

Tesla Inc. (TSLA): Spotlight on China - examining FSD and market share in the biggest global market

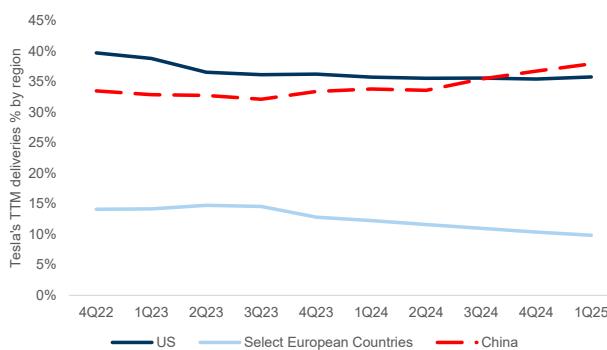


We believe that Tesla's ability to leverage its Full Self Driving (FSD) software in China will be important for the stock going forward given the size of the China market for vehicles, the increasingly competitive landscape for ADAS software and robotaxi offerings in the region (as detailed by Allen Chang in his report [Global Robotaxi: China's Robotaxi market - the road to commercialization](#)), and the role that future profits from AI enabled products like FSD have for Tesla's valuation.

China has become Tesla's largest market for cars

China is the biggest car market in the world, and we believe it has become the biggest market for Tesla's new vehicle sales over the last year ([Exhibit 1](#)).

Exhibit 1: Tesla's TTM deliveries by region percentage in key regions



Source: Company data, MotorIntelligence, CPCA, Wind, ACEA, Goldman Sachs Global Investment Research

We attribute this in part to the market size in China, where BEV penetration rates are higher ([Exhibit 2](#)).

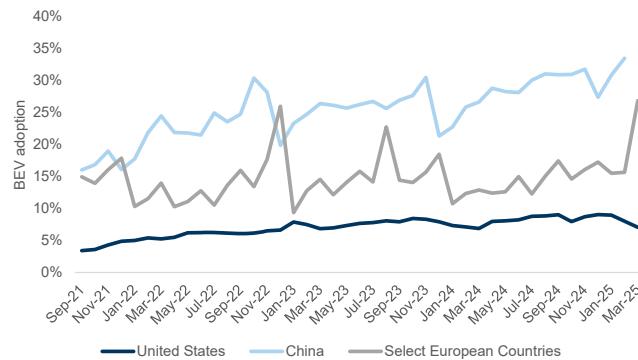
Mark Delaney, CFA
+1(212)357-0535 | mark.delaney@gs.com
Goldman Sachs & Co. LLC

Dan Duggan, Ph.D.
+1(212)902-4726 | dan.duggan@gs.com
Goldman Sachs & Co. LLC

Will Bryant
+1(212)934-4705 | will.bryant@gs.com
Goldman Sachs & Co. LLC

Aman Gupta
+1(212)357-1549 | aman.s.gupta@gs.com
Goldman Sachs & Co. LLC

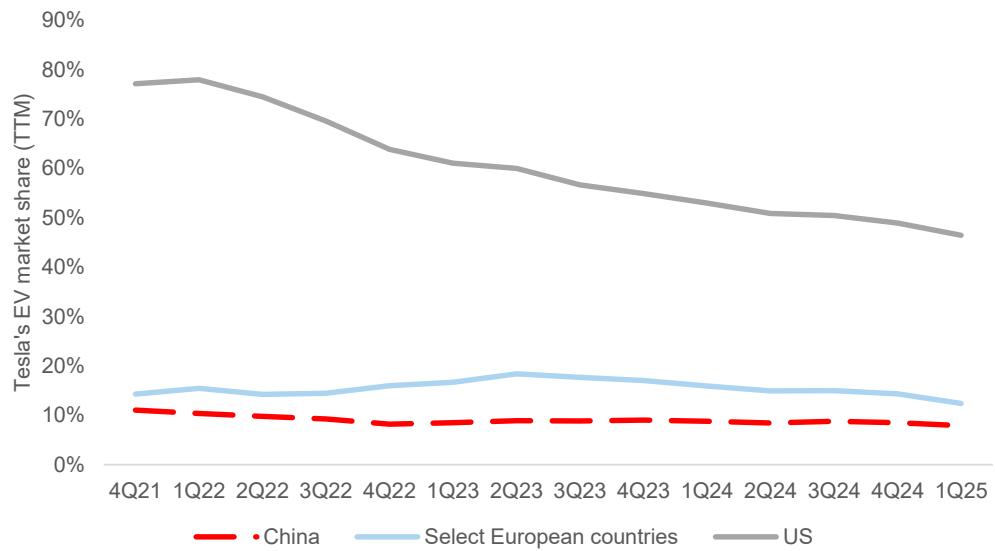
Exhibit 2: China BEV penetration is running at ~30%+
 BEV adoption % by region



Source: MotorIntelligence, CPCA, Wind, ACEA, Wards, US Bureau of Economic Analysis (BEA)

However, we also believe changes in market share have played a role. While Tesla's TTM share in the US BEV market has fallen to about 45% as of 1Q and its share in Europe has fallen to the low double digit range, Tesla's BEV share in China has been more stable in the high single digit range (Exhibit 3).

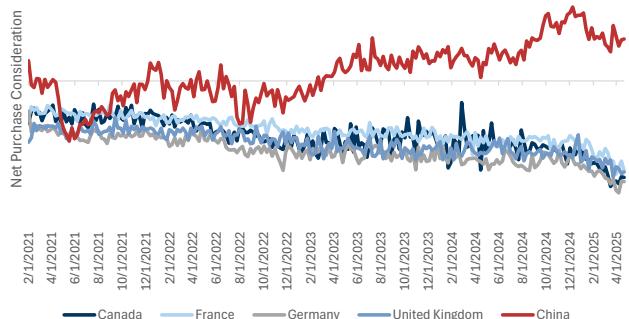
Exhibit 3: Tesla's TTM regional BEV market share in key regions



Source: MotorIntelligence, CPCA, Wind, ACEA, Goldman Sachs Global Investment Research

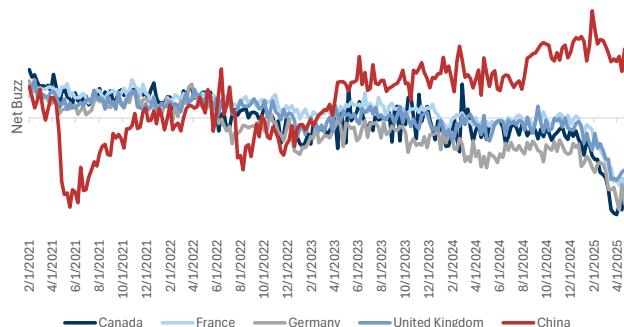
This is illustrated as well by consumer scores, which we analyzed with the help of the GS Data Works team, which have been stronger in China than in North America and Europe per surveys from Morning Consult. In addition, net buzz (defined as the number of respondents who read or saw something positive about the brand less those that saw or heard something negative over the past two weeks from the survey date), has been more favorable in China than other geographies.

Exhibit 4: Tesla Net Purchase Consideration in key non-US countries



Source: Morning Consult

Exhibit 5: Tesla Net Buzz for key non-US countries



Source: Morning Consult

With Tesla's CEO stating that he will be taking a more active role at the company starting in May, and the planned launch of new models from Tesla later this year, we plan to monitor if Tesla's consumer survey scores improve, especially in North America and Europe.

FSD in China - a competitive environment

On 2/25/25, media outlets [reported](#) that Tesla had pushed an update to some users who had previously purchased Tesla's FSD software (which costs ¥64,000 or ~\$8,750 USD) with several FSD-like features including automatic lane change, traffic light detection, and turning capabilities. Tesla commented on its 1Q25 earnings call that it was able to launch supervised FSD in China with minimal local specific data for the China market, as the company was able to leverage the more generalized software it had already developed. That said, Tesla's FSD software has historically worked better in the US per [media reports](#), as Tesla has had more data and time to refine the product domestically. Tesla also spoke to the benefits of local training and parameters on its 1Q25 call. Per reviews ([link](#) & [link](#)), FSD in China has performed relatively well, especially given limits to Tesla's data collection in China. However, some reviews cite a lack of understanding of local traffic rules (e.g. Tesla vehicles going into shoulder/bike lanes on turns) and the sporadic use of wrong lanes, which we believe could be due to the more limited data for the China market.

Tesla's FSD offering is one of several ADAS options for consumers in China, with many local competitors offering this as a standard feature even on mainstream vehicles ([Exhibit 6](#)). The level of technology and cost improvement that Tesla can achieve with FSD, both absolute and relative to competitors, will be key for its longer-term economics related to autonomy in our opinion (both globally and in China).

We note that, there have also been media reports (including [Reuters](#), [Engadget](#), [CarNewsChina](#), and [the WSJ](#)) that China is looking to better regulate how companies test, deploy, and market smart driving features.

Exhibit 6: Overview of competitive landscape for select ADAS offerings in China

Brand	Models available with highway NOA	Models available with city NOA	Pricing
BYD	"God's Eye C" using pure-vision approach, equipped on BYD brand	"God's Eye A" equipped on Yangwang brand; "God's Eye B" equipped on high-spec versions of Denza and BYD brand (e.g. Seal/Seal Lion 07 EV/ Song L EV/Han Tang DM-i)	Highway NOA and valet parking functions standard configuration to ~\$14k USD (Rmb100k) priced models and available to models priced around \$10k USD (Rmb70k); vehicle models priced above ~\$28k USD (Rmb200k) have "God's Eye B" to support city NOA
Li Auto	AD Pro for highway NOA; Pro and Air trim models of Li Auto's L series come standard with the Li AD Pro system	AD Max for urban NOA; available for high-spec versions with lidar (e.g. L6, L7, L8) and standard for the L9 and Li Mega	AD Pro vs. Max trim pricing difference of ~\$4-5k USD (Rmb 30k); Li L6 retails at ~\$35k USD (Rmb250k) for the Pro trim and ~\$39k (Rmb280k) for the Max trim
Xpeng		All scenario NOA is standard in higher-trim versions of G6, G9, P7, X9; available for configuration in MONA models, and standard for P7+	For the X9 model, there is a ~\$3k USD (Rmb 20k) difference between the premium and standard model trims
Nio		NOP+ (Nio's urban NOA system) is available for the NT 2.0 platform-based vehicle models (e.g. ET5, ET7, ES7, ES8, and EC7)	When Nio announced the NOP+ launch, it said subscriptions would be ~\$50-\$55/month (Rmb 380); Nio was also offering a free year to new vehicle owners
Huawei		City NOA available for Huawei Aito (e.g. M5, M7, M9 models) as well as Huawei backed models from other brands (e.g. Luxeed S7, Voyah Dream MPV)	Highway NOA is standard; city NOA features can be purchased for a one-time payment of ~\$5k USD (Rmb36k), monthly subscription of ~\$100 USD (Rmb720), or a yearly subscription of ~\$1k USD (Rmb7.2k); some more premium models (e.g. Voyah's Dream MPV) come standard with Huawei's Qiankun ADS 3.0 software with pricing ranging from ~\$49k-\$57k (Rmb360k-Rmb410k) depending on powertrain
Xiaomi	Xiaomi Pilot Pro has auto parking and highway NOA capabilities (for standard trim)	City NOA feature is available for eligible drivers who have the Xiaomi Pilot Max intelligent driving system (for Pro and Max trims)	The Xiaomi SU7 Standard edition comes with the Xiaomi Pilot Pro, while the other two more expensive versions come with the Xiaomi Pilot Max system. The Standard, Pro, and Max variants have starting prices of roughly \$29k (Rmb216k), ~\$34k (Rmb246k), and ~\$41k (Rmb300k), respectively. Customers who purchased an SU7 on or before Dec 31, 2024 received free lifetime access to the Xiaomi Pilot Pro or Xiaomi Pilot Max
Tesla		Autopilot on city streets is available for all Tesla models with purchase of Tesla FSD package	The update is available to Tesla owners who pay an extra ~\$8,750 (Rmb64k) for FSD capabilities

Source: Company data, Data compiled by Goldman Sachs Global Investment Research

We believe that Tesla hopes to offer robotaxi services widely over time, but it plans to do this first in Texas starting in June 2025. For the US market, we believe the cost of Tesla's vehicles could be an advantage compared to other robotaxi offerings (if Tesla's technology gets to the necessary level to deploy). Specifically, its COGS per vehicle globally were about \$35.5K in 1Q25, and per Tesla its more recent HW4 equipped vehicles have all of the hardware needed for L4. If Tesla eventually also starts a robotaxi operation in China, it would be facing a different competitive landscape with several AVs having attractive costs, and we believe technology development, scale/cost, and regulatory approvals will be key factors to monitor to assess Tesla's success with robotaxis in the region.

Valuation, price target, and key risks

We are Neutral rated on the stock. Our 12-month price target is \$235, which is based on 100X applied to our Q5-Q8E EPS estimate including SBC.

A downside scenario for the stock assuming less volume growth and slower margin improvement could be ~\$150 (assuming a 15-20% reduction to our 2027E EPS estimate including SBC and a multiple of ~60X). An upside scenario could be ~\$345, assuming a 100X multiple applied to non-GAAP 2027E EPS.

Key downside risks to our view relate to potentially larger vehicle price reductions than we expect, increased competition in EVs, a larger than expected tariff impact, slower EV demand, delays with products/capabilities like FSD/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 by Tesla, a stronger macroeconomic environment for new vehicle sales more generally, earlier new product launches than we expect, an earlier/larger impact from AI enabled products (e.g., FSD, Optimus and robotaxis), and a smaller than expected tariff impact than we currently anticipate.

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GS DataWorks analysis provided by Dan Duggan, Ph.D.

TSLA	12m Price Target: \$235.00	Price: \$280.26	Downside: 16.1%
Neutral	GS Forecast		
Market cap: \$986.8bn	Revenue (\$ mn)	12/24	12/25E
Enterprise value: \$973.5bn	EBITDA (\$ mn)	97,690.0	93,169.4
3m ADTV: \$32.8bn	EBIT (\$ mn)	16,013.0	14,119.0
United States	EPS (\$)	7,076.0	3,966.5
Americas Autos & Industrial Tech	P/E (X)	2.04	1.20
M&A Rank: 3	EV/EBITDA (X)	113.0	2.05
	FCF yield (%)	NM	3.00
	Dividend yield (%)	45.3	137.0
	Net debt/EBITDA (X)	0.4	93.4
		63.1	45.4
		0.2	34.9
		0.0	1.1
		0.0	0.0
		(0.8)	0.0
		(0.7)	(1.0)
	EPS (\$)	3/25	6/25E
		0.14	0.28
		9/25E	12/25E
		0.32	0.46

Source: Company data, Goldman Sachs Research estimates, FactSet. Price as of 5 May 2025 close.

Disclosure Appendix

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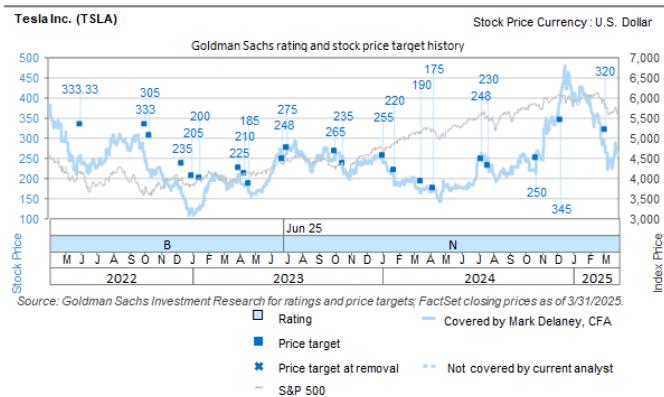
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