rapid chargers based on population (number/mn people)



Source: International Energy Agency, World Bank

Exhibit 14: China is also making progress with charging infrastructure

Rapid chargers based on land area (number/thousand km²)



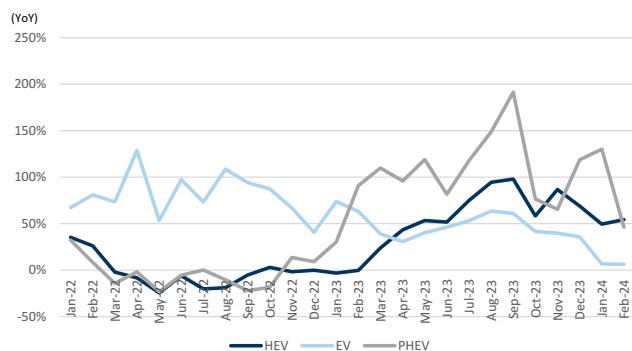
Source: International Energy Agency, World Bank

Increasingly positive view of HEV/PHEV

Sales of HEVs and PHEVs have been accelerating amid the slowdown in EVs. In the US, growth has outpaced EVs over the past several months. As a result, we believe global HEV sales could exceed the outlook by 1-2 mn vehicles. While HEVs are viewed as transitional technology, we look for increasing focus on them to help reduce CO2 while maximizing earnings and supporting investment in EVs for automakers.

Exhibit 15: HEV/PHEV sales momentum is rising

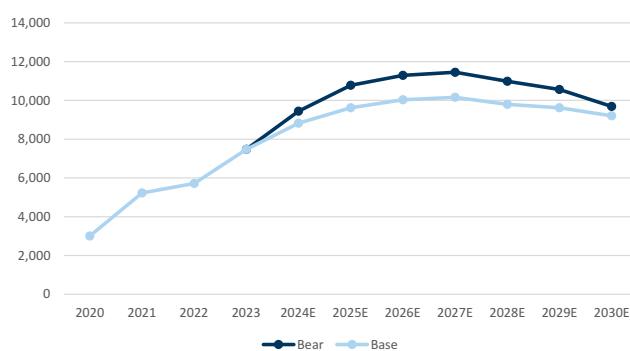
Sales volume growth by powertrain (%)



Source: Motor Intelligence, data compiled by Goldman Sachs Global Investment Research

Exhibit 16: Upside to HEV volume

Scenario analysis: Global HEV sales



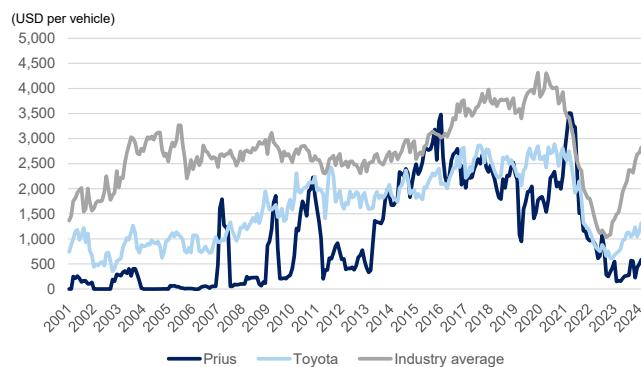
Source: IHS Global Insight, MarkLines, Goldman Sachs Global Investment Research

Hybrids outpace gasoline vehicles in margins

Toyota has officially said that HEV margins are higher than margins for gasoline-engine cars. The hybrid Prius in the US is sold with per-vehicle incentives well below the industry average and Toyota's average. While Toyota does not disclose incentives by powertrain for the RAV4 or Camry, we assume they are lower than for gasoline-engine vehicles based on the recent solid sales momentum for HEV. Honda is the second-largest HEV manufacturer and has shown confidence in its HEV margins in the US. We think this testifies to the popularity that HEVs have gained in the US market.

Exhibit 17: Prius sales incentives are low

US per-vehicle sales incentives (US\$)



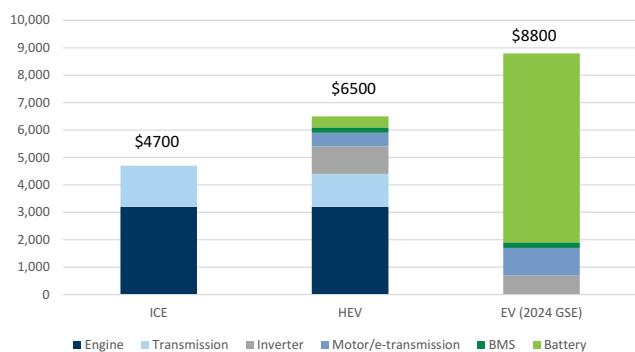
Source: Motor Intelligence, data compiled by Goldman Sachs Global Investment Research

Consumers accepting HEV price premium

The additional cost of an HEV compared to a gasoline engine vehicle is about \$2,000. This is still cheaper than the US\$4,000 in additional cost we estimate for EVs. We estimate the payback period for HEV at just over three years, assuming annual fuel savings (in the US of US\$500). HEV has a significant advantage in payback period compared to EV. In addition, given Toyota introduced HEVs back in 1997, we believe there is high confidence in used car prices for HEVs. The economic benefits of HEVs, including capital costs, are large. However, if lower EV costs are realized by 2030, we believe the advantages of EVs will again come under focus.

Exhibit 18: HEVs cost an additional US\$2,000 or so

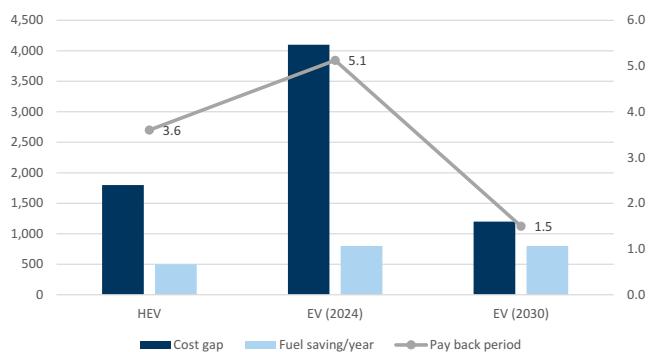
Powertrain cost comparison



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 19: Recoup investment in just over 3 years

Payback period comparison



Source: Company data, Goldman Sachs Global Investment Research

Hybrids also offer superior power performance

We believe HEVs may not be chosen solely because of their economic rationality. In fact, hybrids have shown higher horsepower performance than gasoline-engine vehicles. Motor assistance when accelerating is likely to provide reassurance to drivers when, for example, they need to merge into fast-moving traffic on highways. Amid the downsizing of gasoline engines, we think HEV performance could garner greater attention.

Exhibit 20: HEVs have excellent power performance

Gasoline-powered vehicles vs hybrids

	Toyota Prius		Honda CR-V			Toyota Camry		Honda Accord		
	RAV4	HEV	ICE	HEV	Gap	ICE	HEV	Gap	ICE	HEV
			\$28,675	\$31,725	\$3,050	\$29,500	\$34,050	\$4,550	\$26,420	\$28,855
Starting price			\$27,950			164,140	197,317		101,624	96,323
Volume (2023)			30,495							
HEV ratio			80%		37%		55%			
Incentive (2023)			\$327							
Incentive Jan 2024			\$502							
Incentive Feb 2024			\$586							
MPG										
City			57			29	43	14	29	46
Highway			56			27	40	13	39	46
			27	41	14	32	35	3	14	12
			35	38	3				37	9

Source: Company data, Goldman Sachs Global Investment Research

US automakers are also focused on hybrids

Ford: At its 4Q12/23 results briefing, the company said global HEV sales rose 20% yoy in 2023 and that it expects global HEV sales to grow a further 40% in 2024. Ford said HEVs are an attractive option for consumers, especially as pickup trucks, given the already large number of use cases and better fuel consumption than ICE vehicles. It also noted that it is easier for consumers to calculate the total cost of ownership for HEVs than EVs. According to Ford, HEV margins are closer to ICE vehicles than BEVs, and sales can be expanded while securing margins. In terms of EVs, Ford aims to turn profitable within 12 months of launching a new model. The company said it will take a disciplined approach to new EV investments. It said it expects EV sales volume to increase in 2024, mainly due to sales growth for commercial vehicles and the Explorer in Europe. Ford said it sees EVs as inevitable from a long-term perspective, but it will also offer customers more economically rational options.

GM: At its 4Q12/23 results briefing, the company announced plans to launch several PHEV models in North America. The company said it will decide when it will launch models, taking into account fuel consumption and tailpipe emission regulatory issues. GM also said it is launching certain PHEV models in the global market. The company has not disclosed specific models/segments. It plans to produce and sell 200,000-300,000 EVs in the North American market in 2024, depending on consumer demand. It aims to expand its business after securing EV margins. GM added that it plans to move to zero emissions for light duty vehicles by 2035.

Chinese EVs look to ASEAN amid decoupling in other regions

China EV market looks robust, but oversupply is the reality

EV sales have decelerated globally, but conditions are relatively buoyant in China's EV market (the world's largest, accounting for over 60% of the global market). That said, price competition is escalating owing to low capacity utilization caused by oversupply.

Exhibit 21: China market still growing strongly

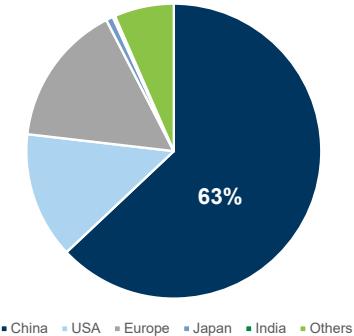
EV sales volume growth by region (%, yoy)



Source: MarkLines, Data compiled by Goldman Sachs Global Investment Research

Exhibit 22: China market accounts for the majority of EV sales

EV sales share by region (%, as of January 2024)



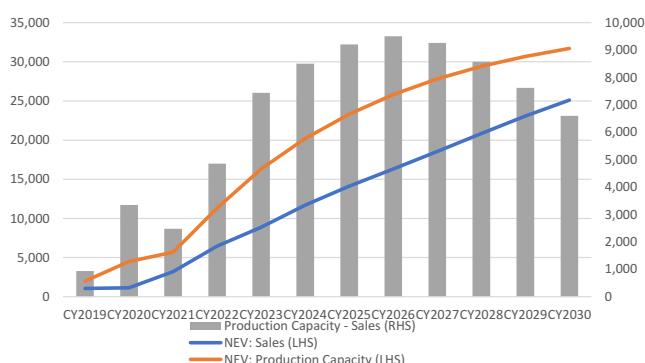
Source: MarkLines, Data compiled by Goldman Sachs Global Investment Research

Is there an export market for Chinese EVs?

With excess production capacity currently at more than 5 mn vehicles, China aims both to expand domestic EV uptake and export EVs to overseas markets. China enjoys cost advantages given its concentrated EV supply chain (including for batteries), and we think it is also the most competitive in LFP batteries. Meanwhile, many government policies in the US, Europe, and India seek to block Chinese and other foreign EVs from gaining a foothold in their EV supply chains, to the degree possible. Given that EV demand outside China is not very large apart from these three regions, we think it is unlikely that China's supply surplus will be eliminated easily. As Chinese EV makers face a challenging overall landscape when it comes to exports, it is becoming more important to keep a closer eye on winners/losers among them.

Exhibit 23: Oversupply increasing

China: NEV sales volume and production capacity ('000 units)



Source: CPCA, CAAM, Ministry of Public Security, Goldman Sachs Global Investment Research

Exhibit 24: Not many markets to absorb surplus EVs from China

Base case: BEV sales volume

(k units)	CY2023	CY2030	Change
US	1,199	8,000	6,801
Japan	44	924	880
China	5,123	11,517	6,394
Europe	2,048	10,261	8,213
India	78	1,342	1,265
Others	1,354	2,368	1,014
Total	9,845	34,412	24,567

Source: IHS Global Insight, Goldman Sachs Global Investment Research

Exhibit 25: Not many markets to absorb surplus EVs from China

Bear case: BEV sales volume

(k units)	CY2023	CY2030	Change
US	1,199	5,600	4,401
Japan	44	554	510
China	5,123	8,638	3,514
Europe	2,048	7,183	5,135
India	78	1,208	1,130
Others	1,354	2,131	777
Total	9,845	25,314	15,469

Source: IHS Global Insight, Goldman Sachs Global Investment Research

Exhibit 26: Protectionism on the rise

Protectionist policies in three key regions

		Protective Policy
US	IRA (Inflation Reduction Act):	Signed into law in August 2022. To be eligible for \$7,500 EV tax credit, (1) Final assembly must take place in NA. (2) 40% of critical minerals must be extracted or processed in the US or free trade partners, or recycled in NA. (3) 50% of battery components must be manufactured or assembled in NA.
EU	Battery Passport:	A technology platform that records information about lifecycles of batteries such as procurement and recycling. EU Battery Regulation was enforced from 2024 and rules for Battery Passport will be made compulsory from 2026. These rules require providing information about CO2 emissions and recycle ratio of materials through the battery lifecycle to the EU Committee.
India	Make in India:	Industrial policy that has been promoted since 2014 when Prime Minister Modi took office. It aims to attract direct investment from abroad and increase the ratio of the manufacturing industry in relation to GDP from the current 15% to 25%. Subsequently, it also aims for creation of new employment, reduction of the trade deficit, and expansion of exports.

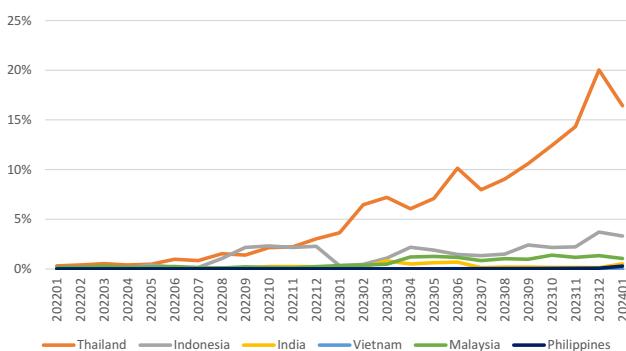
Source: Nikkei Shimbun, JETRO

Chinese brands gaining momentum in ASEAN

The ASEAN market has been a major export destination for Chinese EVs since 2023. In particular, the governments of Thailand and Indonesia have set low domestic production targets and adopted policies of aggressively attracting overseas EV makers. Thailand's EV 3.0 policy led to the EV sales weighting in the country surging to 10%-20%. Several Chinese makers are building production facilities in Thailand.

Exhibit 27: Thailand's EV penetration rate rising sharply

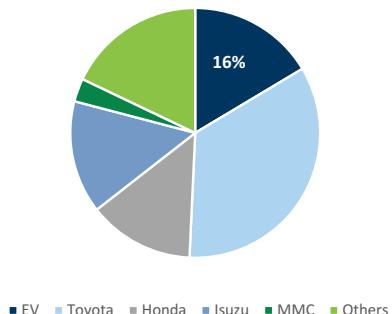
EV penetration rates (%)



Source: MarkLines

Exhibit 29: Japanese OEM stronghold

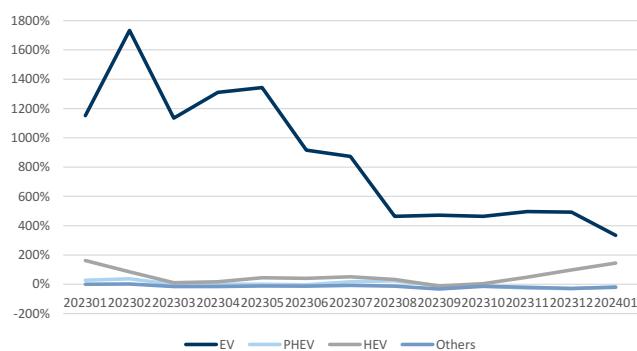
Thai market shares for Japanese OEMs (%), as of January 2024)



Source: MarkLines, Data compiled by Goldman Sachs Global Investment Research

Exhibit 28: EV sales momentum in Thailand is strong

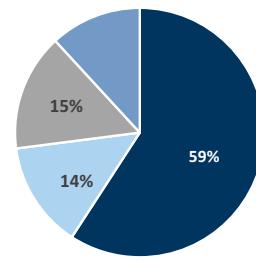
Sales volume growth by powertrain (%)



Source: MarkLines, Data compiled by Goldman Sachs Global Investment Research

Exhibit 30: Chinese OEMs have dominant EV market share in Thailand

Thai EV market shares (%), as of January 2024)



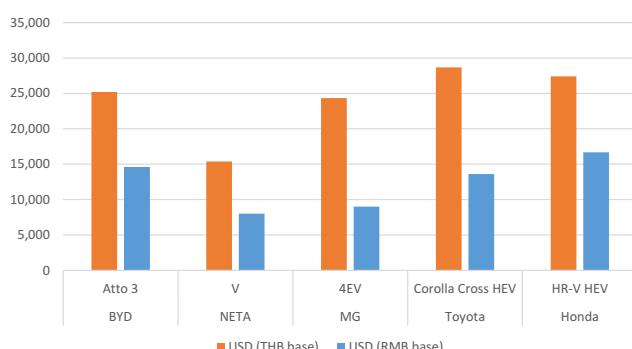
Source: MarkLines, Data compiled by Goldman Sachs Global Investment Research

Pricing strategy presents significant opportunities

We see a large gap in Chinese EV makers' selling prices in China, Thailand, and Indonesia. Many auto parts can be imported from China at low cost if the local production ratio in Thailand is kept to around 40%. We think ASEAN is becoming an increasingly important market where Chinese EV makers can secure stronger margins than in China, where pricing competition is intensifying.

Exhibit 31: Prices lower in China

Thailand: Price comparison

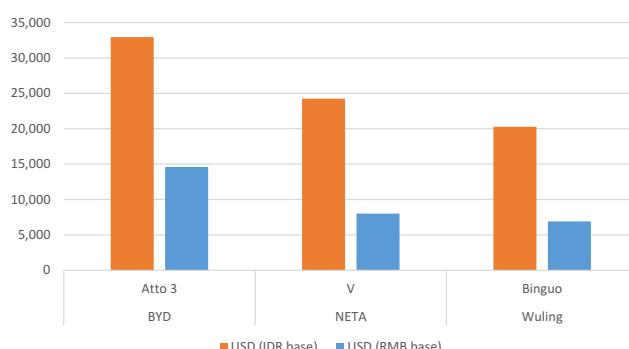


Prices excluding VAT; before store discounts.

Source: Company data

Exhibit 32: Prices lower in China

Indonesia: Price comparison



Prices excluding VAT; before store discounts

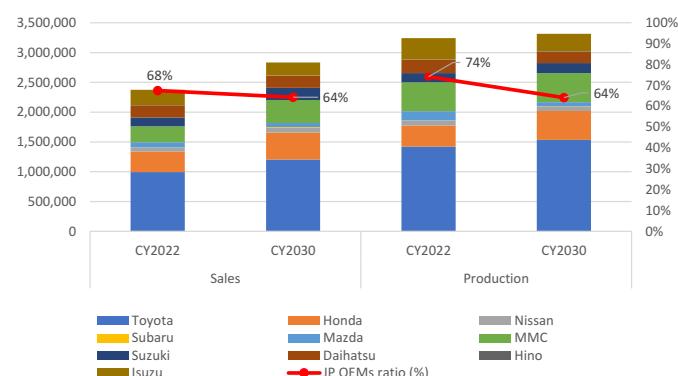
Source: Company data

Risk of market share declines for Japanese makers

Chinese EV makers thus pose a major threat to Japanese brands, which have maintained high market share in ASEAN for many years. We think EV uptake is likely to be slow in the commercial use segment (mainly pickup trucks), but we expect competition to become much more intense in the passenger SUV segment.

Exhibit 33: Japanese OEMs' footprint in ASEAN likely to shrink

Sales/production volume (units) at Japanese OEMs



Source: IHS Global Insight, Data compiled by Goldman Sachs Global Investment Research

Rapid EV shift continues in Thailand; questions over contribution to real industrial development

Thailand aims for a domestic production weighting of 30% in EVs (volume basis) in 2030. It plans to install 10,000 charging stations by 2025 and 80,000 stations by 2035. Buoyed by subsidies for EV purchases, Thailand's EV sales weighting has risen sharply. Against this backdrop, the Thai government ended its EV 3.0 policy in January 2024 and implemented its new EV 3.5 policy in February. EV purchase subsidies were lowered from 150,000 baht per vehicle to 100,000 baht. This likely led to rush demand in January and a subsequent drop-off in February. With subsidies being reduced, EV makers are lowering their selling prices and ramping up their spending on marketing.

Focus on domestic EV production rate

Thailand's basic policy for promoting local production remains unchanged under the EV 3.5 policy. One of the conditions for import tariffs to be eliminated is that local production in Thailand be lifted by 2026-2027. The required rate of locally assembled vs. imported units will be 2X for makers that launch local output by 2026 and 3X for makers that start local output by 2027. The focus is on a 40% local procurement ratio, and at present, the requirement for 40% of value-added is being fulfilled via local battery assembly. Similar to battery materials, Chinese EV makers should be able to import a full range of vehicle components from China for assembly in Thailand, and we therefore think Chinese brands will be able to transfer their cost competitiveness to Thailand for the time being.

Exhibit 34: Actively promoting EV uptake

Thailand EV strategy - EV3.5

Category	Price (THB)	Battery capacity	Subsidy* (THB)				Excise tax				Import duties
			2024	2025	2026	2027	2024	2025	2026	2027	
4W	<2mn	<50kWh	50,000	35,000	25,000	25,000	2%	2%	2%	2%	
		50kWh≤	100,000	75,000	50,000	50,000	2%	2%	2%	2%	≤ 40%
	2-7mn	50kWh≤	NA	NA	NA	NA	2%	2%	2%	2%	
Pick-up	≤2mn	50kWh≤	100,000	100,000	100,000	100,000	0%	0%	2%	2%	-
2W	≤150k	3kWh≤	10,000	10,000	10,000	10,000	1%	1%	1%	1%	-

*required domestic production to enjoy incentives(domestic EV production must offset any CBU imports at a ratio of 1:2 by 2026 and 1:3 by 2027)

*subsidies for pick-up and 2W are only applicable to domestically manufactured

Source: Thailand Board of Investment , Data compiled by Goldman Sachs Global Investment Research

EV sales slow in Indonesia

Indonesia is also taking a proactive approach when it comes to EV policies. Its medium-term targets are for domestic EV production of 400,000 units in 2025 and 600,000 units in 2030. However, the EV sales weighting was just 1.8% in 2023, with just under 20,000 units sold. Under the government's policy, EV import duties and luxury taxes are reduced to 0% on the condition that the domestic content threshold is met. However, the government does not provide the kind of subsidies for EV purchases that are available in Thailand.

Domestic content ratio is key

The required domestic content ratio through 2026 is set at 40%, and, as in Thailand, it is possible to achieve that solely by assembling batteries locally. However, from 2027 the threshold will rise to 60%-80%, making local production essential. Although a number of manufacturers have announced moves into Indonesia, companies are currently holding back in view of weak EV sales momentum, and current activity is confined to outsourcing production to local manufacturer Handal Indonesia Motor (production capacity of 25,000 vehicles, per MarkLines data). However, we note that the Indonesian government owns nickel mines that could be utilized if the government were to try to establish an EV supply chain that includes batteries, and ultimately to export EVs.

Exhibit 35: Indonesia also has bullish EV targets

Indonesia: EV strategy

Production units (k units)	2020	2025	2030	2035
New plan (BEV)	-	400	600	1,000
Old plan (LCEV)	150	400	750	1,200

*Luxury tax rate is 0%.

*Exempted from odd-even vehicle plate policy.

Luxury tax	CO2 emission	Phase 1	Phase 2
HEV(Strong/mild)	~100g	6%/8%	10%/12%
	100-125g	7%/10%	11%/13%
	125-150g	8%/12%	12%/14%
PHEV	~100g	5%	8%
EV	~100g	0%	0%

Source: Company data, MarkLines, Goldman Sachs Global Investment Research

Exhibit 36: Production volume by region for each automaker ('000 units)

CY2022 basis (000 units)	Toyota	Honda	Nissan	Mazda	MMC	Subaru	Suzuki	Daihatsu	Hyundai+Kia	GM	Ford	Tesla	VW+AUDI	Mercedes-Benz	BMW	Stellantis	Renault	
Japan	2,927	644	742	732	305	560	775	584	0	0	2,638	2,301	591	599	402	480	1,862	0
North America	1,830	1,199	928	179	0	286	0	0	938	0	0	0	0	0	0	0	0	
United States	1,130	832	539	31	0	286	0	0	673	1,746	1,867	591	120	312	416	1,170	0	
Canada	433	241	0	0	0	0	0	0	0	148	130	0	0	0	0	277	0	
Mexico	268	126	390	148	0	0	0	0	265	744	303	0	480	90	63	415	0	
Western Europe	432	0	306	8	0	0	4	0	0	0	425	52	2,357	1,169	1,116	2,405	599	
Eastern Europe (incl. Russia)	431	0	11	4	6	0	130	0	991	363	569	0	1,285	157	2	777	655	
Russia	12	0	11	4	6	0	0	0	93	0	4	0	32	3	2	3	27	
China	1,841	1,449	929	89	36	0	9	0	415	1,195	361	727	3,160	643	675	121	62	
South Korea	0	0	0	0	0	0	0	0	2,953	258	0	0	0	0	0	0	168	
India	162	119	93	0	0	0	1,877	0	1,034	0	26	0	136	16	11	23	116	
Indonesia	576	132	2	0	151	0	139	220	83	0	0	0	0	3	3	0	0	
Thailand	666	125	70	109	277	1	16	0	0	0	184	0	0	12	13	0	0	
Philippines	50	0	0	0	38	0	0	0	1	0	0	0	0	0	0	0	0	
Brazil	224	63	48	0	19	0	0	0	209	412	0	0	349	0	8	643	161	
Others	593	154	84	65	35	4	135	0	181	81	154	0	207	11	74	298	449	
Global Total	9,733	3,684	3,225	1,187	867	852	3,085	804	6,805	4,947	4,018	1,370	8,093	2,513	2,381	6,129	2,211	
(% of total)	Toyota	Honda	Nissan	Mazda	MMC	Subaru	Suzuki	Daihatsu	Hyundai+Kia	GM	Ford	Tesla	VW+AUDI	Mercedes-Benz	BMW	Stellantis	Renault	
Japan	30%	17%	23%	62%	35%	66%	25%	73%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
North America	19%	31%	29%	15%	0%	34%	0%	0%	14%	53%	57%	43%	7%	16%	20%	30%	0%	
United States	12%	21%	17%	3%	0%	34%	0%	0%	10%	35%	46%	43%	1%	12%	17%	19%	0%	
Canada	4%	6%	0%	0%	0%	0%	0%	0%	0%	3%	3%	0%	0%	0%	0%	5%	0%	
Mexico	3%	3%	12%	12%	0%	0%	0%	0%	4%	15%	8%	0%	6%	4%	3%	7%	0%	
Western Europe	4%	0%	9%	1%	0%	0%	0%	0%	0%	0%	11%	4%	29%	47%	47%	39%	27%	
Eastern Europe (incl. Russia)	4%	0%	0%	0%	1%	0%	4%	0%	15%	7%	14%	0%	16%	6%	0%	13%	30%	
Russia	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	
China	19%	37%	29%	8%	4%	0%	0%	0%	6%	24%	9%	53%	39%	26%	28%	2%	3%	
South Korea	0%	0%	0%	0%	0%	0%	0%	0%	0%	43%	5%	0%	0%	0%	0%	0%	8%	
India	2%	3%	3%	0%	0%	61%	0%	15%	0%	0%	1%	0%	0%	1%	0%	0%	5%	
Indonesia	6%	3%	0%	0%	0%	17%	0%	4%	27%	1%	0%	0%	0%	0%	0%	0%	0%	
Thailand	7%	3%	2%	0%	0%	32%	0%	4%	0%	0%	5%	0%	0%	1%	0%	0%	0%	
Philippines	1%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Brazil	2%	2%	2%	0%	2%	0%	0%	0%	0%	3%	8%	0%	0%	4%	0%	10%	7%	
Others	6%	4%	3%	5%	4%	0%	4%	0%	3%	2%	4%	0%	3%	4%	3%	5%	20%	
Global Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
DM	53%	47%	61%	77%	35%	99%	25%	73%	14%	53%	68%	47%	37%	63%	67%	70%	27%	

Source: IHS Global Insight, Data compiled by Goldman Sachs Global Investment Research

Toyota: The hybrid leader; raising target price by c22%; Buy

7203.T

12m Price Target: ¥4400

Price: ¥3850

Upside: 14.3%

Buy	GS Forecast	3/23	3/24E	3/25E	3/26E
Market cap: ¥52.0tr / \$343.6bn	Revenue (¥ bn)	37,154.3	42,300.0	44,910.0	45,750.0
Enterprise value: ¥42.2tr / \$279.0bn	Op. profit (¥ bn) New	2,725.0	5,000.0	5,840.0	6,270.0
3m ADTV :¥115.8bn/ \$780.2mn	Op. profit (¥ bn) Old	2,725.0	4,950.0	5,280.0	5,470.0
Japan	Op. profit CoE (¥ bn)	--	4,900.0	--	--
Japan Automobiles	EPS (¥) New	179.5	340.0	375.3	414.4
	EPS (¥) Old	179.5	336.9	343.2	366.7
M&A Rank: 3	P/E (X)	11.2	11.3	10.3	9.3
	P/B (X)	1.0	1.7	1.5	1.3
	CROCI (%)	8.4	11.6	11.9	12.0
		9/23	12/23	3/24E	--
	EPS (¥)	94.5	100.6	48.1	--

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 26 Mar 2024 close.

Why focus on the stock now?

Conviction amongst investors in Toyota's multi-powertrain strategy is rising amid a slowdown in EVs. In particular, annual sales of HEVs have reached 3-4 mn vehicles, per CY2023 company data , and we assume that margins are already well above those of gasoline-powered vehicles. The company's HEV system is mainly a two-motor hybrid (classified as a strong hybrid), and has improved fuel consumption more than other systems owing to proprietary technology called a power split device. We also believe that confidence in its used car prices globally is high as the hybrid brand dates back to 1997. We forecast HEV sales of 3.7 mn vehicles in FY3/24, 4.4 mn vehicles in FY3/25, and 5.1 mn vehicles in FY3/26, and expect the hybrid sales weighting to increase to 48% in FY3/26, from 36% in FY3/24.

An EV strategy and hybrid strategy in tandem is possible

We note some negative views around investing management resources in hybrids due to it being a transitional technology. However, many core components, excluding batteries, can be converted for use in EVs (high-power type batteries are used for hybrids and high-energy density type batteries are used for EVs). In addition, given the need to assume multiple scenarios for the pace of EV penetration, the level and timing of investment is fluid. In this sense, generating earnings through HEVs carries significant meaning. Toyota is also looking to shift to EVs, including moving battery production in-house and developing new dedicated EV platforms. We forecast Toyota's EV sales at 140,000 vehicles in FY3/24, 270,000 in FY3/25, and 540,000 in FY3/26, and expect the EV sales weighting to increase to 5%, from 1%.

Raising our earnings estimates and target price

While our sales volume estimates are unchanged, we raise our FY3/24-FY3/26 operating profit estimates by 1%/11%/15% to reflect an improvement in HEV mix and a weaker yen (our assumption revised to ¥150/US\$ from ¥145). Our new FY3/25 profit estimate is 9% higher than Bloomberg consensus due to the HEV premium. We look for the operating margin to improve from 11.8% to 13.0% and then 13.7%. We roll forward our valuation base year to FY3/26, from FY3/25, as we expect the company's earnings visibility to increase further as earnings grow for high-margin HEVs. Accordingly, we raise our 12-month target price to ¥4,400, from ¥3,600 (implying 14% upside). Implied P/E of 12X based on our new target price is above the sector average of 10X, but we think this is reasonable based on the company's strong presence in HEVs, high margins, and strong balance sheet (over 30% of market cap is net cash in the automotive business).

Profit model (¥ bn)	3/23	3/24E	3/25E	3/26E	Balance sheet (¥ bn)	3/23	3/24E	3/25E	3/26E
Total revenue	37,154.3	42,300.0	44,910.0	45,750.0	Cash & equivalents	7,517.0	8,558.0	9,086.1	9,256.0
Cost of goods sold	(29,128.6)	(31,558.8)	(33,116.3)	(33,459.5)	Accounts receivable	3,586.1	4,082.8	4,334.7	4,415.8
SG&A	(5,300.7)	(5,741.2)	(5,953.7)	(6,020.5)	Inventory	4,255.6	4,845.0	5,143.9	5,240.2
R&D	(1,241.6)	(1,240.0)	(1,400.0)	(1,450.0)	Other current assets	11,101.1	13,133.3	13,767.2	14,432.1
Other operating profit/(expense)	--	--	--	--	Total current assets	26,459.8	30,619.2	32,332.0	33,344.1
EBITDA	3,910.0	6,260.0	7,220.0	7,730.0	Net PP&E	12,634.0	13,344.0	13,964.0	14,504.0
Depreciation & amortization	(1,185.0)	(1,260.0)	(1,380.0)	(1,460.0)	Net intangibles	1,249.1	1,286.6	1,325.2	1,364.9
EBIT	2,725.0	5,000.0	5,840.0	6,270.0	Total investments	15,783.8	15,783.8	15,783.8	15,783.8
Interest income	379.4	632.0	471.0	480.0	Other long-term assets	18,176.5	21,525.3	22,566.8	23,659.4
Interest expense	(125.1)	(137.0)	(143.0)	(146.0)	Total assets	74,303.2	82,558.8	85,971.7	88,656.2
Income/(loss) from uncons. subs.	643.1	715.0	748.0	808.0					
Others	(36.9)	(208.0)	(228.0)	(250.0)	Accounts payable	4,986.3	5,676.9	6,027.2	6,139.9
Pretax profits	3,668.7	6,210.0	6,916.0	7,412.0	Short-term loans	12,305.6	14,766.8	14,766.8	14,766.8
Income tax	(1,175.8)	(1,509.0)	(1,879.0)	(2,015.0)	Other current liabilities	6,667.8	6,667.8	6,667.8	6,667.8
Minorities	41.7	104.0	114.0	125.0	Total current liabilities	23,959.7	27,111.4	27,461.7	27,574.4
					Long-term debt	17,074.6	19,160.6	19,505.8	19,068.2
Net income pre-preferred dividends	3,177.7	5,520.0	5,899.0	6,330.0	Other long-term liabilities	4,004.6	4,004.6	4,004.6	4,004.6
Preferred dividends	--	--	--	--	Total long-term liabilities	21,079.3	23,165.2	23,510.4	23,072.8
Net income (pre-exceptionals)	2,451.3	4,597.0	4,923.0	5,272.0	Total liabilities	45,039.0	50,276.7	50,972.1	50,647.2
Post-tax exceptionals	--	--	--	--					
Net income	2,451.3	4,597.0	4,923.0	5,272.0	Preferred shares	--	--	--	--
					Total common equity	28,338.7	31,310.4	33,979.3	36,937.6
EPS (basic, pre-except) (¥)	179.5	340.0	375.3	414.4	Minority interest	925.5	971.8	1,020.4	1,071.4
EPS (basic, post-except) (¥)	179.5	340.0	375.3	414.4	Total liabilities & equity	74,303.2	82,558.8	85,971.7	88,656.2
EPS (diluted, post-except) (¥)	179.5	340.0	375.3	414.4	BVPS (¥)	2,074.8	2,315.5	2,590.6	2,903.3
DPS (¥)	60.0	100.0	110.0	120.0	RNAV (¥ mn)	--	--	--	--
Dividend payout ratio (%)	33.4	29.4	29.3	29.0	RNAVPS (¥)	--	--	--	--
Free cash flow yield (%)	4.7	(0.6)	7.5	8.6					
Growth & margins (%)	3/23	3/24E	3/25E	3/26E	Ratios	3/23	3/24E	3/25E	3/26E
Sales growth	18.4	13.8	6.2	1.9	ROE (%)	9.0	15.4	15.1	14.9
EBITDA growth	(2.3)	60.1	15.3	7.1	ROA (%)	3.5	5.9	5.8	6.0
EBIT growth	(9.0)	83.5	16.8	7.4	ROACE (%)	4.5	7.6	7.8	8.0
Net income growth	(14.0)	87.5	7.1	7.1	Inventory days	50.6	52.6	55.0	56.6
EPS growth	(12.6)	89.4	10.4	10.4	Receivables days	33.1	33.1	34.2	34.9
Gross margin	21.6	25.4	26.3	26.9	Payable days	58.1	61.7	64.5	66.4
EBITDA margin	10.5	14.8	16.1	16.9	Net debt/equity (%)	(30.3)	(35.1)	(38.4)	(43.2)
EBIT margin	7.3	11.8	13.0	13.7	Interest cover - EBIT (X)	NM	NM	NM	NM
Cash flow statement (mn)	3/23	3/24E	3/25E	3/26E	Valuation	3/23	3/24E	3/25E	3/26E
Net income pre-preferred dividends	3,177.7	5,520.0	5,899.0	6,330.0	P/E basic (X)	11.2	11.3	10.3	9.3
D&A add-back	1,185.0	1,260.0	1,380.0	1,460.0	P/B (X)	1.0	1.7	1.5	1.3
Minorities interests add-back	(41.7)	(104.0)	(114.0)	(125.0)	EV/EBITDA (X)	5.2	6.7	5.3	4.4
Net (inc)/dec working capital	(1,502.5)	(5,041.1)	(1,275.3)	(1,242.3)	Dividend yield (%)	3.0	2.6	2.9	3.1
Other operating cash flow	862.9	956.1	957.3	933.7					
Cash flow from operations	2,955.1	1,668.0	5,871.0	6,298.4	Underlying valuation	3/23	3/24E	3/25E	3/26E
					Underlying profit (¥ mn)	--	--	--	--
Capital expenditures	(1,605.8)	(1,970.0)	(2,000.0)	(2,000.0)	Underlying EPS (¥)	--	--	--	--
Acquisitions	(1,150.2)	(1,150.2)	(1,150.2)	(1,150.2)					
Divestitures	1,333.7	1,150.2	1,150.2	1,150.2	Underlying ROE (%)	NM	NM	NM	NM
Others	(176.6)	(540.0)	(540.0)	(540.0)	Underlying ROA (%)	NM	NM	NM	NM
Cash flow from investments	(1,598.9)	(2,510.0)	(2,540.0)	(2,540.0)	Underlying ROACE (%)	NM	NM	NM	NM
					Underlying P/E (X)	NM	NM	NM	NM
Dividends paid (common & pref)	(819.5)	(1,352.2)	(1,442.8)	(1,526.7)	Underlying dividend payout (%)	NM	NM	NM	NM
Inc/(dec) in debt	1,163.6	4,547.1	345.2	(437.6)	Underlying EPS growth (%)	--	--	--	--
Common stock issuance (repurchase)	(431.1)	(273.2)	(811.3)	(787.0)					
Other financing cash flows	134.2	(1,038.7)	(894.0)	(837.1)					
Cash flow from financing	47.1	1,883.1	(2,802.9)	(3,588.4)					
Total cash flow	1,403.3	1,041.1	528.0	169.9					
					Note: Last actual year may include reported and estimated data.				
					Source: Company data, Goldman Sachs Research estimates.				

Source: Company data, Goldman Sachs Global Investment Research

Investment Thesis - Toyota Motor

Toyota is Japan's largest global automaker, with 2022 global sales of around 10 mn vehicles. It has collaborative relationships with other Japanese automakers such as Subaru, Suzuki Motor, and Mazda Motor, with the aim of achieving even greater economies of scale. We are Buy-rated on the stock, as we see Toyota as one of the few automakers globally capable of constructing a vertically integrated model for electric vehicles, including batteries and vehicle energy efficiency technology. We also view positively the high visibility on price increases by Toyota in response to inflation and progress in reducing COGS. We expect a boost to company earnings from improved model mix as the semiconductor supply chain recovers. While Toyota's valuation is relatively high among domestic automakers, we believe it is at a sufficiently compelling level when compared with global companies with competing EV strategies in regions like the US and China.

Price Target Risks and Methodology - Toyota Motor

Our 12-month target price of ¥4,400 is based on P/B-ROE correlation using our FY3/25 estimates. Key risks include yen appreciation, delays in EV development, battery sourcing issues amid rapid growth in the EV market, disappointment in the company's shareholder return policy, protracted semiconductor shortages, and low capacity utilization in the China business.

Honda: Also strong in hybrids; Buy

7267.T	12m Price Target: ¥2100	Price: ¥1880	Upside: 11.7%	
Buy	GS Forecast			
Market cap: ¥8.7tr / \$57.7bn	Revenue (¥ bn)	16,907.7	20,170.0	20,350.0
Enterprise value: ¥7.7tr / \$50.7bn	Op. profit (¥ bn)	780.8	1,323.0	1,542.0
3m ADTV :¥29.3bn/ \$197.6mn	Op. profit CoE (¥ bn)	--	1,250.0	--
Japan	EPS (¥)	136.6	209.9	236.6
Japan Automobiles	P/E (X)	8.2	9.0	7.9
	P/B (X)	0.5	0.8	0.8
M&A Rank: 3	Dividend yield (%)	3.6	3.1	4.0
Leases incl. in net debt & EV?: No	N debt/EBITDA (ex lease,X)	(0.9)	(0.6)	(0.7)
	CROCI (%)	10.7	6.6	17.3
		9/23	12/23	3/24E
	EPS (¥)	51.2	52.0	33.7
		--	--	--

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 26 Mar 2024 close.

Why focus on the stock now?

Honda has a basic policy to increase its EV sales weighting to 100% in 2040, but it assumes a flexible multi-powertrain strategy in the process. It is the second-largest player in hybrids behind Toyota, and we forecast hybrid sales of 850,000 vehicles in FY3/24, 1 mn in FY3/25, and 1.1 mn in FY3/26. We expect the hybrid sales weighting to increase to 26%, from 20%. While economies of scale are not as great as at Toyota, Honda has expressed confidence in margins for its hybrids, and we think the launch of Civic hybrids this year will contribute to earnings.

Aggressive EV strategy

EV sales momentum has been weak globally in the past 6 months. Uncertainty surrounding EV business conditions also increased, mainly due to changes in EV-related subsidy programs and potential tariffs. We believe acceleration in consumer-driven EV uptake will require further improvement in product appeal and economic viability.

Although Honda's global share of the EV segment is low, at less than 1%, we think the launch of the new series in 2025 could enable it to regain ground in this space, even as a late market entrant – assuming the appeal of its products is strong. The company's aim of achieving a 100% EV sales ratio by 2040 suggests a particularly strong commitment among traditional automakers. Honda said that the O-series EE architecture will be domain-based initially, and then move to zone architecture. The company also announced that it is considering adopting Giga Press and other technologies for production, but is currently developing platforms based on production capabilities at existing plants.

Profit model (¥ bn)	3/23	3/24E	3/25E	3/26E	Balance sheet (¥ bn)	3/23	3/24E	3/25E	3/26E
Total revenue	16,907.7	20,170.0	20,350.0	20,540.0	Cash & equivalents	3,803.0	4,711.7	6,309.7	8,163.4
Cost of goods sold	(13,576.1)	(16,032.1)	(15,962.5)	(16,016.2)	Accounts receivable	1,060.3	1,264.8	1,276.1	1,288.0
SG&A	(2,550.8)	(2,814.9)	(2,845.5)	(2,876.8)	Inventory	2,167.2	2,585.3	2,608.4	2,632.8
R&D	(852.0)	(990.0)	(1,100.0)	(1,100.0)	Other current assets	2,547.9	2,789.5	2,950.1	3,120.9
Other operating profit/(expense)	--	--	--	--	Total current assets	9,578.3	11,351.4	13,144.4	15,205.1
EBITDA	1,220.1	1,803.0	2,012.0	2,127.0	Net PP&E	7,894.4	7,807.1	7,579.8	7,366.6
Depreciation & amortization	(439.3)	(480.0)	(470.0)	(480.0)	Net intangibles	870.9	859.9	868.2	876.4
EBIT	780.8	1,323.0	1,542.0	1,647.0	Total investments	1,771.0	1,947.7	1,957.5	1,967.8
Interest income	73.1	132.0	92.0	92.0	Other long-term assets	4,555.4	4,954.9	5,174.7	5,405.4
Interest expense	(36.1)	(42.0)	(46.0)	(50.0)	Total assets	24,670.1	26,921.1	28,724.5	30,821.2
Income/(loss) from uncons. subs.	117.4	70.0	50.0	60.0					
Others	(55.6)	(25.0)	(56.0)	(25.0)	Accounts payable	1,426.3	1,701.5	1,716.7	1,732.8
Pretax profits	879.6	1,458.0	1,582.0	1,724.0	Short-term loans	326.7	326.7	326.7	326.7
Income tax	(162.3)	(403.0)	(429.0)	(466.0)	Other current liabilities	4,899.1	5,030.0	5,338.3	5,582.6
Minorities	(65.9)	(79.0)	(86.0)	(94.0)	Total current liabilities	6,652.1	7,058.3	7,381.8	7,642.0
					Long-term debt	476.0	476.0	476.0	476.0
Net income pre-preferred dividends	651.4	976.0	1,067.0	1,164.0	Other long-term liabilities	6,039.6	7,367.1	8,407.7	9,710.6
Preferred dividends	--	--	--	--	Total long-term liabilities	6,515.7	7,843.1	8,883.7	10,186.6
Net income (pre-exceptionals)	651.4	976.0	1,067.0	1,164.0	Total liabilities	13,167.8	14,901.4	16,265.5	17,828.6
Post-tax exceptionals	--	--	--	--					
Net income	651.4	976.0	1,067.0	1,164.0	Preferred shares	--	--	--	--
					Total common equity	11,184.3	11,640.3	12,076.2	12,606.2
EPS (basic, pre-except) (¥)	136.6	209.9	236.6	266.1	Minority interest	318.0	379.4	382.8	386.4
EPS (basic, post-except) (¥)	136.6	209.9	236.6	266.1	Total liabilities & equity	24,670.1	26,921.1	28,724.5	30,821.2
EPS (diluted, post-except) (¥)	136.6	209.9	236.6	266.1	BVPS (¥)	2,086.1	2,280.7	2,501.8	2,753.9
DPS (¥)	40.0	58.0	75.0	80.0	RNAV (¥ mn)	--	--	--	--
Dividend payout ratio (%)	29.3	27.6	31.7	30.1	RNAVPS (¥)	--	--	--	--
Free cash flow yield (%)	29.3	15.4	24.1	27.2					
Growth & margins (%)	3/23	3/24E	3/25E	3/26E	Ratios	3/23	3/24E	3/25E	3/26E
Sales growth	16.2	19.3	0.9	0.9	ROE (%)	6.0	8.6	9.0	9.4
EBITDA growth	(1.7)	47.8	11.6	5.7	ROA (%)	2.7	3.8	3.8	3.9
EBIT growth	(10.4)	69.4	16.6	6.8	ROACE (%)	8.4	11.9	14.9	19.3
Net income growth	(7.9)	49.8	9.3	9.1	Inventory days	54.9	54.1	59.4	59.7
EPS growth	(0.3)	53.7	12.7	12.5	Receivables days	21.1	21.0	22.8	22.8
Gross margin	19.7	20.5	21.6	22.0	Payable days	35.8	35.6	39.1	39.3
EBITDA margin	7.2	8.9	9.9	10.4	Net debt/equity (%)	(23.9)	(30.4)	(42.2)	(54.7)
EBIT margin	4.6	6.6	7.6	8.0	Interest cover - EBIT (X)	NM	NM	NM	NM
Cash flow statement (mn)	3/23	3/24E	3/25E	3/26E	Valuation	3/23	3/24E	3/25E	3/26E
Net income pre-preferred dividends	651.4	976.0	1,067.0	1,164.0	P/E basic (X)	8.2	9.0	7.9	7.1
D&A add-back	721.6	720.0	705.0	720.0	P/B (X)	0.5	0.8	0.8	0.7
Minorities interests add-back	65.9	79.0	86.0	--	EV/EBITDA (X)	3.4	4.3	3.5	3.1
Net (inc)/dec working capital	608.8	864.3	195.0	207.0	Dividend yield (%)	3.6	3.1	4.0	4.3
Other operating cash flow	81.2	(795.8)	584.8	1,920.7					
Cash flow from operations	2,129.0	1,843.5	2,637.8	2,847.8	Underlying valuation	3/23	3/24E	3/25E	3/26E
Capital expenditures	(475.0)	(440.0)	(500.0)	(510.0)	Underlying profit (¥ mn)	--	--	--	--
Acquisitions	--	--	--	--	Underlying EPS (¥)	--	--	--	--
Divestitures	--	--	--	--	Underlying ROE (%)	NM	NM	NM	NM
Others	(203.0)	(138.4)	(183.2)	(172.6)	Underlying ROA (%)	NM	NM	NM	NM
Cash flow from investments	(678.1)	(578.4)	(683.2)	(682.6)	Underlying ROACE (%)	NM	NM	NM	NM
Dividends paid (common & pref)	(264.9)	(308.5)	(275.8)	(247.6)	Underlying P/E (X)	NM	NM	NM	NM
Inc/(dec) in debt	(968.6)	281.6	290.9	299.2	Underlying dividend payout (%)	NM	NM	NM	NM
Common stock issuance (repurchase)	(156.6)	(250.3)	(292.9)	(284.1)	Underlying EPS growth (%)	--	--	--	--
Other financing cash flows	(78.3)	(79.2)	(78.8)	(79.0)					
Cash flow from financing	(1,468.4)	(356.4)	(356.6)	(311.5)					
Total cash flow	128.1	908.7	1,598.0	1,853.6					

Note: Last actual year may include reported and estimated data.
Source: Company data, Goldman Sachs Research estimates.

Source: Company data, Goldman Sachs Global Investment Research

Investment Thesis - Honda Motor

Honda operates automobile and motorcycle businesses. Structural semiconductor shortages and the China slowdown are putting pressure on near-term earnings, but we see good prospects for disciplined pricing strategies in the US market and an upturn in the SUV model cycle. We also view positively Honda's acceleration of development in EVs and autonomous driving, including the establishment of a new EV company with Sony Group. We are Buy-rated on Honda, as valuations look low relative to average valuations at other automakers in Japan.

Price Target Risks and Methodology - Honda Motor

Our 12-month target price of ¥2,100 is based on P/B-ROE correlation and our FY3/25 estimates. Risks include yen appreciation, a sharp rise in raw material prices, weaker-than-expected sales of new vehicles, inefficiency in multiple EV projects, and margin deterioration in the China business.

Hyundai: Shifting to a multi-powertrain strategy; Buy (on CL)

005380.KS

12m Price Target: W290000

Price: W240500

Upside: 20.6%

Buy - CL		GS Forecast			
		12/23	12/24E	12/25E	12/26E
Market cap: W72.0tr / \$53.6bn	Revenue (W bn)	162,700.3	164,638.3	169,541.8	175,204.0
Enterprise value: W49.9tr / \$37.2bn	Op. profit (W bn)	15,060.2	12,516.7	12,590.2	13,779.0
3m ADTV :W309.8bn/ \$233.2mn	Op. profit CoE (W bn)	--	--	--	--
South Korea	EPS (W)	46,697.6	42,446.1	43,060.6	46,980.3
Korea Automobiles	P/E (X)	4.0	5.7	5.6	5.1
	P/B (X)	0.5	0.6	0.6	0.5
M&A Rank: 3	Dividend yield (%)	6.1	4.4	4.6	4.8
APAC Conviction List	Net debt/EBITDA (X)	(0.8)	(1.2)	(1.4)	(1.6)
	CROCI (%)	12.3	10.3	9.9	10.0
		12/23	3/24E	6/24E	9/24E
	EPS (W)	8,595.1	9,673.3	11,049.3	9,245.5

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 26 Mar 2024 close.

Why focus on the stock now?

We believe Hyundai's fundamental improvement in terms of US market share gains, diversified powertrain strategy, solid EV margin, and improving shareholder returns aren't being fully appreciated by the market. With major risks such as earnings peaking-out, weakening end demand, and an EV slowdown largely priced in, we expect the market to re-evaluate fundamentals, with additional potential upside from corporate governance improvements, driven by Korea's 'Value Up' program.

We forecast Hyundai will generate a stable 11% ROE in 2024-25E, driven by mix improvement from SUV/Genesis model diversification, contribution from high-margin HEV sales, India market expansion and robust earnings contribution from developed markets. Its next generation EV-dedicated platform should help Hyundai meet its long-term EV sales and profitability targets. The current P/B multiple of 0.65x appears low versus profitability and the long-term average of 0.85x, providing attractive risk/reward, in our view.

Earnings resilience amid industry normalization

While we forecast earnings to decline in 2024, we argue that valuations are more than reflecting this slowdown whilst not recognizing Hyundai's structural improvement in US market share and multi-powertrain strategy. Whereas the EV slowdown has led to a temporary margin deterioration for companies with heavy upfront EV investment, companies with HEV technology could enjoy the margin buffer provided by the lucrative HEVs. We estimate Hyundai's HEV margin should sit at the mid-to-high single-digit level, providing stable cash flow offsetting the continued EV investment.

Korea 'Value Up' program, potential corporate action

We view the Autos sector as a potential beneficiary of the Korean government's 'Value Up' program ([Link](#)). For Hyundai, potential corporate actions include a payout ratio increase, share buybacks, pref share delisting, the potential IPO of its India subsidiary ([Link](#)) and unwinding of cross-holding structure. While the company has strong net cash (32% net cash to market cap) to support increasing shareholder returns, we expect it to prefer treasury share cancellation and additional share buybacks (including pref shares), which would result in no impact on long-term cash flow, rather than raising its 25% dividend payout ratio (on-par with the peer average). For context, Japanese automakers announced buyback programs of 3.5% on average in 2023 after the TSE's governance reform. Considering Hyundai's plan to cancel only 1% of treasury stock this year, we see more room for upside.

Profit model (W bn)	12/23	12/24E	12/25E	12/26E	Balance sheet (W bn)	12/23	12/24E	12/25E	12/26E
Total revenue	162,700.3	164,638.3	169,541.8	175,204.0	Cash & equivalents	21,637.7	26,859.5	31,476.5	37,088.6
Cost of goods sold	(129,271.7)	(131,396.8)	(135,318.1)	(139,216.4)	Accounts receivable	11,933.8	12,075.9	12,435.6	12,850.9
SG&A	(14,768.3)	(16,424.8)	(17,333.5)	(17,908.6)	Inventory	17,132.8	17,414.5	17,934.2	18,450.8
R&D	(3,600.0)	(4,300.0)	(4,300.0)	(4,300.0)	Other current assets	15,879.4	16,299.1	16,986.7	17,764.9
Other operating profit/(expense)	--	--	--	--	Total current assets	66,583.7	72,649.0	78,832.9	86,155.2
EBITDA	20,130.5	17,825.7	18,190.6	19,685.8	Net PP&E	38,491.6	40,274.3	42,281.7	44,127.9
Depreciation & amortization	(5,070.3)	(5,309.0)	(5,600.3)	(5,906.8)	Net intangibles	6,399.1	6,813.3	7,332.1	7,948.3
EBIT	15,060.2	12,516.7	12,590.2	13,779.0	Total investments	31,630.5	31,973.1	32,840.1	33,841.2
Interest income	909.5	872.5	1,007.0	1,132.4	Other long-term assets	129,984.4	133,883.9	137,900.4	142,037.4
Interest expense	(581.9)	(569.2)	(569.2)	(569.2)	Total assets	273,961.9	286,466.4	300,060.0	314,982.7
Income/(loss) from uncons. subs.	2,389.1	2,784.1	2,785.9	2,810.4					
Others	(426.3)	(426.3)	(426.3)	(426.3)	Accounts payable	13,292.4	13,510.9	13,914.1	14,314.9
Pretax profits	17,350.6	15,177.7	15,387.5	16,726.3	Short-term loans	36,940.6	36,940.6	36,940.6	36,940.6
Income tax	(5,078.3)	(3,794.4)	(3,846.9)	(4,181.6)	Other current liabilities	26,498.8	26,498.8	26,498.8	26,498.8
Minorities	(310.6)	(510.6)	(510.6)	(510.6)	Total current liabilities	76,731.8	76,950.3	77,353.5	77,754.3
					Long-term debt	75,396.5	75,396.5	75,396.5	75,396.5
Net income pre-preferred dividends	11,961.7	10,872.7	11,030.1	12,034.1	Other long-term liabilities	20,558.1	24,406.6	28,745.9	33,540.7
Preferred dividends	--	--	--	--	Total long-term liabilities	95,954.6	99,803.0	104,142.3	108,937.2
Net income (pre-exceptionals)	11,961.7	10,872.7	11,030.1	12,034.1	Total liabilities	172,666.4	176,753.3	181,495.8	186,691.5
Post-tax exceptionals	--	--	--	--					
Net income	11,961.7	10,872.7	11,030.1	12,034.1	Preferred shares	331.0	331.0	331.0	331.0
					Total common equity	92,186.9	100,113.8	108,454.3	117,670.8
EPS (basic, pre-except) (W)	46,697.6	42,446.1	43,060.6	46,980.3	Minority interest	8,757.6	9,268.2	9,778.8	10,289.4
EPS (basic, post-except) (W)	46,697.6	42,446.1	43,060.6	46,980.3	Total liabilities & equity	273,961.9	286,466.4	300,060.0	314,982.7
EPS (diluted, post-except) (W)	46,697.6	42,446.1	43,060.6	46,980.3	BVPS (W)	359,890.8	390,836.9	423,397.5	459,377.8
DPS (W)	11,500.0	10,500.0	11,000.0	11,500.0	RNAV (W mn)	--	--	--	--
Dividend payout ratio (%)	24.6	24.7	25.5	24.5	RNAVPS (W)	--	--	--	--
Free cash flow yield (%)	10.8	11.8	11.4	13.0					
Growth & margins (%)	12/23	12/24E	12/25E	12/26E	Ratios	12/23	12/24E	12/25E	12/26E
Sales growth	14.2	1.2	3.0	3.3	ROE (%)	13.7	11.3	10.6	10.6
EBITDA growth	35.4	(11.4)	2.0	8.2	ROA (%)	4.5	3.9	3.8	3.9
EBIT growth	53.4	(16.9)	0.6	9.4	ROACE (%)	6.4	5.8	5.7	6.0
Net income growth	62.4	(9.1)	1.4	9.1	Inventory days	44.4	48.0	47.7	47.7
EPS growth	64.2	(9.1)	1.4	9.1	Receivables days	23.7	26.6	26.4	26.3
Gross margin	20.5	20.2	20.2	20.5	Payable days	34.0	37.2	37.0	37.0
EBITDA margin	12.4	10.8	10.7	11.2	Net debt/equity (%)	(15.8)	(19.4)	(22.0)	(24.8)
EBIT margin	9.3	7.6	7.4	7.9	Interest cover - EBIT (X)	NM	NM	NM	NM
Cash flow statement (mn)	12/23	12/24E	12/25E	12/26E	Valuation	12/23	12/24E	12/25E	12/26E
Net income pre-preferred dividends	11,961.7	10,872.7	11,030.1	12,034.1	P/E basic (X)	4.0	5.7	5.6	5.1
D&A add-back	5,070.3	5,309.0	5,600.3	5,906.8	P/B (X)	0.5	0.6	0.6	0.5
Minorities interests add-back	310.6	510.6	510.6	510.6	EV/EBITDA (X)	1.9	2.6	2.4	1.9
Net (inc)/dec working capital	(3,081.4)	(205.3)	(476.2)	(531.1)	Dividend yield (%)	6.1	4.4	4.6	4.8
Other operating cash flow	(2,443.5)	(2,838.5)	(2,840.3)	(2,864.8)	Underlying valuation	12/23	12/24E	12/25E	12/26E
Cash flow from operations	11,817.6	13,648.5	13,824.6	15,055.6	Underlying profit (W mn)	--	--	--	--
Capital expenditures	(5,700.0)	(5,300.0)	(5,700.0)	(5,700.0)	Underlying EPS (W)	--	--	--	--
Acquisitions	(1,400.0)	(1,500.0)	(1,500.0)	(1,500.0)	Underlying ROE (%)	NM	NM	NM	NM
Divestitures	--	--	--	--	Underlying ROA (%)	NM	NM	NM	NM
Others	(3,566.6)	(342.7)	(867.0)	(1,001.1)	Underlying ROACE (%)	NM	NM	NM	NM
Cash flow from investments	(10,666.6)	(7,142.7)	(8,067.0)	(8,201.1)	Underlying P/E (X)	NM	NM	NM	NM
Dividends paid (common & pref)	(1,793.1)	(2,945.8)	(2,689.6)	(2,817.7)	Underlying dividend payout (%)	NM	NM	NM	NM
Inc/(dec) in debt	0.0	0.0	--	--	Underlying EPS growth (%)	--	--	--	--
Common stock issuance (repurchase)	--	--	--	--					
Other financing cash flows	1,414.9	1,661.7	1,548.9	1,575.3					
Cash flow from financing	(378.2)	(1,284.0)	(1,140.7)	(1,242.4)					
Total cash flow	772.8	5,221.9	4,616.9	5,612.1					
					Note: Last actual year may include reported and estimated data.				
					Source: Company data, Goldman Sachs Research estimates.				

Investment Thesis - Hyundai Motor

We expect Hyundai to enjoy stable ~11% ROE generation in 2024E-25E, thanks to continued mix improvement from SUV/Genesis model diversification, contribution from high-margin HEV sales, and India market expansion, along with a stable earnings contribution from developed markets. Compared to the company's stable ROE generation, we believe the current P/B appears low and see risk-reward for Hyundai as skewed to the upside. We are Buy rated on Hyundai (on APAC Conviction List) with a constructive view focusing on the next generation EV-dedicated platform which should help the company meet its long-term EV sales and profitability target. We also acknowledge that Hyundai has already reached mass production of an 800V EV dedicated platform by leveraging SiC solutions, which enable higher efficiency, faster charging, and greater retention of power. Key catalysts in the near term: 1) 4Q23 dividend, 2) incremental detail on next generation IMA platform during the CEO investor day (expected in May), 3) new Santa Fe launch in the US (expected in March), and 4) continued strong market share trend in the US and ASEAN markets.

Hyundai Motor Co.

Valuation: We are Buy-rated on Hyundai. Our 12-month target price of W290,000 is based on a P/B-ROE correlation and our 2024E estimates. **Downside risks:** Won appreciation, deteriorating margin in the sales finance business, potential downward pressure to EV margins due to higher battery raw material prices and/or quality issues, and deteriorating relationships with labor unions.

BYD: Overseas market penetration accelerating, focused on ASEAN markets; Buy

002594.SZ

12m Price Target: Rmb304

Price: Rmb219.6

Upside: 38.4%

Buy	GS Forecast	12/23	12/24E	12/25E	12/26E
Market cap: Rmb639.3bn / \$88.6bn	Revenue (Rmb mn)	602,315.4	755,896.0	913,791.8	1,097,326.1
Enterprise value: Rmb576.8bn / \$79.9bn	Op. profit (Rmb mn)	33,159.3	33,928.7	46,271.6	64,537.7
3m ADTV :Rmb2.5bn/ \$344.1mn	Op. profit CoE (Rmb mn)	--	--	--	--
China	EPS (Rmb)	10.3	11.6	15.0	20.5
China Autos	P/E (X)	24.1	19.0	14.6	10.7
	P/B (X)	5.2	3.9	3.2	2.6
M&A Rank: 3	Dividend yield (%)	0.6	1.4	1.6	2.1
Leases incl. in net debt & EV?: Yes	N debt/EBITDA (ex lease,X)	(0.9)	(0.8)	(0.8)	(0.8)
	CROCI (%)	54.5	41.0	40.3	39.3
		9/23	12/23	--	--
	EPS (Rmb)	3.6	3.0	--	--

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 26 Mar 2024 close.

Why focus on the stock now?

Our China team lowered 2024E-2026E earnings by 11%-15% to factor in the domestic pricing and margin pressure in the report published on March 27th ([Link](#)). Management shared the view in the result briefing that scale / cost / technology would be key factors to emerge strongly from the upcoming NEV competition in China in 2024-26. The company expects to see industry consolidation over the next 3-5 years, and is open to M&A to acquire talent & capacity.

1. **Volume:** Mgmt. targets to achieve at least 20% yoy volume growth in 2024, implying 3.6mn+ units (3.1mn domestic and 500k export). BYD has lowered the prices of some of its mass-market oriented models since 2024, with the slogan of “electricity is cheaper than gasoline” – after launching, mgmt. comments it has seen surging demand with rapid market share gains from ICE peers.
2. **Profitability:** mgmt. comments that the unit profit may face pressure given current pricing competition, but BYD targets to maintain the overall profit level thanks to its large scale and higher mix of high-end/exported models.
3. **Overseas market:** Mgmt. believes that it has strong competitive advantage regarding technology, scale, and cost in overseas operation. BYD has built up presence in South East Asia, Europe, South America, and Middle East markets so far – it exported 240k units in 2023, and mgmt. expects 500k units in 2024 and 1mn units in 2025. To minimize the geopolitical uncertainties, BYD is actively balancing export and local production, and is adding capacity in South East Asia, Europe, South America, and Middle Asia.

4. Market share: BYD recorded 16% market share out of overall passenger vehicle, and 35% in NEV market in Mar 2024 per management, and sees room for further market share gain, quoting that there are some under-supplied problems of models like Qin Plus and Destroyer 05, and BYD is undergoing capacity addition. The overall industry looks to record 45% NEV penetration in Mar 2024 per management, and believes that it is likely to exceed 50% over the next 3 months, mainly driven by the competitive model launches among domestic EV makers.

Profit model (Rmb mn)	12/23	12/24E	12/25E	12/26E	Balance sheet (Rmb mn)	12/23	12/24E	12/25E	12/26E
Total revenue	602,315.4	755,896.0	913,791.8	1,097,326.1	Cash & equivalents	108,511.7	100,541.6	115,956.5	131,948.5
Cost of goods sold	(480,558.4)	(610,778.6)	(738,588.6)	(884,544.9)	Accounts receivable	64,526.3	80,979.5	97,895.0	117,557.1
SG&A	(38,673.1)	(48,534.1)	(55,017.0)	(61,677.8)	Inventory	87,676.7	111,435.1	134,753.8	161,383.2
R&D	(39,574.9)	(49,665.9)	(58,212.8)	(67,710.2)	Other current assets	41,406.6	41,406.6	41,406.6	41,406.6
Other operating profit/(expense)	(10,349.6)	(12,998.6)	(15,701.8)	(18,855.4)	Total current assets	302,121.4	334,362.9	390,011.8	452,295.4
EBITDA	75,321.5	74,905.9	95,221.1	122,577.0	Net PP&E	230,903.8	261,567.9	297,401.8	334,757.1
Depreciation & amortization	(42,162.2)	(40,977.1)	(48,949.5)	(58,039.4)	Net intangibles	42,204.8	44,723.9	46,542.3	47,660.2
EBIT	33,159.3	33,928.7	46,271.6	64,537.7	Total investments	17,729.7	17,729.7	17,729.7	17,729.7
Interest income	2,796.2	6,008.2	5,566.9	6,420.4	Other long-term assets	86,587.9	118,358.0	130,799.4	140,710.2
Interest expense	(1,827.6)	(1,901.9)	(1,901.9)	(1,901.9)	Total assets	679,547.7	776,742.4	882,485.1	993,152.5
Income/(loss) from uncons. subs.	1,277.5	--	--	--					
Others	1,863.3	4,610.6	5,573.7	6,693.2					
Pretax profits	37,268.6	42,645.6	55,510.3	75,749.3					
Income tax	(5,924.6)	(6,396.8)	(8,326.5)	(11,362.4)					
Minorities	(1,303.3)	(2,567.6)	(3,440.4)	(4,643.1)					
Net income pre-preferred dividends	30,040.8	33,681.2	43,743.4	59,743.8					
Preferred dividends	--	--	--	--					
Net income (pre-exceptionals)	30,040.8	33,681.2	43,743.4	59,743.8					
Post-tax exceptionals	--	--	--	--					
Net income	30,040.8	33,681.2	43,743.4	59,743.8					
EPS (basic, pre-except) (Rmb)	10.3	11.6	15.0	20.5	Preferred shares	--	--	--	--
EPS (basic, post-except) (Rmb)	10.3	11.6	15.0	20.5	Total common equity	138,810.1	163,478.3	197,116.6	243,736.4
EPS (diluted, post-except) (Rmb)	10.3	11.6	15.0	20.5	Minority interest	11,652.0	14,219.6	17,660.0	22,303.1
DPS (Rmb)	1.5	3.1	3.5	4.5	Total liabilities & equity	679,547.7	776,742.4	882,485.1	993,152.5
Dividend payout ratio (%)	14.1	26.8	23.1	22.0	BVPS (Rmb)	47.7	56.2	67.7	83.7
Free cash flow yield (%)	6.6	1.4	5.2	5.8	RNAV (Rmb mn)	--	--	--	--
					RNAVPS (Rmb)	--	--	--	--
Growth & margins (%)	12/23	12/24E	12/25E	12/26E	Ratios	12/23	12/24E	12/25E	12/26E
Sales growth	42.0	25.5	20.9	20.1	ROE (%)	24.0	22.3	24.3	27.1
EBITDA growth	83.5	(0.6)	27.1	28.7	ROA (%)	5.1	4.6	5.3	6.4
EBIT growth	56.0	2.3	36.4	39.5	ROACE (%)	36.0	33.6	35.0	39.2
Net income growth	80.7	12.1	29.9	36.6	Inventory days	63.3	59.5	60.8	61.1
EPS growth	80.8	11.9	29.9	36.6	Receivables days	35.4	35.1	35.7	35.8
Gross margin	20.2	19.2	19.2	19.4	Payable days	172.3	175.2	179.1	176.0
EBITDA margin	12.5	9.9	10.4	11.2	Net debt/equity (%)	(46.8)	(35.2)	(36.3)	(35.3)
EBIT margin	5.5	4.5	5.1	5.9	Interest cover - EBIT (X)	NM	NM	NM	NM
Cash flow statement (mn)	12/23	12/24E	12/25E	12/26E	Valuation	12/23	12/24E	12/25E	12/26E
Net income pre-preferred dividends	30,040.8	33,681.2	43,743.4	59,743.8	P/E basic (X)	24.1	19.0	14.6	10.7
D&A add-back	42,162.2	40,977.1	48,949.5	58,039.4	P/B (X)	5.2	3.9	3.2	2.6
Minorities interests add-back	1,303.3	2,567.6	3,440.4	4,643.1	EV/EBITDA (X)	8.7	7.7	5.9	4.4
Net (inc)/dec working capital	92,494.2	29,747.3	28,429.9	13,113.0	Dividend yield (%)	0.6	1.4	1.6	2.1
Other operating cash flow	3,724.6	--	--	--	Underlying valuation	12/23	12/24E	12/25E	12/26E
Cash flow from operations	169,725.0	106,973.2	124,563.1	135,539.3	Underlying profit (Rmb mn)	--	--	--	--
Capital expenditures	(122,093.5)	(98,266.5)	(91,379.2)	(98,759.3)	Underlying EPS (Rmb)	--	--	--	--
Acquisitions	(15,425.7)	--	--	--	Underlying ROE (%)	NM	NM	NM	NM
Divestitures	--	--	--	--	Underlying ROA (%)	NM	NM	NM	NM
Others	11,855.5	(7,664.0)	(7,664.0)	(7,664.0)	Underlying ROACE (%)	NM	NM	NM	NM
Cash flow from investments	(125,663.6)	(105,930.5)	(99,043.2)	(106,423.3)	Underlying P/E (X)	NM	NM	NM	NM
Dividends paid (common & pref)	(4,228.9)	(9,012.9)	(10,105.1)	(13,124.0)	Underlying dividend payout (%)	NM	NM	NM	NM
Inc/(dec) in debt	18,073.1	--	--	--	Underlying EPS growth (%)	--	--	--	--
Common stock issuance (repurchase)	98.0	--	--	--					
Other financing cash flows	(674.3)	--	--	--					
Cash flow from financing	13,267.9	(9,012.9)	(10,105.1)	(13,124.0)					
Total cash flow	57,329.3	(7,970.1)	15,414.9	15,992.0					

Note: Last actual year may include reported and estimated data.

Source: Company data, Goldman Sachs Research estimates.

BYD is a leading NEV maker both in China and globally. We believe the company is well positioned both at home and abroad, capturing the largest mass-market demand and building up premium brands with supportive NEV policies in the domestic market. At the same time, BYD is starting to tap into the overseas market with compelling products, which we expect could become a second growth driver for the company, contributing 27% of incremental vehicle sales volume over 2022-2030E. With comprehensive product portfolio and strong in-house capabilities enabling continued vehicle technology innovation, we expect BYD to grow its total vehicle sales volume from 3.1mn in 2023E to 7.8mn in 2030E, capturing 1/3 of China's NEV wholesale demand. BYD A/H shares are trading at 1-stdev below historical average 12m forward P/E. We are Buy-rated. Catalysts include strong sales number, new supportive policies for the NEV industry, breakthrough in overseas markets, and quarterly results.

Price Target Risks and Methodology - BYD

Valuation methodology: We are Buy-rated with 12m DCF-based (WACC 10.8%, TGR 2.0%) TPs of Rmb304/HK\$290 on the A/H shares (applying a 14% discount to the H-share).

Risks: (1) Intensifying electric vehicle competition; (2) Slower-than-expected overseas expansion progress; (3) Lower-than-expected external battery sales.

Tesla: Assuming earnings lull amid EV slowdown; Neutral

TSLA	12m Price Target: \$190	Price: \$177.67	Upside: 6.9%
Neutral		GS Forecast	
Market cap: \$620.4bn	Revenue (\$ mn)	12/23	12/24E
Enterprise value: \$605.8bn	Op. profit (\$ mn)	96,773.0	104,633.5
3m ADTV :\$20.6bn	Op. profit CoE (\$ mn)	--	--
United States	EPS (\$)	2.6	2.1
Americas Autos & Industrial Tech	P/E (X)	83.5	82.8
	P/B (X)	12.1	8.6
M&A Rank: 3	Dividend yield (%)	0.0	0.0
Leases incl. in net debt & EV?: Yes	N debt/EBITDA (ex lease,X)	(0.9)	(1.0)
	CROCI (%)	33.9	23.2
		12/23	3/24E
	EPS (\$)	0.6	0.4
		6/24E	9/24E
			0.5
			0.6

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 26 Mar 2024 close.

Why focus on the stock now?

Our US team lowered the Tesla's estimates in the report published on March 17th reflecting the production and market headwinds ([Link](#)). Delivery estimates in key regions per third parties (e.g. CPCA and Motor Intelligence) through the first two months of the quarter were up high single digits yoy and down low double digits qoq. We model 1Q volumes at 435K and 2024 vehicle deliveries at 1.98 mn (+9.5% yoy). While we appreciate the monthly data is preliminary, other datapoints also suggest slower sales. Specifically, downloads of the Tesla app in the US and in Europe have declined sequentially when comparing the first two months of 1Q24 vs. 4Q23, and app downloads YTD are down yoy vs 1Q23 in the US per Sensor Tower data. In addition, exports from the China factory were down yoy for January and February in total. Finally, as Tesla has reduced the amount of deliveries occurring in the last month of a quarter, there could be less of a quarter end increase.

We believe there are both production and market considerations impacting growth. On the production front, we believe the pace of the new Model 3 ramp in the US has been relatively muted in 1Q given still long lead times shown on Tesla's US website (e.g. currently a May delivery estimate for the Long Range variant in the US) and lower volumes (with Model 3 sales down 18% YTD per Motor Intelligence). In addition, Tesla had downtime in Berlin in January (due to the Red Sea conflict per [media reports](#)) and in March (due to a power outage per [media reports](#)). We also believe Tesla is being impacted by reduced EV subsidies in Europe, competition in China, and slower demand than we had previously expected.

On margins, Tesla has been relatively disciplined with starting list prices YTD, although

the company has been utilizing incentives to help support demand (e.g. insurance subsidies, free charging). As we articulated in our report, The price is right? The case for Tesla to be more selective on US price cuts; analysis on EV pricing and IRA, we believe that Tesla should be firm with pricing for Model 3/Y in the US as the vehicles are attractively priced particularly with IRA credits and our analysis shows that broad-based incremental price cuts would be negative for profits at least in the short term (although a more entry level SKU of the Model Y with a lower BOM could help Tesla to expand volumes while supporting overall margins/profits in our opinion). In fact, on 3/15/24 after the market close Tesla announced on its US website that it intends to increase Model Y pricing on 4/1/24 by \$1K. There is a higher degree of market competition in China, and we believe a somewhat more aggressive pricing strategy may be necessary there.

For Tesla, while we continue to believe that Tesla is well positioned for longer-term growth given its strong position in the EV and clean energy markets (which we attribute to factors including its ability to offer full solutions such as charging, storage, software/FSD and services, and with a leading cost structure), we believe that softer near-term EV market conditions are weighing on earnings.

Our 12-month price target is \$190 and is based on 50X applied to our updated Q5-Q8 EPS estimate including SBC.

Key downside risks to our view relate to potentially larger vehicle price reductions than we expect, increased competition in EVs, delays with products/capabilities like FSD/the third generation platform/4680, key person risk, the internal control environment, margins, and operational risks associated with Tesla's high degree of vertical integration. Upside risks include faster EV adoption and/or share gain from Tesla, a stronger macroeconomic environment for new vehicle sales more generally, earlier new product launches than we expect (e.g., a vehicle using the third generation platform), and an earlier/larger impact from AI enabled products (e.g., FSD and Optimus) than we currently anticipate.

Profit model (\$ mn)	12/23	12/24E	12/25E	12/26E	Balance sheet (\$ mn)	12/23	12/24E	12/25E	12/26E
Total revenue	96,773.0	104,633.5	133,779.0	158,379.8	Cash & equivalents	17,189.0	19,837.5	31,598.5	48,117.9
Cost of goods sold	(79,113.0)	(87,044.6)	(108,914.6)	(127,379.5)	Accounts receivable	3,508.0	5,122.7	6,207.2	7,727.0
SG&A	(4,800.0)	(4,991.1)	(5,078.7)	(5,485.4)	Inventory	13,626.0	16,008.3	20,690.8	24,146.8
R&D	(3,969.0)	(4,439.4)	(4,706.4)	(5,054.9)	Other current assets	15,498.0	15,498.0	15,498.0	15,498.0
Other operating profit/(expense)	--	--	--	--	Total current assets	49,821.0	56,466.5	73,994.5	95,489.7
EBITDA	13,558.0	13,733.5	22,704.9	30,097.0	Net PP&E	33,905.0	38,901.8	41,356.2	42,799.2
Depreciation & amortization	(4,667.0)	(5,575.2)	(7,625.6)	(9,637.0)	Net intangibles	431.0	359.0	279.0	199.0
EBIT	8,891.0	8,158.4	15,079.3	20,460.0	Total investments	0.0	0.0	0.0	0.0
Interest income	1,066.0	1,560.0	2,050.0	2,200.0	Other long-term assets	22,666.0	22,766.0	22,866.0	22,966.0
Interest expense	(156.0)	(240.0)	(240.0)	(240.0)	Total assets	106,618.0	118,288.3	138,290.7	161,248.9
Income/(loss) from uncons. subs.	--	--	--	--					
Others	174.0	0.0	0.0	0.0	Accounts payable	14,431.0	16,648.6	21,104.6	24,146.8
Pretax profits	9,975.0	9,478.4	16,889.3	22,420.0	Short-term loans	--	--	--	--
Income tax	(926.0)	(1,895.7)	(3,377.9)	(4,484.0)	Other current liabilities	11,944.0	11,944.0	11,944.0	11,944.0
Minorities	23.0	(75.0)	(75.0)	(175.0)	Total current liabilities	28,748.0	30,965.6	35,421.6	38,463.8
					Long-term debt	2,857.0	2,857.0	2,857.0	2,857.0
Net income pre-preferred dividends	9,072.0	7,507.7	13,436.4	17,761.0	Other long-term liabilities	11,404.0	11,404.0	11,404.0	11,404.0
Preferred dividends	--	--	--	--	Total long-term liabilities	14,261.0	14,261.0	14,261.0	14,261.0
Net income (pre-exceptionals)	9,072.0	7,507.7	13,436.4	17,761.0	Total liabilities	43,009.0	45,226.6	49,682.6	52,724.8
Post-tax exceptionals	--	--	--	--					
Net income	9,072.0	7,507.7	13,436.4	17,761.0	Preferred shares	--	--	--	--
EPS (basic, pre-except) (\$)	285.9	235.4	418.7	550.1	Total common equity	62,634.0	72,086.7	87,633.1	107,549.1
EPS (basic, post-except) (\$)	285.9	235.4	418.7	550.1	Minority interest	975.0	975.0	975.0	975.0
EPS (diluted, post-except) (\$)	260.5	214.5	380.4	499.8	Total liabilities & equity	106,618.0	118,288.3	138,290.7	161,248.9
DPS (\$)	--	--	--	--	BVPS (\$)	1,798.4	2,059.7	2,481.0	3,026.2
Dividend payout ratio (%)	0.0	0.0	0.0	0.0	RNAV (\$ mn)	--	--	--	--
Free cash flow yield (%)	0.6	0.5	2.1	2.9	RNAVPS (\$)	--	--	--	--
Growth & margins (%)	12/23	12/24E	12/25E	12/26E	Ratios	12/23	12/24E	12/25E	12/26E
Sales growth	18.8	8.1	27.9	18.4	ROE (%)	16.9	11.1	16.8	18.2
EBITDA growth	(22.1)	1.3	65.3	32.6	ROA (%)	9.6	6.7	10.5	11.9
EBIT growth	(34.9)	(8.2)	84.8	35.7	ROACE (%)	19.7	11.6	19.8	25.4
Net income growth	(27.9)	(17.2)	79.0	32.2	Inventory days	61.1	62.1	61.5	64.2
EPS growth	(28.9)	(17.6)	77.9	31.4	Receivables days	12.2	15.1	15.5	16.1
Gross margin	18.2	16.8	18.6	19.6	Payable days	68.5	65.2	63.3	64.8
EBITDA margin	14.0	13.1	17.0	19.0	Net debt/equity (%)	(18.8)	(20.0)	(29.8)	(39.5)
EBIT margin	9.2	7.8	11.3	12.9	Interest cover - EBIT (X)	NM	NM	NM	NM
Cash flow statement (mn)	12/23	12/24E	12/25E	12/26E	Valuation	12/23	12/24E	12/25E	12/26E
Net income pre-preferred dividends	9,072.0	7,507.7	13,436.4	17,761.0	P/E basic (X)	83.5	82.8	46.7	35.6
D&A add-back	4,667.0	5,575.2	7,625.6	9,637.0	P/B (X)	12.1	8.6	7.2	5.9
Minorities interests add-back	--	--	--	--	EV/EBITDA (X)	40.8	32.2	20.3	15.5
Net (inc)/dec working capital	(2,564.0)	(1,779.3)	(1,311.1)	(1,933.5)	Dividend yield (%)	0.0	0.0	0.0	0.0
Other operating cash flow	(3,821.0)	1,945.0	2,110.0	2,155.0	Underlying valuation	12/23	12/24E	12/25E	12/26E
Cash flow from operations	13,256.0	13,248.5	21,860.9	27,619.5	Underlying profit (\$ mn)	--	--	--	--
Capital expenditures	(8,898.0)	(10,500.0)	(10,000.0)	(11,000.0)	Underlying EPS (\$)	--	--	--	--
Acquisitions	(6,685.0)	--	--	--	Underlying ROE (%)	NM	NM	NM	NM
Divestitures	--	--	--	--	Underlying ROA (%)	NM	NM	NM	NM
Others	(1.0)	(100.0)	(100.0)	(100.0)	Underlying ROACE (%)	NM	NM	NM	NM
Cash flow from investments	(15,584.0)	(10,600.0)	(10,100.0)	(11,100.0)	Underlying P/E (X)	NM	NM	NM	NM
Dividends paid (common & pref)	--	--	--	--	Underlying dividend payout (%)	NM	NM	NM	NM
Inc/(dec) in debt	2,591.0	0.0	--	--	Underlying EPS growth (%)	--	--	--	--
Common stock issuance (repurchase)	--	--	--	--					
Other financing cash flows	342.0	--	--	--					
Cash flow from financing	2,593.0	0.0	0.0	0.0					
Total cash flow	265.0	2,648.5	11,760.9	16,519.5					

Note: Last actual year may include reported and estimated data.
Source: Company data, Goldman Sachs Research estimates.

Investment Thesis - Tesla

We believe that Tesla is well positioned for long-term growth, given its leading position in the EV and clean energy markets (which we attribute in part to its ability to offer full solutions including charging, storage, software/FSD and services with a direct sales model), but we believe this is generally reflected in the stock given the premium valuation.

Increased debate on potential for European regulation changes

In Europe, we believe BEV adoption is being driven by the regulatory framework which, under present proposals, requires OEMs to sell more BEVs. Presently, Europe is targeting 0g/km of CO₂ at the tailpipe on new car and van sales in 2035, effectively leaving BEVs and Fuel Cell Electric Vehicles as the only viable technology options (note there may be potential dispensation for carbon neutral eFuels or small vehicle manufacturers). On the route to zero emissions, the industry must achieve a 15%/55% reduction in tailpipe CO₂ by 2025/30, respectively, vs a 2021 baseline. Under the WLTP test regime, the 2025/30 targets equate to 93g/km and 49g/km. To place this in context, Europe's best selling non-BEV cars in 2023 were the Dacia Sandero followed by the Volkswagen T-Roc and Renault Clio. The base Sandero emits 119g/km under WLTP and the T-Roc 129g/km. In contrast, Toyota's Prius PHEV emits 12g/km. As a result, in order to meet the targets, our European analysts believe that BEV penetration will have to step-up materially next year and then again in 2030. However, over the course of 2024, several OEMs have raised questions around whether Europe's CO₂ targets might be changed, postponed or relaxed. During their FY23 earnings calls, BMW called for a comprehensive review of the EU's CO₂ legislation while VW also questioned the targets and penalties, suggesting increased pressure for Europe's regulations to be revisited. If there were any softening or postponement of the requirements, our European analysts believe that the evolution of BEV penetration would slow accordingly and adjust to lower more lenient targets. As highlighted in their research, the TCO of buying a BEV in certain European markets, including Germany and the UK, is no longer attractive in the absence of subsidies, on their estimates. Infrastructure continues to present a problem. Meanwhile, discounting and pricing pressure has led to negative residual value developments. For OEMs, variable margins on BEVs remain lower and less attractive than those on ICE.

Within our European coverage, we highlight Buy-rated Stellantis, which continues to pursue a flexible approach with respect to powertrain and is looking to offer the industry's broadest electric product portfolio consisting of BEV, FCEV and REV. Stellantis expects to achieve this while keeping investment levels (Cash R&D and PPE) at c.8% of revenues, one of the lowest ratios amongst global peers. Stellantis saw a 21% increase in BEV and a 27% increase in LEV (BEV+PHEV+REV+FCEV) sales in 2023, finishing the year as the 3rd largest in Europe in terms of BEV sales and the 2nd largest in the US with regards to LEV (1st with respect to PHEV). While the company will launch an additional 18 BEVs in 2024 reaching a total of 48 models, Stellantis' new BEV-centric platforms are highly flexible and capable of accommodating multiple powertrain configurations including hybrid and combustion engines. This approach allows Stellantis to depreciate platform investments across a large number of vehicles and maintain powertrain flexibility in its manufacturing plants, resulting in strong fixed cost coverage irrespective of end market powertrain mix. As a result, we believe that Stellantis is achieving higher variable and operating margins on its BEV and PHEV offerings than many European peers, and that this is in part evidenced in the company's overall adjusted operating margin of 12.8% in 2023 (15.4% in North America). This year will see Stellantis introduce both a BEV and range extender version of its full-size RAM 1500

pick-up truck in North America, providing customers with choice and Stellantis with powertrain flexibility at the upper end of the group's portfolio. Meanwhile, in Europe, the company will introduce the Citroen e-C3 BEV with mid-trim versions available from €23k. The contrast between these products shows the breadth of Stellantis' electric offerings in terms of price point, size and powertrain. We value Stellantis on a P/E basis and derive our 12-month price targets of €27/\$30 (last close €26.59/\$28.70) from 5.0x 2024/25E EPS. Key downside risks: New products less well-received than expected; slowdown in the EU/NA market; commodity/raw material prices; FX risk as international currencies strengthen against USD; full-size pick-up truck market slowdown.

More on our EV bookshelf



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For further details, visit our [CARS: The Road Ahead](#) site.

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Reg AC

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Stellantis NV (Buy, €26.69)

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Target price history table(s)

Hyundai Motor Co. (005380.KS)

Date of report Target price (W)

20-Feb-24	290,000
26-Jul-23	255,000
06-Jun-23	240,000
25-Apr-23	250,000
13-Apr-23	240,000
25-Apr-22	220,000

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