



Baruch College
Investment
Management
Group



Tesla Inc. (NASDAQ: TSLA)

Current: \$744.12

Target: \$982.15 (+24.24%)

Time Horizon: 12-24 Months

Industry Director: Ray Hatton
Analysts: Benjamin Chan, Bricen Fisher, Nirmal Malhotra
Junior Analyst: Kat Berezovsky, Keegan Snyder



Company Overview

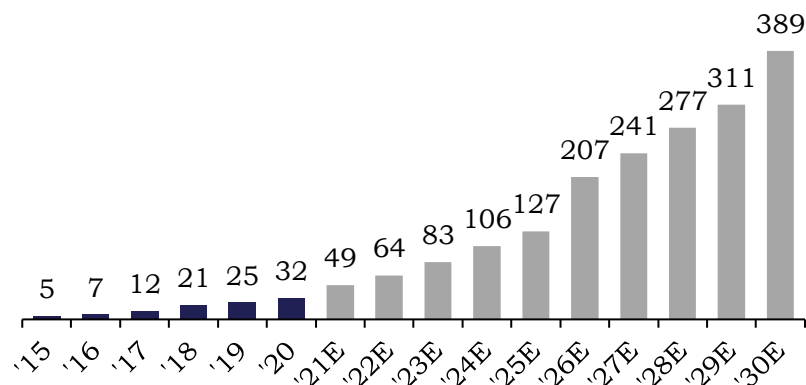
Business Description

- ▶ TSLA was formed in 2003 by Elon Musk and 5 other founders
- ▶ TSLA is located in the Bay Area and has manufactures in Fremont, Shanghai, and Berlin
- ▶ World's largest EV manufacturer and distributor, accounting for 80% EVs sold in the U.S. in 2020
- ▶ The 5th most innovative company in 2021
- ▶ Tesla short sellers lost \$40.1B in 2020
- ▶ TSLA has 70,000 employees (+50% YoY)

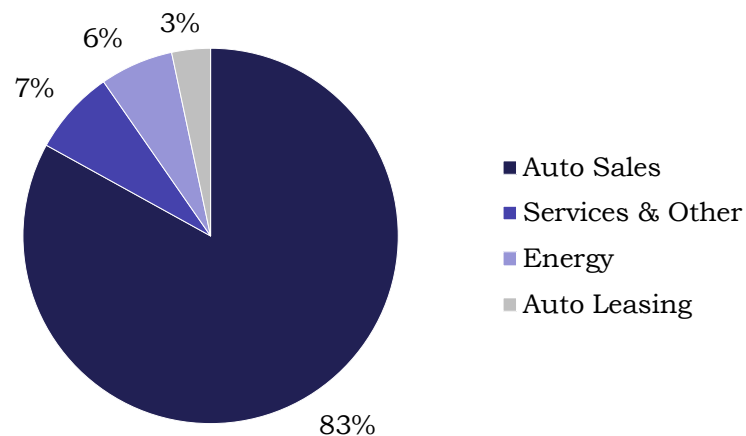
Business Highlights

- ▶ \$0.00 spent on advertising where competitors in the auto industry advertising expenses are expected to be \$13B in 2021 growing at a 13% CAGR from 2011 to 2021
- ▶ Fremont increased capacity for Model S and X
- ▶ Shanghai has stable Model 3 production at 250K vehicles/year with increased production at 550K vehicles in 2020
- ▶ Despite the pandemic, Tesla's electric car shipments reached close to 500K (+36% YoY)

Revenue Estimates (\$B)







Revenue Breakdown





Flagship Vehicle Segment Overview

Model S	Model 3	Model X	Model Y
			
<ul style="list-style-type: none">▶ Autopilot & Full Self Driving (FSD)▶ 2020's 5th most sold EV▶ Accounts for the 15th and 16th top cars for combined MPG▶ Made of aluminum▶ 5-seater▶ Plaid+<ul style="list-style-type: none">▶ 520 mile range▶ <1.99 0s – 60s▶ 200mph top speed▶ 1,100+ hp peak power▶ 28 cu ft cargo	<ul style="list-style-type: none">▶ Autopilot & FSD▶ 2020's 1st most sold EV▶ Top 4 vehicles for combined City and Highway MPG▶ Made of steel and aluminum▶ 5-seater▶ Performance<ul style="list-style-type: none">▶ 315 mile range▶ 3.1s 0s – 60s▶ 140mph top speed▶ 480 hp peak power▶ 15 cu ft cargo	<ul style="list-style-type: none">▶ Autopilot & FSD▶ 2020's 4th most sold EV▶ Accounts for the 35th, 36th, 49th, and 50th vehicle for combined MPG▶ Made of steel and aluminum▶ 7-seater▶ Plaid<ul style="list-style-type: none">▶ 340 mile range▶ 2.50s 0s – 60s▶ 163mph top speed▶ 1,020 hp peak power▶ 88 cu ft cargo space▶ Towing 5,000 lbs	<ul style="list-style-type: none">▶ Autopilot & FSD▶ 2020's 2nd most sold EV▶ Account for the 7th, 8th, 9th, 10th top vehicles for combined MPG▶ Made of steel and aluminum▶ 7-seater▶ Performance<ul style="list-style-type: none">▶ 303 mile range▶ 3.5s 0s – 60s▶ 155mph top speed▶ 497 HP▶ 68 cu ft cargo space

Innovative Vehicle Segment Overview



Cybertruck



- ▶ Autopilot & FSD
- ▶ 700K+ pre-orders
- ▶ Ultra-hard 30X cold-rolled stainless-steel exoskeleton & armor glass
- ▶ 5/6-seater
- ▶ The interior is equipped with a 17-inch touchscreen
- ▶ Tri Motor AWD
 - ▶ 500+ mile range
 - ▶ <2.9s 0s – 60s
 - ▶ 16 inch ground clearance
 - ▶ 1,400+ lbs towing capacity
 - ▶ 100 cu ft cargo

Roadster



- ▶ Autopilot & FSD
- ▶ 1K max vehicles available for pre-orders
- ▶ 1st supercar to set every performance record
- ▶ 4-seater
- ▶ AWD base
 - ▶ 620+ mile range
 - ▶ <1.9s 0s – 60s
 - ▶ <4.2s 0s – 100s
 - ▶ ¼ mile in 8.9 seconds
 - ▶ 250+ mph top speed
 - ▶ 200 kWh battery pack

Semi

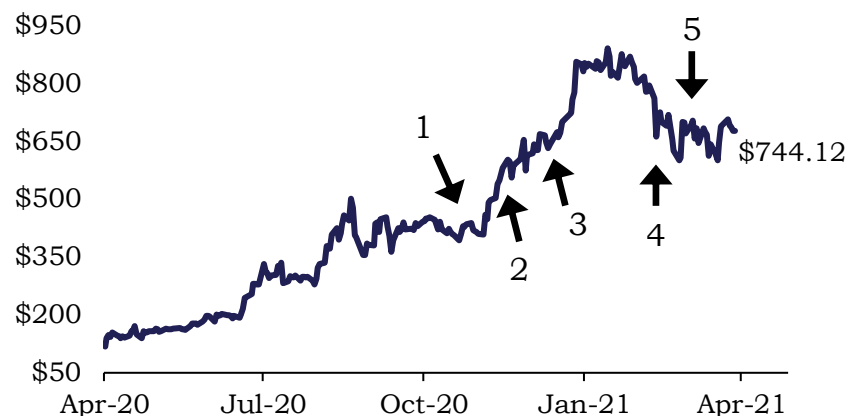


- ▶ Enhanced Autopilot & FSD
- ▶ 2K pre-orders
- ▶ AWD base
 - ▶ 300 - 500 mile range
 - ▶ <20s 0s – 60s
 - ▶ 65 mph up 5% grade
 - ▶ <2 kWh/mi energy consumption
 - ▶ ¼ mile in 8.9 seconds
 - ▶ 250+ mph top speed
 - ▶ 200 kWh battery pack



Financial Overview

52 Week Price Change



Financial Highlights

1. TSLA included in the S&P 500 as 6th largest member
2. TSLA market capitalization crosses \$500B for the first time
3. TSLA delivers on 500k customer deliveries exceeding consensus estimations
4. TSLA Chinese sales more than doubled in 2020
5. Cathie Woods (ARK Investment Management) upgrades TSLA to a \$3,000 price target by 2025

Enterprise Value Walkthrough

\$ in Millions	
Share Price	\$744.12
Shares Outstanding	959.9
Equity Value	\$714,246
Cash & Short-Term Investments	19,384
Total Debt	10,329
Preferred Equity	-
Minority Interest	1,454
Enterprise Value	\$706,645

Key Metrics

Market Cap	\$649.84B
52 Week Range	\$116.11 - \$900.40
EV/LTM EBITDA	151.82x
LTM Gross Profit Margin	21.20x
LTM P/E	990.63x
Beta	1.60



Industry Overview

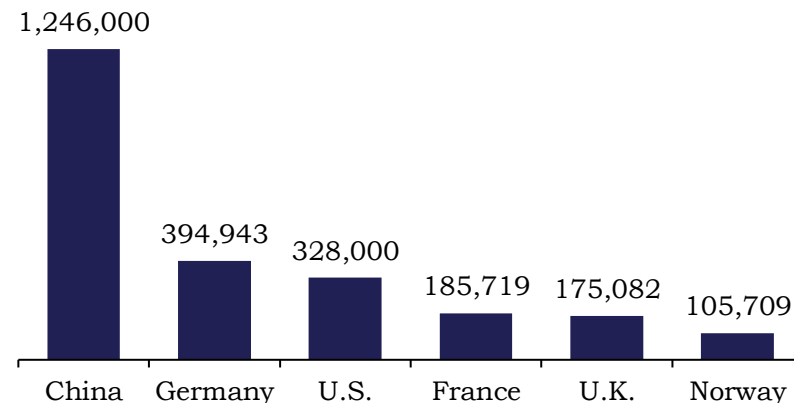
Electric Vehicles (EVs)

- ▶ Global EV market is expected to reach \$803B by 2027 growing at a 23% CAGR
- ▶ In 2018, 45% of global EVs related to China
- ▶ China's expected to produce 60% of passenger EVs and 65% of lithium-ion batteries by 2021
- ▶ 3M Americans are employed in auto space with 1M in motor vehicle manufacturing, and 250k in EV space
- ▶ Batteries comprise ~30% of parts in an EV

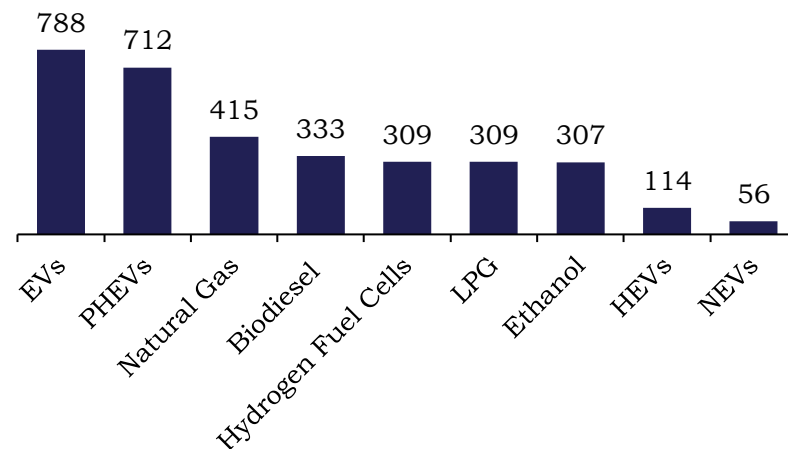
Biden & Global Infrastructure

- ▶ \$300B estimates to advance global charging network, with U.S. pushing \$50B for by 2030
- ▶ Biden's infrastructure plan contains \$115B+ related solely to EV expansion efforts
- ▶ Biden's 2030 goal for 500K chargers, 20% of school busses electric, replace 50k diesels
- ▶ Federal tax credit of \$7,500 would no longer be capped to the first 250k EVs of a manufacturer
- ▶ Certain tax breaks would be for domestic manufacturers hurting imported EV brands

EV Sales in 2020 by Country



U.S. State and Federal Policies





Investment Thesis

Factories Help Meet Production **Deadlines**



Vertically Integrated 4680 Cells **Increase Range** and **Increase Pricing Power**



FSD Beta and Supercharging **Attract Consumers**



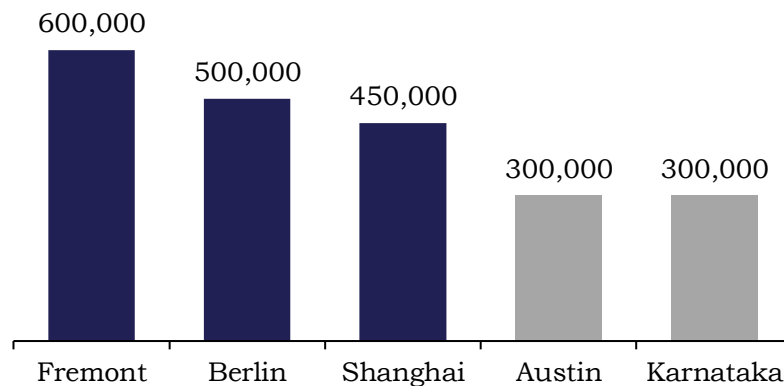
Strong Customer Loyalty and **Renewable Sector** Aid Company Growth



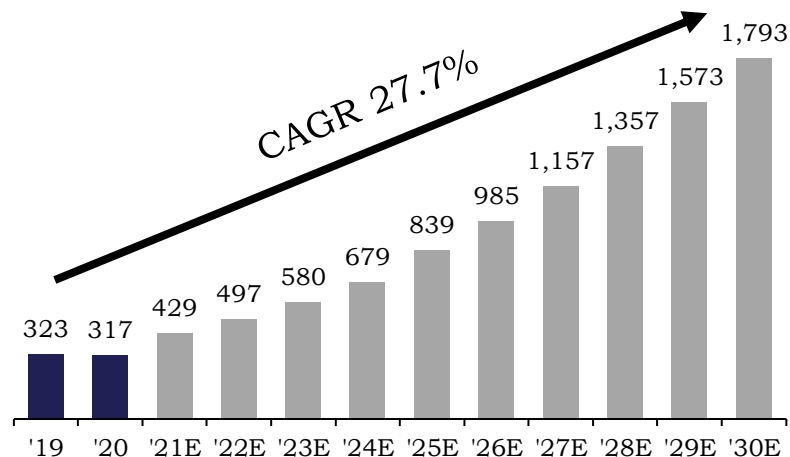
Investment Rationale

- ▶ Tesla's new factories boost production to capture surplus demand of S3XY CARS
 - ▶ Model 3 and Model Y made up 89% of overall sales with Model S and Model X making up 11% sales
 - ▶ Customers waiting 9 to 13 weeks for delivery while other brands have cars on lot equate high demand
 - ▶ New factories will aid in delivery deadlines and in global expansion with output increase of +100%
 - ▶ Cybertruck 700K+ preorders outstanding being 31% cheaper than runner up ICE vehicle, and the next generation design will bring strong revenues
- ▶ Tesla's 4680 cells and in house battery production will curb future bottlenecks
 - ▶ Tesla has acquired 10K+ acres of land to mine lithium in Nevada so it's not reliant on other sources such as South America or China
 - ▶ New cells are 56% cheaper to produce and 54% more dense than existing 2170 cells used today
 - ▶ Vertical integration of battery manufacturing and new cell tech will lead to better pricing power
 - ▶ Batteries are the most expensive part in EVs, reduced costs lead to more affordable models

Tesla Factory Predicted Output



Worldwide Lithium Demand LCE





Investment Rationale

► Tesla FSD Beta places them as market leaders

- Waymo vs. Tesla FSD resulted in Tesla's trip being ~60% faster, more precise, and realistic as well
- FSD Beta will enable a driver to go to a destination with little to no intervention but requires driver
- OTA software unlock costs 10K+ or subscription will create revenue from pre-existing vehicles
- Car uses cameras onboard and can adapt to any environment relative to competitors such as GM's super cruise and Waymo needing mapped roads
- Robotaxi service will cost 45% per mile less than today's Lyft or Uber service and be an OTA update

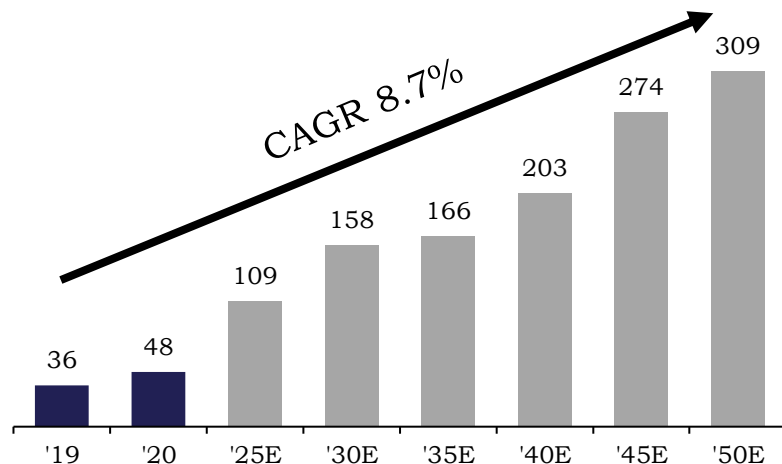
► Tesla's proprietary solar and battery pack solutions attract loyal and new customers

- Solar panels made in GigaNewYork allow Tesla to evade tariffs as the U.S. centralizes supply chains
- Tesla reached a deal with Apple to supply 85+ energy megapacks for a large solar energy farm
- Solar price match in addition to innovative energy storage solutions equates to rise in market share
- Proprietary solar roof is cheaper than new roof & solar panels at \$2.01 per watt vs \$2.85 per watt

Levels of Autonomy

LEVEL 0  There are no autonomous features.	LEVEL 1  These cars can handle one task at a time, like automatic braking.	LEVEL 2  These cars would have at least two automated functions.
LEVEL 3  These cars handle "dynamic driving tasks" but might still need intervention.	LEVEL 4  These cars are officially driverless in certain environments.	LEVEL 5  These cars can operate entirely on their own without any driver presence.

U.S. Solar Capacity (Gigawatts)

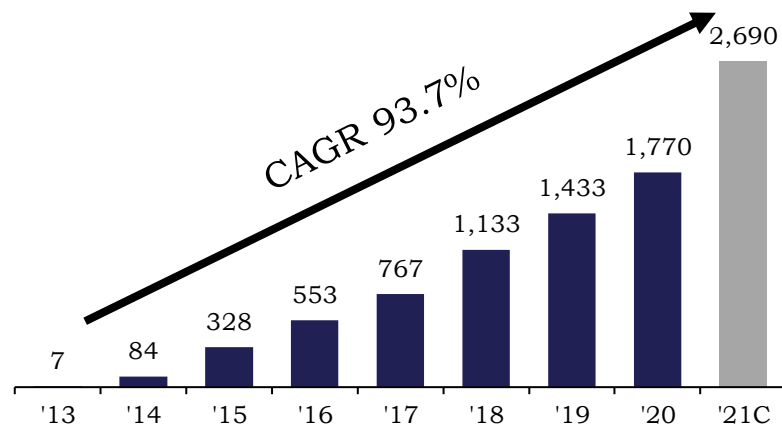




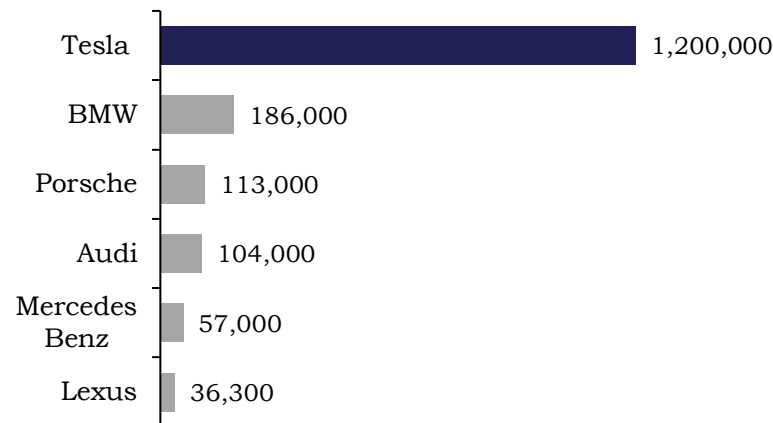
Investment Rationale

- ▶ Tesla's expansive, intuitive, and consistent supercharging network provides an advantage
 - ▶ Superchargers are exclusive to Tesla vehicles
 - ▶ Average of 9 superchargers capable of charging 2 vehicles means 48K+ charging spots globally
 - ▶ Once Tesla account is setup, the process is plug and go which other charging stations can't do
 - ▶ V3 superchargers provide charging speeds up to a 1000 miles an hour, or 5% to 90% in 37 minutes
 - ▶ Consistent and convenient charging stations will lead to increased revenue and market share
- ▶ Tesla's loyal fanbase will propel the company forward and create sticky revenue in long term
 - ▶ Elon Musk, the Techno King of Tesla is a visionary with innovative products has created a fanbase
 - ▶ 98% of Model 3 owners would buy another Tesla, and 99% would refer family & friends to Tesla cars
 - ▶ Online purchasing has drawn people to Tesla as no need for a chaotic dealer atmosphere is needed
 - ▶ Referral program has had great success and has significantly contributed to 100% organic growth

Tesla's Supercharger Station Globally



Reddit Following by Brand





Competitive Advantage

Why Consumers Love Tesla

- ▶ OTA software updates allow the vehicle to be better than the first day of delivery with features
- ▶ Responsive and an intuitive user interface sets Tesla apart as other car companies consolidate move to Apple Carplay & Android Auto
- ▶ Consumers can use their cell phone as their key and don't have to deal with clunky key chains
- ▶ Features like Smart Summon, Boombox, Tesla Arcade & Theater give unique exposure
- ▶ All Tesla's share the same basic UI and have only one software package which is FSD Beta





Competitive Landscape



Mkt Cap	\$62B
Net Income	(\$5B)
Beta	2.61

- ▶ NIO designs, manufactures, and sells EV's in China, the U.S., the UK, and Germany
- ▶ In China, NIO only has 160 battery-swapping stations while Tesla has 730 supercharging stations
- ▶ NIO has a single factory which is based in China
- ▶ Tesla's sales in China were +200% greater than NIO's
- ▶ NIO faced bankruptcy in 2019 and was bailed out by government cash injection



Mkt Cap	\$84B
Net Income	\$6B
Beta	1.39

- ▶ GM is an American multinational corporation that designs, manufactures, markets, and distributes vehicles & parts for vehicles
- ▶ GM's joint ventures, primarily in China, give the automaker limited control over business decisions and benefits
- ▶ GM's R&D expenses decreased by 8% compared to Tesla's who's increased by 11%
- ▶ In Q4 of 2020, GM recalled tens of thousands of all-electric Chevrolet Bolt's due to risk of fire



Volkswagen

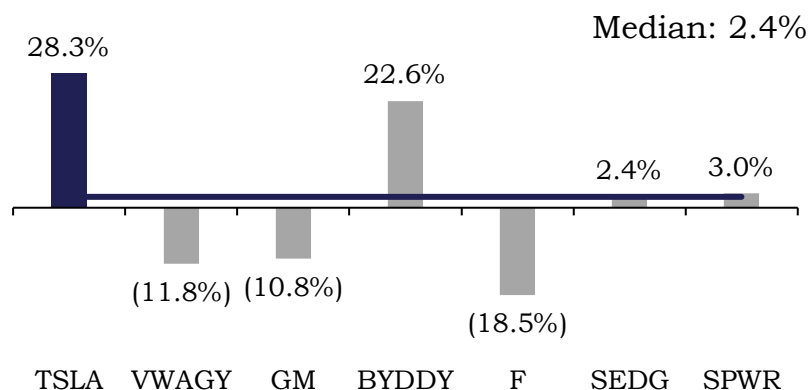
Mkt Cap	\$131B
Net Income	\$8B
Beta	1.51

- ▶ Volkswagen is a global leader in the manufacturing of automobiles and commercial vehicles
- ▶ VW had 11% global EV market share in 2020, over 2x less than Tesla's 23% position
- ▶ VW's reputation was damaged by a diesel emissions scandal that emerged in 2015
- ▶ VW's Electrify America Network is tedious and complicated in comparison to Tesla's supercharging network

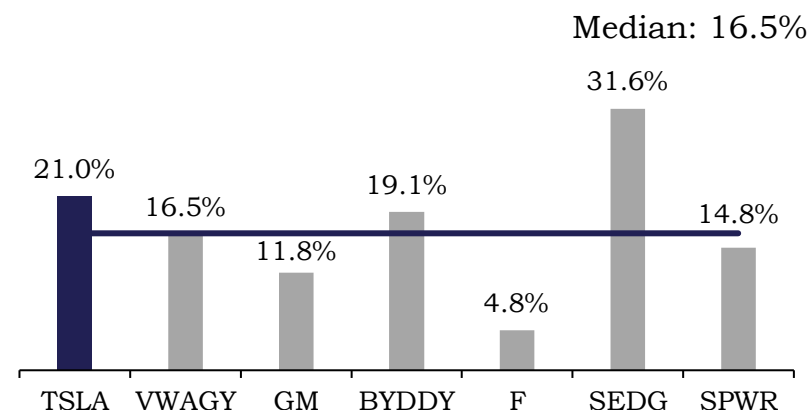


Public Benchmark

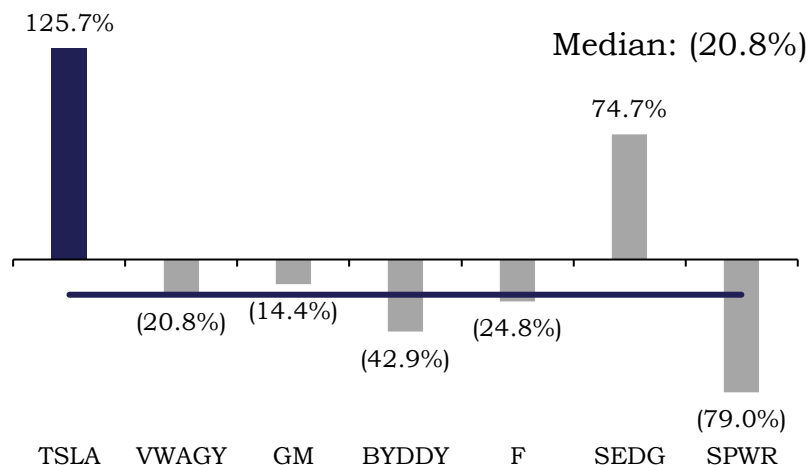
LTM Revenue Growth (%)



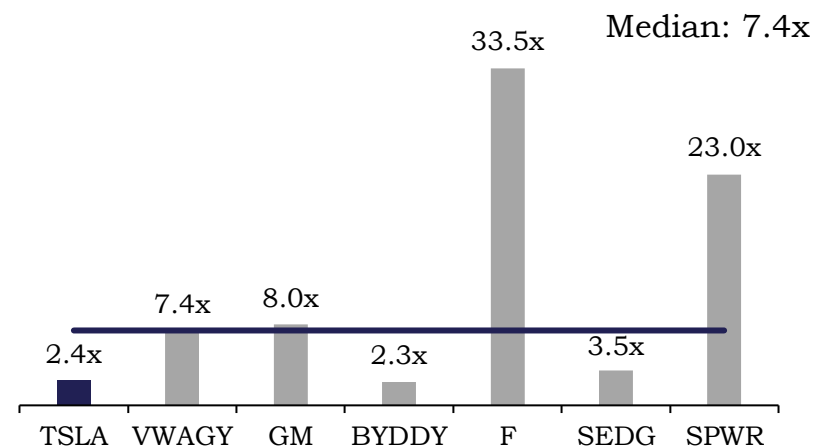
Gross Margin



LTM Capex Growth (%)



Debt / LTM EBITDA





Public Comparable

Company	Market Cap (USD)	TEV (USD)	TEV / EBITDA			P / E			Debt / LTM EBITDA
			LTM	2021E	2022E	LTM	2021E	2022E	
Volkswagen AG	\$157,525	\$296,491	10.8x	7.2x	6.5x	14.9x	10.1x	8.8x	7.4x
General Motors Company	82,838	166,379	12.2x	7.0x	6.4x	12.9x	11.3x	9.7x	8.0x
BYD Company Limited	71,097	77,089	22.7x	21.7x	19.0x	109.1x	86.9x	66.9x	2.3x
Ford Motor Company	46,817	172,678	35.9x	14.1x	14.1x	NM	12.0x	7.8x	33.5x
SolarEdge Technologies, Inc.	13,158	12,717	74.4x	35.6x	26.8x	93.8x	69.6x	47.6x	3.5x
SunPower Corporation	4,717	5,125	184.4x	41.1x	28.8x	9.9x	100.0x	45.9x	23.0x
Mean			56.7x	21.1x	16.9x	48.1x	48.3x	31.1x	13.0x
Median			29.3x	17.9x	16.5x	14.9x	40.8x	27.8x	7.7x
Tesla, Inc.	\$714,246	\$706,645	165.4x	74.6x	56.1x	990.6x	215.2x	134.1x	2.4x



Discounted Cash Flow

Tesla (Nasdaq: TSLA)									
In Millions									
<i>Fiscal Year Ending Dec 31,</i>	2017A	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E
Revenue									
Total Revenue	\$11,759	\$21,461	\$24,578	\$31,536	\$40,929	\$57,081	\$76,887	\$98,341	\$122,633
(-) Cost of Goods Sold	(9,536)	(17,419)	(20,509)	(24,906)	(29,846)	(37,095)	(45,313)	(54,260)	(62,346)
Gross Profit	2,223	4,042	4,069	6,630	11,082	19,986	31,574	44,081	60,288
(-) Operating Expenses	(3,980)	(4,408)	(4,093)	(4,758)	(7,133)	(9,926)	(13,559)	(18,177)	(23,099)
EBIT	(1,757)	(366)	(24)	1,872	3,950	10,060	18,015	25,904	37,189
EBIAT	(2,241)	(1,063)	(775)	862	3,481	6,819	12,734	18,499	26,958
(+) Depreciation & Amortization	1,636	1,901	2,154	2,322	3,409	4,653	6,111	8,008	9,910
(-) Capex	(4,081)	(2,319)	(1,432)	(3,232)	(4,093)	(8,562)	(11,533)	(14,751)	(18,395)
(+/-) Changes in Working Capital	715	(41)	280	1,415	(358)	964	1,134	724	1,141
Free Cash Flow	(3,971)	(1,522)	227	1,367	2,439	3,875	8,445	12,479	19,613
PV of Cash Flow					\$2,319	\$3,426	\$6,943	\$9,539	\$13,939
Assumptions	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E	
Automotive Growth (%)	107%	13%	31%	30%	40%	35%	30%	25%	
Energy Generation and Storage Growth (%)	39%	(2%)	30%	35%	45%	45%	40%	30%	
Services and Other Growth (%)	39%	60%	4%	25%	30%	20%	20%	15%	
Automotive Leasing Growth (%)	(20%)	(2%)	21%	25%	35%	35%	25%	20%	
Cost of Revenues Automotive Sales Growth (%)	104%	16%	24%	20%	25%	23%	20%	15%	
Services and Other Growth (%)	53%	47%	(4%)	20%	18%	15%	15%	10%	
Automotive Leasing Expense Growth (%)	(31%)	(6%)	23%	(5%)	4%	7%	2%	4%	
Energy Generation and Storage Growth (%)	56%	(2%)	47%	25%	30%	30%	25%	20%	
Selling, General and Administrative (% of Revenue)	13%	11%	10%	11%	11%	11%	11%	11%	
Research and Development (% of Revenue)	7%	5%	5%	6%	6%	7%	7%	8%	
Other Expenses (% of Revenue)	1%	0%	0%	0%	0%	0%	0%	0%	
Interest Expense (Net) (% of Revenue)	3%	3%	2%	3%	3%	2%	3%	2%	
Income Tax Rate	6%	17%	25%	21%	21%	21%	21%	21%	
D&A (% of Revenue)	9%	9%	7%	8%	8%	8%	8%	8%	
CapEX (% of Revenue)	11%	6%	10%	10%	15%	15%	15%	15%	
AR (% of Revenue)	4%	5%	6%	5%	6%	6%	5%	6%	
Inventory (% of COGS)	18%	17%	16%	17%	17%	17%	17%	17%	
Prepaid Expense & Other Current Assets (% of Revenue)	3%	4%	4%	4%	4%	4%	4%	4%	
AP (% of COGS)	20%	18%	24%	21%	21%	22%	21%	22%	
Accured Liabilites (% of Revenue)	10%	13%	12%	12%	12%	12%	12%	12%	



Discounted Cash Flow Output

WACC Calculation	
Risk Free Rate	1.54%
Beta	0.75
Equity Risk Premium	8.07%
Cost of Equity	7.60%
Pre-Tax Cost of Debt	4.36%
After-Tax Cost of Debt	3.82%
Equity %	98.57%
Debt %	1.43%
WACC	7.55%

Implied Share Price	
Sum of Free Cash Flow	\$36,165
Exit Multiple (EV/EBIDTA)	29.3x
Terminal Value	\$1,381,289
Discounted Terminal Value	\$959,880
Implied Enterprise Value	\$996,045
(-) Debt	(10329)
(+) Cash and Equivalents	19384
(-) Minority Interest	(1454)
Implied Equity Value	\$1,003,646
Diluted Shares Outstanding	1022
Implied Share Price	\$982.15

Sensitivity Analysis										
		Exit Multiple								
		28.9x	29.0x	29.1x	29.2x	29.3x	29.4x	29.5x	29.6x	29.7x
Weighted Average Cost of Capital	5.43%	\$971.9	\$975.1	\$978.3	\$981.5	\$984.7	\$987.9	\$991.1	\$994.3	\$997.5
	5.93%	971.3	974.5	977.7	980.9	984.1	987.3	990.5	993.7	996.9
	6.43%	970.7	973.9	977.1	980.3	983.5	986.7	989.9	993.1	996.3
	6.93%	970.1	973.3	976.5	979.7	982.9	986.1	989.3	992.5	995.7
	7.55%	969.3	972.5	975.7	978.9	982.15	985.4	988.6	991.8	995.0
	7.93%	968.9	972.1	975.3	978.5	981.7	984.9	988.1	991.3	994.5
	8.43%	968.3	971.5	974.8	978.0	981.2	984.4	987.6	990.8	994.0
	8.93%	967.8	971.0	974.2	977.4	980.6	983.8	987.0	990.2	993.4
	9.43%	967.3	970.5	973.7	976.9	980.1	983.3	986.5	989.7	992.9



Potential Risks & Mitigants

- ▶ Tesla faces increased competition for similar products and services from a growing list of established and new competitors
 - ▶ Mitigant: Tesla has an exclusive network of supercharging stations that solve an obstacle that many other EV manufacturers have yet to successfully address – widespread fueling accessibility
 - ▶ Mitigant: Tesla continues to enjoy high consumer demand that is driven by modern design, innovative technology, and high performance
 - ▶ Mitigant: Tesla has the most loyal customers of any car company with 73% of Tesla customers returning to buy/lease Teslas after they dispose of their present ones
- ▶ Any supply chain disruptions related to lithium-ion cells may lead to bottlenecks
 - ▶ Mitigant: Tesla has a diverse and reliable lineup of battery suppliers including Panasonic, CATL, LG Chem, and Samsung SDI
 - ▶ Mitigant: Tesla has acquired 10K+ acres of land to mine its own lithium in Nevada, with plans to manufacture a significant portion of its battery cell needs in-house
- ▶ Consumers question Tesla's safety after recent crash
 - ▶ Mitigant: The recent crash was a result of Tesla system misuse
 - ▶ Mitigant: Model S, X & 3 achieved the lowest overall probability of injury of any vehicle ever tested by the U.S. government's New Car Assessment Program
 - ▶ Mitigant: In Q1 of 2021 Tesla registered 1 accident for every 4.19M miles driven with Autopilot & 1 accident for every 978K miles driven without Autopilot. In contrast, The National Highway Traffic Safety Administration recorded that there is an automobile crash every 484K miles



Q&A



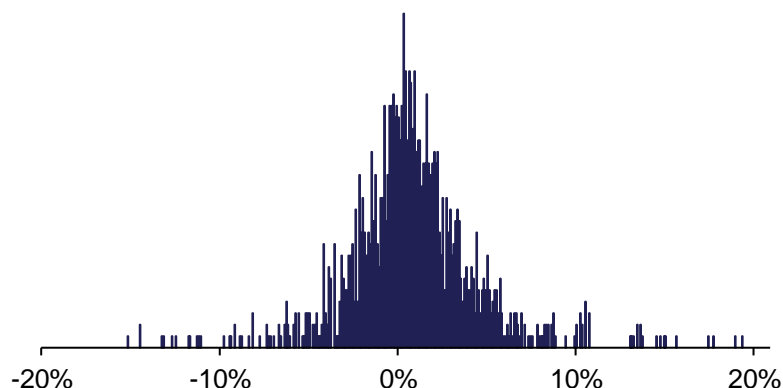
Appendix



Recalculating Beta

- ▶ $Beta = \text{Correlation between TSLA and SPY} * \left(\frac{\text{Standard Deviation of TSLA returns}}{\text{Standard Deviation of SPY returns}} \right)$
- ▶ Yahoo Finance Beta: 2.01
 - ▶ Flaws:
 - ▶ TSLA is the 6th largest position in the SPY, therefore TSLA has a stronger pull
 - ▶ Test correlations before tesla was in the SPY or take TESLA out of the SPY
 - ▶ Yahoo Finance uses monthly returns to calculate Beta. Ex. January 1st, February 1st, etc.
 - ▶ However, instead of using monthly returns, when you use daily returns it lowers the Beta as it provides ~30x more data, making it more accurate
- ▶ Re-calculated Beta: 1.60

TSLA Daily Returns



S&P 500 Daily Returns

