NOVA SCHOOL OF BUSINESS & ECONOMICS

MASTER IN FINANCE

"TESLA INC."

COMPANY REPORT

"AUTOMOTIVE & TECH SECTORS"

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A Tech Company Selling Cars

"A story driven valuation"

- Tesla's market capitalization of $669bn as of 2. Jan. 2021 is disconnected from reality and can in our view not be justified by fundamental analysis. The 52-week share price range of $70,10-$718,71 implies a story-driven valuation that has given Tesla's share price the momentum to reach unprecedented heights.

- Independent of the current market valuation of Tesla we see the company with great potential for growth and innovation, as it expands its production facilities towards Europe and China and has promising developments in breakthrough battery technologies, which will permit it to keep its competitive advantages and establish itself as the continued market leader in the battery electric vehicle (BEV) market and an important player in the energy generation & storage market in the future.

- Having almost reached the milestone of 500.000 delivered vehicles in 2020 and with ambitious expansion projects underway, we estimate that Tesla could reach close to 2 million vehicle deliveries in 2025 and 3,7 million in 2035. We reach a price target for FY21 of $160,70 through the APV valuation method and weighing three possible outcome scenarios that are detailed in the report.

Brief Company description

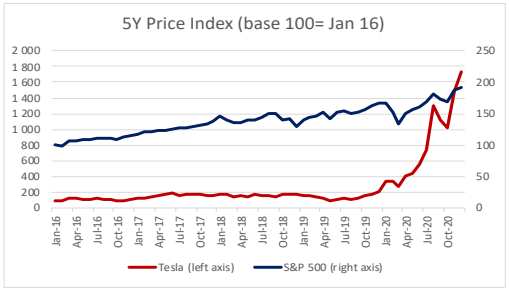
Tesla was founded and established in Palo Alto, California in 2003. Its automotive segment offer includes an expanding range of models and its energy generation & storage division sells energy storage systems as well as photovoltaic energy generation products for retail, industrial and commercial use.

Recommendation:	**SELL**
Price Target FY21:	**160.70$**
Price (as of 3-Jan-21)	**705.67 $**

Reuters: TSLA. OQ, Bloomberg: TSLA

52-week range (€)	718.72-70.10
Market Cap (€m)	668,905
Outstanding Shares (m)	947.9
Credit Rating (S&P, Moody's)	BB-, B2
ESG Rating (MSCI)	A

Source: Capital IQ, Moody's, MSCI



Source: Yahoo Finance

(Values in € millions)	2019	2020E	2021F
Revenues	24,578	32,198	40,436
EBITDA	2,235	4,544	6,225
Net Income	-862	955	1,699

Source: Tesla 2019 Annual Report, Own Estimate

Table of Contents

1. Company Description

"Tesla is not really a car company, it's a tech company on wheels."
Jim Cramer on CNBC, 2020

Scenario	Target Price	Probability
in USD		
Base-Case Scenario	149,30	80%
Best-Case Scenario	240,56	20%
Worst-Case Scenario	80,77	10%
Weighted Target Price	**160,7**	

Fig. 1 Target price by scenario
Source: Own estimations

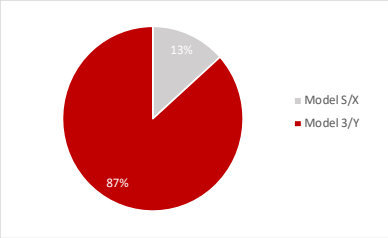


Fig. 2 Deliveries Breakdown (Last 4 quarters rolling Source: Tesla 2019 Annual Report; own illustration

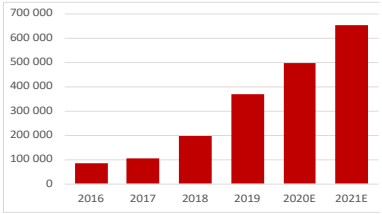


Fig. 3 Car units sold.
Source: TSLA 2019 Annual Report, own forecast

Tesla Inc, (formerly known as "Tesla Motors" until 2017) founded in 2003 and headquartered in Palo Alto, California designs, develops, manufactures, leases and sells electric vehicles, energy storage and generators internationally. The company was founded with the mission of accelerating the world's transition to sustainable energy[1]. As of Q3 2020, 86% of its total revenues is generated from electric vehicle sales and leasing[2], yet, given its location in Sillicon Valley, the essential part of softwares as part of its cars' operating systems and its leveraging of data (to date more than 4 billion miles in Tesla Model 3s data have been collected) to power innovation (both in EVs and energy storage & generation offering) we recognize it cannot be compared and cosidered only as a car manufacturer as we traditionaly understands it, but also as a tech company competing in the automotive sector, this classification will have its importance when selecting the peers for our comps analysis and influence the equity valuation. At the end of September 2020, Tesla is the world largest BEV producers, having delivered 319,980 units year to date, the Tesla Model 3 being the most sold BEV globally totalling 280,861 deliveries by the end of Q3 2020[3]. Its automotive segment directly sells to customers via company owned stores and its website: premium sedans and SUVs. The company is diversifying its offer by offering a sportscar, a truck and a semi on pre-orders. By the end of 2020 Tesla will also provide in-house car servicing, electric powertrains components and systems. The energy generation and storage segment offers lithium-ion battery systems for homes, industrial and commercial facilities. It also designs, sells, leases, installs and maintains solar energy generation and storage products available to retail and commercial customers. Tesla is a publicly traded company on Nasdaq (2010) and the S&P 500 (Dec, 2020). Co-founder, CEO & Director Elon Musk leads the company since inception.

2. Shareholder Structure

a. Investor Base, Who Owns Tesla's Equity?

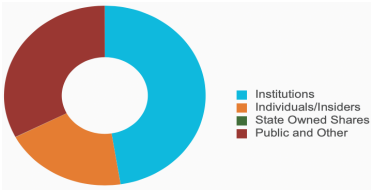
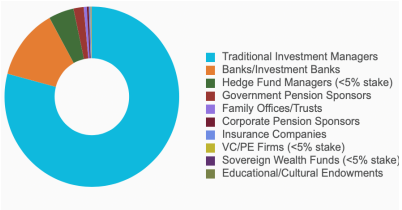


Fig. 4 Investor Base breakdown
Source: Public data, Capital IQ

from: https://www.tesla.com/elon-musk
Quarter 2020, Retrieved from:
https://www.sec.gov/Archives/edgar/data//1318605/000156459020047486/tsla-10q_20200930.html
[3] Tesla (2020), *Tesla Q3 2020 Vehicle Production & Deliveries,* Retrieved from: https://ir.tesla.com/press-release/tesla-q3-2020-vehicle-production-deliveries

Tesla's investors base as of Q3 2020 is balanced between institutional investors (46.76%), General Public (33.37%) and Insiders/individuals (19.84%). The institutional investor base is largely composed of so-called "Traditional Investment Managers", (asset managers, mutual and pension funds), Banks and Hedge Funds which respectively account for around 80%, 13% and 5% of all institutional investors. Notable institutional owners with a share higher than 3% of total shares outstanding are: Capital Research and Management Company (5.67%), Vanguard (4.67%), Citadel Securities (4.05%), BlackRock (4.01%) and Baillie Gifford (3.66%). Lastly, two board members/insiders own more than 1% of the total shares outstanding: the CEO Elon Musk (17.99%) and Larry Ellison (1.59%). Knowing that Musk owns around 18% of total shares outstanding and that a significant portion of it is used as personal debt collateral[4] represents a significant risk for the equity valuation of the company if he was to sell them quickly at a given point.

Fig. 5 Institutional investor base breakdown; Source: Public data, Capital IQ



b. Similarities with Tech Sector

We observed that Tesla's investors base is much closer to the one of tech giants such as Amazon, Facebook and Alphabet, than the one of traditional car makers to which Tesla's market capitalization is often compared to such as Volkswagen, Daimler, Renault, or Toyota. Indeed, unlike these market players that have been n the industry for several decades whose typical investor base includes significant ownership from corporates, a wider share of general public/retail investors as well as state ownership especially for European generalists (VW, Renault); Tesla on he other hand, similarly to the previously mentioned tech giants doesn't have any state owned shares nor ownership from other corporates and sees insiders keeping a significant of the shares outstanding (higher than 10%). This certainly has to do with the stock characteristic of these two distinct groups (tech vs auto); historic car manufacturers have always been considered as value stocks, companies with rather stable cash flows, traditionally paying stable dividends, companies well known by the general public and perceived which tend to be undervalued as opposed to growth stocks in the likes of tech companies which have been in existence for fewer years yet active in sectors with a high growth rate. These companies typically pay small to no dividend at all since they are still very young and it takes them time to scale and to be able to see a return on their internal investment which explains why many tech companies took years to be profitable and as a consequence did not pay any dividends at all (e.g.

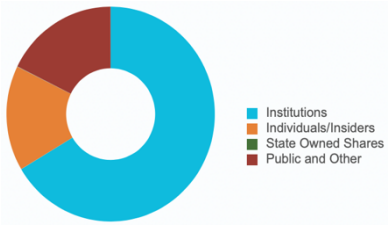


Fig. 6 Facebook's investor base breakdown; Source: Public data, Capital IQ

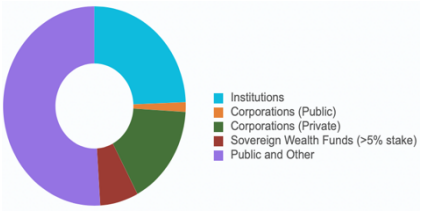


Fig.7 Volkswagen investor base breakdown; Source: public data, Capital IQ

[4] Morningstar (2020), *Morning Star View on Tesla,* Retrieved from: https://www.morningstar.co.uk/uk/news/208461/the-morningstar-view-on-tesla.aspx

Facebook). Furthermore, a lot of these companies' values resides in intellectual property which and software's whose real value can hardly be assessed.

c. Changes within Institutional Investors Base

Looking at the evolution of Tesla's top 30 largest institutional investors (*source: Capital IQ*) is relevant to have a sense of market consensus and have a first idea of what the view of professional investors is towards the company. If we were seeing a massive sell off in the last quarters from institutional investors it would be an indicator that would show that the equity is considered overvalued by the market, However, looking at the above table that the long term trend highlights that institutional investors generally increased their weight in Tesla over the past 3 years post commercialization of the mass market model 3 which helped large asset managers globally considering Tesla as a serious competitor in the BEV market globally. However, looking at the figures YTD (comparing year end 2019 to Q3 2020) we can see that there is no market consensus with 14 of the top 30 institutional investors reducing their holding in Tesla whereas 15 others were increasing their weight in their portfolios (Susquehanna keeping holding unchanged). Yet we might see changes in at the end of Q4'20 after Tesla's entry in the S&P 500 on December 21th 2020 as the 5th largest weight on the index (1.69%) certainly forced some index fund managers to buy more Tesla stock meanwhile, the other hand, it is very likely that the largest asset managers certainly anticipated the event and therefore active managers such as Hedge funds may have sold shares the day before entry to cash out.[5] Therefore, we would expect the total ownership of institutional investors to slightly decrease in favour of additional weight from retail-individual investors.

3. Automotive Industry

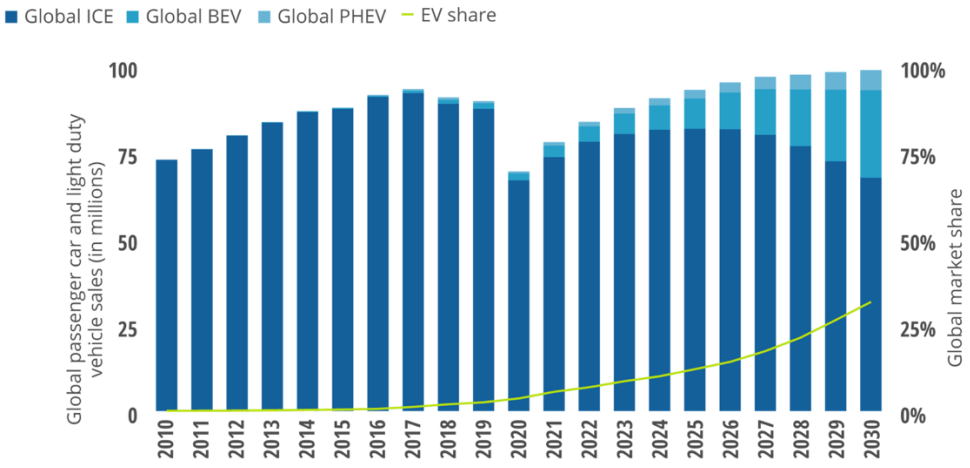
The automotive industry finds itself in a transition period in which new business models, new technologies and a changing consumer sentiment towards more sustainability are disrupting the industry. Battery electric vehicles (BEVs), plug-in hybrid electric hybrid (PHEVs) and autonomous vehicles (AVs) are entering the automotive market and establishing themselves as the next alternative to vehicles with internal combustion engines (ICEs). 2019 was the year that the number of EVs sold surpassed two-million units, reaching a total market share in the automotive market of 2,5%. The overall market for ICE vehicles and EVs will continue with

[5] Yahoo Finance (2020), *What Tesla's entry to the S&P 500 means for index investors*, Retrieved from: https://finance.yahoo.com/news/what-teslas-entry-to-the-sp-500-means-for-index-investors-155804287.html

momentum towards 2030. [6] The strongest growth is expected to come from China and India, that are witnessing the rise of a consumer middle class but also from Europe. As a result, the company decided to open Gigafactories in Shanghai and Germany in order to meet future demand but also delivering vehicles at a cheaper price due to the end of importing costs and additional taxes.

According to Deloitte, it is expected that in 2020 EV sales will reach 2.5 million units sold and up to 11.2 million and 31,1 million by 2030[7], which would correspond to a 29% compound annual growth rate. Even though the pandemic might affect overall growth rates in the early 2020s, part of the economic recovery efforts made by nations will focus on sustainable development, further driving the rise in numbers of pro EV policies. By 2030 China could account for 49% of the global EV market, while Europe and the US are expected to represent 27% and 14% respectively. We estimate that in 2020 Tesla will maintain its market leader position with about 19% of global market share by volume (based on 497k units sold). Later on, as the market matures with more competitors entering the market but also as (among others) Tesla grows its production capacity with new factories and cheaper battery costs enabling the penetration of mass markets, we expect Tesla to retain in 2025 and 2030 a 19% and 12.8% market share respectively. We will explain how we reach these expected market shares as we bring more details regarding sales figures and growth perspectives per model along the report.

Fig. 8 – Outlook for annual global passenger-car and light-duty vehicle sales to 2030



Source: Deloitte analysis, IHS Markit, EV-Volumes.com[16]

a. Main Challenges for EVs

[6] Deloitte (2020), *Electric vehicles - Setting a course for 2030,* Retrieved from: https://www2.deloitte.com/uk/en/insights/focus/future-of-mobility/electric-vehicle-trends-2030.html
[7] Deloitte (2020), *Electric vehicles - Setting a course for 2030,* Retrieved from: https://www2.deloitte.com/uk/en/insights/focus/future-of-mobility/electric-vehicle-trends-2030.html

As consumers become more environmentally aware, particularly in developed markets, the demand for low emission EVs increases. However, a number of key concerns for consumers concerning the practicality of EVs have been impeding the transition from ICE vehicles to EVs. We will focus our analysis on 3 of the most prominent challenges faced by the industry and we will see how Tesla position itself regarding those matters.
According to the Deloitte (2020) Electric vehicles - Setting a course for 2030-Report, the main concern of German consumers (33%) is the limited driving range of EVs whereas in Italy (32%), the UK (33%) and in the US (29%) the main concern of consumers is the limited charging infrastructure. Another critical concern for French and US customers is the current premium price of EVs compared to ICEs that make EVs less attractive for mass markets.

i. Supercharger Network

Tesla has a competitive advantage compared to its peers in the EV market, contributing strongly to the growth in vehicle sales due to the sheer convenience for consumers. Its "Supercharger Network" being the largest private network of EV chargers worldwide. As of November 2020, Tesla operates over 20.000 superchargers in 2.000 stations of which 1000 are in North America and around 500 in Europe and the Asia Pacific region each[8]. Tesla's superchargers are also significantly more powerful than public chargers as they can power up to 250Kw as opposed to only 50Kw or 150Kw for a standard public facility which translates into recharges up to 50% faster for Tesla customers[9]. Yet the current numbers remain very low if we compare it to the number of petrol stations available globally for ICE drivers thus, we can easily understand that for the EV trend to be sustainable and effectively reach the expected 30% of total light-duty vehicles by 2030 new charging stations will have to be installed at exponential rate. However, the EU is leading the charge and announced that there will be 1,000,000 public chargers by 2025[10], setting the stage for huge growth potential for Tesla in Europe. Furthermore, this competitive advantage to other EV manufacturers is prompting several of them to form future partnerships with Tesla in order to gain access to the Supercharger Network, resulting in possible new revenue streams for Tesla as they provide this service to other car brands.

[8] Tesla 2020, Supercharger Figures Retrieved from: https://www.tesla.com/supercharger
[9] Forbes, *Tesla Supercharger Network Vs Electrify America Vs EVgo* (Late 2020), retrieved from: https://www.forbes.com/sites/brookecrothers/2020/12/06/state-of-electric-car-fast-charging-late-2020-tesla-supercharger-network-vs-electrify-america-vs-evgo/?sh=47b63eff12e6
[10] Bloomberg (2020), *Global Electric Vehicle Cords Top 1 Million,* Retrieved from: https://www.bloomberg.com/news/articles/2020-08-05/global-ev-charging-points-hit-1-million-threshold

Lastly, going further on supercharger networks, we believe that as Tesla is about to get its Semi truck on market by 2021 or early 2022, having a faster and significantly wider supercharger network will be absolutely central to the success and development of Tesla's Semi. Our view is that the sufficient network is not quite there yet, especially in less crowded areas and in the countryside to enable a wide spread of heavy EV truck freight transport. Despite having a starting price in line with a new ICE heavy truck and having unmatched performance with its closest (perhaps only one) direct competitor which is the Volvo VNR which only offers a 150mile range (vs 300-500 mile for Tesla's), the Semi is probably too ahead of its time and according to us it might not be quite as successful as expected in its first year of commercialization (but might be later in the decade when charging infrastructure and recharging time will decrease). The global market size for heavy trucks (buses and trucks) which is on a continuous downtrend is expected to reach 2.9m units in 2021 according to IHS Markit data[11], based on this market size we expected Semi to have a market share smaller than 1% selling a bit less than 20k units in 2025.

ii. Battery Ranges

Concerning battery and ranges, Tesla also has a competitive edge on their competitors in almost every model range. Starting with Tesla's flagship model, the Model S, across its variants its range goes from 420km (72.5 kWh battery) up to 644km (100 kWh battery). The only upfront competitor of the Model S in the luxury EV segment is the Porsche Taycan, which with battery variants of 79 kWh and 93 kWh, achieves ranges of 333 km up to 463 km. In the SUV segment, Tesla's Model X also leads with ranges from 383km to 523km for their 75kWh and 100kWh battery models respectively. Comparatively the Mercedes EQC comes only with an 85-kWh battery variant and a range of 429km. The Audi e-tron offers two variants with a 71-kWh battery – 297km range and a 95kWh – 430 km range configurations. Tesla's most sold model, the Model 3 has a range of either 423km or 568 km depending on configuration, once again beating its direct competitors by a wide margin with the Polestar 2 reaching 370km[12].

As long as competitors will not be able to produce longer ranges/ cheaper batteries we expect Tesla to keep its first mover advantage and to maintain a dominant position especially regarding premium sedans (Model 3) and small SUVs (Model Y) whose prices and ranges will remain unmatched in the market in 2021. As a result

[11] Autocar Pro (2020), *Global CV demand to fall to five-year low in 2021: IHS Markit,* Retrieved from: https://www.autocarpro.in/news-international/global-cv-demand-to-fall-to-fiveyear-low-in-2021-ihs-markit-78074
[12] Mobility House (2020), Battery Capacity and ranges data; Retrieved from: https://www.mobilityhouse.com/int_en/knowledge-center/charging-time-summary

of the battery range and cost advantage but also due to the current lack of competitors today within the same price range and offering similar prestation we are forecasting Model 3 sales to grow at a 25% rate for the next two years meanwhile Model Y -whose platform is based on Model 3- could see sales reaching nearly 475k units by 2025 4 years after its launch (taking aside 2020 since only 20k were able to be delivered due to production delays related to covid). We assumed such a growth following a quite conservative assumption as this amount corresponds to the forecasted amount of Model 3 sold in 2020 (417k), 4 years after its launch with a 13% increase in order to compensate for the delay in deliveries accumulated in 2020 during the pandemic and also as the company has now more production capacities. This number could easily go up as Model Y will enter the very trendy small urban SUV market which is the fastest growing market in automobile.

iii. Manufacturing costs & Battery progresses

A McKinsey survey[13] showed that on average EVs were USD 12,000 more expensive to produce than ICEs which explains why EVs are sold at a premium compared to other vehicles but also why most constructors can't make a profit on them. The most relevant reasons for this premium come down to battery costs and the fact that automakers need to re-engineer completely platforms and powertrains. It will certainly take an additional 4 to 5 years before traditional automakers can start operating at a profit in the EV space. We believe that Tesla will foster its competitive advantage because the company having been in the market for several years, it was able to get a return on R&D costs which now translate into profitable quarters and enables the company to sell cars at a profit. Research and development (R&D) is Central to Tesla's competitive/price advantage relies in its battery technology. Expenses in R&D have comprised 12% of revenues 2016 and 2017, falling to 7% in 2018 and 5% in 2019. We forecast R&D spending to remain at 5% of revenues looking forwards. Whilst most EV manufacturers use pouch or prismatic battery cells, Tesla's uses cylindrical battery cells, which are considerably more affordable (USD 200 vs USD 158 per kWh)[14]. Tesla's Gigafactory in Nevada produces more batteries (in terms of kWh) than all of its competitors combined, enabling scaling.

[13] McKinsey (2019), *Making Electric Vehicles Profitable*, Retrieved from: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/making-electric-vehicles-profitable
[14] Clean Technica (2020), *Tesla's Battery Costs Have Been Dropping ...Fast,* Battery cost figures, Retrieved from: https://cleantechnica.com/2020/02/26/teslas-battery-costs-are-dropping-fast/#:~:text=Tesla%20is%20the%20only%20automaker,in%202019%2C%20according%20to%20Cairn

The announcement made by Elon Musk on "Battery Day" last September confirmed that new R&D findings will result in a series of innovations that will enable to bring down battery cost down by 56% likely to be effective in 3 years (thus 2023 onwards). As we can't be 100% sure that the figures announced by Musk on September 22nd 2020 will reflect reality we will be more conservative giving it a 60% chance of success and will therefore assume a 30% battery cost cut into our model starting 2023. Based on research data from Statista the production costs of a car accounts for nearly 50% of total expenses (47% exactly) knowing that the battery itself accounts for about 30% of manufacturing costs we forecast an effective 4.37% decrease in the expense margin of automotive sales from 2023 onwards.

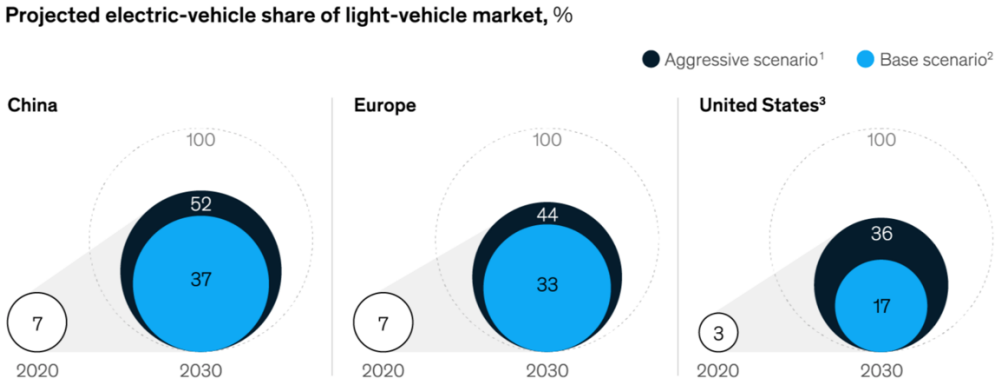
The launch of this revolutionary battery technology should coincide with the launch of Tesla's first mass market model (referred to as "Model Z" in this report and in the model) that should be launched at a $25,000 starting price. We believe that this smaller and cheaper vehicle should be well-suited to succeed in the European market as Europeans are keener than Americans or Chinese on small vehicles mainly used in urban or suburban areas. Although design, technology and ranges will certainly differ, Model Z will enter the competition well dominated at the moment by the Renault Zoe -starting price EUR 24,000-, Europe's most sold EV whose sales totaled 268k units since launch (84k YTD as of Nov. 2020)[15], we could expect that by 2024 other European manufacturers will have been able to launch a smaller EVs in the price range of Model Z. Therefore, we expect sales on the first year to be at around 75k units, slightly inferior to those of a Zoe.

b. Regional markets and policies

We recognize that Tesla's future growth in the short-medium term will come from two main regions/countries outside its US home market: the EU and China. Governments and regulators play a critical role in helping the EV market to develop at rapid pace by attracting foreign manufacturers to build local plants but also incentivizing customers to buy EVs instead of ICEs. Yet, regional policies diverge, so regional penetration and growth rates do too. This section will help us understanding in which markets Tesla has the most chances to drive its future growth globally and also to see in the short-term regional policies could increase revenues from regulatory credits.

Fig. 9 Projected market share of EVs per region

[15] Renault (2020), *Renault, Leader of EV Sales in Europe,* Retrieved from: https://en.media.groupe.renault.com/news/renault-leader-of-ev-sales-in-europe-9c0d-989c5.html



Source: McKinsey (2020), Electric Mobility after the crisis, Retrieved from: *https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/electric-mobility-after-the-crisis-why-an-auto-slowdown-wont-hurt-ev-demand*

The EU is definitely the region that is taking the more actions towards facilitating the development of the EV market, closely followed by China meanwhile the US has been standing back on the topic under the Trump Administration. The first way policymakers are trying to incentivize customers to buy EVs instead of ICEs is by setting up subsidies. European are particularly generous as countries such as Germany can grant up to EUR 9,000 for the purchase of a new EV worth up to EUR 65,000, EUR 6,000 in France or USD 3,500 in China[16]. Most programs across EU countries and China were extended by additional 2 years in a move to stimulate the economy post pandemic[17]. The second leverage governments are using to develop the EV market and working toward meeting emission targets set by the 2015 Paris Agreement (and the European Green Deal) is by giving incentives to car manufacturers to localize productions sites. China and 11 of US states (members of the California's Advanced Clean Car Program) established a credit system with specific targets that manufacturers must meet (producing a certain % of EVs within their total fleet). Producers with extra credits can sell it to producers failing targets. Tesla having a fleet 100% made of EVs, the company is a net beneficiary of these programs which generated nearly USD 600M, as Tesla finished to build the Shanghai factory in 2020, we forecast a surge in credit revenues in 2020 that we believe will total at least USD 1.5bn, a 165% YoY increase. In order to reach that amount as it is quite hard to estimate the number of credits that will be sold in a given state to other car manufacturers we simply multiplied the Q3'20 amount by 4/3. Going forward, in addition to the Chinese factory, with the construction of the new factory in New York state we expect the firm to see a 30% increase per annum in credit revenues as revenues should increase especially from New York as US constructors

[16] European Alternative Fuels Observatory (2020), *Incentives Germany*, Retreived from: https://www.eafo.eu/countries/germany/1734/incentives#:~:text=Germany%20%2D%20Company%20Tax%20Benefits&text=Purely%20electric%20cars%20with%20a,advantage%20being%20taxed%20(0.25%25)

[17] China-Briefing (2020), *Incentives for China's New Energy Verhicles Industry*,retreived from: https://www.china-briefing.com/news/china-electric-vehicles-hybrid-vehicles-industry-incentives-extended-investment-new-infrastructure/

are still far being EV targets. However, we don't think that credits will remain in existence after 2025.

c. New entrants to electric mobility

i. Traditional car manufacturers

With the gradual phase out of ICE vehicles in favor of EVs and PHEVs, traditional auto-manufacturers need to rethink their model line-up in order to keep up with both regulations and market demands. As a market disruptor and pioneer in making electric mobility mainstream, Tesla has the advantage of being an early adopter, with its entire lineup consisting of EVs. Traditional brands in the market such as Ford, Volkswagen, or BMW, have been trying to catch-up to this new trend and implement a makeover of their lineups over the coming decade to ensure their relevance and remain competitive in the future market of mobility. Traditional manufacturers are making massive investments in order to come up with new ranges of EVs and PHEVs. For instance, GM has planned to have 20 EV models out by 2023, BMW aims for 25 EV models for the same year meanwhile Volkswagen Group expects 25% of its global sales to be from EVs by 2025 and to have 70 new electric models in the market by 2028, by which point 40% of their sales could be traced back to EVs[18]. Electrification, connectivity, software and autonomous driving are just some of the technologies that are revolutionizing the industry. With new technologies come new competencies required to succeed in the industry, forcing traditional companies in the sector into a transitional period in which they adapt to the new reality of the market.

ii. New Entrants

The technological revolution in the industry also opens the door for new market entrants, particularly companies with a strong focus on technology such as tech start-ups or cash-rich high-tech companies. Some of the most prominent new names entering the industry include Li Auto, a Chinese car company, that already delivered more than 20.000 of its flagship electric SUV in just the past 10 months[19]. Their SUV tackles the lack of a widely accessible charging network in China, with a range of 800km, made possible through the use a small combustion engine that recharges the batteries of the electrically driven car. Nio, another Chinese EV producer came up with a different approach to electric mobility, by selling EVs, without included batteries. Instead of they offer battery-swapping stations spread across cities that eliminate the

[18] Deloitte (2020), *Electric vehicles - Setting a course for 2030,* Retrieved from: https://www2.deloitte.com/uk/en/insights/focus/future-of-mobility/electric-vehicle-trends-2030.html
[19] Equalocean (2020), *Li Auto Deliveries Cross 20,000 Mark, Retrieved from: https://equalocean.com/news/2020102014 97*

need for spending time recharging a battery. Nikola Corp., another new entrant promises to produce a pickup truck with a range of 900km.

« Apple is moving forward with self-driving car technology and is targeting 2024 to produce a passenger vehicle that could include its own batter technology"
- Reuters, December 2020

The convergence of the technology and automotive sector, particularly in the development of autonomous driving and connectivity of the cars is also opening the doors for cash-rich tech-companies to enter the market. Waymo, a subsidiary of Alphabet is considered by many to be the frontrunner in the development of autonomous vehicles. Tesla, Uber and General Motors are also leaders in the field. Tesla's lineup is currently one of the most advanced in levels of automation (1 to 5, 5 being the highest level where 0 human interaction is required). Currently at level 2 of automation, with certain functions of level 3. Waymo got as far as testing level 4 automated taxis in Arizona[20]. Before level 3 and 4 automated driving is widely available many technological and regulatory issues need to be resolved as well as addressing safety concerns by the public. According to the McKinsey Center for Future Mobility, level 5 fully automated driving could arrive by 2030.

Last but not least, the biggest future threat for Tesla might come for a tech giant: Apple. The largest company in the world by market cap is working on "Project Titan"[21] in a move to produce an autonomous driving EV relying on a cutting-edge battery technology that will significantly cut battery costs by 2024.

4. Solar & Energy Storage

a. SolarCity Overview

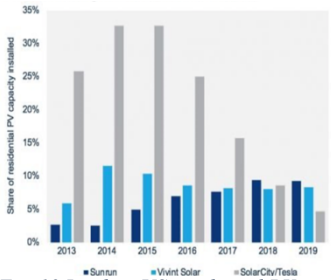


Fig. 10 Leading US residential PV-systems installers (2013-2019) Source: Wood Mackenzie (2020)m Retrieved from Green Tech Media Article[20]

With the acquisition of Solar City in 2016, Tesla entered the residential solar energy and energy storage market, expanding beyond the automotive market in a strategic move that could create synergies between the two business lines and benefit of the overall trend of the energy market towards solar and other renewable energy sources. Tesla paid USD 2.6bn worth of its own stock at the time for the acquisition. At the time of the transaction SolarCity was one of the three main players in the US residential solar energy market with a 25% market share, way ahead of closest competitors Vivint Solar and Sunrun with 9% and 7% market share respectively. Until 2019, Tesla's share in the market continued to decline, positioning it in third position in 2019 with only a 6% market share[22]. Several changes in Tesla's sales strategies

[20] ThomasNet, *Meet the 6 frontrunners in the seld-driving car race,* Retreived from: https://www.thomasnet.com/insights/meet-the-6-frontrunners-in-the-self-driving-car-race/
[21] Reuters (2020), *Apple targets car production by 2024 and eyes 'next level' battery technology – sources*, Retrieved from: https://www.reuters.com/article/uk-apple-autos-exclusive/exclusive-apple-targets-car-production-by-2024-and-eyes-next-level-battery-technology-sources-idUKKBN28V2PU
[22] Green Tech Media (2019), *Tesla's dropm continues in US residential solar rankings*, Retreived from: https://www.greentechmedia.com/articles/read/tesla-again-slips-in-residential-solar-rankings-dropping-to-third-in-q1-201

over the past years switched from in-store purchases and client acquisition channels to a mainly web-based approach. In the Q1 2019 letter to shareholders, Tesla stated "As we have done for the vehicle business, the key to accelerating mass adoption is to standardize the product offering, simplify the customer buying experience, and focus on the markets with the strongest economics. This results in cost efficiencies.[23] However, the expected results are not quite there yet as in 2019 Tesla's revenue from the solar and energy storage sector declined by $24 million.

b. Market Outlook & Forecasts

Overall, 48% of the global energy generation infrastructure installed in 2019 came from Solar energy, taking it up to 2.6% of total global energy output. In a study of the global energy transition towards renewable energy, the International Renewable Energy Agency (IRENA) estimated that until 2050 the world could derive over 80% of its energy from renewable energy sources, PV and wind power representing a 52% market share in this scenario[24]. A big component of this transition is the private installation of rooftop PV systems for self-consumption. Leading nations in the adoption of PV energy and storage solutions are China, the US and Europe which coincides with the main markets for Tesla's automobile businesses. Just in Germany 65,000 residential energy storage units were installed in 2019, which equals a 44% increase compared to 2018. The US has witnessed a growth of 66% in the same period. Germany, being Europe's largest adopter of residential solar energy systems is a good example for the falling prices of residential solar energy and storage systems. Just between 2015 and 2019, home energy storage products prices decreased by around 40% whilst the prices for rooftop photovoltaic (PV) systems decreased by 18% in the same period. Until 2023, BESS prices are expected to decline by an additional 33% and residential PV systems by additional 10%[25].

Both energy generation and storage solutions go hand in hand, as one technology complements the other (the more electricity you generate, the more you will need to store if it doesn't have to be used straight away). Players in this segment produce solutions for three main sectors: electronic devices, mobility (EVs) and stationary storage deployments, such as the ones often used parallel to the installation of rooftop PV units. One of the big challenges in the integration of PV energy generation is the volatility of energy generation between the day and night cycle as well as the

[23] SEC (2019), *Tesla Q1 2019 Update – Exhibit 99.1,* Retrieved from: https://www.sec.gov/Archives/edgar/data/1318605/000156459019012758/tsla-ex991_6.htm
[24] IRENA (2019), *Global Energy Transformation:A Roadmap to 2050* Retrieved from: https://www.irena.org/DigitalArticles/2019/Apr/-/media/652AE07BBAAC407ABD1D45F6BBA8494B.ashx
[25] Solar Power Europe (2020), *Global Market Outlook 2020-202,* Retrieved from: https://www.solarpowereurope.org/global-market-outlook-2020-2024/

seasonality and the need for more electricity in wintertime.

As costs of photovoltaic (PV) energy and battery energy storage systems (BESS) continue to decline year on year and as policymakers and governments are pushing to meet Paris Agreement targets, more households and commercial venues continue to integrate them into their electric network. By 2035 the whole energy storage market is expected to grow from $59 bn in size in 2019, to $546bn by 2035 according to Woodmackenzie (which represents a 14.92% average growth rate per annum). Meanwhile, stationary storage is hereby expected to grow from $9.1bn in 2019 to $111.8bn in 2035[26].

As mentioned in Figure 10. Tesla's US market being equal to 6% gives us a size for the whole US market of around USD 25.5bn, knowing that the size of the market globally is equal to about USD 59bn that leaves Tesla with a 3% market share worldwide. In a possible scenario we would expect Tesla to grow in the next 3 years to grow at 30% annually in order to maintain a 4% global market share by 2023 as we believe that the new factories will help boosting production and that the synergies between Auto and Energy will work, helped by the recent announcement made during battery day which will drive product costs more rapidly than competitors and as we think that having Tesla producing locally (outside US) will help the company advertising also its energy business. Then from 2023 onwards we would expect the business to grow in line with the overall market (around 15% p.a) until 2030 keeping its 4% of total market share for retail solar solutions.

5. ESG Performance

"*84% of millennials agree that social or environmental impact is important to investment decisions compared with 71% of Generation X and 55% of baby boomers*"
(US Trust BANK, 2018)

"*Sustainable funds provided returns in line with comparable traditional funds while reducing downside risk".*
(Morgan Stanley, 2019)

The ESG performance of a company provides a picture of risk exposures and helps understanding the actions a company is taking internally to improve its impact on all stakeholders. The findings of this section will fuel our view on the future of the company which we will translate into assumptions that will ultimately results in financial results impacting the equity value of a company. Furthermore, we believe this analysis is critical since investing beyond returns is a growing topic within the financial industry emanating from younger generations as millennial investors express growing concerns about the impact a company can have on all stakeholders, forcing asset managers to review their current performance model appraisal in order to integrate the new needs from investors but also to offer

[26] LuxResearch (2019), *Global Energy Storage market Forecast 2019,* Retrieved from: https://www.luxresearchinc.com/hubfs/Lux%20Research%20-%20Global%20Energy%20Storage%20Market%20Forecast%202019%20-%20press.pdf

investment solutions adapted to this needs such as passively managed funds offering exposure to top E, S or G companies which means that the ESG performance of a company is now an investment driver criteria which ultimately results in buying or selling specific equities.
Lastly, top ESG performing companies being less exposed to idiosyncratic and systematic risks, it was proven that they tend to outperform peers in their market.

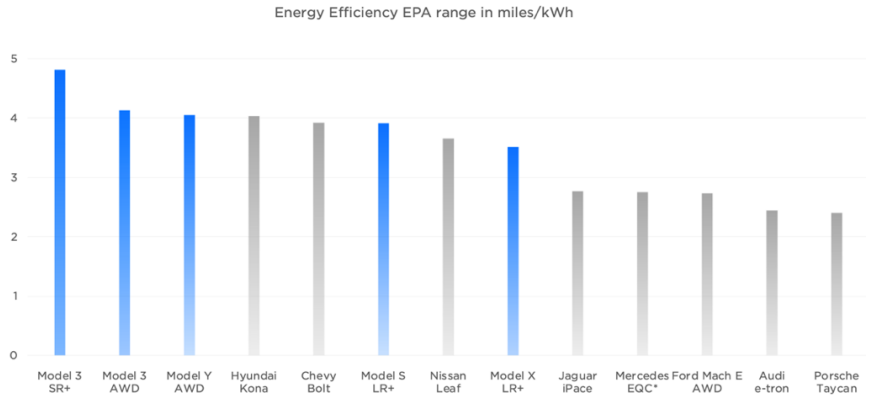
ESG data being difficult to collect, it often exists wide dispersions in the ESG rating of a company on the rating agency, therefore we will build our own model/ESG scorecard. As we identify environmental matters as central to the success of Tesla in the EV and energy sector, the E will be overweighted in our model. During this analysis we will focus on 3 specific matters (one for each letter of ESG) that we reckon will have a direct financial impact on the equity value of Tesla. However, be aware that we evaluated carefully all other items of the ESG scorecard and that the results and details of each subcategory leading to the final rating can be disclosed upon request.

a. Environmental Performance and Concerns

69 tons
Lifetime CO2 emitted by an average combustion engine vehicle sold in 2019. (Source: Tesla)

The company's vision is to reduce ecological footprint globally by offering EVs as substitutes to petrol engine vehicles which are in the mainstream considered as more pollutant. While today the environmental impact of a car is almost solely assessed observing its emissions during its use phase which is the period during which powertrains generate the most CO2, Nitrogen Oxides (NOx) and other particulates in the atmosphere; while this is certainly true for gasoline and most hybrid vehicles, when it comes to EVs the largest ecological footprint occurs prior its manufacturing and after its road commissioning and is attributable to the production and recycling of batteries, a component absolutely critical when evaluating Tesla's environmental performance as batteries are at the core of its business both in the automotive and energy services segments. Tesla ran a wide study to compare the lifecycle emissions of its vehicles against an average mid-size premium ICE assuming a vehicle has a 17-year lifespan and is driven for around 12,000 miles per year which highlighted that during the full lifecycle of a car, CO2 emissions of a Model 3 grid charged against an average petrol engine car it emits around 2.5x fewer carbon emissions that an average premium sedan sold in the US.
Another factor to consider when looking at the carbon footprint of a vehicle is how efficient it is in its energy usage. Here again it seems that Tesla has an edge in Energy efficiency when compared to its direct rivals in each EV market segment.

Figure 11. Energy Efficiency range in miles/kWh



Source: OEM websites, Company Illustration

Going further in increasing efficiency in sustainability Tesla is working on building batteries that have an estimated life duration of around 1,000,000 miles (according to the company), knowing that on average a vehicle (except utility vehicles and buses) gets scrapped after 200,000 in Americas and 120,000 in Europe, this means that a Tesla could be utilized around 5x more than petrol head vehicles in the US, increasing the lifespan of the product will help reducing carbon footprints.

i. Energy Sourcing for Manufacturing

By the end of 2019, the company (including SolarCity) "had installed almost 3.7 Gigawatts of solar systems and generated over 16.6 Terawatt hours of emissions-free electricity[27]" which is about 10x more than the total amount energy necessary to run its manufacturing activities in both solar and auto segments. Being able to generate exciding quantity of electricity is an advantage for Tesla to get variable production costs down compared to competitors. With further technological enhancement in solar energy production and storage and selling externally the exceeding quantity produced we would expect cost of goods sold to decrease as a result of cheaper electricity sources.

b. Social Performance

The Social performance appraisal looks at the company's relationship with its employees, customers, suppliers as well as its relationship with political authorities. We identify vehicle safety, working conditions and relationship with suppliers as key risks worth investigating to see how the company directly interacts with internal and external people yet, we will only explicitly cover the last risk, raw material sourcing since we believe it will translate into cost savings.

[27] Tesla (2020), *2019 Tesla Impact Report*, Retrieved from: https://www.tesla.com/ns_videos/2019-tesla-impact-report.pdf

i. Raw Material Sourcing

Tesla works with a multitude of external stakeholders & suppliers internationally. The main risk we identify among the relationship Tesla has with its suppliers concerns its relationship with raw material and mineral suppliers especially those providing natural resources necessary to the manufacturing of batteries such as cobalt. In addition to annual third-party supplier audits and complying with the Responsible Minerals Initiative's (RMI) Cobalt Reporting system Tesla has also created internal guidelines and requirements for its suppliers and sub-suppliers in order to prevent labour abuses and human rights in "risky countries" (e.g. DRC) which allows them to interrupt any business in case of any involvement in any activity linked to money laundering, conflict of interest and corruption. In 2020, the company went further in its will to reduce its use of cobalt in batteries manufacturing by announcing it will produce cobalt-free batteries for Model 3 manufacturing in China[28], replacing it by lithium iron phosphate (LFP) batteries, less prone to overheating but also less expensive. We expect that this improvement will result in a decrease in battery cost in the short term. However, it is hard to forecast, quantify since there are no quantitative data on how much cheaper LFPs are compared to cobalt batteries but we could expect a 10% decrease in price. This step is the first step towards the general technology breakthrough detailed in 4.a.iii of this report.

c. Governance Performance

Although often forgotten against environmental and social concerns, governance issues are absolutely central to any business because a company with a poor governance might not be cable to take the right decision to win in its market and even worse can trigger scandal that can be detrimental to the corporate image but also put at risk the balance sheet or even lead it to collapse (e.g. Enron). Furthermore, some of Tesla's peers such as Volkswagen in the auto sector or Facebook in Tech both experienced vast scandals that led to terrible consequences for each firm impacting stock price, brand image, finances and trust towards customers. This section assesses Tesla's performance in some key risk area identified for the company: cybersecurity, board members, shareholders regulatory controversies, company culture & diversity nevertheless we will only

[28] Nikkei (2020), *Tesla wins green light in China to use cobalt-free batteries*, Retrieved from: https://asia.nikkei.com/Spotlight/Electric-cars-in-China/Tesla-wins-green-light-in-China-to-use-cobalt-free-batteries

address explicitly findings regarding cybersecurity and public controversies since we believe these are the only two risks that may directly result in financial impact.

i. Cybersecurity

Similarly to Tech companies, one of Tesla's largest external risk exposure is cybersecurity with the prominent use of software in its vehicles. As of today, Tesla is the only major car manufacturer able to provide updates for its entire fleet (for vehicles built since 2012) via its frequent software enhancements which bring new features in the car to make it increasingly user friendly and always safer over the years. The critical part of software and data collection in the company and its direct interconnection with end customers makes cybersecurity an absolute key risk to monitor in Tesla's business model. According to its 2019 Impact Report the company is continuously working closely with researchers and universities as it launched X and other research competition for students and academics to try to detect breaches in the company's network and exploitation software. That way for instance, researchers identified vulnerability within Model S' remote which enabled to fix it.

ii. Shareholders & Regulatory Controversies

Fig. 12 Elon Musk Tweet on taking Tesla private Source: Twitter, Aug. 2018

CEO Elon Musk is known for being accustomed to making controversial public statements which occasionally leads to stock volatility. In August 2018 Musk said in a tweet (see figure 12) that he was considering taking the company private if the stock price would reach USD 420. The SEC ended up suing Tesla's CEO for breaking US securities law. The settlement required from the SEC included[29]: a USD 40M fine (USD 20M to Musk and USD 20M to Tesla), Musk had to step down as Tesla's Chairman and be replaced by an independent Chairman in addition to be ineligible to claim the role for the next three years, Tesla will establish a new committee of independent directors and put in place additional controls and procedures to oversee Musk's communications.

With regards to the appraisal of the company's performance regarding governance issues we estimate that it would be very difficult to accurately forecast how this could directly have an impact on specific financial items, as cyber-attacks or lawsuits for misbehaviours are one-off event and it is very hard to predict when such event would occur and what the magnitude would be (a regulatory fine for misbehaving can range anywhere between USD 1m to several dozen millions,

[29] SEC (2018), *Elon Musk Settles SEC Fraud Charges; Tesla Charged With and Resolves Securities Law Charge,* Retrieved from: https://www.sec.gov/news/press-release/2018-226

whereas a cyberattack can end up costing billions depending on the magnitude) therefore we decide to translate the company's performance and our view into the equity premium.

d. ESG Performance Results

Rating Grid	
AAA	1
AA	2
A	3
BBB	4
BB	5
B	6
CCC	7
CC	8
C	9
D	10

Fig. 13 ESG Rating System Source: own system and illustration

ESG Sector	Items	ESG Sector weight	Materiality (weight)	Rating	Weighted Rating
E	Products Overall Footprint*	40%	40%	1	0,4
	Product Energy Consumption/Efficiency	40%	40%	1	0,4
	Manufacturing process*	40%	20%	1	0,2
	Overall Environmental Performance	1,00 AAA			
S	Vehicle Safety	35%	45%	1	0,45
	Workplace Safety & Working Conditions	35%	40%	6	2,4
	Raw Material Sourcing*	35%	15%	3	0,45
	Overall Social Performance	3,30 A			
G	Boards (Structure, Qualification, Diversity, Transparency)	25%	30%	2	0,6
	Shareholders & Regulatory Authorities*	25%	20%	6	1,2
	Cybersecurity*	25%	40%	2	0,8
	Company Culture, Diversity & Inclusion	25%	10%	5	0,5
	Overall Governance Performance	3,10 A			
Overall Score	2,33 AA				

* *Items which have a direct impact on equity value and are developped in the report*

Based on our analysis we gave Tesla an AA ESG rating. We consider Tesla as an industry leader in several aspects, namely environmental concerns, vehicle safety and cybersecurity which were all overweighted in our model as we identified these criteria as the most critical items regarding Tesla's business model and industry sectors. We believe that their performance will be a factor for sustainable growth and help them fostering their technological and battery cost advantage against competitors and therefore put the company in a good place to stay a leader in the EV market. However, the company still has a lot progress to make in other relevant fields such workers' safety and workplace conditions. Governance also raises concerns with regards to the unpredictability of the announcements made by Elon Musk but also in terms of board composition and company leadership as we question the prominent role of Elon Musk in the company and we are wondering what would happen to Tesla if perhaps Musk was to leave it to focus on his other companies he manages (Space X and Hyperloop) or in case of an accident making him unable to maintain his functions.
As mentioned at the end of the governance appraisal some items are difficult to translate into precise quantitative assumptions we therefore decided to translate Tesla's underperformance in few previously mentioned social and governance issues into a 25 basis points premium in the equity risk premium that we would use as a proxy, a compensation for potential future risks of getting fined by a regulator or prosecuted by federal institutions for corporate misbehaviours.

6. Valuation

a. Scenario Analysis

i. Base Case

In our most likely scenario that we developed in the report so far (likelihood 70%) we express an optimistic view on the auto business, expecting revenues to have a 32.2% growth in 2021 reaching USD 35.4bn. Model Y will come to the market globally and should encounter a huge success, growth for next year will also be derived from China as the Shanghai factory will be fully operational and will enable to capture momentum in the Chinese market but also lead to a surge in regulatory credit revenues. Lastly, we don't expect the company to experience again production halts as it was the case in 2020 due to the pandemic.
Looking at mid-term horizon (2025), we are confident that Tesla will experience double-digit growth in sales coming from local production sites in Germany that will help distributing model 3, Y (and perhaps incoming model Z by then) at cheaper tariffs than today and will address the significant market growth in Europe and China that are the largest demander for EVs which according to our estimations will lead Tesla to slightly come short of 1,000,000 units sold globally at the end 2022 (estimate: 985k), and crossing that mark in 2023. The revolution in battery technology announced by Elon Musk in September 2020 that we expect will lead to a 30% decrease in battery costs are expected to come be effective in 2023 and will result in an improved EBITDA margin of 3% between 2022 and 2023. By 2025, Cybertruck and Semis will also come into market. The success of Semis will be highly reliant on a rapid development of charging infrastructures across Europe and the US but also on longer battery ranges whereas we believe that Cybertruck will only find a market in the US and in Nordics however, as we think that there is a huge cultural change to operate towards truck consumers in the US in order for EV light trucks to become widely adopted therefore we remain quite conservative on its revenue potential as we target a 2% US market share of light trucks which would represent a bit more than 82k units sold in 2025.
On the other hand, the energy generation & storage business remains a question mark with uncertain outcomes. Our view is that the synergies with the auto segment will pay off and that the significant battery innovation expected for 2023 will be mutually beneficial as well as the localized production of cars in Europe that should help advertising for the energy storage and help it gaining market shares. The market having a nearly 15% CAGR until 2035, we expect Tesla to gain momentum in the next 3 years with a 30% growth rate p.a. and then to grow at market rate which should result in the energy segment having a 3.6% market share

globally and accounting for 5.54% of Tesla's total revenues in 2030. All assumptions put together leads us to value Tesla's equity by the end of 2021 at USD 149.30 a share using the APV method.

i. Best Case

In a best-case scenario (likelihood 20%), in additional to what has been said in the most likely scenario, we could expect specific Models such as Cybertruck to have a real success towards US customers which will appreciate the unique technological advancement and unique design of the pickup truck which could result in around 240,000 units sold in 2025 representing around 8% of US light-truck market. Yet, the biggest room for revenue growth in the auto sector will definitely come from star model 3 & Y whose localize production in Europe and China which both have double-digit EV annual growth for the next 15 years and could really boost volumes. In this scenario we would forecast a 20% growth rate which is 2x "faster" growth for Model 3 and Y between 2023 and 2025 than forecasted in our most-likely scenario. However, the most significant change in our most positive scenario concerns the solar & energy storage business which "on paper" and with regards to the more specific product offering in line with the new demand for retail renewable energies generation has the potential to really skyrocket and be the highest growth segment for the company by 2035 if the company capitalizes on synergies with the auto segment and the expected breakthrough in battery technologies. The global market for solar & retail energy storage/generation having an expected 15% growth p.a. until 2035, we believe that as Tesla will further expend its battery price advantage and as it gains visibility in Europe SolarCity could grow twice as fast as the average market growth (30%) the next 3 years until 2023 and from there on progressively decrease its annual growth to reach average market growth in perpetuity. If our assumption were to be fully accurate with reality by then, this could lead this business segment to generate around USD 30bn in revenues by 2035 (equivalent of a 3% global market share). In that case revenues from solar & energy storage segment would account for around 7% of the company's total revenues.
In the best-case scenario, our estimations would lead to a USD 240.56 share price.

ii. Worst Case

In a worst-case scenario (likelihood 10%), we would expect PHEVs to gain more attention than EVs and therefore generally decreasing growth levels forecasted in the auto sector. Tesla's Cybertruck will not capture much interest from the general public and will be a failure for the company as it would turn out that in the next 5 years, American consumers aren't willing to switch to EV for light trucks,

Cybertruck will remain a niche vehicle with annual sales volume only representing 1% of total pickup annual sales. The 56% battery breakthrough will fall short of target only leading to an actual 20% cost cut. At the same time, the German factory will experience significant delays to completion, leading Tesla to delayed deliveries for Model 3 and Y which were supposed to be driving the company's growth in Europe. As a result, total deliveries (all models included) would be down by 43% in 2025 compared to our most likely scenario. Lastly, the end of government supports to consumers for the purchase of EVs (expected to happen mid-end 2022) could make consumers moving away from Tesla as they would be considered too expensive compared to ICEs and certain PHEVs. Regarding the Solar & Energy Storage business, we would expect it to keep having difficulties to derive synergies with the auto business, struggling to make a market for itself which would lead Tesla only having 1.5% global market share globally in 2025 (-58.5% in revenues versus Most-Likely). Therefore, if all our negative predictions would turn out to be true, revenues at the end of 2025 would total $81bn, 35% less than what we forecasted in the most-likely scenario. Our target share price would then be $80,77.

b. Selected Income Statement & Balance Sheet Items

i. Revenues

Regarding the sales forecast we decided to forecast growth using two distinct approaches for the auto segment vs the energy segment in our model. For the solar & energy storage business we decided to forecast revenues based on an overall annual growth rate of this segment whereas for the auto segment we decided to forecast sales by making growth assumptions per model and then from 2026 onwards using periodical growth rates (2026-2030 and 2031-2035) for the segment as a whole as we believe that it is impossible to guess what their vehicle line up will look like in more than 6 years from now, new models will certainly come in whereas others such as Model S and X will likely disappear or be replaced.

In order to compute the 2020 FY automotive figures we used the actual H1 and Q3 results published by the company and estimated sales figures for Q4 by multiplying Q3 results by 1.1 assuming that the company would be able to increase deliveries by an additional 10% in comparison to Q3 due to scaling effect. As a result, we would expect deliveries to just fall short of 500k in 2020 (497k estimated). For every other income source (leasing, energy, regulatory credits) FY 2020 forecasts were made my simple applying a (4/3) coefficient to Q3 results as we

think that it was not worth trying to make complexed estimates in order to express a view for a single quarter performance.

Sales estimates for the auto sector during the 2021 to 2025 period were made based on our view for each model based on models currently on sales but also taking into account future models and their expected launch date. As production and orders for cybertruck and semi are already opened we are confident that Tesla will meet their deliveries start dates (2022), however, for the mass market Model Z we would expect some delay in the development of the car as it based on the incoming battery technology breakthrough and due to the fact that the car will be using a brand-new platform. Therefore, we adjusted the launch date to early 2024, few months later than the announced 2023 date set by Musk during battery day.

ii. Expenses

The forecast of the Expenses to the respective revenue positions automotive sales, automotive leasing, energy generation & Storage and services were made by taking the respective average historical margins and adjusting them with small improvements over the long-

Operating Expenses

Expenses as % of Revenues	2016	2017	2018	2019	2020	2021-2023	2024-2026	2027-2030	2031-2035
in millions of €									
Automotive sales	81%	82%	80%	82%	81%	81%	76%	76%	76%
Automotive leasing	63%	64%	55%	53%	52%	53%	52%	51%	50%
Energy generation & storage	59%	98%	78%	88%	96%	90%	85%	80%	78%
Services and other	260%	101%	123%	135%	114%	110%	110%	110%	100%
Research and development*	12%	12%	7%	5%	5%	5%	5%	5%	5%
Selling, general and administrative*	20%	21%	13%	11%	10%	10%	10%	10%	10%

Fig. 14 Operating expenses as % of revenues

:y and technological advances are made by Tesla. Being a young company in progress of expansion there is room for these expense margins to improve. The biggest expense comes from automotive sales, which accounts for 81% of automotive revenues. With the impact of improved battery production as mentioned in point 3. A) iii, this margin improves by 4,37%, making the automotive business considerably more profitable, thereby contributing to the overall strong growth forecast of Tesla. The profitability margin of automotive leasing is expected to remain relatively constant, ranging from 51% to 52%. For the expenses of energy generation & storage we see strong fluctuations, as there have been several strategic changes to its business model since the acquisition of SolarCity by Tesla in 2016. Over the long-term we expect the expense to revenue margin to improve from 96% in 2020 to reach 78% by 2035. Whilst R&D remains constant at 5% of total operating revenues over the forecasted period, the expenses on selling, general and admin also keep a constant margin at 10% of total operating revenues. Services and other remains the only unprofitable business line, throughout the forecasted period with 110% expenses on its own revenue position due to the nature of its activity.

iii. Other Financial Forecasts

To handle the rapid expansion and growth of Tesla capital expenditures need to be made that up until 2023 repeatedly exceed NOPLAT. As of year-end 2020 Tesla's active gigafactories have enough capacity to cover the vehicle production until 2022 with a current capacity of approximately 840.000 cars per year. Having in mind that after 2022 the number of produced vehicles is expected to exceed that number, gigafactories are already being constructed in Texas, Berlin and Shanghai with options to expand in the future. Future growth will need to be continuously supported by expansion of the factories and a continued investment leading to reinvestment rates of NOPLAT fluctuating around 30%. With more stable cash flows and reinvestments after 2023, we expect ROIC to fluctuate around 20%-25% until 2035 and settle at 15% in annuity until 2050 with a 12,50% ROIC expected in perpetuity. Following a period of more stability in the cash-flows we assume Tesla to start paying dividends. In this case we set a 30% pay-out ratio of net income attributable to shareholders,

iv. Debt and Cost of Financing (External Funding + WACC)

To determine the unlevered and levered cost of equity we first run a regression of Tesla's 5-year monthly returns against the returns of the S&P500. Given the fact that Tesla's share price has been exceedingly volatile over the past few years given its strong growth, we obtain a levered beta of 2,18 and an unlevered beta of 1,35. In our view these betas are not adequate to estimate the costs of equity as over the long-term we do not expect the volatility of the past 5 years to continue. Using the Blume adjustment method, we make the assumption that over the long-run Tesla's beta will come closer to 1, as the company matures and becomes more stable, and so with Blume's adjustment formula:

Key Inputs	
US Corporate Tax Rate	21,00%
2020 D/E	77,81%
Average forecasted D/E	25,96%
Risk Free Rate (Rf)	0,93%
Market Premium (Rm)	5,00%
US long-term Inflation Expectation	2,01%
Perpetuity Growth	3,75%
Long-Term Average Global GDP Growth	1,74%
ESG Risk Premium*	0,25%

Fig. 15 Key Financial Inputs

$$ß_a = \frac{2}{3} * ß_{est} * \frac{1}{3} * 1$$ [30]

we obtain an adjusted levered beta of 1,79 and an adjusted unlevered beta of 1,11. As market risk premium we decided to take the current US implied market return of 5%[31], having recovered from a year high of 7,72% at the height of the Covid-19 crisis. With the roll-out of vaccines we are making the assumption that equity risk premia will now remain relatively stable and not go back to the march heights. With addition of the previously discussed ESG risk premium of 0,25% we arrive at an unlevered cost of equity (R_u) of 6,72%.

Beta Computation	5Y-Monthly
Levered Beta (BL)	2,18
Unlevered Beta (Bu)	1,35
Adjusted Levered Beta	**1,79**
Adjusted Unlevered Beta	**1,11**

Fig. 16 Beta computation

[30] Breaking down Finance, *Blume Method,* Retrieved from: https://breakingdownfinance.com/finance-topics/performance-measurement/blume-method/#:~:text=The%20Blume%20adjustment%20corrects%20the,to%20the%20Vasicek%20adjusted%20beta

[31] Market Risk Premiam (2020),*Implied market risk,* Retrieved from: http://www.market-risk-premia.com/us.html

Tesla's cost of debt in 2020 is of 5,1%, resulting from a combination of convertible notes, solar bonds, asset-backed loans and other loan agreements. Given its BB S&P issuer credit rating according as of end of December 2020, it could be argued that a higher cost of debt would be more appropriate taking into account Tesla's risk as an issuer if they were to raise new debt. We however assume that Tesla will continue with its current debt instruments looking forward resulting in the cost of debt remaining unchanged at 5,1% for the future. No additional debt will be taken on in the future as in our view Tesla will be able to continue financing itself through equity and its net profits, meaning that the current debt will be partially repaid in each period leading to a constant reduction of the Debt/Equity ratio.

c. Valuation Results

i. APV

Given our forecasted changing capital structure for Tesla, we opted to use the APV valuation method, by discounting the value of Tesla's future operating-cash-flows and tax shields. After the forecasted period operating-cash-flows until 2035, we estimate an annuity growth of cash-flows of 4,5% per annum with a reinvestment rate (RR) of 40% and ROIC of 15% until 2050. Following this, we estimate a perpetuity growth rate of 3,75%. This growth figure results from adding together the long-term US inflation expectation and the expected global GDP growth between 2040 and 2060 as estimated by the Organisation for Economic Co-operation and Development at 1,74%[32]. We obtain the long-term inflation estimate by taking the spread between the US 10-year treasury yield (0,93%) and the US 10-year treasury inflation-indexed security (-1,08%), resulting in a 2,01% long-term inflation expectation[33]. As we are making the assumption that no new debt will be taken on by Tesla -since all large projects such as the building of factories have started and therefore, we assumed Tesla had already subscribe to the adequate amount of debt by 2020 in order to run these projects- and 10% of its net results will go to the repayment of its debt, the tax-shields decline each year until we reach a terminal value of tax shields of $1

		Perpetuity Growth				
	1.081	2,8%	3,3%	3,8%	4,3%	4,8%
R_d	4,7%	1.082	1.082	1.082	1.082	1.082
	4,9%	1.081	1.081	1.081	1.081	1.081
	5,1%	1.081	1.081	1.081	1.081	1.081
	5,3%	1.081	1.081	1.081	1.081	1.081
	5,5%	1.081	1.081	1.081	1.081	1.081

Fig.17 PV Tax Shields – Perpetuity Growth / Rd sensitivity analysis

		Perpetuity Growth				
	141.982	2,75%	3,25%	3,75%	4,25%	4,75%
R_u	6,3%	127.764	133.849	141.983	153.410	170.636
	6,5%	127.764	133.849	141.983	153.409	170.636
	6,7%	127.763	133.848	141.982	153.409	170.635
	6,9%	127.763	133.848	141.982	153.408	170.635
	7,1%	127.762	133.848	141.981	153.408	170.635

Fig. 18 EV: Perpetuity Growth / Ru sensitivity analysis

[32] OECD (2018), *The Long View: Scenarios for the world economy to 2060*, Retrieved from: http://www.oecd.org/economy/growth/scenarios-for-the-world-economy-to-2060.htm
[33] Bloomberg 31. Dec. 2020

million at 2050. The operating cash flows are discounted at the adjusted unlevered cost of equity (6,72%) and the tax shields at the cost of debt (Rd 5,1%). Under each of the three outcome scenarios, as described above we reach share prices of **$149,30** for the base-case scenario with an unlevered equity value of $142bn and a PV of tax shields close to $1bn , **$240,56** for the best-case scenario and **$79,89** for the worst-case scenario.

ii. DCF

The trouble in estimating a share price for Tesla using the DCF method is that according to our forecasts Tesla's debt/equity ratio is constantly falling, meaning that the WACC would need to be adjusted for yeah of the periods with the respective debt/equity ratio or it would need to be estimated with an average target debt/equity ratio that reflects the debt structure for the forecasted perdios. Taking the average debt/equity ratio of the forecasted periods, we obtain a ratio of 0,27, resulting in a WACC of 7,87%. We decided discount the cash-flows with the WACC obtained under the assumption of the average debt ratio of the forecast periods, resulting in share prices of of $149,30 for the base-case scenario, **$240,56** for the best-case scenario and **$80,77** for the worst-case scenario. Given the fact that the changing capital structures results in a lot of uncertainty for the discount rates, we decided to remain with the values obtained from the APV valuation method, as it is overall more suited for the context of our forecast.

WACC Computation	2021
Average forecasted D/E	0,26
Rd pre-tax	5,10%
Rd post-tax	4,03%
Ru (%)	6,72%
Re (%)	7,86%
WACC	**7,14%**

Fig.19 WACC computation

iii. Multiples Analysis

In order to run our analysis, we decided to select peers from different sectors and segments in order to better represent the different sectors/segments Tesla is competing with namely: Tech, Renewable Energy, Premium Auto Manufacturers, Traditional US Auto and High Growth Chinese Auto. Tech is the most heavily weighted sector with 50% of total weight. We decided to pick as peers Alphabet, Amazon and Apple as these groups have diversified income sources and do not focus on only selling one type of product/service similarly to Tesla (auto & energy) but also because we believe that these companies with high R&D, Capex and growth have a high capacity to innovate and to grow in new markets as we are seeing with Apple who is expected to jump in the EV business within the next 5 years. Then 40% of total weight is split between different auto segments (Premium, US Generalists, High Growth Chinese) with respective weights of 15%, 10% and 15% as we think it represents Tesla's business model; originally axed towards premium vehicles with Model S, X and roadster as early brand ambassadors that set the stage for scaling and axing future growth towards a wider audience with Model 3 and Y and soon Model Z with the expected USD25,000 vehicle. We chose

Used Multiple		Implied Share Price
EV / Tot. Revenues	x3,98	138,47
EV / EBITDA	x21,93	104,30
EV / EBIT	x45,89	90,60

Actual Multiple		Share Price 26.12.20
EV / Tot. Revenues	x22,3	661,77
EV / EBITDA	x141,5	661,77

Fig.20 Multiples Analysis
Source: Own estimations; Capital IQ

BMW and Daimler as the two premium direct competitors since we believe that these are the two most advanced premium car manufacturers in the EV space at the moment and that consumers that can afford to spend more than USD 50,000 for a sedan or SUV will always consider German premium in their decision process. Lastly, 10% of total weight was allocated into Renewable Energy companies. Although we see a high growth potential for Tesla in this sector with SolarCity there is still a lot of uncertainty about whether or not Tesla will actually succeed in the long run in this market, therefore we decided to keep the weight relatively close to the current proportion of total sales generated by the energy segment (around 7% as of Q3'20).
Our share price estimates were made looking at the following multiples: EV/Total Revenues, EV/EBITDA, EV/EBITDA and EV/EBIT. This leads us to a theoretical share price ranging from **USD 90.60** to **USD 138,47**.

7. Final Remarks

As highlighted in our report, despite our rather optimistic view on the future of the company our recommended target price of $160,70 (with APV) remains far below Tesla's current valuation. Although a valuation based on fundamentals or even looking at comparables will not be sufficient to reach current valuation level above USD 650bn, we believe that two market factors could provide a rationale to explain the unprecedent 720% market rally Tesla has had in 2020 namely: growth and momentum.

Looking at our research findings we can conclude that Tesla is a growth stock as the company is still far from maturity as the two distinct segments it is competing in are both expected to experience double digits annual growth figures in the next 10 years. By consequent, unlike the world's 9 largest car manufacturers by revenues such as VW, Toyota Ford or GM to which Tesla's market cap is often compared to in order to highlight the unusually high valuation of the company, Tesla is not a well-established market player with stable balance sheet, paying dividends and with mass markets vehicles (a *value* stock so to say), the company having only been in existence for less than 20 years still has huge R&D expenditures enabling the company to develop technology more rapidly and to scale overtime which obviously was detrimental to profitability until recently and ultimately implies higher stock volatility. Yet, momentum is certainly more applicable to try to understand Tesla's equity unique bullish run.

Momentum can drive rallies much longer than any other course as long as there are catalysts, yet catalysts can either be negative and put a halt to a rally or

fostering it. If we look at Tesla over the past 18 months catalysts have almost always been positive which helped the stock being resilient over time. Momentum is built around trust in Elon Musk's unique philosophy and the 18-month phenomenon we are witnessing certainly coincides with Tesla meeting targets in terms of deliveries, profitability but also outperforming estimates especially earnings - Tesla has been profitable for 5 consecutive semesters as of Q3 2020 - . It seems that the current bullish rally will never be ending as the company keeps setting new milestones (e.g., battery technology breakthrough by 2023 and mass-market car "Model Z" in 2024) that keep on fuelling expectations and traction around the company. Although positive so far, it is very hard to predict how long this phenomenon will last or what will trigger a sustaining inversion of that trend. We think that the momentum that gathers Tesla's stock since 2019 is justified as the company achieved its milestones and the firm is the most innovative in its sector creating trend and having a first mover advantage somehow similar to what Apple has been did in Tech with the launch of the iPhone in 2007. However, the current magnitude is far too high and leads to a current market value disconnected from any rational fundamental analysis.

8. Appendix

Appendix 1 – Tesla Inc. Forecasted Income Statement

Forecast Income Statement

Reformulated Income Statement - 10K	2016	2017	2018	2019	H1 2020	YTD Q3 2020	Forecasted Periods 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
in millions of $																						
Operating Result																						
Operating Revenue:																						
Automotive sales	5.287	8.175	17.213	19.358	9.022	15.971	26.788	35.401	53.077	62.921	78.440	113.663	110.694	120.825	131.882	143.952	157.126	169.903	183.719	198.658	214.812	232.280
Automotive leasing	762	1.107	883	869	507	772	1.029	1.184	1.361	1.565	1.722	1.894	2.084	2.188	2.297	2.412	2.533	2.634	2.739	2.849	2.963	3.081
Automotive regulatory credits	302	360	419	594	782	1.179	1.572	2.044	2.657	3.454	1.727	863	-	-	-	-	-	-	-	-	-	-
Energy generation & storage	181	1.116	1.555	1.531	663	1.242	1.656	2.153	2.799	3.638	4.184	4.812	5.533	6.363	7.318	8.415	9.678	10.839	12.140	13.597	15.228	17.056
Services and other	468	1.001	1.391	2.226	1.047	1.628	2.171	2.373	2.593	2.835	3.098	3.387	3.702	4.046	4.422	4.834	5.284	5.775	6.312	6.900	7.542	8.243
Total operating revenues	7.000	11.765	21.462	24.579	12.021	20.792	33.219	43.155	62.488	74.414	89.172	124.619	122.013	133.422	145.920	159.613	174.620	189.151	204.911	222.004	240.545	260.661
Operating Expenses:																						
Automotive sales	4.268	6.725	13.686	15.939	7.413	12.774	21.699	28.516	42.754	47.937	59.760	86.594	84.332	92.050	100.474	109.670	119.706	129.440	139.966	151.348	163.655	176.963
Automotive leasing	482	708	488	459	270	415	553	627	721	830	895	985	1.084	1.116	1.172	1.230	1.292	1.317	1.370	1.424	1.481	1.541
Energy generation & storage	178	874	1.365	1.341	631	1.189	1.585	2.153	2.519	3.274	3.556	4.090	4.703	5.091	5.854	6.732	7.742	8.454	9.469	10.605	11.878	13.303
Services and other	472	1.229	1.880	2.770	1.206	1.850	2.467	2.610	2.853	3.118	3.408	3.725	4.072	4.451	4.865	5.317	5.812	5.775	6.312	6.900	7.542	8.243
Research and development	834	1.378	1.460	1.343	603	969	1.548	2.158	3.124	3.721	4.459	6.231	6.101	6.671	7.296	7.981	8.731	9.458	10.246	11.100	12.027	13.033
Selling, general and administrative	1.432	2.477	2.835	2.646	1.288	2.176	3.477	4.316	6.249	7.441	8.917	12.462	12.201	13.342	14.592	15.961	17.462	18.915	20.491	22.200	24.055	26.066
Total operating expenses	7.667	13.391	21.714	24.498	11.411	19.373	31.332	40.382	58.223	66.324	80.999	114.091	112.496	122.724	134.256	146.895	160.748	173.363	187.857	203.581	220.641	239.152
Depreciation, amortization and impairment	947	1.636	1.901	2.154	1.120	1.704	2.657	3.452	4.999	5.209	6.242	8.723	8.541	9.340	10.214	11.173	12.223	13.241	14.344	15.540	16.838	18.246
EBITDA	280	10	1.649	2.235	1.730	3.123	4.544	6.225	9.264	13.299	14.415	19.252	18.058	20.038	21.878	23.892	26.095	29.029	31.397	33.963	36.743	39.755
Depreciation, amortization and impairment	947	1.636	1.901	2.154	1.120	1.704	2.657	3.452	4.999	5.209	6.242	8.723	8.541	9.340	10.214	11.173	12.223	13.241	14.344	15.540	16.838	18.246
Operating Result before Taxes EBIT	- 667	- 1.626	- 252	81	610	1.419	1.887	2.773	4.265	8.090	8.173	10.529	9.517	10.698	11.664	12.719	13.872	15.788	17.054	18.423	19.905	21.509
Operating Tax (provisions)	- 27	- 32	- 58	- 110	- 23	- 209	396	582	896	1.699	1.716	2.211	1.999	2.247	2.449	2.671	2.913	3.316	3.581	3.869	4.180	4.517
NOPLAT	- 641	- 1.594	- 194	191	633	1.628	1.490	2.190	3.369	6.391	6.456	8.318	7.518	8.452	9.214	10.048	10.959	12.473	13.472	14.554	15.725	16.992
Non-operating result																						
Restructuring and other	-	-	135	149	-	-																
Other comprehensive loss:	- 20	-	-	-	-	-																
Reclassification adjustement for net gains on derivatives into net loss	-	- 6	-	-	-	-																
Foreign currency translation adjustment	-	63	- 42	- 28	- 4	161																
Other income (expense), net	111	- 125	22	45	- 69	- 166																
Non operating result before taxes	91	- 68	115	166	- 73	- 5																
Non-Operating Taxes	-	-	-	-	-	-																
Non operating result after taxes	91	- 68	115	166	- 73	- 5	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Financial																						
Interest income	9	19	24	44	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
interest expense	- 199	- 471	- 663	- 685	- 339	- 502	- 699	- 693	- 685	- 670	- 640	- 609	- 569	- 533	- 491	- 446	- 396	- 342	- 279	- 211	- 137	- 57
Net Financial Result before Taxes	- 190	- 452	- 639	- 641	- 321	- 478	- 675	- 669	- 661	- 646	- 616	- 585	- 545	- 509	- 467	- 422	- 372	- 318	- 255	- 187	- 113	- 33
Tax Shield	67	95	134	135	67	100	142	141	139	136	129	123	114	107	98	89	78	67	54	39	24	7
Net Financial Result after Taxes	- 124	- 357	- 505	- 506	- 254	- 378	- 533	- 529	- 522	- 510	- 487	- 462	- 430	- 402	- 369	- 333	- 294	- 251	- 201	- 148	- 89	- 26
Total Comprehensive Income	- 673	- 2.019	- 583	- 150	306	1.245	995	1.699	2.885	5.918	6.008	7.893	7.125	8.088	8.883	9.752	10.702	12.260	13.309	14.444	15.673	17.003
Net loss attributable to noncontrolling interests and redeemable noncontrolling interests in subsidiaries	- 98	- 279	- 87	87	77	115																
Total Income attributable to Tesla	- 771	- 2.298	- 670	- 63	383	1.360	995	1.699	2.885	5.918	6.008	7.893	7.125	8.088	8.883	9.752	10.702	12.260	13.309	14.444	15.673	17.003

Appendix 2 – Tesla Inc. Forecasted Balance Sheet

Forecast Balance Sheet

Consolidated Statement of Financial Position - 10K	2016	2017	2018	2019	H1 2020	YTD Q3 2020	Forecasted Periods 2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
in millions of $																						
Operating																						
Operating Assets																						
Operating Cash	679	674	737	1.254	1.723	2.906	2.325	2.365	2.450	2.594	2.890	3.190	3.585	3.941	4.346	4.790	5.277	5.812	6.425	7.091	7.813	8.597
Accounts receivable, net	499	515	949	1.324	1.485	1.757	1.911	2.483	3.595	4.281	5.130	7.170	7.020	7.676	8.395	9.183	10.047	10.883	11.789	12.773	13.840	14.997
Inventory	2.067	2.264	3.113	3.552	4.018	4.218	5.007	6.585	9.799	9.673	12.024	17.334	16.917	18.452	20.127	21.955	23.949	25.881	27.969	30.226	32.666	35.304
Prepaid expenses and other current assets	194	268	366	713	1.218	1.238	1.131	2.019	1.164	1.326	1.620	2.510	2.475	2.700	2.954	3.232	3.536	3.814	4.133	4.479	4.854	5.261
Total operating current assets	3.440	3.721	5.165	6.843	8.444	10.119	10.375	13.452	17.008	17.875	21.665	30.204	29.996	32.769	35.822	39.159	42.809	46.390	50.316	54.569	59.173	64.159
Operating lease vehicles, net	3.134	4.117	2.090	2.447	2.524	2.742	2.882	3.314	3.812	4.383	4.822	5.304	5.834	6.126	6.432	6.754	7.092	7.375	7.670	7.977	8.296	8.628
Solar energy systems, leased and to be leased, ne	5.920	6.347	6.271	6.138	6.069	6.025	6.341	8.181	9.571	12.443	12.447	14.314	16.462	16.290	17.563	18.177	18.581	20.291	20.832	21.211	22.568	23.946
Property, plant and equipment, net	5.983	10.028	11.330	10.396	11.009	11.848	13.287	17.262	24.995	26.045	31.210	43.617	42.705	46.698	51.072	55.865	61.117	66.203	71.719	77.701	84.191	91.231
Operating lease right-of-use assets	-	-	-	1.218	1.274	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375	1.375
Total Operating Non-Current Assets	15.037	20.492	19.691	20.199	20.876	21.990	23.886	30.132	39.753	44.246	49.854	64.610	66.375	70.489	76.442	82.171	88.165	95.244	101.596	108.264	116.430	125.180
Total Operating Assets	18.477	24.212	24.856	27.042	29.320	32.109	34.261	43.584	56.762	62.121	71.519	94.814	96.372	103.258	112.263	121.330	130.974	141.634	151.912	162.832	175.603	189.339
Operating Liabilities																						
Accounts payable	1.860	2.390	3.405	3.771	3.638	4.958	4.525	8.076	11.645	13.265	16.200	25.100	24.749	26.999	29.536	32.317	35.365	38.140	41.329	44.788	48.541	52.613
Accrued liabilities and other	1.210	1.731	2.094	2.905	3.110	3.252	3.123	5.573	8.035	9.153	11.178	17.320	17.078	18.630	20.381	22.299	24.403	26.318	28.518	30.905	33.495	36.305
Deferred revenue	763	1.015	630	1.163	1.130	1.258	1.661	2.158	3.124	3.721	4.459	6.231	6.101	6.671	7.296	7.981	8.731	9.458	10.246	11.100	12.027	13.033
Customer deposits	664	854	793	726	713	708	1.095	1.446	2.151	2.563	3.181	4.562	4.475	4.897	5.360	5.867	6.423	6.959	7.541	8.173	8.857	9.600
Total Operating Current liabilities	4.497	5.991	6.922	8.565	8.591	10.176	10.404	17.253	24.956	28.701	35.018	53.212	52.403	57.198	62.573	68.464	74.921	80.874	87.633	94.965	102.920	111.552
Deferred revenue, net of current portion	852	1.178	991	1.207	1.198	1.233	1.661	2.158	3.124	3.721	4.459	6.231	6.101	6.671	7.296	7.981	8.731	9.458	10.246	11.100	12.027	13.033
Resale value guarantees, net of current portion	2.210	2.309	329	36	-	-																
Total Operating Non-Current liabilities	3.062	3.487	1.320	1.243	1.198	1.233	1.661	2.158	3.124	3.721	4.459	6.231	6.101	6.671	7.296	7.981	8.731	9.458	10.246	11.100	12.027	13.033
Total Operating Liabilities	7.560	9.478	8.242	9.808	9.789	11.409	12.065	19.411	28.080	32.422	39.477	59.443	58.503	63.869	69.869	76.444	83.652	90.332	97.879	106.066	114.948	124.585
Invested Capital Operating Business	10.917	14.735	16.614	17.234	19.531	20.700	22.196	24.173	28.682	29.699	32.042	35.371	37.869	39.389	42.394	44.886	47.322	51.302	54.033	56.767	60.656	64.755
Non-Operating																						
Non-Operating Assets																						
Restricted cash	106	155	193	246	-	-																
Total Non-Operating Current Assets	106	155	193	246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Intangible assets, net	376	362	282	339	312	318	318	318	318	318	318	318	318	318	318	318	318	318	318	318	318	318
Goodwill	-	60	68	198	196	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
MyPower customer notes receivable, net of curre	506	457	422	393	-	-																
Restricted cash, net of current portion	268	442	398	269	-	-																
Other assets	217	273	572	808	1.415	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436	1.436
Total Non-Operating Non-Current Assets	1.367	1.593	1.742	2.007	1.923	1.957	2.030	2.107	2.186	2.268	2.353	2.441	2.532	2.627	2.726	2.828	2.934	3.044	3.159	3.277	3.400	3.528
Total Non-Operating Assets	1.473	1.749	1.935	2.253	1.923	1.957	2.030	2.107	2.186	2.268	2.353	2.441	2.532	2.627	2.726	2.828	2.934	3.044	3.159	3.277	3.400	3.528
Non-Operating Liabilities																						
Resale value guarantees	180	787	503	317	-	-																
Total Non-Operating Current Liabilities	180	787	503	317	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other long-term liabilities	1.891	2.443	2.710	2.655	2.870	3.049	4.577	740	3.903	1.869	2.163	2.157	2.522	2.668	4.250	5.174	5.886	7.285	7.435	7.362	8.200	8.986
Total Non-Operating Non-Current Liabilities	1.891	2.443	2.710	2.655	2.870	3.049	4.577	740	3.903	1.869	2.163	2.157	2.522	2.668	4.250	5.174	5.886	7.285	7.435	7.362	8.200	8.986
Total Non-Operating Liabilities	2.071	3.230	3.213	2.972	2.870	3.049	4.577	740	3.903	1.869	2.163	2.157	2.522	2.668	4.250	5.174	5.886	7.285	7.435	7.362	8.200	8.986
Invested Capital Non-Operating Business	- 599	- 1.482	- 1.278	- 719	- 947	- 1.092	- 2.547	1.366	- 1.717	399	189	283	11	- 41	- 1.524	- 2.346	- 2.952	- 4.241	- 4.276	- 4.085	- 4.800	- 5.458
Financial Assets																						
Non-operating Cash and cash equivalents	2.715	2.694	2.949	5.014	6.892	11.625	11.625	11.824	12.249	12.970	14.449	15.951	17.925	19.706	21.728	23.949	26.387	29.062	32.127	35.454	39.065	42.984
Current portion of long-term debt and capital lea	- 984	- 797	- 2.568	- 1.785	- 3.679	- 3.126	- 13.685	- 13.585	- 13.416	- 13.127	- 12.535	- 11.934	- 11.145	- 10.433	- 9.624	- 8.736	- 7.760	- 6.690	- 5.464	- 4.133	- 2.689	- 1.122
Debt and finance leases, net of current portion	- 5.860	- 9.416	- 9.404	- 11.634	- 10.416	- 10.559																
Solar bonds issued to related parties, net of curre	- 99	- 0	-	-	-	-																
Convertible senior notes issued to related parties	- 10	- 3	-	-	-	-																
Current portion of solar bonds and promissory not	- 166	- 100	-	-	-	-																
Net Financials	- 4.405	- 7.621	- 9.023	- 8.405	- 7.203	- 2.060	- 2.060	- 1.762	- 1.167	- 157	1.914	4.017	6.779	9.273	12.104	15.213	18.626	22.372	26.663	31.321	36.376	41.862
Equity																						
Redeemable noncontrolling interests in subsidiar	- 367	- 398	- 556	- 643	- 613	- 608																
Convertible senior notes (Note 13)	- 9	- 0	-	-	- 44	- 48																
Common stock; $0.001 par value; 2,000 shares authorized; 948 and 905 shares issued	-	-	-	-	-	1																
Additional paid-in capital	7.774	9.178	10.249	12.737	15.895	21.574																
Accumulated other comprehensive gain (loss)	- 24	- 33	- 8	- 36	- 40	125																
Accumulated deficit	- 2.997	- 4.974	- 5.318	- 6.083	- 6.000	- 5.669																
Total stockholder's equity	4.753	4.237	4.923	6.618	9.855	16.031	16.728	22.917	24.937	29.079	33.285	38.810	43.798	47.761	52.113	56.892	62.136	68.572	75.559	83.142	91.371	100.297
Noncontrolling interests in subsidiaries	785	997	834	849	869	861	861	861	861	861	861	861	861	861	861	861	861	861	861	861	861	861
Total Assets	22.664	28.655	29.740	34.309	38.135	45.691	47.916	57.515	71.196	77.358	88.321	113.206	116.829	125.591	136.717	148.107	160.295	173.740	187.198	201.564	218.068	235.850
Total Liabilities	17.126	23.421	23.983	26.842	27.411	28.799	30.327	33.737	45.398	47.418	54.175	73.535	72.170	76.970	83.743	90.354	97.298	104.307	110.778	117.560	125.837	134.692
Total Equity	5.538	5.235	5.757	7.467	10.724	16.892	17.589	23.778	25.798	29.940	34.146	39.671	44.659	48.622	52.974	57.753	62.997	69.433	76.420	84.003	92.232	101.158
Total Liabilities and Equity	22.665	28.655	29.740	34.309	38.135	45.691	47.916	57.515	71.196	77.358	88.321	113.206	116.829	125.591	136.717	148.107	160.295	173.740	187.198	201.564	218.068	235.850

Appendix 3 – Tesla Inc. Shareholder's Equity

in millions of €	Forecasted Periods																
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Position as of January 1	16.031	16.728	22.917	24.937	29.079	33.285	38.810	43.798	47.761	52.113	56.892	62.136	68.572	75.559	83.142	91.371
Net Income	697	1.189	2.020	4.143	4.205	5.525	4.988	5.661	6.218	6.827	7.492	9.195	9.981	10.833	11.755	12.752
Issuance of common stock*		5.000														
Dividends (30% Net Income, start 2027)								- 1.698	- 1.865	- 2.048	- 2.248	- 2.758	- 2.994	- 3.250	- 3.526	- 3.826
Position as of December 31	16.728	22.917	24.937	29.079	33.285	38.810	43.798	47.761	52.113	56.892	62.136	68.572	75.559	83.142	91.371	100.297

Appendix 4– Tesla Inc. Forecasted Cash Flow Statement

Forecast Free Cash Flow Map

							Forecasted Periods														
	2016	2017	2018	2019	H1 2020	YTD Q3 2020	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
in millions of $																						
Operating																						
NOPLAT	- 641	- 1.594	- 194	191	633	1.628	1.490	2.190	3.369	6.391	6.456	8.318	7.518	8.452	9.214	10.048	10.959	12.473	13.472	14.554	15.725	16.992
Invested Capital Operating Business	10.917	14.735	16.614	17.234	19.531	20.700	22.196	24.173	28.682	29.699	32.042	35.371	37.869	39.389	42.394	44.886	47.322	51.302	54.033	56.767	60.656	64.755
Investment (CAPEX)		3.818	1.880	619	2.297	1.169	1.496	1.977	4.508	1.017	2.343	3.328	2.498	1.521	3.005	2.491	2.437	3.980	2.732	2.733	3.889	4.099
Operating Free Cash Flow	- 641	- 5.411	- 2.073	- 429	- 1.664	459	- 5	213	- 1.139	5.374	4.113	4.989	5.020	6.931	6.209	7.557	8.522	8.493	10.741	11.821	11.836	12.893
Non-operating																						
Non-operating Result	91	- 68	115	166	- 73	- 5	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Non-operating Invested Capital	-599	-1482	-1278	-719	-947	-1092	-2547	1366	-1717	399	189	283	11	-41	-1524	-2346	-2952	-4241	-4276	-4085	-4800	-5458
Non-operating Free Cash Flow	- 507	- 1.550	- 1.163	- 553	- 1.020	- 1.097	- 2.509	1.404	- 1.679	437	227	321	48	- 3	- 1.487	- 2.308	- 2.914	- 4.203	- 4.238	- 4.047	- 4.763	- 5.421
Unlevered Free Cash Flow	- 1.148	- 6.961	- 3.236	- 982	- 2.684	- 638	- 2.514	1.617	- 2.818	5.810	4.340	5.310	5.069	6.928	4.723	5.248	5.608	4.290	6.502	7.774	7.073	7.472
Financial																						
Financial Result	- 124	- 357	- 505	- 506	- 254	- 378	- 533	- 529	- 522	- 510	- 487	- 462	- 430	- 402	- 369	- 333	- 294	- 251	- 201	- 148	- 89	- 26
Net Financial Assets	4.405	7.621	9.023	8.405	7.203	2.060	2.060	1.762	1.167	157	1.914	4.017	6.779	9.273	12.104	15.213	18.626	22.372	26.663	31.321	36.376	41.862
Cash Flow with Debtholders	- 3.573	- 1.907	112	948	4.765	- 533	- 230	73	499	- 2.244	- 2.565	- 3.193	- 2.896	- 3.200	- 3.442	- 3.707	- 3.997	- 4.492	- 4.806	- 5.145	- 5.512	
Total Income attributable to Tesla	- 771	- 2.298	- 670	- 63	383	1.360	995	1.699	2.885	5.918	6.008	7.893	7.125	8.088	8.883	9.752	10.702	12.260	13.309	14.444	15.673	17.003
Total stockholder's equity	4.753	4.237	4.923	6.618	9.855	16.031	16.728	22.917	24.937	29.079	33.285	38.810	43.798	47.761	52.113	56.892	62.136	68.572	75.559	83.142	91.371	100.297
Cash Flow with Equityholders	- 1.782	- 1.356	1.758	2.854	4.816	- 299	4.490	- 866	- 1.776	- 1.802	- 2.368	- 2.138	- 4.125	- 4.530	- 4.974	- 5.458	- 5.823	- 6.322	- 6.861	- 7.445	- 8.076	
Financing Free Cash Flow	- 5.355	- 551	1.870	3.802	9.581	- 831	4.260	- 793	- 1.276	- 4.046	- 4.933	- 5.331	- 7.020	- 7.730	- 8.416	- 9.165	- 9.820	- 10.814	- 11.667	- 12.589	- 13.588	

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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