

This is my valuation of TSLA based on the work of my students in Valuation Master Class Boot Camp #13 Graduates



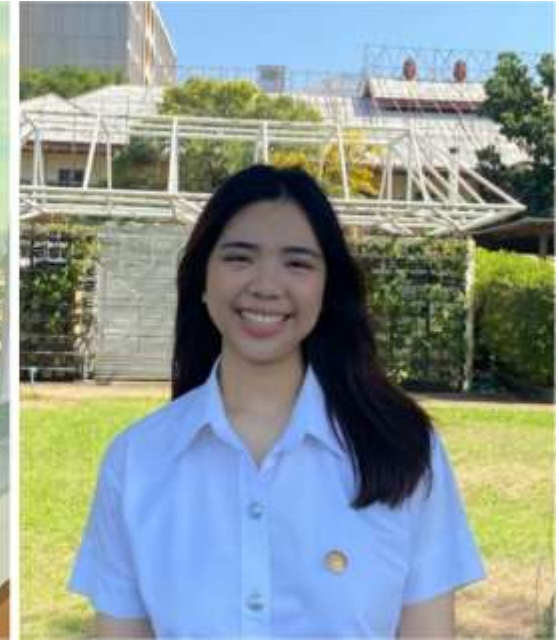
VALUATION MASTER CLASS



**Archie
Brooks**



**Pantila
Anantanasub**



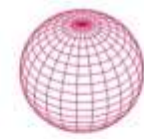
**Kirada
Aunwannatham**

REMEMBER

This is NOT investment advice
or a recommendation.



TSLA: The good old days could be gone for a while



Valuation Master Class Boot
Camp #13 graduates

**This is NOT investment advice
or a recommendation**

Our research shows that Tesla, Inc. is a SELL based on a target price of US\$139, implying a downside of 31%. We derive our target price from a DCF-based valuation using a WACC of 10.6% and a terminal growth rate of 5%

Highlights:

- The growing autonomous cars market is a revenue growth catalyst
- The new Redwood model could offset the Cybertruck’s potential setbacks
- The energy segment could transform into a major revenue source

Risks: Delays in launching and ramping up production, Supply shortages could harm Tesla’s production, High reliance on suppliers for lithium-ion battery cells, Full self-driving may get banned by law

Valuation table

Year end Dec	22A	23A	24E	25E	26E
PE (x)	53.8	47.0	60.5	40.1	34.1
Recurring net profit growth (%)	133.1	14.8	(21.8)	51.8	18.6
Recurring EPS (US\$)	3.7	4.3	3.3	5.0	5.9
Recurring EPS growth (%)	127.2	14.5	(22.3)	50.8	17.8
PBV (x)	14.2	10.2	8.5	6.9	5.6
BVPS (US\$)	14.1	19.7	23.5	29.0	35.5
ROE (%)	33.6	27.9	16.8	20.8	20.0
DPS (US\$)	-	-	-	-	-
Dividend yield (%)	na	na	na	na	na
Enterprise value (US\$ m)	682,349	677,571	672,495	661,768	647,119
EV-to-EBITDA (x)	49.3	50.0	39.9	27.5	22.9

Tesla, Inc.

Recommendation: SELL

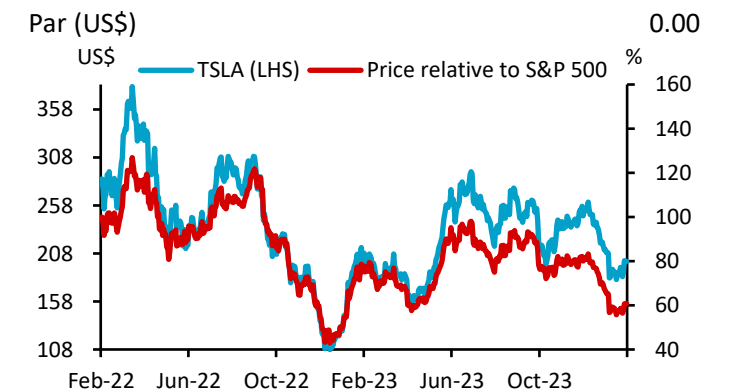
Current price: US\$199.95

Target price: US\$139

Up/(downside): (31%)

Stock data

RIC code	TSLA.O
Index	.INX
S&P 500 (19 February 2024)	5,005.57
Market cap (US\$ m)	701,435
Shares outstanding (million)	3,508





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The growing autonomous cars market is a revenue growth catalyst

The global autonomous car market is expected to experience significant growth, with projections indicating a rise from US\$1.6bn in 2022 to US\$20bn by 2029, according to Fortune Business Insights. Tesla, a prominent player in this market, offers its autonomous driving system called Tesla Autopilot. In 2023, Tesla's Model 3 and Model Y, both offering Autopilot capabilities, accounted for 96% of the company's automotive sales and were the top-selling electric vehicles worldwide. With this strong market presence as the first mover and the projected growth of the global autonomous car market, we expect Tesla to achieve high double-digit revenue growth in the next 5 years.

The new Redwood model could offset the Cybertruck's potential setbacks

Tesla plans to launch a new car model called Redwood in the second half of 2025. Priced at around US\$25K, it is expected to be highly sought-after due to its affordability. However, the production of Redwood may require Tesla to reallocate resources, potentially impacting the production of their leading models, Model 3 and Model Y. Still, we think they will be able to handle that. Tesla has not disclosed Cybertruck deliveries or commented on production volumes, suggesting that the Cybertruck may not have performed as expected. Hence, we anticipate that the Redwood model could generate positive results from 2025 onwards, offsetting potential bad results from the costly Cybertruck.

The energy segment could transform into a major revenue source

According to Precedence Research, the global energy storage market is projected to reach around US\$170bn by 2032 (a CAGR of 14%). Tesla's energy generation and storage (EGS) business contributed 6% to the company's revenue in 2023. The EGS revenue grew by 54% YoY, driven by the deployment of the Megapack energy storage product, which reached 14.7 GWh, a 125% YoY rise. Megapack is a large-scale, lithium-based battery energy storage designed by Tesla to boost the stability of power grids and avoid outages. Each unit boasts a storage capacity of over 3 MWh, enough to power 3,600 homes for an hour. Also, McKinsey projected world li-on battery demand to grow by 27% yearly to reach 4,700 GWh by 2030 from 700 GWh in 2022, driven by China, US., and Europe. So, we see this segment as a great growth opportunity for Tesla in the upcoming years.

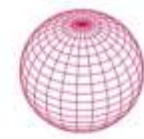


Background: Tesla, Inc. is an American electric vehicle (EV) and clean energy company founded in 2003. Specializes in EVs, battery products, and clean energy technologies. It operates in 2 main segments: Automotive and Energy, with the former currently the main revenue source.

The company manufactures and sells a range of vehicles, including the Model Y, Model 3, Model X, etc. Model 3 and Y are the best-selling cars, with around 96% of 2023 revenues.

Tesla holds around 19% share of the global BEVs market as of 2023, selling around 1.8m cars. The carmaker serves many countries, but mainly the US and China.

The automotive industry is shifting to the technology era



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China is a promising market for EVs

The automotive industry is shifting from hardware to software, emphasizing enhancing software functionalities and services. By 2025, consumer spending on EVs is expected to reach US\$627bn, increasing by 17% compared to 2023. This dynamic has allowed new entrants in Europe and abroad—especially in China. Indeed, in 1Q23, China was by far the largest EV market with 55% of global EV sales, a total of 3.4m units. Moreover, thanks to China’s comprehensive supply chain advantages, low costs in logistics and labor, and beneficial policies promoting low-carbon vehicles, China is a competitive and crucial market for automotive manufacturers.

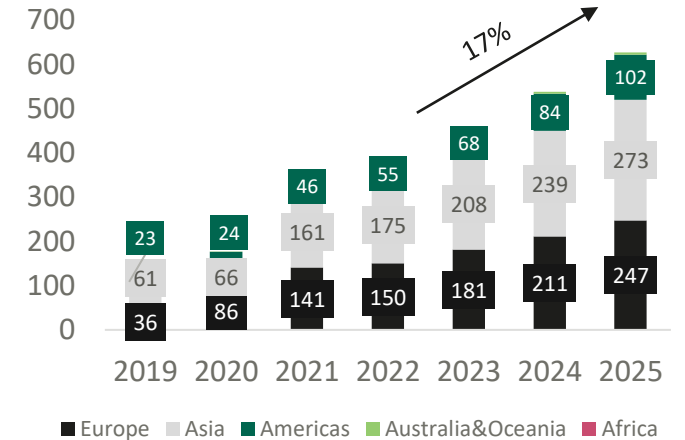
Technological and infrastructure enhancement benefits production efficiency

The EV market is expanding due to technological advancements, government policy, and infrastructure support. According to the McKinsey Global Institute, the progress in robotics and AI technologies could potentially replace 30% to 60% of tasks in various occupations. This technological advancement helps to enhance manufacturing and supply chain efficiency. Additionally, the industry also benefits from infrastructure support. According to Grandview Research, the EV charging infrastructure market could reach US\$121bn by 2030, growing at a 25% CAGR. These factors should foster the growth of EV production and sales.

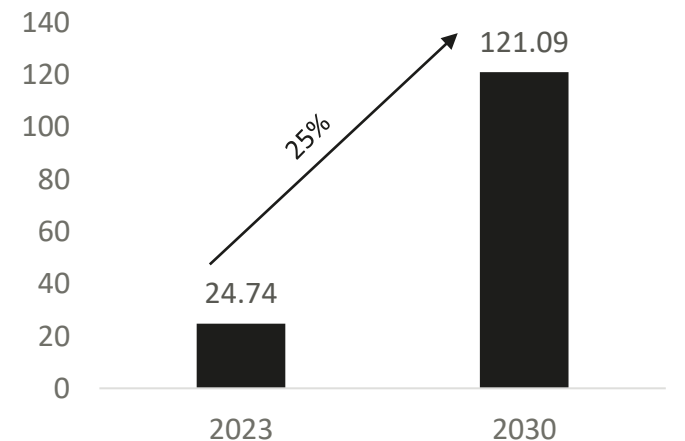
Batteries are the new industry control points when EVs become the norm

More than a third of the value of a BEV is associated with the battery. China was the largest supplier of materials for the lithium-ion batteries used in Tesla’s EVs, based on Nikkei’s supply chain analysis. This means that increased geopolitical tensions between the US and China could eventually make it difficult for Tesla to buy batteries. Therefore, to mitigate the impact of geopolitical tensions, especially in Europe, automotive manufacturers need to diversify their inputs and production or put factories in areas where they sell products to customers to avoid supply chain disruption.

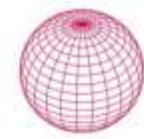
Consumer spending on EVs is rising



EVs Charging infrastructure to quintuple



TSLA: FY4Q23 saw a big drop in EBIT margin



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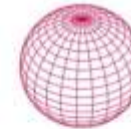
(US\$ m)	4Q22	1Q23	2Q23	3Q23	4Q23	YoY (%)
Revenue	24,318	23,329	24,927	23,350	25,167	3.5
Cost of sales	(18,541)	(18,818)	(20,394)	(19,172)	(20,729)	11.8
Gross profit	5,777	4,511	4,533	4,178	4,438	(23.2)
SG&A	(1,842)	(1,847)	(2,134)	(2,414)	(2,374)	28.9
Other (exp)/inc	-	-	-	-	-	nm
EBIT	3,935	2,664	2,399	1,764	2,064	(47.5)
Finance cost	(33)	(29)	(28)	(38)	(61)	84.8
Other inc/(exp)	115	165	566	319	188	63.5
Earnings before taxes	4,017	2,800	2,937	2,045	2,191	(45.5)
Income tax	(276)	(261)	(323)	(167)	5,752	(2,184.1)
Earnings after taxes	3,741	2,539	2,614	1,878	7,943	112.3
Equity income	-	-	-	-	-	nm
Minority interest	15	(21)	89	(27)	(16)	nm
Earnings from cont. operations	3,756	2,518	2,703	1,851	7,927	111.0
Forex gain/(loss) & unusual items	(34)	-	-	-	-	nm
Net profit	3,722	2,518	2,703	1,851	7,927	113.0
Recurring profit	3,754	2,518	2,703	1,851	7,927	111.2
EBITDA	3,935	3,710	3,553	2,999	3,296	(16.2)
Recurring EPS (US\$)	1.079	0.726	0.777	0.530	2.267	110.0
Reported EPS (US\$)	1.178	0.795	0.852	0.583	2.490	111.4
Profits (%)	4Q22	1Q23	2Q23	3Q23	4Q23	Diff (%)
Gross margin	23.8	19.3	18.2	17.9	17.6	(6.1)
Operating margin	16.2	11.4	9.6	7.6	8.2	(8.0)
Net margin	15.3	10.8	10.8	7.9	31.5	16.2

In 4Q23, Tesla experienced a slight revenue increase by 3.5% YoY.

The company saw a 23% YoY decrease in gross margin and a higher YoY decrease in EBIT margin of 48%.

TSLA reported 4Q23 recurring EPS of US\$2.27, which was +110% YoY and +328% QoQ.

TSLA: Consensus estimates



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Analyst recommendations	Nov-23	Dec-23	Jan-24	Current
# of recommendations	47	44	44	47
1. Strong Buy	5	5	5	5
2. Buy	13	12	12	12
3. Hold	21	19	19	21
4. Sell	4	4	4	5
5. Strong Sell	4	4	4	4
Consensus recommendation	2.8	2.8	2.8	2.8

Price target rel. to current price US\$	Current price	Target price	up/(dn) %
Mean	199.95	207.75	3.9

Consensus forecast (%)	23	24E	25E	26E
Revenue growth	18.8	13.8	20.6	16.3
Gross margin	18.2	18.6	20.2	21.4
EBIT margin	11.1	10.1	12.4	13.8
Net margin	11.2	9.7	11.1	11.7

Over 44% of analysts hold a neutral view on Tesla, and 17 analysts have issued Buy recommendations.

The mean target price indicates a potential 3.9% upside.

Consensus also predicts a decrease in revenue growth from almost 19% in 2023 to about 14% in 2024.

Analysts expect a slight increase in gross profit margin from 18% in 2023 to 21.4% in 2026.

There is also an expected drop in net margin in 2024, followed by slight increases in 2025 and 2026.

TESLA: Revenue structure



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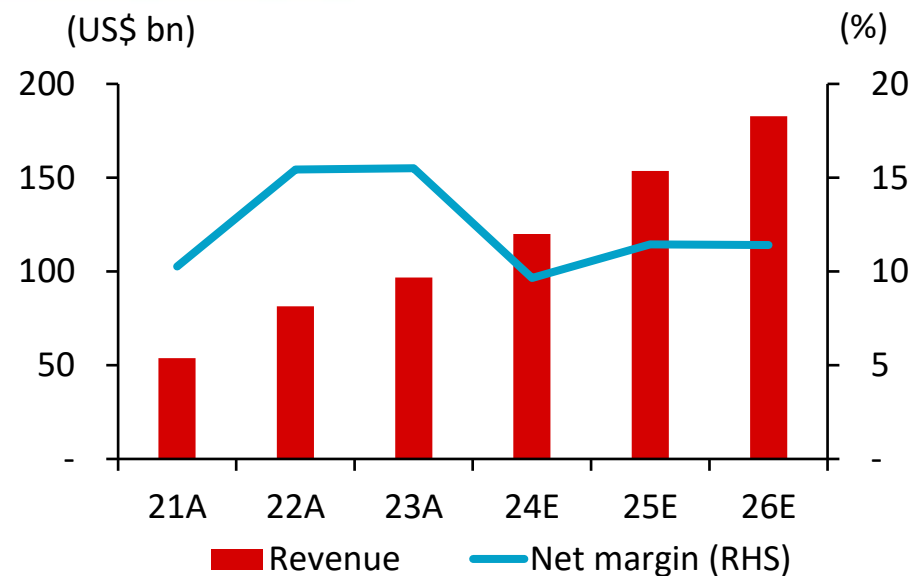
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In 2023, Tesla reported a revenue of almost US\$97bn, with the automotive segment contributing 94% of sales. Tesla offers four primary EV models, namely Model 3, Y, X, and S, targeting different customer segments. The energy segment accounted for 6% of revenue, driven by products such as Powerwall, Megapack, and solar energy solutions.

Tesla's revenue is derived from various geographic regions, with the US, China, and other countries representing 47%, 22%, and 31% of total revenues in 2023, respectively. The company sold 1.8m cars that year, with production facilities located in the US, China, and Germany. Model 3 and Model Y were the best-selling models, contributing approximately 96% of the total revenues.

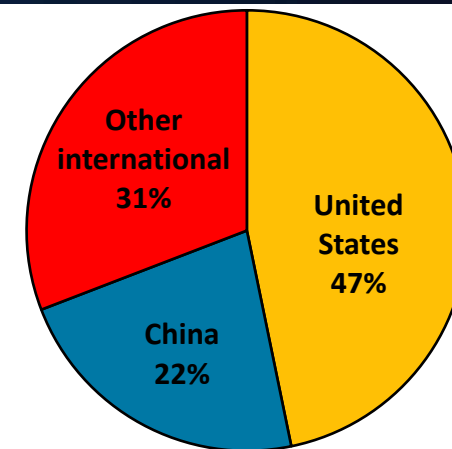


Revenue breakdown, by segments and geographic regions 2023

Automotive 94%



Energy generation and storage 6%



TSLA: A. Stotz Four Elements



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(%)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Operating profit margin	0.6	5.7	12.1	17.2	10.3
Recurring net margin	(2.5)	2.5	10.4	15.9	11.3
Asset turnover	76.7	73.0	94.2	112.8	113.9
Return on assets	(1.9)	1.8	9.8	17.9	12.9
Recurring return on equity	(10.5)	5.4	21.3	34.5	22.8



(x)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Price-to-sales	11.3	68.8	67.8	8.8	8.6
Price-to-earnings	nm	2,799.6	654.1	55.8	76.5
Price-to-book	43.0	86.6	110.6	14.7	13.9
PE-to-EPS growth (PEG)	nm	nm	1.1	0.4	nm
EV/EBIT	2,124.5	1,058.8	510.7	45.7	74.2



(%)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Revenue growth	14.5	28.3	70.7	51.4	28.1
Recurring EPS growth	73.2	204.6	590.5	125.7	(5.7)
Operating profit margin chg. (bps)	135	518	637	504	(628)
	6mth	3mth	1mth	3wk	1wk
Price change	45.2	(16.9)	39.7	13.3	(1.7)



(x)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Current ratio	1.1	1.9	1.4	1.5	1.7
Net debt-to-equity (%)	130.6	(27.9)	(31.4)	(40.0)	(38.1)
Times-interest-earned	0.2	2.3	15.4	83.7	77.1
	5yr	3yr	1yr	6mth	3mth
Beta	1.9	2.0	2.8	2.8	2.1

Overall: Tesla looks neutral compared to its peers regarding fundamentals, valuation, momentum, and risk.

Fundamentals: Tesla stands out among the top 20% of 1,900 non-financial companies to have strong fundamental ratios; its asset turnover has recently increased.

Valuation: Ranked in the bottom 30%. Its PE and PB ratios are higher than those in the benchmark.

Momentum: Ranked in the top 30%, both price and fundamental momentum delivered good results.

Risk: The BS risk is high even with the negative net debt-to-equity ratio. The price risk in terms of Beta is what is driving up risk.

Note: Benchmarking against 1,900 non-financial companies in USA.

TSLA: A. Stotz Profitable Growth

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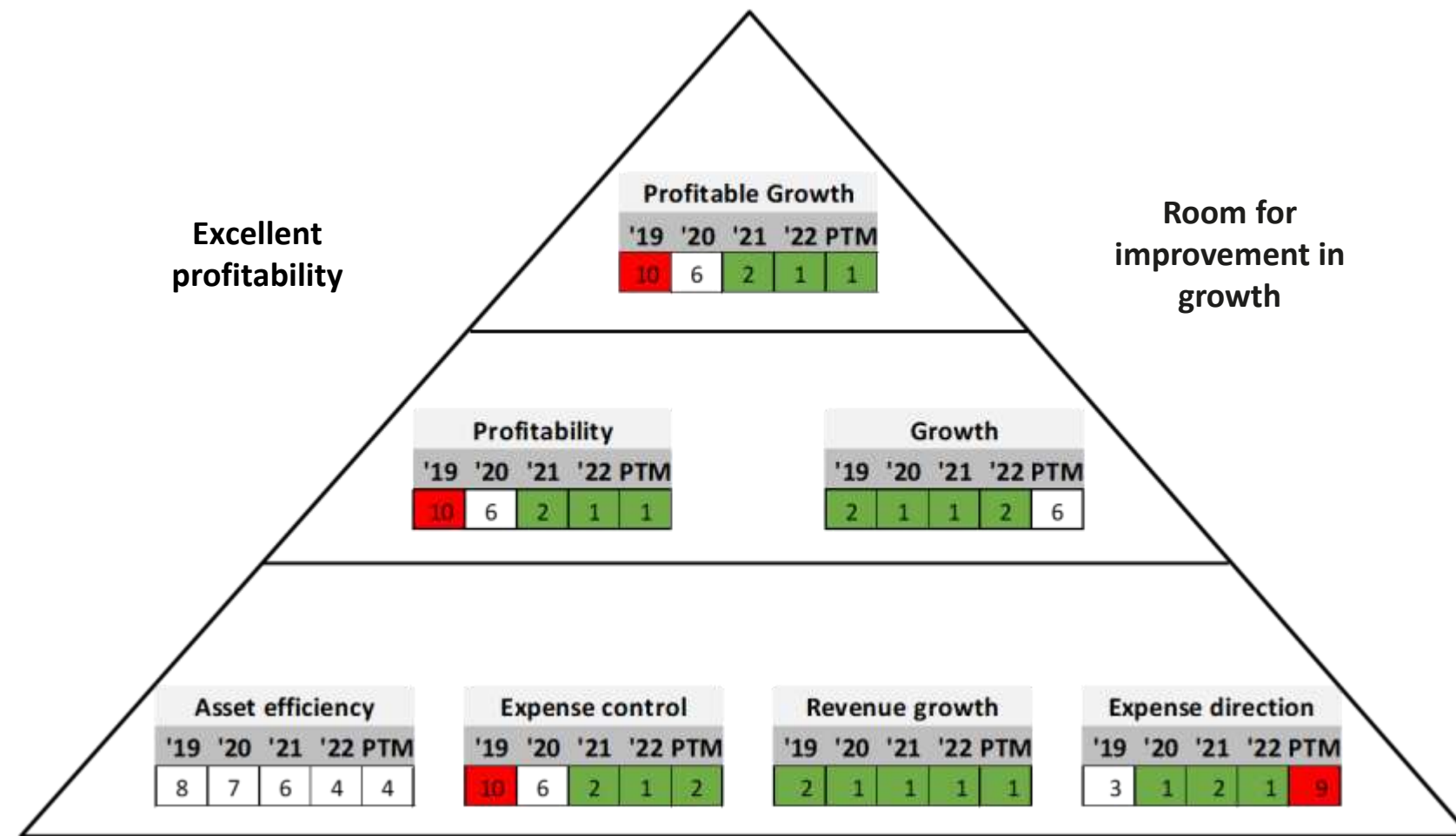
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Benchmarked against 960 large Cons. Disc. companies worldwide.

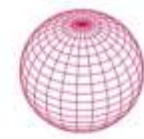
Profitable growth improved from #10 in 2019 to #2 in 2021, which places Tesla among the top 10% of 960 large Cons. Disc. Companies. A similar pattern can be observed in Profitability

Tesla has maintained strong growth and was ranked #1 and #2 in the last 4 years; however, in the PTM, Tesla's growth has slowed, resulting in a drop to #6.

Asset efficiency has improved from #8 to #4 in the PTM. Additionally, Tesla's expense control has improved from #10 in 2019 to #2 in the PTM and became the main driver of the profitability ranking.

Sales growth maintained a world-class ranking since 2019. Conversely, Tesla has experienced a dramatic fall in the expense direction, ranking from #1 to #9, which has caused its expense control to fall from 1 to 2.

TSLA: Profit and loss statement



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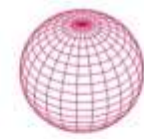
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(YE Dec, US\$ m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Revenue	53,823	81,462	96,773	119,999	153,598	182,782	213,855	245,933
Cost of goods & services	(40,217)	(60,609)	(79,113)	(95,999)	(121,343)	(144,398)	(168,945)	(189,368)
Gross profit	13,606	20,853	17,660	24,000	32,256	38,384	44,909	56,565
SG&A	(7,110)	(7,021)	(8,769)	(12,000)	(13,824)	(16,450)	(19,247)	(20,904)
Other operating (exp)/inc	-	-	-	-	-	-	-	-
EBIT	6,496	13,832	8,891	12,000	18,432	21,934	25,663	35,660
Interest expense (net)	(315)	130	910	655	796	1,129	1,562	2,088
Other non-operating inc/(exp)	166	110	50	55	61	67	73	81
Earnings before taxes (EBT)	6,347	14,072	9,851	12,710	19,288	23,129	27,298	37,829
Income tax	(699)	(1,132)	5,001	(1,144)	(1,736)	(2,313)	(2,866)	(4,161)
Earnings after taxes (EAT)	5,648	12,940	14,852	11,566	17,552	20,816	24,432	33,667
Equity income/Minority interest	(120)	(4)	25	23	35	42	49	67
Earnings from cont. operations	5,528	12,936	14,877	11,589	17,587	20,858	24,481	33,735
Forex/Exceptionals before tax	(4)	(353)	122	-	-	-	-	-
Net profit	5,524	12,583	14,999	11,589	17,587	20,858	24,481	33,735
Earnings per share adj.								
Net profit	5,524	12,583	14,999	11,589	17,587	20,858	24,481	33,735
Less: Pref. share dividend & other adj.	9	1	-	-	-	-	-	-
Profit attributable to common shares	5,533	12,584	14,999	11,589	17,587	20,858	24,481	33,735
Add: Exceptional items after tax	90	242	-	-	-	-	-	-
Add: Forex loss/(gain) after tax	(86)	82	(183)	-	-	-	-	-
Recurring profit after tax	5,537	12,908	14,816	11,589	17,587	20,858	24,481	33,735
Recurring FDEPS (US\$)	1.6	3.7	4.3	3.3	5.0	5.9	6.8	9.4

TSLA: Balance sheet - Assets



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(YE Dec, US\$ m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Cash & short-term investments	17,707	22,185	29,094	33,386	43,446	57,529	74,223	100,448
Accounts receivable	1,913	2,952	3,697	4,333	5,547	6,600	7,723	8,881
Inventories	5,757	12,839	13,626	14,666	16,853	20,055	23,465	26,301
Other current assets	1,723	2,941	3,199	3,960	5,069	6,032	7,057	8,116
Total current assets	27,100	40,917	49,616	56,346	70,914	90,216	112,467	143,746
Long-term investments	-	-	-	-	-	-	-	-
Net fixed assets	31,176	36,635	45,123	53,224	61,938	69,458	77,697	86,790
Intangible assets	1,517	399	362	397	418	452	496	554
Goodwill	200	194	253	261	268	276	285	293
Other long-term assets	2,138	4,193	11,264	12,390	13,629	14,992	16,492	18,141
Total assets	62,131	82,338	106,618	122,618	147,167	175,394	207,437	249,523

TSLA: Balance sheet - Liabilities and equity



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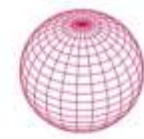
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(YE Dec, US\$ m)	Actual			Forecast				
	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Overdrafts & short-term loans	1,589	1,502	2,373	1,334	1,134	964	819	696
Accounts payable	13,944	20,323	20,242	21,333	23,594	26,072	28,158	30,509
Other current liabilities	4,172	4,884	6,133	7,200	9,216	10,967	12,831	14,756
Total current liabilities	19,705	26,709	28,748	29,867	33,944	38,002	41,808	45,961
Long-term debt	5,245	1,597	2,857	3,112	2,645	2,248	1,911	1,624
Other long-term liabilities	6,166	8,543	11,646	13,742	16,216	19,135	22,579	26,643
Total liabilities	31,116	36,849	43,251	46,721	52,805	59,385	66,298	74,229
Minority interest	826	785	733	710	675	633	584	517
Paid-up capital - Common shares	29,804	32,180	34,895	35,945	36,995	38,045	39,095	40,145
Paid-up capital - Preferred shares	-	-	-	-	-	-	-	-
Retained earnings	331	12,885	27,882	39,471	57,059	77,916	102,397	136,132
Revaluation/Forex/Others	54	(361)	(143)	(229)	(366)	(586)	(937)	(1,499)
Total equity	30,189	44,704	62,634	75,187	93,688	115,376	140,555	174,777
Total liab & shareholders' equity	62,131	82,338	106,618	122,618	147,167	175,394	207,437	249,523
Book value per share adj.								
Total Equity	30,189	44,704	62,634	75,187	93,688	115,376	140,555	174,777
Less: Pref. shareholders' equity	-	-	-	-	-	-	-	-
Less: Hybrid debt & others	(0)	-	-	-	-	-	-	-
Common shareholders' equity	30,189	44,704	62,634	75,187	93,688	115,376	140,555	174,777
BVPS (US\$)	9.7	14.1	20	23	29	35.5	43.0	53.1

TSLA: Balance sheet - Cash flow statement



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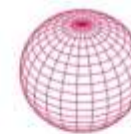
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Risks

	Actual			Forecast				
(YE Dec, US\$ m)	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E
Net income	5,524	12,583	14,999	11,589	17,587	20,858	24,481	33,735
Depreciation & amortization	-	-	4,667	4,869	5,594	6,334	7,090	7,936
Calculated chg in net working capital	3,940	(2,248)	(622)	(280)	(231)	(991)	(1,607)	(777)
Other non-cash & balancing items	2,033	4,389	(5,788)	(4,633)	(4,802)	(5,183)	(5,753)	(630)
Operating cash flow	11,497	14,724	13,256	11,546	18,149	21,018	24,211	40,264
Capital expenditures	(7,742)	(6,236)	(8,899)	(8,489)	(9,707)	(8,974)	(10,030)	(11,212)
(Inc)/dec in other investments	(126)	(5,737)	(6,685)	(1,126)	(1,239)	(1,363)	(1,499)	(1,649)
Investing cash flow	(7,868)	(11,973)	(15,584)	(9,615)	(10,946)	(10,337)	(11,529)	(12,861)
Increase/(dec) in debt	(5,732)	(3,866)	2,116	(785)	(667)	(567)	(482)	(410)
Dividend paid	-	-	-	-	-	-	-	-
Change in equity	707	541	700	1,050	1,050	1,050	1,050	1,050
Others	(178)	(202)	(227)	2,096	2,474	2,919	3,444	4,064
Financing cash flow	(5,203)	(3,527)	2,589	2,362	2,857	3,402	4,012	4,705
Net inc/(dec) in cash & cash equi	(1,574)	(776)	261	4,292	10,059	14,083	16,695	32,107
Beginning cash	19,384	17,707	22,185	29,094	33,386	43,446	57,529	74,223
Adjustment for historic data	(103)	5,254	6,648	-	-	-	-	(5,882)
Ending cash	17,707	22,185	29,094	33,386	43,446	57,529	74,223	100,448



Story

Sales

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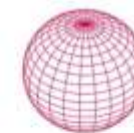
ESG

Value

Risks

	Actual			Forecast			Recent quarters		
(YE Dec)	2021A	2022A	2023A	2024E	2025E	2026E	Jun '23	Sep '23	Dec '23
Internal liquidity (x)									
Current ratio	1.4	1.5	1.7	1.9	2.1	2.4	1.6	1.7	1.7
Quick, or acid test ratio	1.1	1.1	1.3	1.4	1.6	1.8	1.1	1.2	1.3
Working cap. mgmt (Days)									
Inventory conversion period	44	55	60	53	47	46	63	66	59
Receivables collection period	13	11	12	12	12	12	12	12	11
Days from raw mat to coll	57	66	73	65	58	58	76	78	71
Payables deferral period	100	102	92	78	67	62	92	94	86
Cash conversion cycle	(44)	(36)	(20)	(13)	(8)	(4)	(16)	(16)	(15)
Profitability ratios (%)									
Gross profit margin	25.3	25.6	18.2	20.0	21.0	21.0	18.2	17.9	17.6
EBIT margin	12.1	17.0	9.2	10.0	12.0	12.0	9.6	7.6	8.2
EBIT return on avg assets	11.4	19.1	9.4	10.5	13.7	13.6	10.8	7.6	8.2
Return on average assets	9.7	17.4	15.9	10.1	13.0	12.9	12.2	8.0	31.6
Financial risk (x)									
Liabilities-to-assets (%)	50.1	44.8	40.6	38.1	35.9	33.9	42.7	42.3	40.6
Debt-to-equity	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1
Net debt-to-equity	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)	(0.4)	(0.4)	(0.4)
Times-interest-earned	na	na	87	77	117	162	127	79	54
Effective interest rate (%)	4.0	3.4	3.7	4.5	5.0	5.0	4.5	4.5	5.1

TSLA: Ratios (continued)



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	Actual			Forecast			Recent quarters		
(YE Dec)	2021A	2022A	2023A	2024E	2025E	2026E	Jun '23	Sep '23	Dec '23
General growth (YoY, %)									
Revenue	70.7	51.4	18.8	24.0	28.0	19.0	47.2	8.8	3.5
Assets	19.1	32.5	29.5	15.0	20.0	19.2	32.2	26.2	29.5
Gross profit	105.2	53.3	(15.3)	35.9	34.4	19.0	7.1	(22.4)	(23.2)
Operating profit	225.8	112.9	(35.7)	35.0	53.6	19.0	(7.9)	(52.2)	(47.5)
Attributable profit	700.6	127.8	19.2	(22.7)	51.8	18.6	19.8	(43.8)	113.0
EPS	649.2	117.5	17.6	(23.2)	50.8	17.8	17.7	(44.4)	111.6
Recurring EPS	585.2	127.2	14.5	(22.3)	50.8	17.8	10.1	(44.4)	110.0
Du Pont analysis (%)									
Net profit margin	10.3	15.4	15.5	9.7	11.5	11.4	10.8	7.9	31.5
Revenue per US\$100 of assets	94.2	112.8	102.4	104.7	113.9	113.3	112.4	101.2	100.4
Assets/equity (x)	2.2	1.9	1.8	1.7	1.6	1.5	1.8	1.8	1.7
Return on equity	21.1	33.6	27.9	16.8	20.8	20.0	21.8	14.2	54.6
Others (%)									
Effective tax rate	11.0	8.3	-	9.0	9.0	10.0	11.0	8.2	-
Dividend payout ratio	-	-	-	-	-	-	-	-	-

TSLA: Free cash flow data



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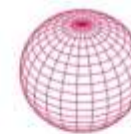
	Actual			Forecast					Fade period*	
(YE Dec, US\$ m)	2021A	2022A	2023A	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	6,496	13,832	8,891	12,000	18,432	21,934	25,663	35,660	43,481	47,400
<i>Est tax rate (%)</i>	11	8	-	9	9	10	11	11	20	20
NOPAT	5,780	12,691	8,891	10,920	16,773	19,740	22,968	31,738	34,785	37,920
Add: Depre & amort	-	-	4,667	4,869	5,594	6,334	7,090	7,936	8,747	9,590
Cash NOPAT	5,780	12,691	13,558	15,789	22,367	26,074	30,058	39,673	43,531	47,509
Chg in A/R	(27)	(1,039)	(745)	(636)	(1,213)	(1,054)	(1,122)	(1,158)		
Chg in inventory	(1,656)	(7,082)	(787)	(1,040)	(2,187)	(3,202)	(3,409)	(2,837)		
Chg in oth curr asst	(377)	(1,218)	(258)	(761)	(1,109)	(963)	(1,025)	(1,059)		
Chg in A/P	5,442	6,379	(81)	1,091	2,261	2,477	2,086	2,352		
Chg in oth curr liabs	558	712	1,249	1,067	2,016	1,751	1,864	1,925		
Less: Chg in work cap	3,940	(2,248)	(622)	(280)	(231)	(991)	(1,607)	(777)		
Less: CAPEX	(7,742)	(6,236)	(8,899)	(8,489)	(9,707)	(8,974)	(10,030)	(11,212)		
Less: Chg in invest cap									(13,214)	(14,488)
FCF to firm	1,978	4,207	4,037	7,021	12,429	16,110	18,421	27,684	30,317	33,021
FCF to equity	(4,084)	187	5,997	6,038	11,575	15,386	17,793	27,151	30,442	33,145
<i>FCF per share (US\$)</i>	0.6	1.2	1.2	2.0	3.5	4.5	5.1	7.7	8.6	9.4
<i>NOPAT growth (%)</i>	288.1	119.6	(29.9)	22.8	53.6	17.7	16.4	38.2	9.6	9.0
<i>FCF growth (%)</i>	(14.2)	112.7	(4.0)	73.9	77.0	29.6	14.3	50.3	9.5	8.9

Sources: A. Stotz Investment Research, company data, Refinitiv.

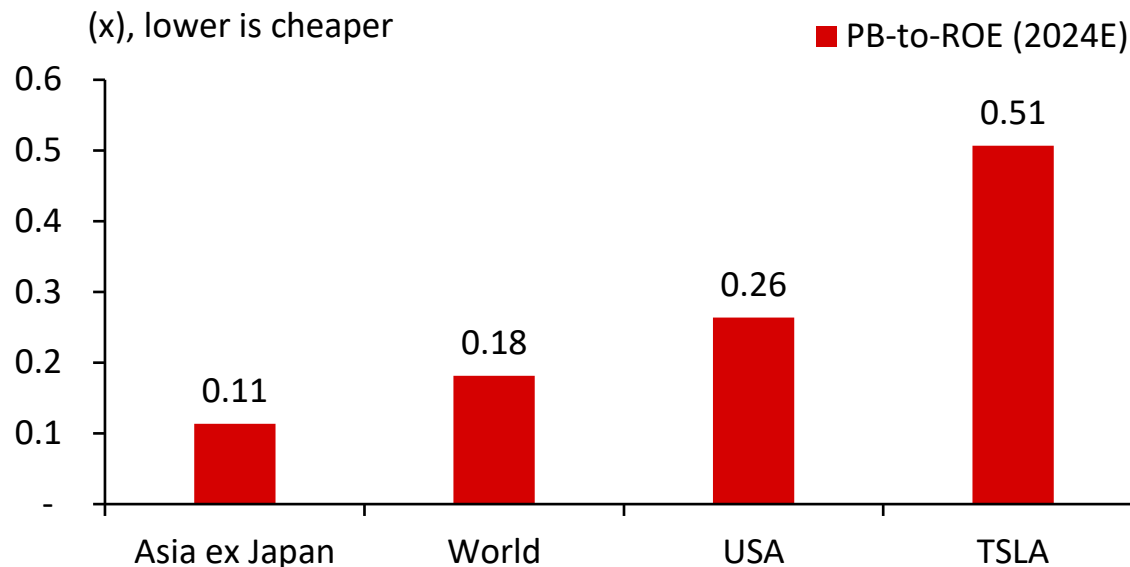
Note: *Shows the two first years of the fade period.

This is not investment advice and it's not a recommendation.

TSLA: Relative valuation



- Story
- Sales
- FVMR
- P5F
- Team
- WCB
- ESG
- Value**
- Risks

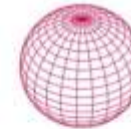


PB ratio (x)	2022A	2023A	2024E	2025E
TSLA	14.4	10.2	8.5	6.9
USA	10.5	8.8	7.3	6.1
Asia ex Japan	1.9	1.7	1.5	1.3
World	3.6	3.4	3.0	2.7
ROE (%)	2022A	2023A	2024E	2025E
TSLA	33.6	27.9	16.8	20.8
USA	24.2	29.6	27.7	7.6
Asia ex Japan	8.8	12.8	13.3	13.9
World	13.4	16.9	16.6	16.9

On the forward 2024E PB multiple, Tesla looks expensive compared to the Consumer Discretionary sector in the US. The disparity between Tesla, Asia, and the global market further highlights the same with a bigger gap.

We forecast its return on equity (ROE) to be around 17% in 2024E, higher than the sector average in Asia and almost in line with the global average but still lower than the US. Sector average. This results in Tesla trading at a significant premium based on the 2024E PB-to-ROE multiple.

TSLA: Relative valuation



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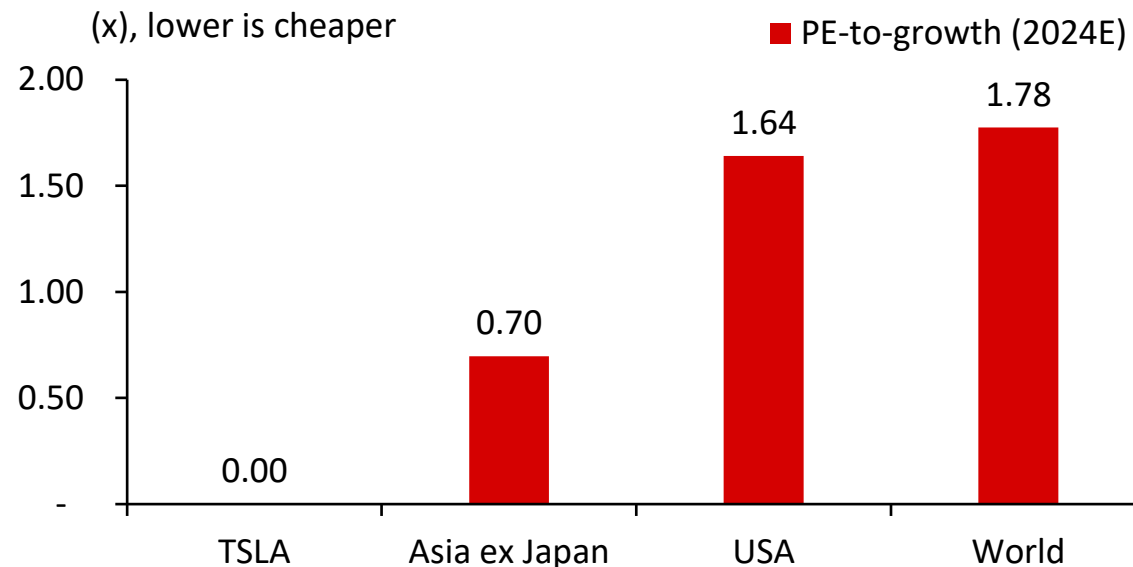
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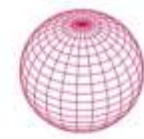


PE ratio (x)	2022A	2023A	2024E	2025E
TSLA	54.6	47.0	60.5	40.1
USA	43.3	29.9	26.4	22.3
Asia ex Japan	21.7	13.3	11.5	9.6
World	27.1	20.0	18.1	15.8
EPS growth (%)				
TSLA	127.2	14.5	(22.3)	50.8
USA	16.5	na	16.1	3.6
Asia ex Japan	18.9	62.6	16.4	19.4
World	0.6	35.7	10.2	14.7

On the forward 2024E PE multiple, Tesla trades at a significant premium to the Cons. Disc. sector in the US., Asia ex Japan, and the world. Thus, Tesla looks expensive on a PE basis.

We expect its EPS growth to be negative in 2024E due to the drop in net margin as the net margin grew in 2023 due to a one-time non-cash tax benefit of almost US\$6bn which we don't expect to happen again, that's why using the 2024E PEG ratio to value Tesla is not meaningful.

TSLA: Valuation and target price



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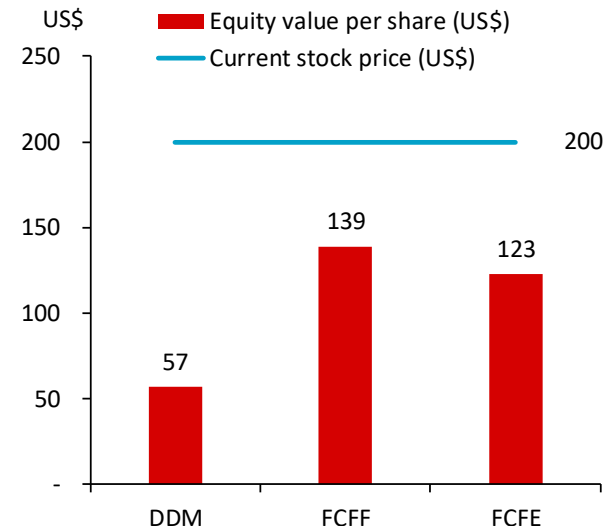
Calculation of cost of equity (COE, %) Estimate

Market: United States of America	
Market risk-free rate	4.0
Market equity risk premium	6.0
Market return	10.0
Company beta (x)	1.3
COE	11.5

Calculation of WACC Average

Cost of debt	5.7
Average tax rate	16.6
After tax cost of debt	4.7
Cost of preferred stock	-
Debt as a % of total capital	13.4
Preferred stock as a % of total capital	-
Equity market value as a % of total capital	86.6
Weighted average cost of capital	10.6

TSLA: Valuation (US\$ m)	DDM	%	FCFF	%	FCFE	%
PV of cash flow in years 2024-28	-	-	55,936	11	53,091	12
PV of fade period	51,008	26	151,687	31	134,436	31
PV of terminal value	147,821	74	255,869	53	213,465	50
Present value of future cash flows	198,829	100	463,492	95	400,993	93
Add: Cash & ST investments	na*	-	29,094	6	29,094	7
Add: Long-term investments	na	-	-	-	-	-
Corporate value	198,829	100	492,586	101	430,087	100
Less: Total debt, preferred stock & minorities	na	-	(5,963)	(1)	na	-
Shareholder value	198,829	100	486,623	100	430,087	100
Number of shares (m)	3,508		3,508		3,508	
Equity value per share (US\$)	57		139		123	



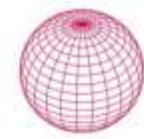
We assume a risk-free rate of 4% and a market equity risk premium for the US. market of 6%.

Tesla has been a high-beta stock, so we assume a beta of 1.25x, which is slightly lower than its previous averages. We forecast a capital structure with around 13% debt to total capital. This results in a WACC and a discount rate of 10.6%. We use a very high terminal growth of 5% and Free Cash Flow to Firm (FCFF) to value Tesla.

In our base case scenario, we anticipate sales growth of 21% until 2028E, leading to a value of US\$139 per share based on the FCFF methodology. This represents a 31% downside compared to the current market price.

In our sensitivity analysis (on the following page), the optimistic case assumes a sales growth of 22.7% until 2028E, resulting in a target price of US\$142. Conversely, in the pessimistic case, sales growth is assumed to be 18.5%, yielding a value of US\$135 per share.

TSLA: Sensitivity analysis



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Fundamentals (% , five year-average)				Valuation (US\$)				
TSLA	EPS growth	Net margin	ROE	DDM	FCFF	FCFE	PEG	PB/ROE
What if sales growth changed by X% from base case?								
+10 (22.7%)	nm	11.5	20.4	65.5	142.1	125.8	na	106.1
Base case of 20.6%	nm	11.5	19.6	56.7	138.7	122.6	na	104.0
-10 (18.5%)	nm	11.6	18.9	49.0	135.5	119.6	na	102.0
What if gross margin changed by X percentage points from base case?								
+2 (23.2%)	nm	13.4	21.5	58.0	145.5	129.0	na	125.3
Base case of 21.2%	nm	11.5	19.6	56.7	138.7	122.6	na	104.0
-2 (19.2%)	nm	9.7	17.5	56.5	132.0	116.2	na	83.3
What if discount rate changed, by changing the risk factor (beta) from base case?								
+10 (Beta 1.375x, COE 12.3%)				47.6	128.8	112.7		
Base case of 1.25x (COE 11.5%)				56.7	138.7	122.6		
-10 (Beta 1.125x, COE 10.8%)				68.5	150.5	134.4		
What if terminal growth rate changed by X percentage points from base case?								
+1				na	na	na		
Base case of 5%				56.7	138.7	122.6		
-1				48.6	123.3	109.7		

Note: PEG and PB/ROE are based on 2024E relative to the Cons Disc sector in USA.



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Risks

Delays in launching and ramping up production

Tesla's business depends on how the company ramps up production to deliver products on time. Tesla has experienced and might also experience future delays in launching or ramping up production of the Redwood model, the Cybertruck, and some energy storage products in the future. Any delays could harm Tesla's brand or the company's ability to fulfill unearned revenue, therefore, affecting operating results.

Supply shortages could harm Tesla's production

Tesla's supply chain, sourcing 1,000 parts from numerous suppliers, faces risks from external factors like material pricing, geopolitical events, or natural disasters. In 2021-2022, Tesla's manufacturing costs are hugely affected by semiconductor shortages from Taiwan and China. Moreover, with the new global manufacturing facilities, Tesla may face issues due to the increased level of localized procurement. Inaccurate timing of component purchases and inadequate automation in supply chain management could lead to production disruptions and manufacturing cost overruns, harming the business results.

High reliance on suppliers for lithium-ion battery cells

Tesla relies on suppliers such as Panasonic and Contemporary Amperex Technology Co. Limited (CATL) for battery cells and has limited flexibility in changing suppliers. Any disruption in the supply of battery cells from Tesla suppliers could limit the production of our vehicles and energy storage products. Moreover, the prices for these materials fluctuate and their available supply may be unstable which might incur unexpected production disruption, storage, transportation, and write-off costs, which may harm the business and the operating results.

Full self-driving may get banned by law

Although the software has various benefits, there are many safety concerns among users and the law. The overall fatal accident rate for auto travel, according to the NHTSA, was 1.35 deaths per 100m miles traveled in 2022. In other words, Tesla's FSD system is likely ten times more dangerous at driving than humans. Many states are currently debating whether they should ban this technology. If they are banned, many new income streams would fail.

TSLA: The good old days could be gone for a while



Valuation Master Class Boot
Camp #13 graduates

**This is NOT investment advice
or a recommendation**

We initiate coverage on Tesla, Inc. with a SELL recommendation based on a target price of US\$139, implying a downside of 31%. We derive our target price from a DCF-based valuation using a WACC of 10.6% and a terminal growth rate of 5%

Highlights:

- The growing autonomous cars market is a revenue growth catalyst
- The new Redwood model could offset the Cybertruck's potential setbacks
- The energy segment could transform into a major revenue source

Risks: Delays in launching and ramping up production, Supply shortages could harm Tesla's production, High reliance on suppliers for lithium-ion battery cells, Full self-driving may get banned by law

Valuation table

Year end Dec	22A	23A	24E	25E	26E
PE (x)	53.8	47.0	60.5	40.1	34.1
Recurring net profit growth (%)	133.1	14.8	(21.8)	51.8	18.6
Recurring EPS (US\$)	3.7	4.3	3.3	5.0	5.9
Recurring EPS growth (%)	127.2	14.5	(22.3)	50.8	17.8
PBV (x)	14.2	10.2	8.5	6.9	5.6
BVPS (US\$)	14.1	19.7	23.5	29.0	35.5
ROE (%)	33.6	27.9	16.8	20.8	20.0
DPS (US\$)	-	-	-	-	-
Dividend yield (%)	na	na	na	na	na
Enterprise value (US\$ m)	682,349	677,571	672,495	661,768	647,119
EV-to-EBITDA (x)	49.3	50.0	39.9	27.5	22.9

Tesla, Inc.

Recommendation: SELL

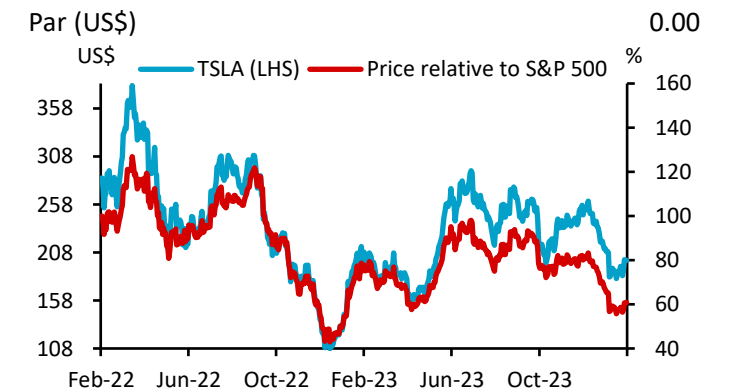
Current price: US\$199.95

Target price: US\$139

Up/(downside): (31%)

Stock data

RIC code	TSLA.O
Index	.INX
S&P 500 (19 February 2024)	5,005.57
Market cap (US\$ m)	701,435
Shares outstanding (million)	3,508



This report was created by my Valuation Master Class Boot Camp #13 Graduates, I have updated it and added my assumptions



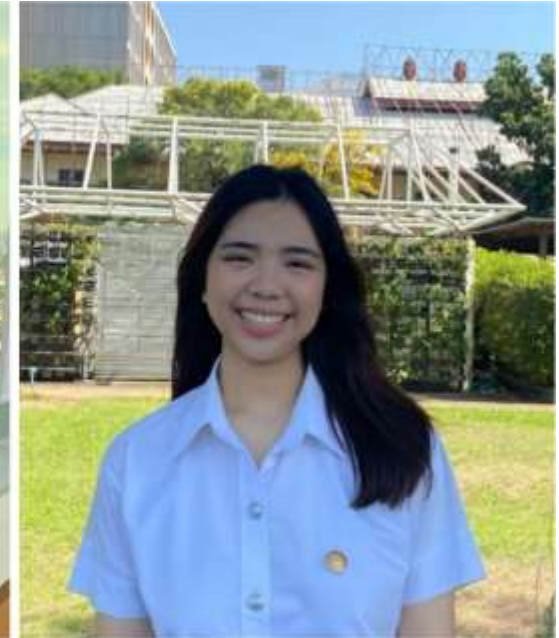
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**Kirada
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