

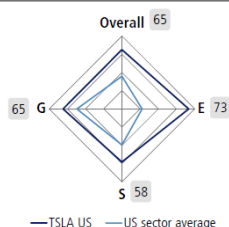
# Tesla (TSLA.O/TSLA US)

Price as of Jan 27: US123

## Mixed guidance; all eyes on incoming Investor Day

Trading data			
Mkt cap (US\$bn)	590.2		
Outstanding shares (mn)	3,158		
Institutional ownership (%)	45.3		
3M avg. daily trading (mn)	74.0		
52-week trading range (US\$)	177.1-402.7		
Performance	3M	6M	12M
Absolute (%)	(39.0)	(22.6)	(46.8)
Relative (%)	(31.0)	(21.4)	(31.0)

### ESG score card



Source: Refinitiv, KGI securities

### Event

Tesla posted record-high 2022 EPS of US\$4.07, up 80% YoY. With production guidance of 1.8mn units in 2023, the firm expects to sustain industry-leading operating margin, despite a potential recession.

### Impact

**Mixed 4Q22 results, but exits 2022 with record-high earnings & strong financial health.** Operating margin contract 1.1ppts QoQ to 16.0% in 4Q22, as higher operating leverage partially offset a 2.5ppts QoQ decline in automotive gross margin (excluding regulatory credit revenue) to 24.3%. 4Q22 operating margin missed, but net earnings beat consensus. Despite multiple macro and operational challenges, Tesla managed to grow revenue 51% and earnings 85% in 2022, with gross and operating margins edging up a respective 0.3ppts and 4.6ppts to top the auto industry at 25.6% and 16.8%. The firm ended the year with a strong cash and investment position of US\$22.2bn and free cash flow of US\$7.57bn, up a respective 25% and 51% from a year ago. Net interest income of US\$157mn was reported in 4Q22 on low debt and a rate-hike environment.

**Mixed guidance, but clear message delivered in response to near-term uncertainties & long-term growth.** Tesla guides production of 1.8mn units in 2023 and an internal target of 2.0mn units if there are no external disruptions, largely on par with consensus and our estimate of 1.9mn. Demand year-to-date, according to Musk, is the strongest ever with orders twice that of the production rate, helping to draw down inventory, which surged from 4 days in 2Q22 to 13 days by end-2022, reflecting the effectiveness of the firm's aggressive pricing cut strategy. Facing a possible recession in 2023, Tesla guides it will accelerate cost reductions near-term and focus on operating margin, echoing the intention of the firm's pricing cut strategy to maximize production and achieve higher operating leverage. With Cybertruck on track to begin production later this year, Tesla notes it will share more details of the next-generation vehicle platform currently under development at the upcoming Investor Day on March 1. That said, a more affordable EV model priced at less than US\$25k is highly anticipated. On top of hardware (EV) sales, the firm continues to stress software, primarily FSD, will be the long-term profit driver provided 100% gross margin and accelerating contribution.

**We slightly raise 2023F EPS to US\$4.46, but maintain 2022-24F EPS CAGR at 27%.** We slightly revise up 2023F sales and earnings growth to a respective 26% and 9% YoY as the firm anticipates automotive ASP will remain above US\$47k after the price cuts in early 2023, above our estimate of US\$45k. Tesla raised Model Y pricing slightly in the fourth week of January, once again demonstrating its flexibility in response to market conditions. We forecast EPS will grow from US\$4.46 in 2023 to US\$6.53 in 2024, based on EV shipments of 1.87mn and 2.50mn, respectively.

### Key financials

	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Revenue (US\$m)	31,536	53,823	81,462	102,249	131,274
Gross profit (US\$m)	6,630	13,606	20,853	22,577	31,844
Operating profit (US\$m)	1,994	6,523	13,656	14,583	22,411
EBITDA (US\$m)	4,316	9,434	17,403	19,039	21,109
Net profit (US\$m)	2,424	7,654	14,144	15,477	22,672
EPS (US\$)	0.75	2.26	4.07	4.46	6.53
Revenue growth (%)	28.3	70.7	51.4	25.5	28.4
EPS growth (%)	5,437.4	202.9	80.1	9.5	46.5
Gross margin (%)	21.0	25.3	25.6	22.1	24.3
Operating margin (%)	6.3	12.1	16.8	14.3	17.1
EBITDA margin (%)	13.7	17.5	21.4	18.6	16.1
Net debt to equity (%)	Net cash	Net cash	Net cash	Net cash	Net cash
Return on average equity (%)	4.3	20.0	27.4	22.8	25.4

Source: Company data, KGI Research estimates

**Figure 1: Breakdown of 4Q22 results & 1Q23 forecast revisions vs. consensus**

US\$m	4Q22							1Q23F						
	Actual	KGI	Diff. (%)	QoQ (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	QoQ (%)	YoY (%)	Consensus	Diff. (%)
Revenue	24,318	24,156	0.7	13.3	37.2	24,065	1.1	23,726	22,877	3.7	(2.4)	26.5	24,059	(1.4)
Gross profit	5,777	5,941	(2.8)	7.3	19.2	6,120	(5.6)	4,839	4,158	16.4	(16.2)	(11.4)	5,423	(10.8)
Operating profit	3,901	4,021	(3.0)	5.8	49.3	4,163	(6.3)	2,941	2,213	32.9	(24.6)	(18.4)	3,315	(11.3)
Net income	4,141	4,060	2.0	13.3	43.5	3,980	4.0	3,200	2,395	33.6	(22.7)	(14.2)	3,377	(5.2)
EPS (US\$)	1.19	1.17	1.9	13.2	40.8	1.12	6.3	0.92	0.69	33.5	(22.7)	(14.2)	0.95	(3.3)
Gross margin (%)	23.8	24.6	(0.8) ppts	(1.3) ppts	(3.6) ppts	25.4	(1.7) ppts	20.4	18.2	2.2 ppts	(3.4) ppts	(8.7) ppts	22.5	(2.1) ppts
Op. margin (%)	16.0	16.6	(0.6) ppts	(1.1) ppts	1.3 ppts	17.3	(1.3) ppts	12.4	9.7	2.7 ppts	(3.6) ppts	(6.8) ppts	13.8	(1.4) ppts
Net margin (%)	17.0	16.8	0.2 ppts	(0.0) ppts	0.7 ppts	16.5	0.5 ppts	13.5	10.5	3.0 ppts	(3.5) ppts	(6.4) ppts	14.0	(0.6) ppts

Source: Bloomberg; KGI Research

**Figure 2: Breakdown of 2022 results and 2023-24 forecast revisions vs. consensus**

US\$m	2022						2023F						2024F					
	Actual	KGI	Diff. (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	YoY (%)	Consensus	Diff. (%)	Revision	Previous	Chg. (%)	YoY (%)	Consensus	Diff. (%)
Revenue	81,462	81,300	0.2	51.4	81,484	(0.0)	102,249	102,014	0.2	25.5	105,998	(3.5)	131,274	124,112	5.8	28.4	133,967	(2.0)
Gross profit	20,853	21,017	(0.8)	53.3	21,401	(2.6)	22,577	22,920	(1.5)	8.3	24,801	(9.0)	31,844	31,709	0.4	41.0	32,477	(1.9)
Operating profit	13,656	13,776	(0.9)	109.4	13,904	(1.8)	14,583	14,979	(2.6)	6.8	15,416	(5.4)	22,411	23,282	(3.7)	53.7	21,882	2.4
Net income	14,144	14,062	0.6	84.8	13,568	4.2	15,477	15,169	2.0	9.4	15,041	2.9	22,672	22,617	0.2	46.5	20,432	11.0
EPS (US\$)	4.07	4.05	0.4	80.1	4.02	1.2	4.46	4.37	1.9	9.5	4.34	2.8	6.53	6.52	0.2	46.5	5.82	12.1
Gross margin (%)	25.6	25.9	(0.3) ppts	0.3 ppts	26.3	(0.7) ppts	22.1	22.5	(0.4) ppts	(3.5) ppts	23.4	(1.3) ppts	24.3	25.5	(1.3) ppts	2.2 ppts	24.2	0.0 ppts
Op. margin (%)	16.8	16.9	(0.2) ppts	4.6 ppts	17.1	(0.3) ppts	14.3	14.7	(0.4) ppts	(2.5) ppts	14.5	(0.3) ppts	17.1	18.8	(1.7) ppts	2.8 ppts	16.3	0.7 ppts
Net margin (%)	17.4	17.3	0.1 ppts	3.1 ppts	16.7	0.7 ppts	15.1	14.9	0.3 ppts	(2.2) ppts	14.2	0.9 ppts	17.3	18.2	(1.0) ppts	2.1 ppts	15.3	2.0 ppts

Source: Bloomberg; KGI Research

**Figure 3: Breakdown of 2022-24 forecast revisions**

Unit	2022				2023F				2024F			
	Revision	Previous	Chg. (%)	YoY (%)	Revision	Previous	Chg. (%)	YoY (%)	Revision	Previous	Chg. (%)	YoY (%)
Total	1,313,851	1,313,851	0.0	40.3	1,873,500	1,930,000	(2.9)	42.6	2,499,900	2,499,900	0.0	33.4
Model S/X	66,705	66,705	0.0	167.0	87,500	87,500	0.0	31.2	100,000	100,000	0.0	14.3
Model 3/Y	1,247,146	1,247,146	0.0	36.9	1,780,000	1,831,000	(2.8)	42.7	2,094,000	2,094,000	0.0	17.6
Cybertruck	0	0	-	-	5,300	10,400	(49.0)	-	135,000	135,000	0.0	2447.2
Semi	0	0	-	-	700	1,100	(36.4)	-	5,900	5,900	0.0	742.9

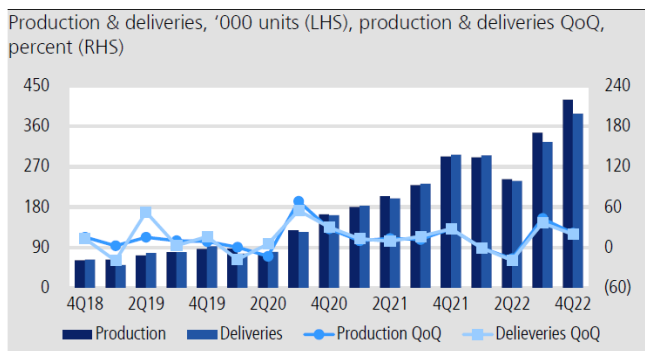
Source: KGI Research

**Figure 4: Breakdown of financial assumptions of auto business**

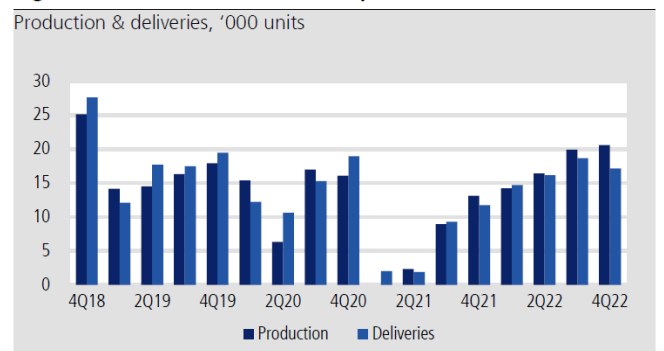
	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23F	2Q23F	3Q23F	4Q23F	1Q24F	2Q24F	3Q24F	4Q24F
EV shipments (k units)	184.9	201.3	241.4	308.7	310.0	254.7	343.8	405.3	440.1	456.6	483.7	493.1	545.7	591.0	652.0	711.2
Automotive revenue (US\$m)	8,484	9,854	11,778	15,653	16,182	14,258	18,406	20,840	20,441	21,248	22,532	23,043	24,976	26,514	29,094	31,470
ASP (US\$k)	45.9	49.0	48.8	50.7	52.2	56.0	53.5	51.4	46.4	46.5	46.6	46.7	45.8	44.9	44.6	44.2
Cost per vehicle (US\$k)	35.8	36.3	34.7	35.9	36.5	41.3	39.2	38.9	36.6	36.0	35.3	34.7	34.0	33.4	32.8	32.5
Automotive gross margin (%)	22.0	25.8	28.8	29.2	30.0	26.2	26.8	24.3	21.1	22.6	24.2	25.8	25.6	25.5	26.5	26.6

Note: All data excludes regulatory credits

Source: Company data; KGI Research

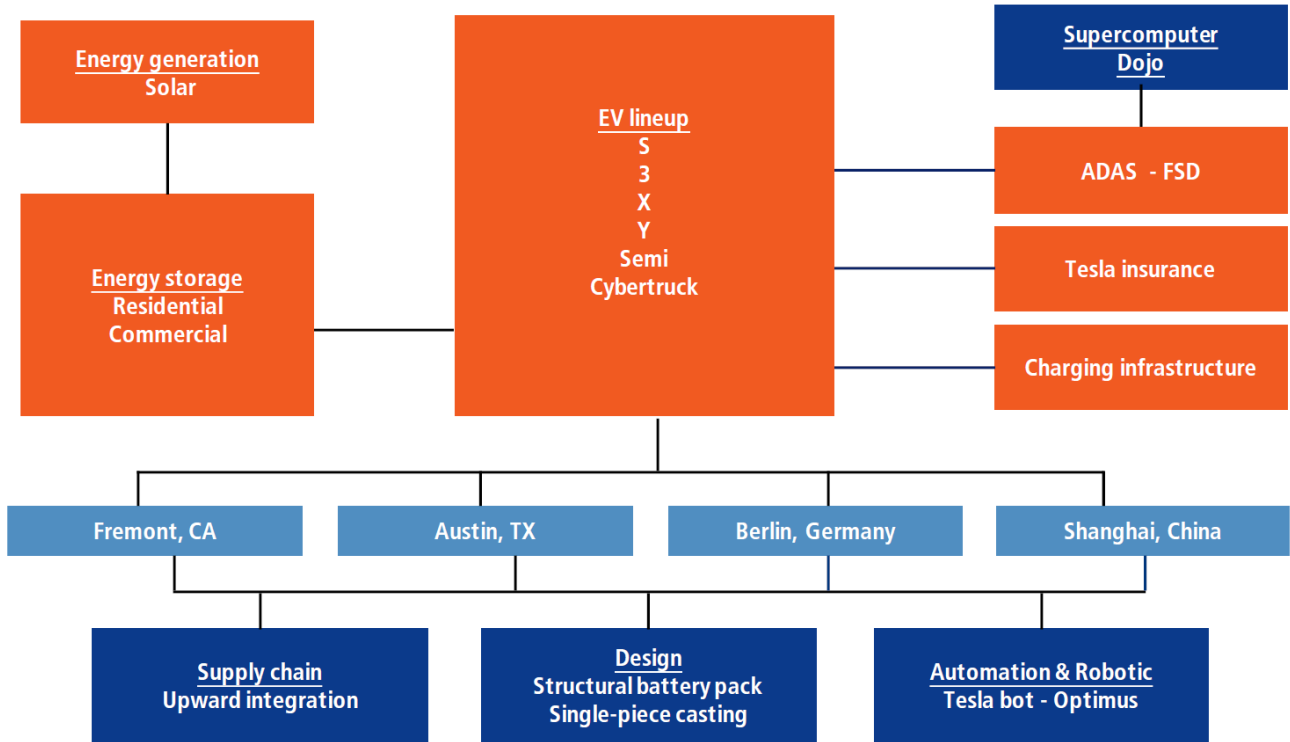
**Figure 5: Model 3 & Y combined production & deliveries**


Source: Tesla, KGI Research

**Figure 6: Model S & X combined production & deliveries**


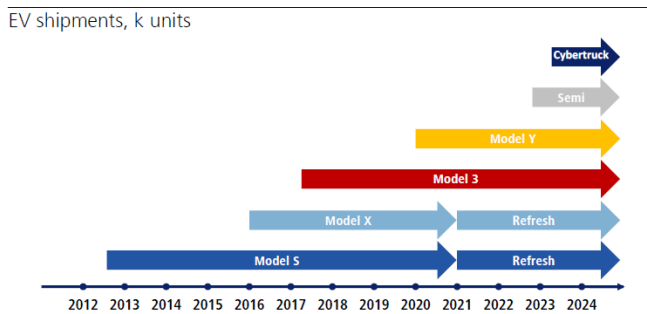
Source: Tesla, KGI Research

Figure 7: Tesla's ecosystem – A leading EV, AI & energy company



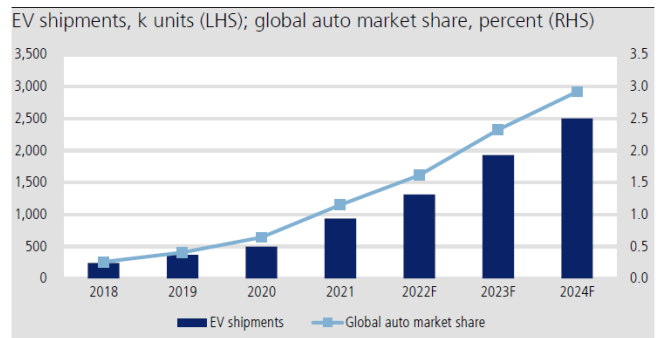
Source: KGI Research

Figure 8: EV product lineup



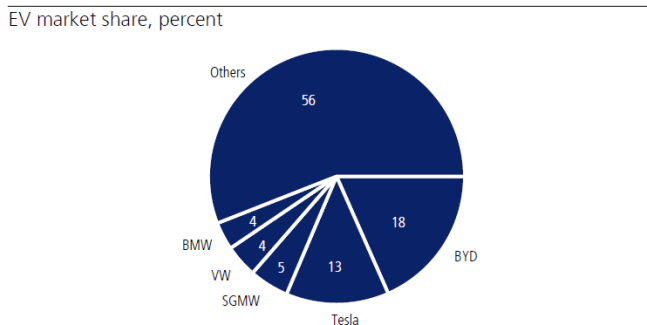
Source: Company data, KGI Research

Figure 9: Global EV auto market share at below 2% implies massive long-term growth potential



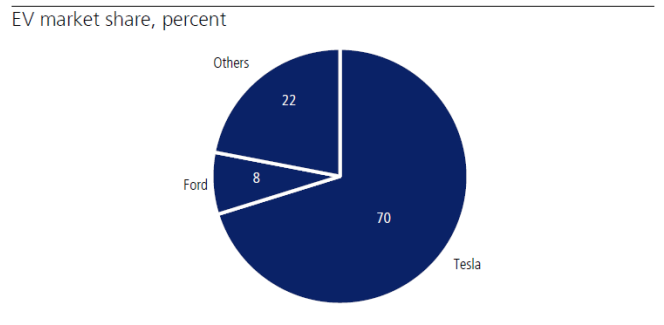
Source: Company data, LMC; KGI Research

Figure 10: Global EV market share



Source: EV-Volumes, KGI Research

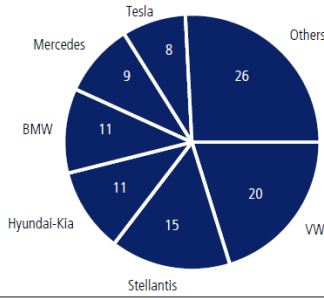
Figure 11: US EV market share



Source: EV-Volumes, KGI Research

Figure 12: Europe EV market share

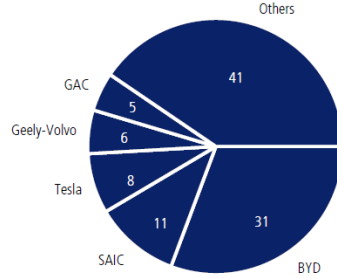
EV market share, percent



Source: EV-Volumes, KGI Research

Figure 13: China EV market share

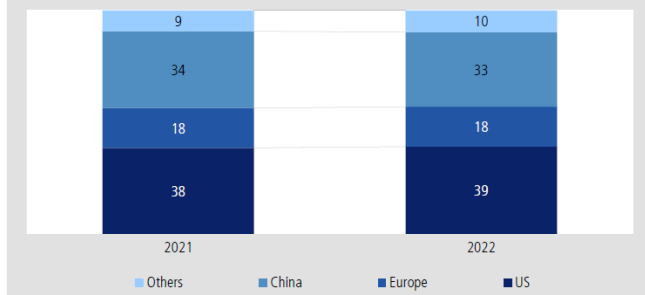
EV market share, percent



Source: EV-Volumes, KGI Research

Figure 14: Tesla shipments breakdown by region

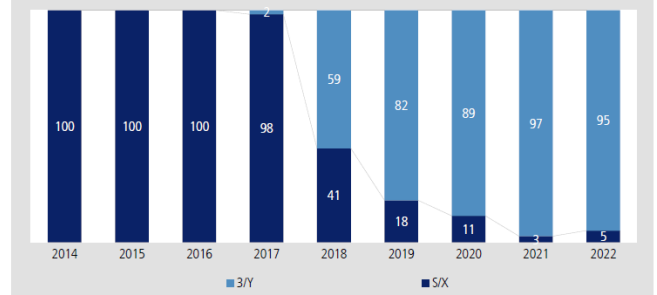
Shipments breakdown, percent



Source: Bloomberg, KGI Research

Figure 15: Models 3 & Y drove Tesla's EV delivery growth

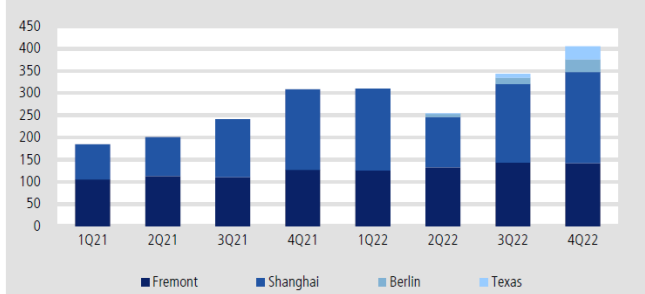
Shipments breakdown, percent



Source: Company data, KGI Research

Figure 16: Tesla EV shipments by production site

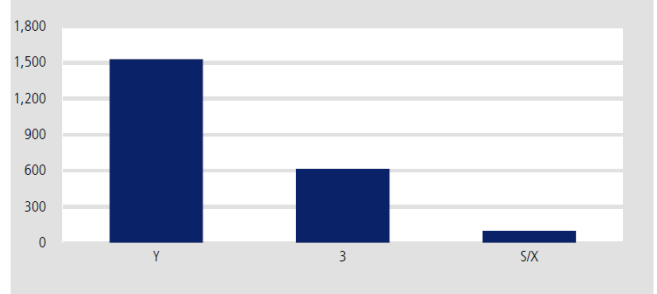
EV shipments, k units



Source: Company data, Troy Teslike, KGI Research

Figure 17: Tesla EV capacity by model based on current production plan

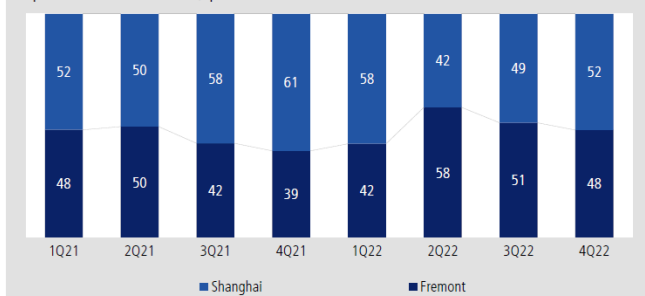
EV capacity, k units



Source: Company data, KGI Research

Figure 18: Model 3 shipments breakdown

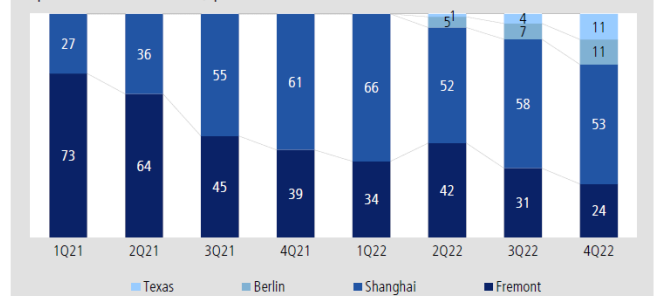
Shipments breakdown, percent



Source: Company data, Troy Teslike, KGI Research

Figure 19: Model Y shipments breakdown

Shipments breakdown, percent



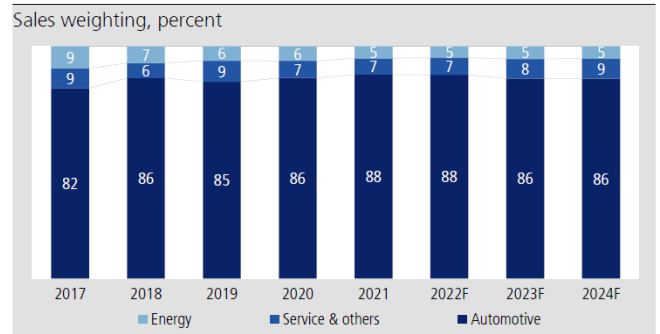
Source: Company data, Troy Teslike, KGI Research

**Figure 20: Company profile**

Established in 2003, Tesla was a dedicated electric vehicle maker before entering the solar business after acquiring SolarCity (US) in November 2016. As of 2021, Tesla was the largest EV vendor worldwide with sales of 936.2k units, representing a 15% EV market share. Headquartered in Austin, Texas, Tesla opened its first Gigafactory in Fremont, California in 2010, and started its global expansion in 2019. Gigafactory Shanghai commenced deliveries in January 2020, while two more factories, in Berlin and Texas, started deliveries in March and April this year, respectively.

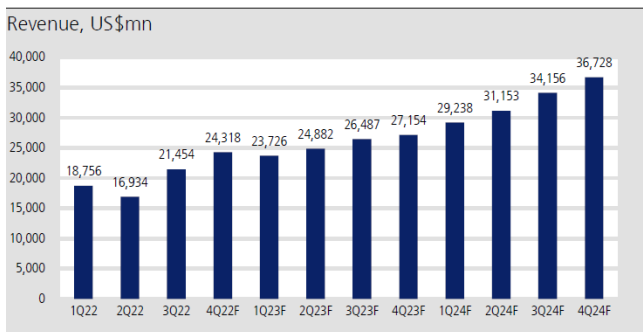
Source: Company data; KGI Research

**Figure 21: Revenue mix**



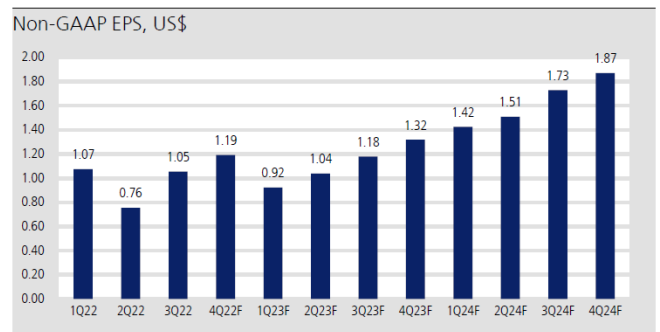
Source: Company data; KGI Research

**Figure 22: Revenue**



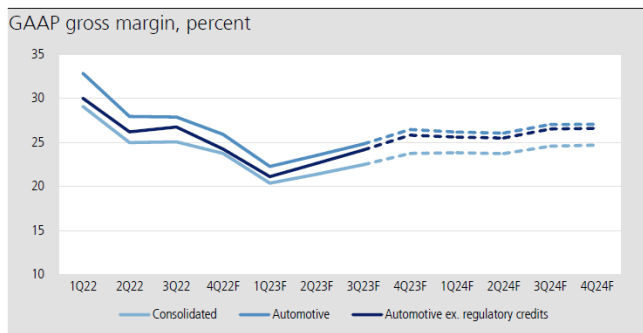
Source: Company data; KGI Research

**Figure 23: Non-GAAP EPS**



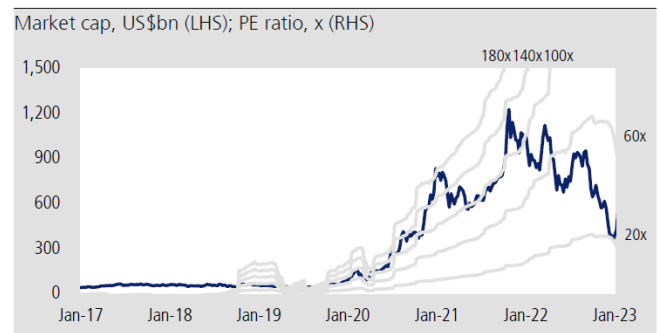
Source: Company data; KGI Research

**Figure 24: GAAP gross margin**



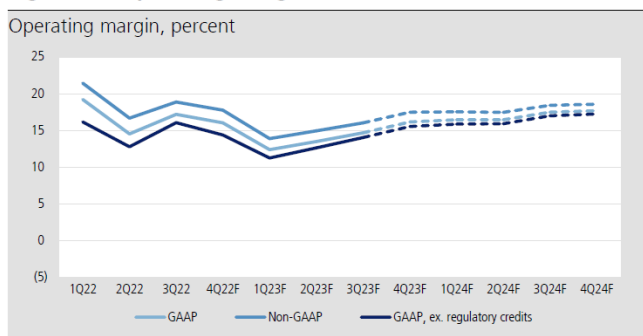
Source: Company data; KGI Research

**Figure 25: 12M forward PE band**



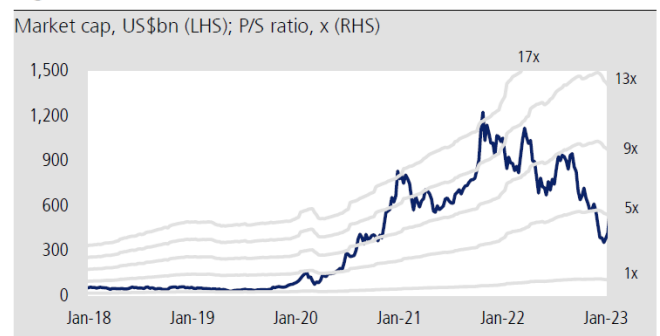
Source: Bloomberg; KGI Research

**Figure 26: Operating margin**



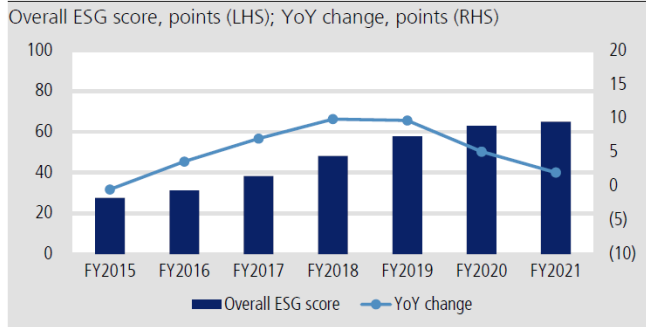
Source: Company data; KGI Research

**Figure 27: 12M forward P/S band**



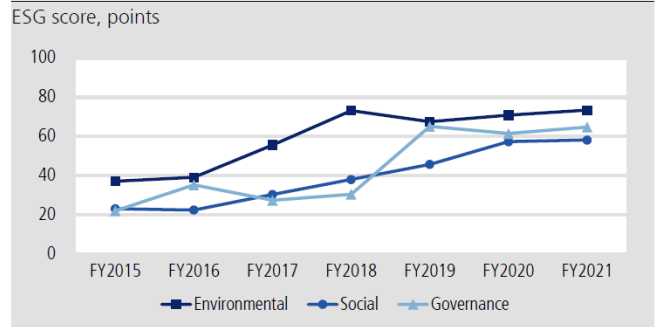
Source: Company data; KGI Research

**Figure 28: Overall ESG score**



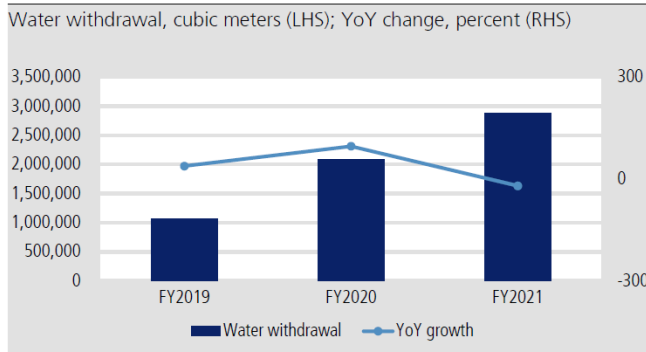
Source: Refinitiv; KGI Research; Company data

**Figure 29: ESG score by category**



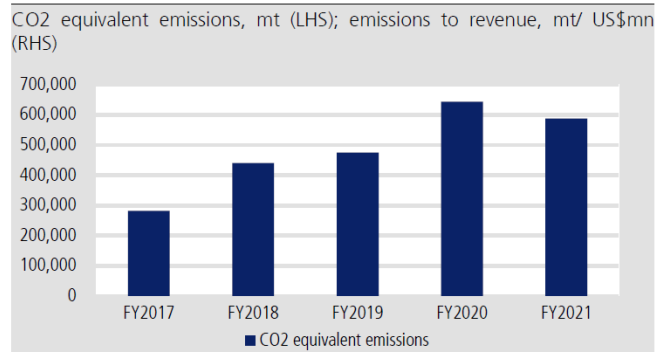
Source: Refinitiv; KGI Research; Company data

**Figure 30: Water withdrawal**



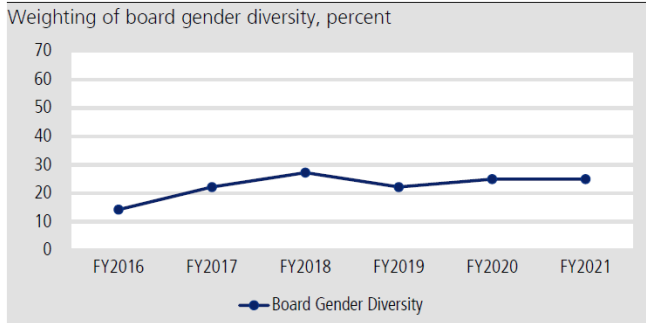
Source: Refinitiv; KGI Research; Company data

**Figure 31: CO2 equivalent emissions**



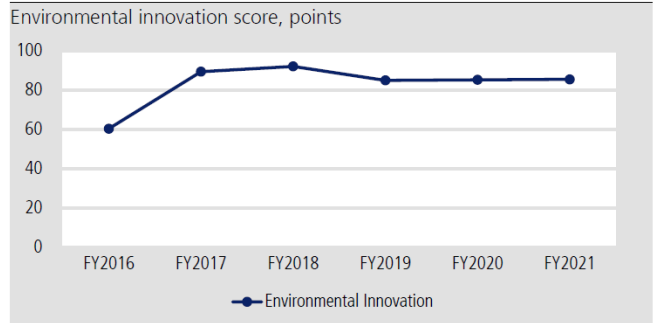
Source: Refinitiv; KGI Research; Company data

**Figure 32: Board gender diversity**



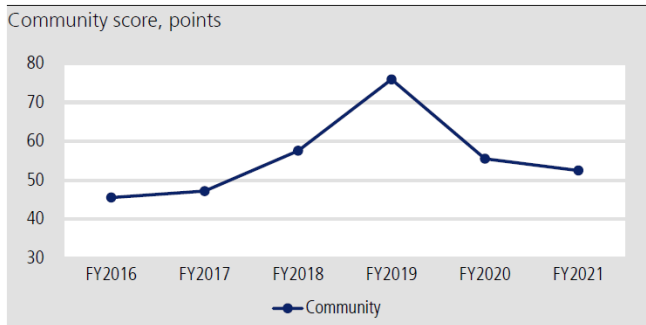
Source: Refinitiv; KGI Research; Company data

**Figure 33: Environmental innovation**



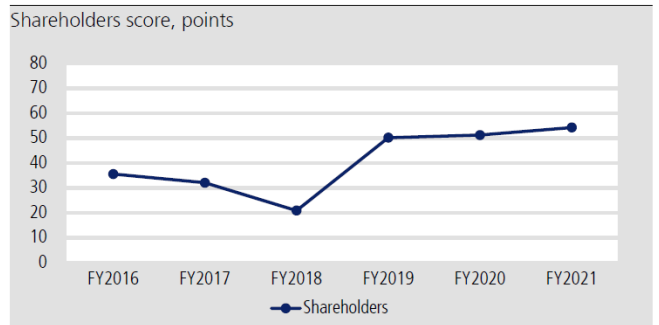
Source: Refinitiv; KGI Research; Company data

**Figure 34: Community**



Source: Refinitiv; KGI Research; Company data

**Figure 35: Shareholders**



Source: Refinitiv; KGI Research; Company data

Item	Definition
Energy use	Total direct and indirect energy consumption in gigajoules. - the total amount of energy that has been consumed within the boundaries of the company's operations - total energy use = total direct energy consumption + indirect energy consumption - purchased energy and produced energy are included in total energy use - for utilities, transmission/ grid loss as part of its business activities is considered as total energy consumed and data does not consider electricity produced to answer energy use (utility company produces to sell) - for utilities, raw materials such as coal, gas or nuclear used in the production of energy are not considered under 'total energy use'
Renewable energy purchased	Total primary renewable energy purchased in gigajoules. - energy consumed by the company from various sources and among the purchased energy, how much energy is renewable in nature (solar, wind, hydro, biomass, geothermal) are in scope - if there is no evidence that renewable energy is produced by the company, then we consider the reported energy figure as renewable energy purchased
Renewable energy use ratio	Renewable energy to total energy used
CO2 equivalent emissions	Direct CO2 and CO2 equivalent emissions in metric tons. - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3)
CO2 equivalent emissions to sales	Direct CO2 and CO2 equivalent emissions (metric tons) to sales (NT\$m) - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3)
Waste total	Total amount of waste produced in metric tons. - total waste = non-hazardous waste + hazardous waste - only solid waste is taken into consideration, exceptionally if liquid waste is reported in metric tons, then we do the summation to derive total including liquid waste - for sectors like mining, oil & gas, waste generation like tailings, waste rock, coal and fly ash are also considered
Waste recycling ratio	The waste recycling ratio as reported by the company. - waste recycling ratio = waste recycled/total waste * 100 - waste to energy or waste incinerated with energy recovery are considered as waste recycled - waste recovered via composting is considered as recycled waste
Water withdrawal total	Total water withdrawal in cubic meters. - the total volume of water withdrawn from any water source that was either withdrawn directly by the reporting organization or through intermediaries such as water utilities - different sources of water like wells, town/utility/municipal water, river water, and surface water are considered
Environmental expenditures	Total amount of environmental expenditures. - all environmental investment & expenditures for environmental protection or to prevent, reduce, control environmental aspects, impacts, and hazards. It also includes disposal, treatment, sanitation, and clean-up expenditures
Turnover of employees	Percentage of employee turnover. - includes employees who left the company for any reason (voluntary or involuntary), such as resignations, retirement, natural departure/death, medical incapacitation, redundancy, layoffs, restructuring, dismissal, retrenchment or end of a fixed-term contract - employees turnover rate = (employees leaving/average number of employees)* 100 - where the average number of employees = (employees at the end of the current year + employees at the end of the previous year)/2 - employees at the end of the current fiscal year = employees at the end of the previous fiscal year + new employees - employees leaving
Women managers	Percentage of women managers. - percentage of women managers among total managers of the company - if there is a breakdown by category in percentage, such as top, senior, middle, and junior management, then we consider the percentage of middle women managers - percentage of women managers = number of women managers/total number of managers* 100
Women employees	Percentage of women employees. - percentage of women employees to the total number of employees of the company - percentage of women employees = number of women/total number of employees* 100
Training hours total	Total training hours performed by all employees. - consider only employee training hours - includes all types of training given to general employees (such as health & safety, environmental, emergency response, skills & career development training) - if the value is given in days, multiply by 8, assuming that 1 day = 8 hours worked
Training hours per employee	Training hours per employee per year

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