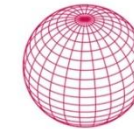


TSLA: Relatively expensive with limited short-term growth



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I initiate coverage on TSLA with a **HOLD** recommendation based on a target price of **USD199.40**, implying an upside of 1%. I derived the target price from a DCF-based valuation using a WACC of 9.3% and a terminal growth rate of 5%.

Highlights:

- Profitability in a downward momentum owing to rising production and R&D costs
- Slowing demand in EV but a rise in the capital spending
- Gradually losing its huge market shares due to cutthroat competition

Risks: Failure to procure stable supply of battery cells, Uncertain future government and economic incentives continuation, Inability to recoup its massive expenditures, Sensitivity of target price to terminal growth rate assumptions

Valuation table

Year end Dec	21A	22A	23E	24E	25E
PE (x)	121.3	53.4	73.3	62.5	49.6
Recurring net profit growth (%)	614.3	133.1	(26.2)	17.9	26.9
Recurring EPS (US\$)	1.6	3.7	2.7	3.2	4.0
Recurring EPS growth (%)	585.2	127.2	(27.1)	17.1	26.1
PBV (x)	20.4	14.0	11.1	9.0	7.3
BVPS (US\$)	9.7	14.1	17.8	21.9	26.9
ROE (%)	21.1	33.6	18.8	17.6	18.0
DPS (US\$)	-	-	-	-	-
Dividend yield (%)	na	na	na	na	na
Enterprise value (US\$ m)	686,597	678,384	672,578	663,682	656,366
EV-to-EBITDA (x)	105.7	49.0	46.5	39.2	31.5

Boon Poh, Chang
Chang.boonpoh06@gmail.com

Please refer to important
disclaimer and disclosures at
the end of the report.

Tesla, Inc

Recommendation: Hold

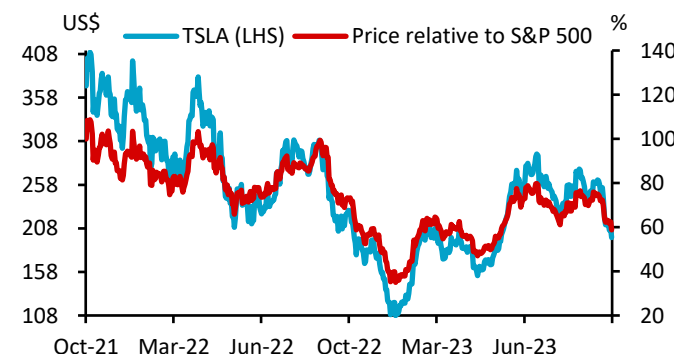
Current price: USD197.36

Target price: USD199.40

Up/(downside): 1%

Stock data

RIC code	TSLA.O
Index	.INX
S&P 500 (30 October 2023)	4,166.82
Market cap (US\$ m)	697,470
Shares outstanding (million)	3,534
Par (US\$)	0.00



TSLA: The automotive innovator facing challenges ahead



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Profitability in a downward momentum owing to rising production and R&D costs

From 2022 to Q3 2023, Tesla has slashed prices by almost 20% on its inventory vehicles and existing models, hoping to boost sales and slow the advance of its rivals. In the meantime, the **rising costs entailed in scaling up the production of new batteries and the Cybertruck** resulted in the automotive gross margin at 19% in Q3 2023, 9% decrease YoY. With an estimate of 30% YoY increase in automotive COGS, annual gross margin in 2023 is expected to decline to 18% from 26% in 2022, by virtue of the relatively higher manufacturing costs of the best-selling Model Y. **Relative to FY2022, Tesla's continued capacity expansions in 2023 and the forecasted 35% higher R&D costs on new products and AI-related technologies would result in a projected EBIT margin of 10% in 2023 from 17% in 2022.**

Slowing demand in EV but a rise in the capital spending

Despite production ramp-up in several regional factories, the overall production is expected to stay flat QoQ at due to the slowing demand in the EV sector. Along with the increasing sales contributions of Model 3/Y and energy storage business, the **annual capital spending is planned to be gradually increased to USD10b before 2025 to support ramp-up productions & R&D** for these products starting in Q4 2023 such as the Megafactory under construction in China. Though the company may enjoy the returns from the investments and its economies of scale in at least 2 more years, I expect **lower ROIC at 31% in 2025 from 55% in 2022 due to more cash and management resources tied up to the expansions.**

Gradually losing its huge market shares due to cutthroat competition

Tesla's electric vehicle (EV) **market shares started sliding from 70% in early 2022 to about 50% in Q3 2023** because of more new disruptive players across regions, especially Tesla's largest markets like XPeng and NIO in China (22%), Rivian and Lucid in the United States (50%). **The price-cutting strategy for up to 20% is questionable whether it is sustainable under current macroeconomic conditions,** and whether the unit sold would increase more than proportionately. I expect that this strategy would **decelerate Tesla's historical 3-digit net profit growth down to -24% in 2023 and get back to 18% in 2024.** In a long run, Tesla has the **potential to gain higher market share and expand the margins once established in the masses.**

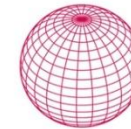


Tesla, Inc. is a battery electric vehicles (BEVs) automaker and market leader in electric vehicles based in the United States and founded in 2003.

It constitutes roughly **50% of the EV market share** in global automotive sales in Q3 2023. Its flagship **model Y is the best-selling EV model in the U.S.** Tesla operates under two segments: Automotive and Energy Generation and Storage. **Its main business segment is automotive,** which accounted for **88% of its sales in 2022.** Its market cap is more than the combined value of the top automakers, including Toyota, Volkswagen, Daimler and Ford.

Tesla has shifted to **making more affordable EVs for the masses** from only the affluent buyers. It also makes technology like charging stations, battery development, and self-driving software.

Global Automotive Industry: Navigating the road ahead to breakthrough



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An Industry Revving up for Resurgence

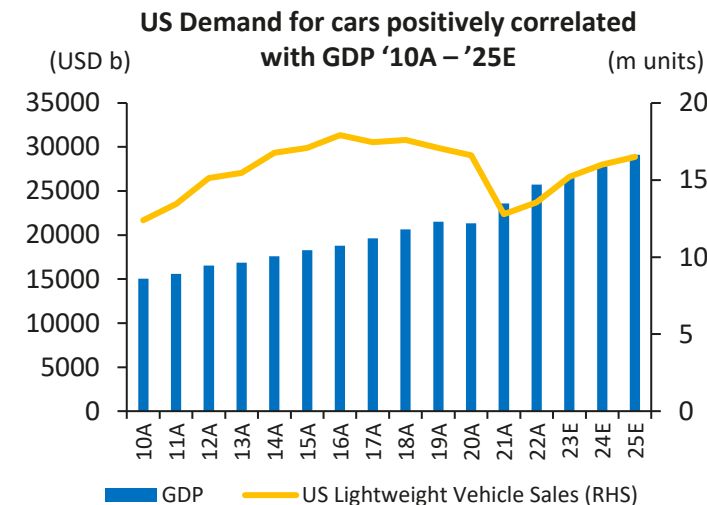
From 2010 to 2023, the automotive industry saw significant changes. Growth was observed in the increasing global car sales from 2010 to 2019 before COVID-19 pandemic. Recovery began in 2021 with sales reaching 66.7m units, although the chip shortage continued to disrupt the supply chain. Sales in dollars grew at 3.15% YoY in 2022 as **an indication of a slow recovery**, and it is expected to remain below 2019 levels in 2023. However, I forecasted the **production and sales units would both return to the pre-pandemic level in 2025 at around 90m units**. The key trends shaping the industry include the rise of electric vehicles, advances in autonomous driving technology, and the growth of ride-sharing services.

A Progressively Competitive and Challenging Industry

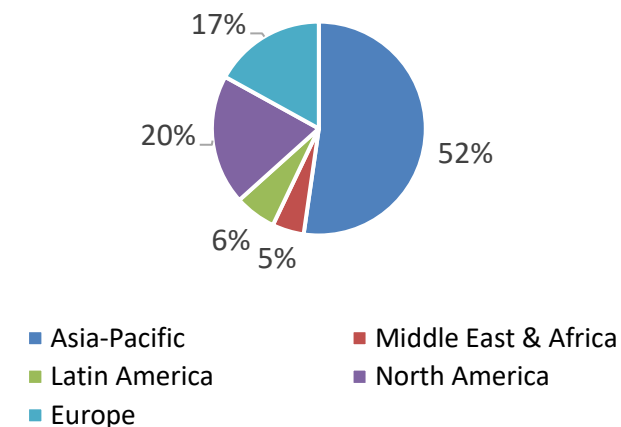
Albeit the promising future, we expect a fiercer competition ahead owing to the disruptive innovations because of the **relative simplicity of batteries and e-engines that erodes the tech barrier of entry**. In the short run, persistent chip shortages, the Russia-Ukraine War, and the high interest rate environment may overshadow the impacts of governments' subsidy and incentive policies, slowing market demands and its growth in 2024. The bright side is that we can still expect **the global sales volume to slowly grow and finally exceed 90m sales units highwater mark in 2025, underpinned by market growths in emerging and developing countries**, especially in APAC (52%) including China (29%), and Western Europe (15%), according to ABI Research.

An Ever-changing Space Full of Growth Potential & Technology Innovations

Global hybrid and electric vehicle (EV) sales are expected to account for 60% of global lightweight vehicle sales by 2030, up from 10% in 2020, outpacing petrol cars. EV's nature of higher ESG scores that improve potential profitability is expected to continue benefiting the EV manufacturers. **China is expected to extend EV subsidies and incentives to sustain electrification momentum, and sales growth is further supported by the U.S. Inflation Reduction Act, and the accelerating shifts towards electrification in Europe**. On the other hand, as Level 3 self-driving cars are hitting the roads, autonomous driving for passenger cars could lead to sales worth USD400B by 2035 from USD30B to date, according to Mckinsey.



Global Sales (%) per region in '22A



TSLA: FY 3Q23 saw shrinking profit margins



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(US\$ m)	3Q22	4Q22	1Q23	2Q23	3Q23	%QoQ	%YoY
Revenue	21,454	24,318	23,329	24,927	23,350	(6.3)	8.8
Cost of sales	(16,072)	(18,541)	(18,818)	(20,394)	(19,172)	(6.0)	19.3
Gross profit	5,382	5,777	4,511	4,533	4,178	(7.8)	(22.4)
SG&A	(1,694)	(1,842)	(1,847)	(2,134)	(2,414)	13.1	42.5
Other (exp)/inc	-	-	-	-	-	na	na
EBIT	3,688	3,935	2,664	2,399	1,764	(26.5)	(52.2)
Finance cost	(40)	(33)	(29)	(28)	(38)	35.7	(5.0)
Other inc/(exp)	1	115	165	566	319	(43.6)	31,800.0
Earnings before taxes	3,649	4,017	2,800	2,937	2,045	(30.4)	(44.0)
Income tax	(305)	(276)	(261)	(323)	(167)	(48.3)	(45.2)
Earnings after taxes	3,344	3,741	2,539	2,614	1,878	(28.2)	(43.8)
Equity income	-	-	-	-	-	na	na
Minority interest	(39)	15	(21)	89	(27)	(130.3)	(30.8)
Earnings from cont. operations	3,305	3,756	2,518	2,703	1,851	(31.5)	(44.0)
Forex gain/(loss) & unusual items	(13)	(34)	-	-	-	nm	nm
Net profit	3,292	3,722	2,518	2,703	1,851	(31.5)	(43.8)
EBITDA	3,688	3,935	3,710	3,553	2,999	(15.6)	(18.7)
Recurring EPS (US\$)	0.95	1.07	0.72	0.77	0.53	(31.8)	(44.4)
Reported EPS (US\$)	1.04	1.17	0.79	0.85	0.58	(31.6)	(44.3)
Profits (%)	3Q22	4Q22	1Q23	2Q23	3Q23	chg %QoQ	chg %YoY
Gross margin	25.1	23.8	19.3	18.2	17.9	(0.3)	(7.2)
Operating margin	17.2	16.2	11.4	9.6	7.6	(2.1)	(9.6)
Net margin	15.3	15.3	10.8	10.8	7.9	(2.9)	(7.4)
ROE	34.5	35.2	21.7	21.8	14.2	(7.6)	(20.4)
ROIC	58.9	59.2	34.8	28.3	20.3	(8.0)	(38.6)

TSLA's 3Q2023 revenue went up 8.8% YoY due to higher sales volume, but fell 7.8% QoQ due to price reductions.

The **operating profit** dropped by **52.2% YoY**, because of **the higher COGS and SG&A**.

Consequently, **the shrinking margins led to a great fall of 20.4% and 38.6% YoY in ROE and ROIC**, implying relatively less efficient of operations in this quarter.



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Analyst recommendations	Jul-23	Aug-23	Sep-23	Current
# of recommendations	45	46	45	46
1. Strong Buy	6	6	6	6
2. Buy	12	12	12	12
3. Hold	20	21	20	21
4. Sell	3	3	3	3
5. Strong Sell	4	4	4	4
Consensus recommendation	2.7	2.7	2.7	2.7

Price target rel. to current price	Current price	Target price	up/(dn) %
Median	250	273	9.0
Mean	228	241	5.8

Consensus forecast (%)	22	23E	24E	25E
Revenue growth	51.4	19.3	21.1	20.9
Gross margin	25.8	18.6	20.2	22.6
EBIT margin	18.7	10.6	11.1	13.5
Net margin	17.4	11.0	11.4	12.5

Market consensus signals a consistent **Hold** rating for TSLA, given by about 46% of 46 analysts from Jul-23 to current.

Growth and profitability of TSLA was viewed bearish, especially from 2022’s revenue growth of 51% slowed to 19% in 2023 and would stay at around 21% in 2024 and 2025, while gross margin would drop about 7% in 2023, **leading to the falls in consensus EBIT and net margin of about 8% and 6%, respectively.**

Median target price is only 9% upside, which is in line with the consensus rating of **Hold**.

TSLA: Revenue structure



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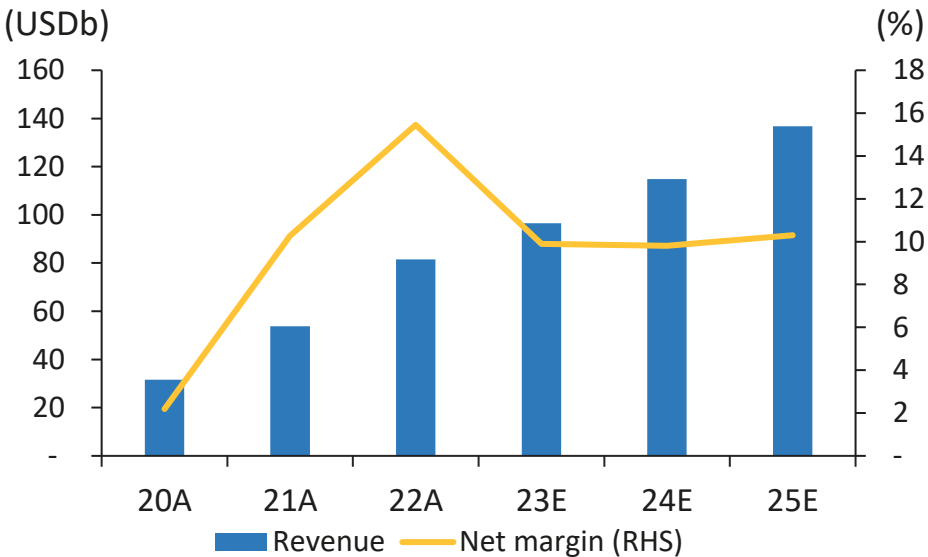
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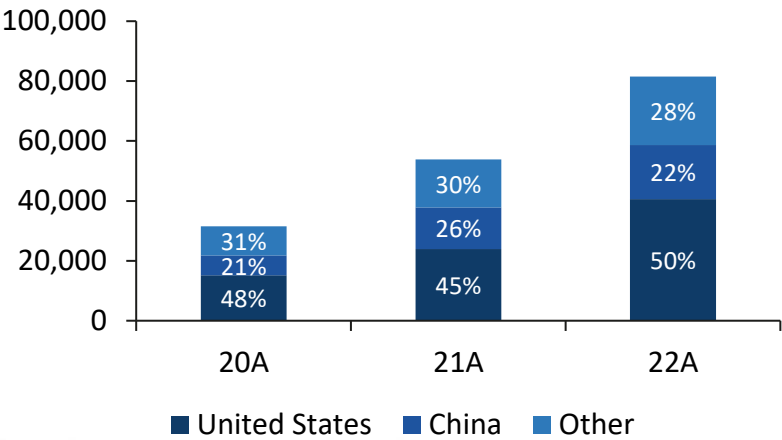
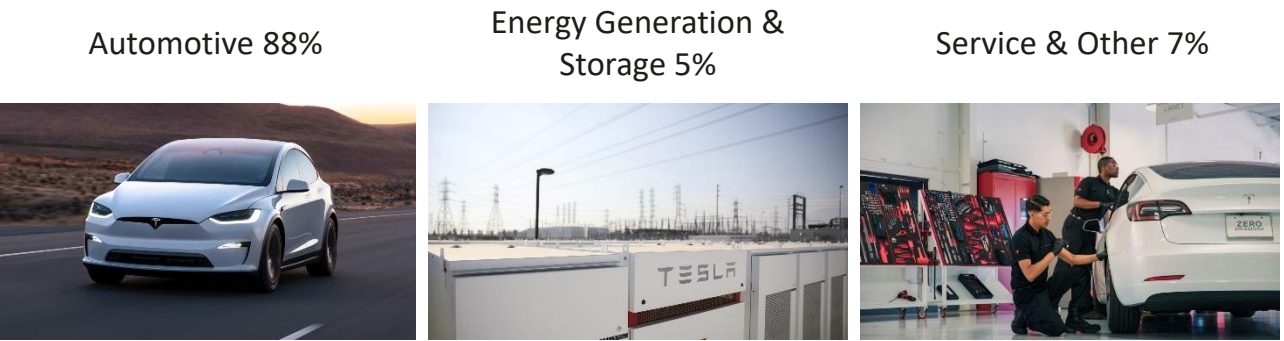
Tesla operates at two main business segments with an approach of direct sales, servicing, and charging its EVs that sets it apart from other automakers. This Texas-based company owned and leased seven factories called Gigafactory and Megafactory to support productions all over the globe.

Most of Tesla’s revenue is **made up of the Automotive segment**, which accounted for **88% of total sales in 2022**, with mainly Model 3 and Y from its four models targeting a **global mass demographic**. Other than automotive sales, revenue also comes from trading of regulatory credits (2%) and leasing programs (3%).

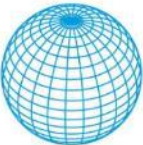
Besides, its second business segment, **Energy Generation and Storage (5%)**, deals with **lithium-ion battery energy storage products called Powerwall and Megapack** and retrofitting solar energy systems through power purchase agreements as well as Solar Roof directly sold to customers and channel partners for real estates. **Services and Other that constitutes the rest** include after-sales services and parts, paid Supercharging, and others.



Revenue Breakdown, By Segment and Region 2022



TSLA: A. Stotz Four Elements



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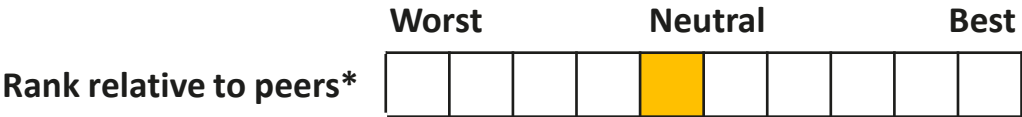
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(%)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Operating profit margin	0.6	5.7	12.1	17.2	12.8
Recurring net margin	(2.5)	2.5	10.4	15.9	13.0
Asset turnover	76.7	73.0	94.2	112.8	118.2
Return on assets	(1.9)	1.8	9.8	17.9	15.4
Recurring return on equity	(10.5)	5.4	21.3	34.5	27.5



(%)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Revenue growth	14.5	28.3	70.7	51.4	40.0
Recurring EPS growth	73.2	204.6	590.5	125.7	25.4
Operating profit margin chg. (bps)	135	518	637	504	(329)
	6mth	3mth	1mth	3wk	1wk
Price change	114.4	41.3	2.0	(17.2)	(1.2)



(x)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Price-to-sales	11.3	68.8	67.8	8.8	9.6
Price-to-earnings	nm	2,799.6	654.1	55.8	73.4
Price-to-book	43.0	86.6	110.6	14.7	15.8
PE-to-EPS growth (PEG)	nm	nm	1.1	0.4	2.9
EV/EBIT	2,124.5	1,058.8	510.7	45.7	66.9



(x)	Dec-19	Dec-20	Dec-21	Dec-22	PTM**
Current ratio	1.1	1.9	1.4	1.5	1.6
Net debt-to-equity (%)	130.6	(27.9)	(31.4)	(40.0)	(37.9)
Times-interest-earned	0.2	2.3	15.4	83.7	83.9
	5yr	3yr	1yr	6mth	3mth
Beta	1.9	1.9	2.2	3.1	2.5

Overall: TSLA appears neutral relative to 1,920 non-financial companies in the USA, considering Fundamentals, Valuation, Momentum, and Risk.

Fundamentals: Ranked in the top 20% in the USA due to **strong profitability driven by its relatively high margins and asset turnover.**

Valuation: Ranked in the bottom 20% as it appears expensive trading at an increasing **price-to-earnings at 73x and price-to-book ratio at 15.8x**, extremely high relative to the other US companies.

Momentum: Appears very attractive as it was able to deliver **relatively higher growth in earnings.**

Risk: Ranked the worst as **systematic risk is growing higher to 2.5** in the recent 3 months.

Note: Benchmarking against 1,920 non-financial companies in the USA.

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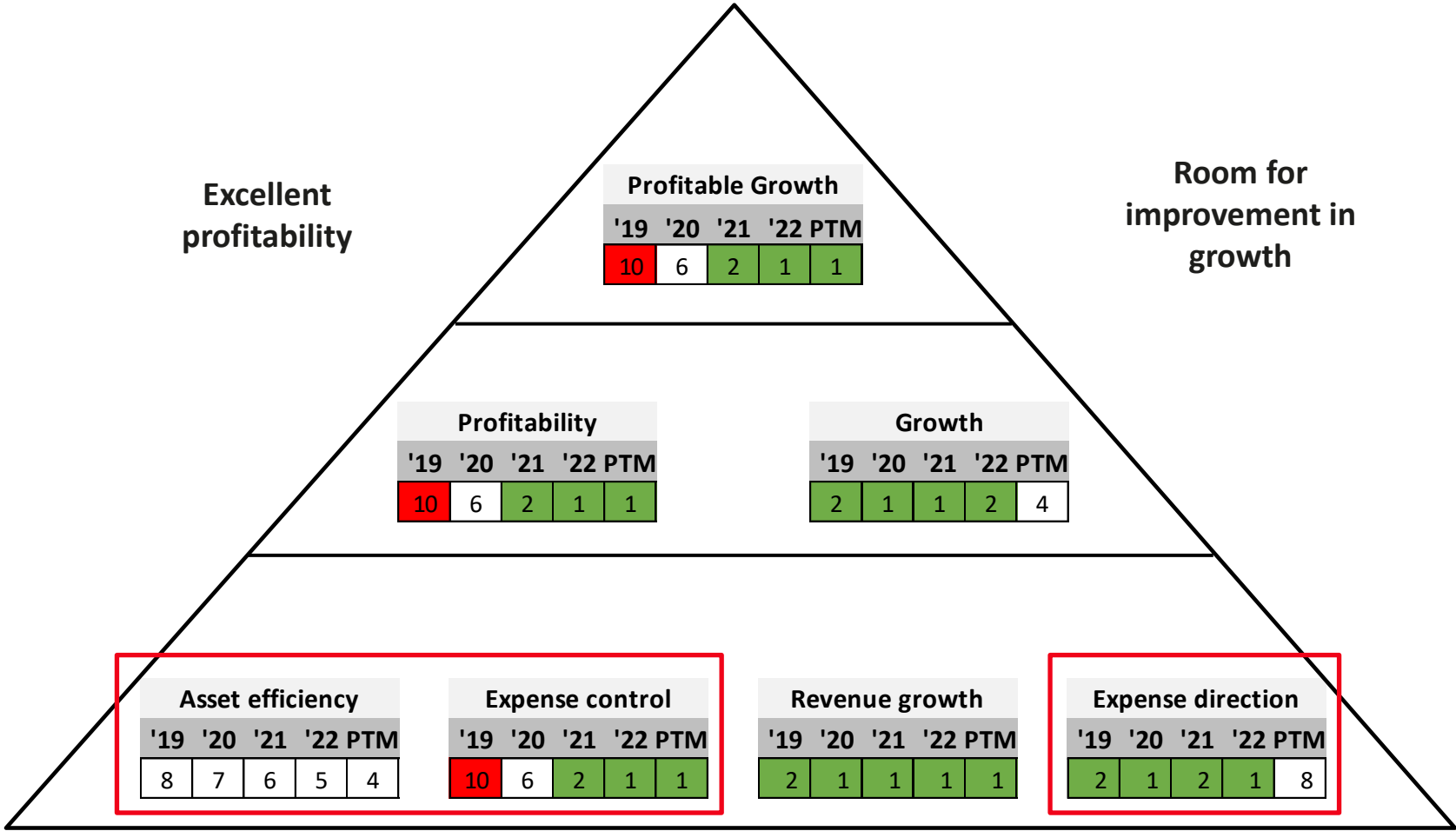
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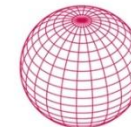
TSLA's Profitable Growth has been ranked in the **top 10-20% among 940 large Consumer Discretionary companies globally** since 2021.

It was largely driven by the Profitability that has ranked in the top 10-20% from 2021, thanks to its improvements in **Asset Efficiency, which was ranked #4, and stable outperformance in Expense Control, ranked #1 in the past twelve months.**

TSLA's continuous outperformance in sales growth has consistently put it at #1 in Revenue Growth ranking since 2020, but the **Expense Direction had a hard fall in the past twelve months to #8 relative to peers due to its shrinking net margin.** It resulted in a drag on its Growth ranking, which dropped to #4 from #2 in 2022.

Benchmarked against 940 large Cons. Disc. companies worldwide.

TSLA: Profit and loss statement



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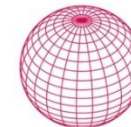
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	Actual			Forecast				
(YE Dec, US\$ m)	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Revenue	31,536	53,823	81,462	96,532	114,873	137,848	168,174	210,218
Cost of goods & services	(24,906)	(40,217)	(60,609)	(78,867)	(93,622)	(111,657)	(136,221)	(170,276)
Gross profit	6,630	13,606	20,853	17,665	21,252	26,191	31,953	39,941
SG&A	(4,636)	(7,110)	(7,021)	(8,302)	(9,879)	(11,855)	(14,463)	(18,079)
Other operating (exp)/inc	-	-	-	-	-	-	-	-
EBIT	1,994	6,496	13,832	9,364	11,372	14,336	17,490	21,863
Interest expense (net)	(718)	(315)	130	767	956	1,303	1,627	1,949
Other non-operating inc/(exp)	(8)	166	110	350	-	-	-	-
Earnings before taxes (EBT)	1,268	6,347	14,072	10,481	12,328	15,640	19,118	23,812
Income tax	(292)	(699)	(1,132)	(975)	(986)	(1,251)	(1,529)	(1,905)
Earnings after taxes (EAT)	976	5,648	12,940	9,506	11,342	14,388	17,588	21,907
Equity income/Minority interest	(172)	(120)	(4)	15	(118)	(149)	(182)	(227)
Earnings from cont. operations	804	5,528	12,936	9,521	11,224	14,239	17,406	21,680
Forex/Exceptionals before tax	(114)	(4)	(353)	-	-	-	-	-
Net profit	690	5,524	12,583	9,521	11,224	14,239	17,406	21,680
Earnings per share adj.								
Net profit	690	5,524	12,583	9,521	11,224	14,239	17,406	21,680
Less: Pref. share dividend & other adj.	-	9	1	-	-	-	-	-
Profit attributable to common shares	690	5,533	12,584	9,521	11,224	14,239	17,406	21,680
Add: Exceptional items after tax	-	90	242	-	-	-	-	-
Add: Forex loss/(gain) after tax	85	(86)	82	-	-	-	-	-
Recurring profit after tax	775	5,537	12,908	9,521	11,224	14,239	17,406	21,680
Recurring FDEPS (US\$)	0.2	1.6	3.7	2.7	3.2	4.0	4.4	4.5

TSLA: Balance sheet - Assets



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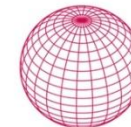
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Risks

	Actual			Forecast				
(YE Dec, US\$ m)	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Cash & short-term investments	19,384	17,707	22,185	29,107	38,846	47,173	54,261	61,145
Accounts receivable	1,886	1,913	2,952	3,218	3,829	4,403	5,372	6,715
Inventories	4,101	5,757	12,839	14,240	16,644	19,850	23,460	28,379
Other current assets	1,346	1,723	2,941	3,379	4,021	4,825	5,886	7,358
Total current assets	26,717	27,100	40,917	49,943	63,339	76,251	88,979	103,598
Long-term investments	-	-	-	-	-	-	-	-
Net fixed assets	23,375	31,176	36,635	43,329	47,848	53,164	59,347	66,560
Intangible assets	313.0	1,517.0	399.0	603.4	701.7	756.7	794.9	823.0
Goodwill	207.0	200.0	194.0	194.0	194.0	194.0	194.0	194.0
Other long-term assets	1,536	2,138	4,193	6,918	11,070	17,711	27,452	41,179
Total assets	52,148	62,131	82,338	100,989	123,153	148,077	176,768	212,353

TSLA: Balance sheet - Liabilities and equity



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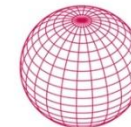
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Risks

	Actual			Forecast				
(YE Dec, US\$ m)	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Overdrafts & short-term loans	2,132	1,589	1,502	379	455	546	492	393
Accounts payable	8,502	13,944	20,323	22,784	27,046	32,256	39,353	49,191
Other current liabilities	3,614	4,172	4,884	5,309	6,088	6,892	7,736	8,619
Total current liabilities	14,248	19,705	26,709	28,472	33,590	39,695	47,580	58,203
Long-term debt	9,607	5,245	1,597	3,835	4,602	5,523	4,971	3,976
Other long-term liabilities	5,218	6,166	8,543	11,106	13,327	14,660	16,126	17,738
Total liabilities	29,073	31,116	36,849	43,413	51,519	59,878	68,677	79,918
Minority interest	850	826	785	770	887	1,037	1,219	1,446
Paid-up capital - Common shares	27,261	29,804	32,180	34,760	37,477	39,654	41,958	44,396
Paid-up capital - Preferred shares	-	-	-	-	-	-	-	-
Retained earnings	(5,399)	331	12,885	22,406	33,631	47,870	65,275	86,954
Revaluation/Forex/Others	363	54	(361)	(361)	(361)	(361)	(361)	(361)
Total equity	22,225	30,189	44,704	56,805	70,747	87,163	106,872	130,989
Total liab & shareholders' equity	52,148	62,131	82,338	100,989	123,153	148,077	176,768	212,353
Book value per share adj.								
Total Equity	22,225	30,189	44,704	56,805	70,747	87,163	106,872	130,989
Less: Pref. shareholders' equity	-	-	-	-	-	-	-	-
Less: Hybrid debt & others	-	-	-	-	-	-	-	-
Common shareholders' equity	22,225	30,189	44,704	56,805	70,747	87,163	106,872	130,989
BVPS (US\$)	7.7	9.7	14	18	22	26.9	27.3	27.7

TSLA: Balance sheet - Cash flow statement



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Value

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	Actual			Forecast				
(YE Dec, US\$ m)	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Net income	690	5,524	12,583	9,521	11,224	14,239	17,406	21,680
Depreciation & amortization	2,322	-	-	5,106	5,539	6,493	7,598	8,888
Calculated chg in net working capital	1,736	3,940	(2,248)	782	1,384	1,430	2,300	2,987
Other non-cash & balancing items	1,195	2,033	4,389	(15)	118	149	182	227
Operating cash flow	5,943	11,497	14,724	15,394	18,265	22,311	27,486	33,782
Capital expenditures	(3,242)	(7,742)	(6,236)	(12,005)	(10,157)	(11,863)	(13,819)	(16,129)
(Inc)/dec in other investments	110	(126)	(5,737)	(2,725)	(4,151)	(6,642)	(9,741)	(13,726)
Investing cash flow	(3,132)	(7,868)	(11,973)	(14,731)	(14,308)	(18,505)	(23,561)	(29,855)
Increase/(dec) in debt	(2,488)	(5,732)	(3,866)	1,116	843	1,012	(607)	(1,092)
Dividend paid	-	-	-	-	-	-	(1)	(1)
Change in equity	12,686	707	541	2,580	2,717	2,177	2,304	2,438
Others	(225)	(178)	(202)	2,563	2,221	1,333	1,466	1,613
Financing cash flow	9,973	(5,203)	(3,527)	6,259	5,781	4,521	3,163	2,957
Net inc/(dec) in cash & cash equi	12,784	(1,574)	(776)	6,922	9,739	8,327	7,088	6,885
Beginning cash	6,268	19,384	17,707	22,185	29,107	38,846	47,173	54,261
Adjustment for historic data	332	(103)	5,254	-	-	-	-	-
Ending cash	19,384	17,707	22,185	29,107	38,846	47,173	54,261	61,145



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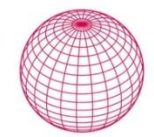
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Value

Risks

	Actual			Forecast			Recent quarters		
(YE Dec)	2020A	2021A	2022A	2023E	2024E	2025E	Mar '23	Jun '23	Sep '23
Internal liquidity (x)									
Current ratio	1.9	1.4	1.5	1.8	1.9	1.9	1.6	1.6	1.7
Quick, or acid test ratio	1.6	1.1	1.1	1.3	1.4	1.4	1.0	1.1	1.2
Working cap. mgmt (Days)									
Inventory conversion period	55	44	55	62	59	59	65	63	66
Receivables collection period	18	13	11	12	11	11	12	12	12
Days from raw mat to coll	74	57	66	73	70	70	77	76	78
Payables deferral period	102	100	102	98	96	96	99	92	94
Cash conversion cycle	(28)	(44)	(36)	(25)	(25)	(26)	(22)	(16)	(16)
Profitability ratios (%)									
Gross profit margin	21.0	25.3	25.6	18.3	18.5	19.0	19.3	18.2	17.9
EBIT margin	6.3	12.1	17.0	9.7	9.9	10.4	11.4	9.6	7.6
EBIT return on avg assets	4.6	11.4	19.1	10.2	10.1	10.6	12.6	10.8	7.6
Return on average assets	1.6	9.7	17.4	10.4	10.0	10.5	11.9	12.2	8.0
Financial risk (x)									
Liabilities-to-assets (%)	55.8	50.1	44.8	43.0	41.8	40.4	43.8	42.7	42.3
Debt-to-equity	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Net debt-to-equity	(0.3)	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(0.4)	(0.4)	(0.4)
Times-interest-earned	6	na	na	88	81	83	128	127	79
Effective interest rate (%)	5.9	4.0	3.4	4.5	4.5	4.5	4.0	4.5	4.5

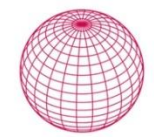
TSLA: Ratios (continued)



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	Actual			Forecast			Recent quarters		
(YE Dec)	2020A	2021A	2022A	2023E	2024E	2025E	Mar '23	Jun '23	Sep '23
General growth (YoY, %)									
Revenue	28.3	70.7	51.4	18.5	19.0	20.0	24.4	47.2	8.8
Assets	52.0	19.1	32.5	22.7	21.9	20.2	31.5	32.2	26.2
Gross profit	62.9	105.2	53.3	(15.3)	20.3	23.2	(17.4)	7.1	(22.4)
Operating profit	nm	225.8	112.9	(32.3)	21.5	26.1	(26.1)	(7.9)	(52.2)
Attributable profit	179.3	700.6	127.8	(24.3)	17.9	26.9	(24.0)	19.8	(43.8)
EPS	175.2	649.2	117.5	(25.3)	17.1	26.0	(25.5)	17.7	(44.3)
Recurring EPS	187.9	585.2	127.2	(27.1)	17.1	26.1	(24.2)	10.1	(44.4)
Du Pont analysis (%)									
Net profit margin	2.2	10.3	15.4	9.9	9.8	10.3	10.8	10.8	7.9
Revenue per US\$100 of assets	73.0	94.2	112.8	105.3	102.5	101.6	110.3	112.4	101.2
Assets/equity (x)	3.0	2.2	1.9	1.8	1.8	1.7	1.8	1.8	1.8
Return on equity	4.8	21.1	33.6	18.8	17.6	18.0	21.7	21.8	14.2
Others (%)									
Effective tax rate	25.3	11.0	8.3	9.3	8.0	8.0	9.3	11.0	8.2
Dividend payout ratio	-	-	-	-	-	-	-	-	-

TSLA: Free cash flow data



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	Actual			Forecast					Fade period*	
(YE Dec, US\$ m)	2020A	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E	2029E
EBIT	1,994	6,496	13,832	9,364	11,372	14,336	17,490	21,863	33,398	40,830
Est tax rate (%)	25	11	8	9	8	8	8	8	25	25
NOPAT	1,489	5,780	12,691	8,493	10,463	13,189	16,091	20,114	25,048	30,622
Add: Depre & amort	2,322	-	-	5,106	5,539	6,493	7,598	8,888	11,140	13,712
Cash NOPAT	3,811	5,780	12,691	13,599	16,002	19,683	23,689	29,001	36,188	44,334
Chg in A/R	(562)	(27)	(1,039)	(266)	(611)	(574)	(969)	(1,343)		
Chg in inventory	(549)	(1,656)	(7,082)	(1,401)	(2,404)	(3,206)	(3,610)	(4,919)		
Chg in oth curr asst	(387)	(377)	(1,218)	(438)	(642)	(804)	(1,061)	(1,472)		
Chg in A/P	2,954	5,442	6,379	2,461	4,263	5,210	7,096	9,838		
Chg in oth curr liabs	280	558	712	425	779	804	844	883		
Less: Chg in work cap	1,736	3,940	(2,248)	782	1,384	1,430	2,300	2,987		
Less: CAPEX	(3,242)	(7,742)	(6,236)	(12,005)	(10,157)	(11,863)	(13,819)	(16,129)		
Less: Chg in invest cap									(16,472)	(20,274)
Free cash flow to firm	2,305	1,978	4,207	2,376	7,230	9,249	12,169	15,860	19,717	24,060
FCF per share (US\$)	0.7	0.6	1.2	0.7	2.0	2.6	3.1	3.3	5.6	6.8
NOPAT growth (%)	1,761.8	288.1	119.6	(33.1)	23.2	26.1	22.0	25.0	24.5	22.3
FCF growth (%)	307.0	(14.2)	112.7	(43.5)	204.3	27.9	31.6	30.3	24.3	22.0

Sources: A. Stotz Investment Research, company data, Refinitiv.
 Note: *Shows the two first years of the fade period.



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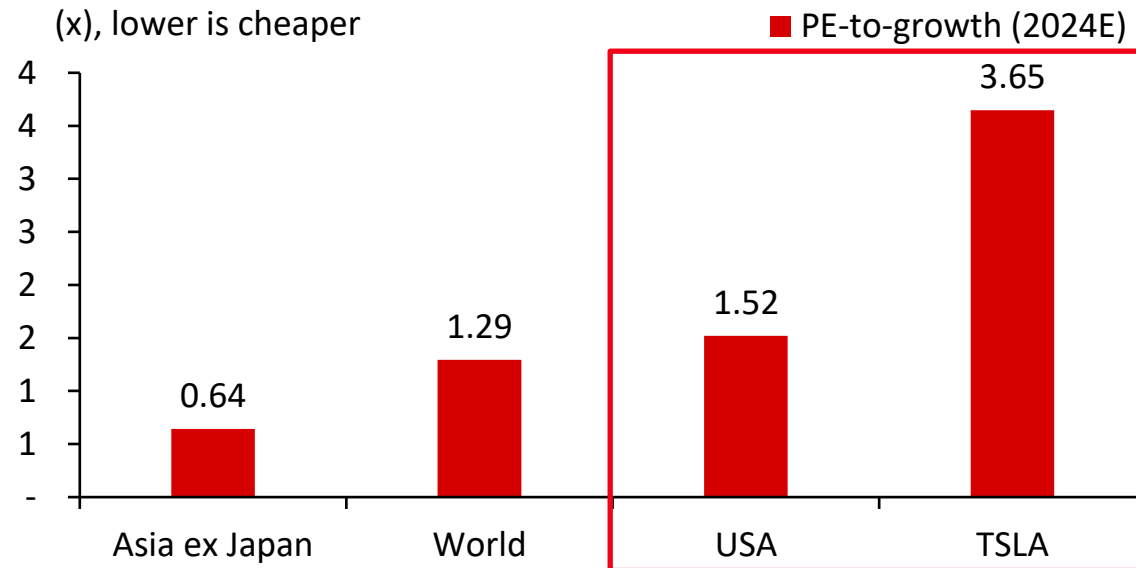
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Value

Risks



PE ratio (x)	2021A	2022A	2023E	2024E
TSLA	177.1	54.8	73.3	62.5
USA	28.0	37.8	27.4	23.5
Asia ex Japan	30.9	23.8	15.0	12.6
World	21.9	25.2	19.2	16.9

EPS growth (%)	2021A	2022A	2023E	2024E
TSLA	585.2	127.2	(27.1)	17.1
USA	2.0	16.5	na	15.5
Asia ex Japan	(13.2)	18.4	58.7	19.6
World	55.5	1.5	31.4	13.1

On the forward 2024E PE multiple, TSLA trades at a high premium to the automotive sector in the USA and the world. The gap between Asia excluding Japan is even larger, making TSLA appear more expensive.

I expect its EPS growth of 17.1% to be slightly higher than the USA and the world sector average, but lower than that of Asia excluding Japan. It then leads **TSLA to trade at a significant premium on the 2024E PE-to-growth (PEG) multiple of 3.65x**, which is also the highest among the mentioned groups.

If we were to revalue TSLA to the 2024E PEG multiple of the USA sector average, it would need to trade at a 2024E PE of 26x. **TSLA seems to be overvalued at about 2.4 times higher than its peers in the USA.**

Therefore, I have chosen using a DCF valuation of FCFF for TSLA's target price.

TSLA: Valuation and target price



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Value

Risks

Calculation of cost of equity (COE, %)		Estimate	
Market: United States of America			
Market risk-free rate		4.2	
Market equity risk premium		4.8	
Market return		9.0	
Company beta (x)		1.3	
COE		10.7	
Calculation of WACC		Average	
Cost of debt		5.4	
Average tax rate		19.4	
After tax cost of debt		4.3	
Cost of preferred stock		-	
Debt as a % of total capital		22.4	
Preferred stock as a % of total capital		-	
Equity market value as a % of total capital		77.6	
Weighted average cost of capital		9.3	
TSLA: Valuation (US\$ m)		DDM	%
PV of cash flow in years 2023-27		-	-
PV of fade period		12,186	26
PV of terminal value		34,321	74
Present value of future cash flows		46,507	100
Add: Cash & ST investments		na*	-
Add: Long-term investments		na	-
Corporate value		46,507	100
Less: Total debt, preferred stock & minorities		na	-
Shareholder value		46,507	100
Number of shares (m)		3,534	
Equity value per share (US\$)		13	

FCFF		FCFE	
	%		%
32,578	5	33,173	6
161,981	23	135,440	24
491,990	70	370,496	66
686,550	97	539,109	96
22,185	3	22,185	4
-	-	-	-
708,735	101	561,294	100
(3,884)	(1)	na	-
704,851	100	561,294	100
3,534		3,534	
199		159	

US\$

Equity value per share (US\$)

Current stock price (US\$)

13 199 159 197

DDM FCFF FCFE

I assume a risk-free rate of 4.2% and a market equity risk premium for the USA market of 4.8%.

TSLA has been a high-beta stock, and thus I assume a beta of 1.34x. Also, a target capital structure is assumed to be 22.4% debt to total capital, higher than the company's current level of 0.7%. This results in a WACC of 9.3%. I use a terminal growth rate of 5% and use Free Cash Flow to Firm (FCFF) for the valuation.

My base case assumes an average of 21% sales growth p.a. until 2027E, resulting in a value of USD199.40 per share based on the FCFF methodology. This implies only 1% upside compared to the current market price.

In my sensitivity analysis (see next page), a difference of a percentage point in terminal growth rate would derive the value of USD163.50 or 18% lower than my base case.

Likewise, any 10% change in my beta base case assumption of 1.34x can alter the value derived from FCFF by 9.2%, which are USD184.40 (pessimistic at 1.47x) and USD217.80 (optimistic at 1.21x).

TSLA: Sensitivity analysis



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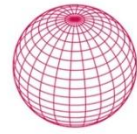
Value

Risks

Fundamentals (% , five year-average)			
TSLA	EPS growth	Net margin	ROE
<u>What if sales growth changed by X% from base case?</u>			
+10 (23.0%)	nm	10.1	18.8
Base case of 20.9%	nm	10.1	18.1
-10 (18.8%)	nm	10.1	17.5
<u>What if gross margin changed by X percentage points from base case?</u>			
+2 (20.8%)	nm	12.0	20.3
Base case of 18.8%	nm	10.1	18.1
-2 (16.8%)	nm	8.2	15.7
<u>What if discount rate changed, by changing the risk factor (beta) from base case?</u>			
+10 (Beta 1.474x, COE 11.3%)			
Base case of 1.34x (COE 10.7%)			
-10 (Beta 1.206x, COE 10.0%)			
<u>What if terminal growth rate changed by X percentage points from base case?</u>			
+1			
Base case of 5%			
-1			

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

Valuation (US\$)				
DDM	FCFF	FCFE	PEG	PB/ROE
15.6	202.4	161.6	94.0	93.8
13.2	199.4	158.8	82.3	90.9
11.1	196.4	156.1	71.1	88.0
15.9	207.3	165.9	102.1	109.4
13.2	199.4	158.8	82.3	90.9
10.4	191.6	153.0	62.5	72.7
11.2	184.4	144.0		
13.2	199.4	158.8		
15.7	217.8	177.0		
na	na	na		
13.2	199.4	158.8		
11.1	163.5	131.5		



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Value

Risks

Failure to procure stable supply of battery cells and semiconductors

Since TSLA focuses only on BEVs, it could hurt the company and its value **if the supply of Lithium gets increasingly volatile, or any supply chain disruption of raw materials steps in. This could delay production and deliveries, and therefore harm the revenues at its increasing fixed costs.**

Uncertain future government and economic incentives continuation

Countries like China, the US, and Europe has been offering attractive incentives to promote electrification with different policies and purposes. As a first mover in EV sector, TSLA has benefited from these incentives while maintaining a high profit margins. Though this can be viewed as the company's competitive advantage, it stands a chance of losing values if the country discontinues these incentives to its customers.

Inability to recoup its massive expenditures

TSLA's consistent increases in its reinvestment on product development and battery factory (expected USD 10b in 2025) may end up with negative returns. Although the company may enjoy the fruits of success from the investments, it also bears the same level of risk that this would not work in the end.

Sensitivity of target price to terminal growth rate assumptions

A terminal growth rate of 5% is assumed to arrive at a target price of USD199.40. Any 1% change in the growth rate could result in about 18% of difference in target price. Besides, the valuation was built upon ROIC of 200% premium in fade period (2028-2037), in relative to the estimated WACC in that period of 8.6%.