

Tesla, Inc.

Tesla recently rallied to an all time high of \$1,229.91 on Nov 4, surpassing Facebook as the fifth largest U.S. company by market cap due to significant delivery orders with an additional order of 100,000 vehicles by car rental company Hertz.

Investment Recommendation

The price target of \$619.49 was computed using a discount rate of 13%, a segment one growth rate of 12% (2026–2040), considering the large potential growth in the EV market, and a segment two growth rate of 7% (to perpetuity), matching the long time growth rate of North America's automotive sector.

Competition

Tesla's EV rivals have gained popularity in the past few months. Competition includes Rivian and Lucid Motors to name a few—along with established carmakers such as Ford, BMW, Mercedes that are expanding into the electric industry. Tesla is also seeing competition from abroad—Chinese EV manufacturer XPeng and Nio, both listed on NYSE, are looking to expand into US markets.

Company Description

Tesla designs and produces electric vehicles (EVs), energy storage systems, and solar energy systems.

A large component of Tesla's business are the sales of EVs, making up around 82% of the total revenue on average. The company currently produces four main models: the Model S, X, 3, and Y. Tesla plans to expand the lineup to the Roadster (sports car), Tesla Semi (trailer), and Cybertruck (pickup truck).

The services & other component is the next largest source of revenue, creating around 8% of the total revenue. This comprises of the sales of EV components and revenue from repairs.

Energy generation and storage is a growing source of revenue for the company (7% of total revenue), especially since it recently signed several contracts with US states and other countries to power electrical grids.

Tesla's mission is to "To accelerate the world's transition to sustainable energy" and in a 2013 interview, Musk stated that the goal of Tesla in the EV sector was to "drive the price point down [for EVs] until the industry is very firmly electric"

Underweight

Price (28 Dec 2021): \$1,088.47
Price Target (28 Dec 2021): \$619.49

Bloomberg	Reuters	Ticker
TSLA US	TSLA.OQ	TSLA

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Price Performance



Yearly EPS Forecasts

	2021P	2022P	2023P
EPS	2.31	7.46	9.66

General EPS Consensus

EPS	2021P	2022P	2023P
High	4.79	7.73	16.15
Avg.	4.21	6.39	8.89
Low	3.62	3.93	3.35

DCF Model

The Discounted Cash Flow Analysis suggests a share price of \$619.49. The DCF comprises of free cash flow for each period from 2021 to 2025, the first segment of the terminal value with an assumed growth rate of 12% from 2026 to 2040 and the second segment of the terminal value from 2040 onwards with a growth rate of 7%, roughly in accordance with the automotive sector's long time growth rate. The discount rate, WACC, was calculated to be 13%, roughly in line with the volatile nature of the stock.

The components of cash flow used are the net income (more detailed calculations in "revenue" section), non-cash expenses, cash used in operating activities, and CapEx. The purchases of property, plant, and equipment (PPE) were assumed to be a percentage of the revenue, as the amount of machinery and factories Tesla would need to manufacture is likely likely to be proportional to the revenue—which itself is proportional to the units of the goods Tesla is producing.

Table 1: Tesla Discounted Cash Flow Analysis

CASH FLOW STATEMENT ('000,000)	2018	2019	2020	2021P	2022P	2023P	2024P	2025P
Net Income	(1,063)	(775)	862	2,308	7,459	9,656	13,567	19,969
Non-Cash Expenses	1,901	2,154	2,322	2,547	2,757	2,968	3,178	3,389
Depreciation and Amortisation	1,901	2,154	2,322	2,547	2,757	2,968	3,178	3,389
Net Cash used in Operating Activities	2,101	1,327	3,157	4,674	9,421	10,799	14,147	19,479
Purchases of PPE	2,101	1,327	3,157	4,675	9,422	10,799	14,147	19,479
Percentage of revenue	10%	5%	10%	10%	9%	8%	8%	8%
Capital Expenditures	NA	1,220	4,673	2,708	3,466	3,676	3,887	4,097
Free Cash Flow	NA	1,486	1,668	6,821	16,172	19,746	27,005	38,740
Present Value of FCF				6,016	12,578	13,544	16,335	20,665

CASH FLOW STATEMENT ('000,000)	2040P	2025—40P	2040P—∞
Free Cash Flow	212,043	527,157	3,317,168
Present Value of FCF	17,169	281,204	268,594

Table 2: Calculation of Discount Rate

WACC ('000,000)	13%
Market Value of Firm's Equity	903,780
Cost of Equity (CAPM)	14%
Market Value of Firm's Debt	13,277
Total Debt	22,131
Weighted Average Maturity (Yrs)	10
Cost of Debt	2%
Total Debt	23,643
Weighted Average Interest Rate	3%
Corporate Tax Rate	6%

Table 3: Calculation of Equity Value

PERPETUITY GROWTH	
Growth Rate in Perpetuity (Seg. 1)	12%
Growth Rate in Perpetuity (Seg. 2)	7%
PV of FCF	69,137
PV of Terminal Value (Seg. 1)	281,204
PV of Terminal Value (Seg. 2)	268,594
Enterprise Value	618,935
Total Cash	1,670
Total Debt	1,113
Equity Value	619,492

Sensitivity Analysis

Varying the discount rate and growth rate for the first segment, we can see what values get us close to the current share price of Tesla. The cells marked with a red circle in Table 4 are the combinations of the discount rate and growth rate for segment one that give a price similar to the current market price (around \$1,000). Assuming that the predictions for the free cash flow are accurate, according to the sensitivity table, the market reflects a growth rate of around 8% for segment one (till 2040) and a discount rate of around 10% or a growth rate of around 5% for segment one with a discount rate of around 9%.

Table 4: Tesla Sensitivity Analysis with Growth Rate (Segment 1) and Discount Rate

		Growth Rate in Perpetuity (Seg. 1)									
		4%	5%	6%	7%	8%	9%	10%	11%	12%	13%
Discount Rate (WACC)	9%	\$ 967	\$ 1,082	\$ 1,213	\$ 1,360	\$ 1,527	\$ 1,339	\$ 1,930	\$ 2,172	\$ 2,444	\$ 2,752
	10%	\$ 660	\$ 730	\$ 809	\$ 898	\$ 999	\$ 1,112	\$ 879	\$ 1,384	\$ 1,546	\$ 1,728
	11%	\$ 504	\$ 552	\$ 606	\$ 667	\$ 735	\$ 812	\$ 898	\$ 3,712	\$ 1,103	\$ 1,225
	12%	\$ 409	\$ 444	\$ 484	\$ 528	\$ 577	\$ 632	\$ 695	\$ 764	\$ 3,467	\$ 929
	13%	\$ 344	\$ 371	\$ 401	\$ 435	\$ 472	\$ 514	\$ 561	\$ 613	\$ 671	\$ 421
	14%	\$ 297	\$ 319	\$ 342	\$ 368	\$ 397	\$ 430	\$ 466	\$ 507	\$ 552	\$ 602
	15%	\$ 261	\$ 278	\$ 297	\$ 318	\$ 342	\$ 367	\$ 396	\$ 428	\$ 464	\$ 503
	16%	\$ 233	\$ 247	\$ 262	\$ 279	\$ 298	\$ 319	\$ 343	\$ 368	\$ 397	\$ 429

Revenue

As stated previously, Tesla's total revenue mainly comprises of the sales of EVs, leasing of EVs, solar energy production/storage, and services. Tesla is looking to release updated versions of their previous models which will cause consumers to transition from purchasing the previous models to the newer lineups. Due to several new vehicle models planned for production in 2022, the deliveries next year are expected to jump significantly.

Tesla's energy generation and storage is expanding rapidly, with an 83% growth in the number of megawatt-hours of energy storage from 2019 to 2020. Considering the fact that energy storage facilities are often deployed with renewable energy generation facilities to soak up excess power and the current proliferation of renewables due to countries aiming to lower carbon emissions, Tesla's energy storage deployments are likely to grow in the coming years.

At his 2021 annual shareholder meeting, Musk stated that the Model 3 became the best-selling premium vehicle globally—above BMW and Mercedes—and the Model Y, set to be released in 2022, should become the best-selling vehicle of any kind globally.

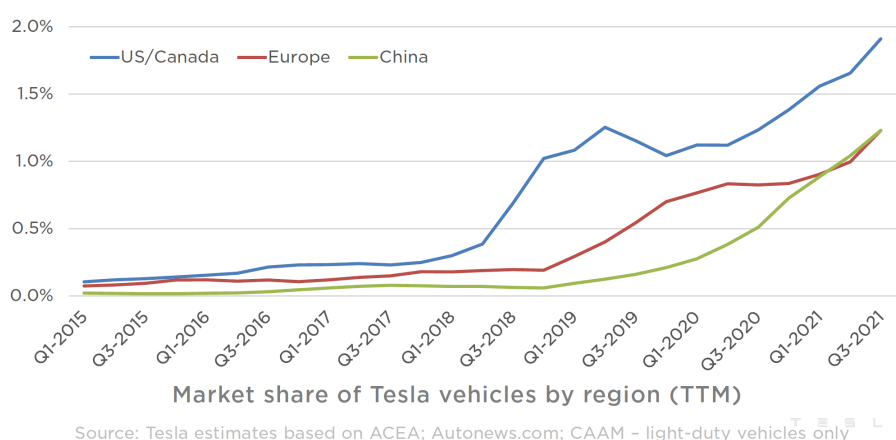
Table 5: Tesla Revenue Forecast

REVENUE ('000,000, except quan	2018	2019	2020	2021P	2022P	2023P	2024P	2025P
Total Revenues	21,461	24,578	31,536	46,746	104,684	134,984	176,841	243,486
Automotive Sales	17,632	19,952	26,184	40,423	94,610	118,969	157,276	218,844
Total Vehicle Deliveries	245,240	367,656	499,647	552,235	1,057,207	1,329,402	1,757,455	2,445,437
Model S/X Deliveries	99,394	66,771	57,085	50,235	44,207	38,902	34,234	30,126
Growth Rate	NA	-33%	-15%	-12%	-12%	-12%	-12%	-12%
Model 3/Y Deliveries	145,846	300,885	442,562	500,000	10,000	9,100	8,281	7,536
Growth Rate	NA	106%	47%	13%	-98%	-9%	-9%	-9%
Model S/X ('22) Deliveries	NA	NA	NA	NA	65,000	79,950	98,339	120,956
Growth Rate	NA	NA	NA	NA	NA	23%	23%	23%
Model 3/Y ('22) Deliveries	NA	NA	NA	NA	300,000	510,000	867,000	1,473,900
Growth Rate	NA	NA	NA	NA	NA	70%	70%	70%
Tesla Semi ('22) Deliveries	NA	NA	NA	NA	3,000	3,900	5,070	6,591
Growth Rate	NA	NA	NA	NA	NA	30%	30%	30%
Cybertruck ('22) Deliveries	NA	NA	NA	NA	600,000	648,000	699,840	755,827
Growth Rate	NA	NA	NA	NA	NA	8%	8%	8%
Roadster ('22, 2nd gen)	NA	NA	NA	NA	35,000	39,550	44,692	50,501
Growth Rate	NA	NA	NA	NA	NA	13%	13%	13%
Average Revenue per Vehicle	71,897	54,268	52,405	73,199	89,491	89,491	89,491	89,491
Automotive Leasing Revenue	883	869	1,052	1,104	2,114	5,318	7,030	9,782
Energy Generation + Storage Revenue	1,555	1,531	1,994	2,843	4,396	6,423	7,405	8,705
Storage Megawatt-Hours (MWh)	1,040	1,651	3,022	5,440	8,159	12,239	14,687	17,624
Growth Rate	NA	59%	83%	80%	50%	50%	20%	20%
Solar Deployed MW	326	173	205	246	295	354	425	510
Growth Rate	NA	-47%	18%	20%	20%	20%	20%	20%
Average Energy Price per Watt	\$ 1.14	\$ 0.84	\$ 0.62	\$ 0.50	\$ 0.52	\$ 0.51	\$ 0.49	\$ 0.48
Services and Other	1,391	2,226	2,306	2,375	3,563	4,275	5,130	6,156
Growth Rate		60%	4%	3%	50%	20%	20%	20%
Total Revenue Growth Rate		50%	36%	11%	91%	26%	32%	39%

Risks to Price Target

With a rise in retail investing and Tesla's stock being the go-to investment, Tesla's share price is moving further away from its intrinsic value and will likely remain as such, reflecting valuations from fundamental analysis to a lesser extent. A rise in contracts for Tesla's solar storage and energy and the expansion of its EVs in international markets, such as India, can also boost the price. Furthermore, delivery beats in the upcoming Q4 report this year can further inflate the price. In addition, Tesla's market share has been steadily growing and if it were able to grow further, the automotive revenue would rise significantly and beat this target.

The growth rate in perpetuity for the second segment of the DCF was assumed to match the growth rate of the automotive sector since Tesla's main source of revenue was EVs and renewable energy was a smaller proportion. However, if a large proportion of their revenue were to come from renewable energy systems due to growth in this area, the growth rate in perpetuity would better match the projected growth rate of renewables, which would be higher than the projected growth rate of the automotive sector, reducing the accuracy of the target price.



Conclusion

Based on the DCF model, we give Tesla an underweight rating considering that the equity value is significantly lower than what the market prices Tesla—even after assuming large growth and a reasonable WACC in the projected years. Nevertheless, it does hold some growth prospect, hence the underweight rating (i.e. may perform worse than the S&P 500 but may still grow). In addition, the risks to price target—namely Q4 delivery beats, growth in other sources of revenue, and retail investing—may undermine the underweight rating.

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