

# A Financial Analysis for Tesla Based on the Multiple Valuation

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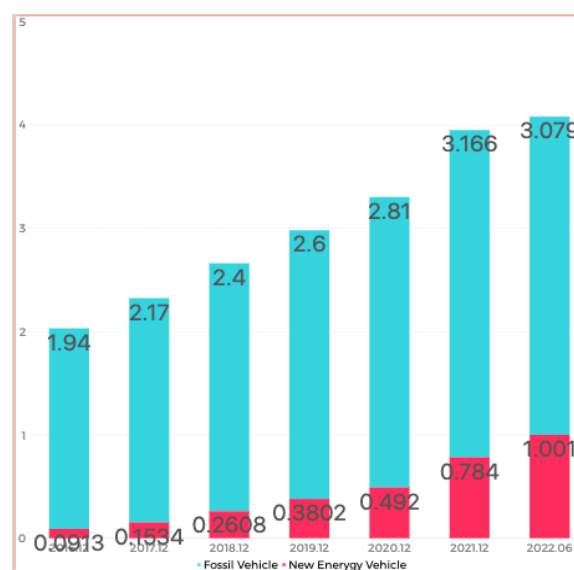
**Abstract.** After introducing the current state of the industry in which Tesla operates and the current situation and challenges faced by the Tesla company itself in the industry, this paper will interpret and analyze Tesla's success path and business model based on various aspects such as financial performance, competitors' situation, industry trends and local policies. In addition, the paper includes the profitability, activity, liquidity, solvency, and business valuation of Tesla's operating model. After analyzing Tesla's dilemmas and solutions in relation to its production model and competitors, it can be concluded that Tesla's future growth potential is significant until there is any unpredicted change in regional policy. The purpose of this paper is to explore the business model analysis done by combining basic data, financial report analysis, financial analysis model, and business analysis model. An attempt is made to extrapolate the results of a fair, complete, and thorough business model analysis in conjunction with the reality of the situation.

**Keywords:** Electric Vehicle (EV); Clean Energy; Tesla; Financial Analysis.

## 1. Introduction

### 1.1 Background

Based on the Environment, Social and Governance (ESG) concept and the increasing need for Green and Sustainable Development, global research on new Energy Vehicles and electrification has been widely focused. Against the background of a substantial potential market space forecast to develop for global vehicle sales, the market share of new energy vehicles is rapidly increasing (Fig. 1 & 2.). Besides, the automotive industry's competitiveness is shifting to automotive intelligence, new energy, and electrification. Tesla is a leading company at the forefront of the new energy field with its numerous patents, successful marketing, and outstanding financial performance. This research paper will provide a comprehensive and in-depth analysis of Tesla's financial performance from 2017-2021, to explore the business model of the new energy vehicle industry and Tesla's business model.



**Fig. 1** Comparison of sales of new and conventional vehicle sales (Unit: 100 million)  
(Photo Credit: Original)

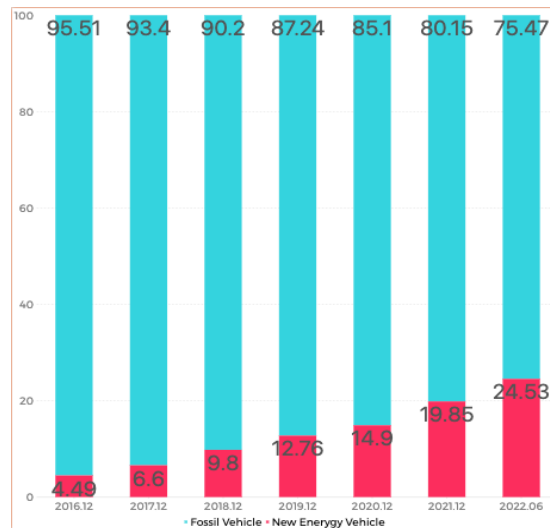


Fig. 2 Percentage of sales of new and conventional vehicles (Photo Credit: Original)

## 1.2 Objection

After eight years of explosive growth from 2013 to 2020, Tesla is facing a market crisis with declining production, falling demand, fewer potential customers, and a reputation crisis due to quality and safety incidents. Meanwhile, on the external market, Tesla also faces the challenge posed by the rise of a plethora of new emerging brands and a growing number of potential competitors. And the new energy field is no longer just for traditional vehicle companies, but also attracts more financial industry giants, such as Apple. How to face and properly address the reputational, sales and market risks at the same time is an urgent issue for Tesla now. In the foreseeable future, Tesla's relative advantages in the field of Electric-Vehicle may be gradually diminished. The underlying reason for that fact is that Tesla's core competencies lie in the integration of intelligence and Artificial Intelligence driving technology with certain human Auxilliary. More competitors from the Internet field, like Apple, entering the same field, have the same data-figure processing model, which means that such companies could save decades and comparable research and development budgets. By developing its Automotive-Driving silicon and sensitive-reaction AI model for constructing virtual road views, and with the fleets with the most number of AI and Machine Learning engineers consistently providing real-time street data for deep learning, Tesla will have a higher efficiency of algorithm iteration than other competitors. Apart from that Tesla had unignorable advantages on the LIDAR route, once Tesla's real-time-reaction and processing model, which could process the progress insists on detecting, collecting, processing, constructing, interpreting and reflecting, is proven viable, the substantial technology will reflect on cost structure and market share with less marginal cost and the roaring number of the order.

Except analyze challenges facing and feasible solutions to achieve sustainable growth, this report will analyze Tesla's Business Model in detail to find out profit resources and explore whether the operating model can be replicated based on financial performance, sales and marketing approach, industry analysis and different Business models.

## 2. Basic Description

Tesla is listed in the Consumer Discretionary sector in the Automotive and Components industry. Besides, Tesla's business consists of three main segments: electric vehicles, power cells, and photovoltaic energy storage. In detail, the service and goods Tesla could provide include designing, developing, producing, selling, and leasing electric vehicles and relevant processed energy production and storage systems, and providing services related to its vehicle products with different collections. As for the power cells department, its lithium-ion battery energy storage products which are highly sought-after products are Powerwall and Megapack. The vertically integrated sustainable energy

business model, which offers drop shipping, (which means the production factory delivers commodities direct to consumers without any third retailer), and green energy products, including power generation, storage, and consumption, are also one of the characteristics of imitation by other peer competitors.

As for the target, back in 2016, Elon Musk announced his vision and strategic plan for the next decade (2016-2025). To sum up his ambition in one sentence, it is “accelerating the global shift towards sustainable energy”. To reach this target, he proposes four concrete ways to implement it. The first of these segments is electrical energy storage, which means building a complete chain of sustainable energy through solar electricity charging, production and storage with acceptable wastage and attrition. This business maintained adorable growth rates in the last half-decade years, while gross margins are not adequate to support the expansion of new supply chains as it is in the pre-commercialization phase. As market demand continues to explode, it will be an important source of financial revenue for Tesla in the future, alongside the electric vehicle business, and in line with the trend of social development across countries.

Tesla has created a complete ecosystem that also consists of energy solutions that can make electric vehicles competitive relative to petrol vehicles in terms of accessibility which means the ability to charge anywhere. By enabling this business system to grow year after year as Tesla launches, it can enter an increasingly large market segment by offering less expensive options, which followed by a part of history that is the mass adoption of Tesla's vehicles.

In terms of the core values, which Tesla offered to its customers, are long-range and charging flexibility, High performance without compromising functionality Energy efficiency. The long-term vision is for Tesla to build not only complete EVs but also infinitely scalable sustainable and accessible energy generation and storage products to replace petrol machines. Since Elon Musk claimed on the committee he believes that the faster the world ceases dependent on fossil fuels and directs towards a zero-emissions environment, the better.

### **3. Balance Sheet**

#### **3.1 The Analysis of Financial Strategy**

##### **3.1.1 The Analysis of Financing & Investment Strategy**

Based on the financial data it can be concluded that Tesla is heavily focused on Research and Development. Tesla's R&D intensity has been prevailing over 10% in all years after it starts to disclose the relevant budget, far exceeding the 5% average level of traditional vehicle companies. Elon Musk, Tesla's CEO, believes that battery production is the main limiting factor for the electric vehicle market in the medium to long term. In the segment of triboelectricity, there is another reason that could explain the destination of the financial budget, Tesla has numerous cutting-edge technologies. In the field of intelligence and autonomous driving, Tesla researches its onboard operating interaction system and autonomous vehicle chip and currently outperforms most competitors in the user experience of L2 driverless driving for the whole vehicle.

Tesla is not only gained supported by local authorities' policies and resources around the world, but it has also acquired numerous upstream and downstream technology breakthroughs to master the secrets of development and avoid being limited by others.

##### **3.1.2. The Analysis of Operating Strategy**

The increasing inventory turnover (Fig. 3 & 4) releases a positive signal to the market, that their production capacity is increasing and is very popular and well-accepted by the market, as it shows that their order intake is also gradually climbing. The soaring account receivable curve is representative of development and prosperity. Overall, the general trend in tesla's development is positive.

The increasing Equity turnover and the fixed asset turnover explain that unit asset utilization and profitability are also growing. Combined with the short-term development indicators, the

simultaneous growth in development capacity and profitability indicates that Tesla has arrived at a period of explosive growth and has passed the early stages of research and development, which required a lot of capital investment. In particular, the growth in order and inventory turnover indicates that Tesla is already highly recognized by the market. The steady and moderate rise in accounts payable illustrates Tesla's excellent sales chain control system and shows that Tesla has a stable, healthy, and well-established relationship with its upstream suppliers and downstream markets. Combined with the doubling of tax revenues, the spike that occurred after a steady decline in accounts receivable is acceptable and indicates that Tesla's market has not yet had time to digest the stabilization after its surging expansion. In conclusion, Tesla's working capital efficiency is better than before.

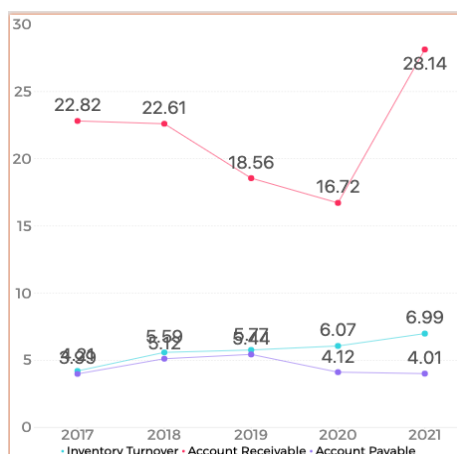


Fig. 3 Three short-term turnover ratios (Photo Credit: Original)

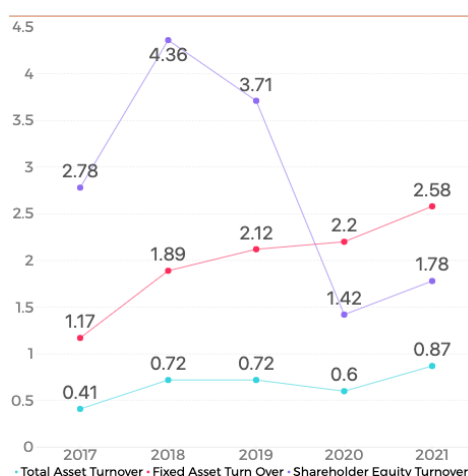


Fig. 4 Three long-term turnover ratios (Photo Credit: Original)

### 3.2 The Analysis of Holding Cash Balance

Table 1. Part Table of Balance Sheet (Data Source: Macrotrends [1])

Unit: million	2021	2020	2019	2018	2017
Cash & Cash Equivalent	17,576	19,384	6,268	3,686	3,368
Account Receivable	1,913	1,886	1,324	949	515
Inventory	5,757	4,101	3,552	3,113	2,264
<b>current assets</b>	<b>27,100</b>	<b>26,717</b>	<b>12,103</b>	<b>8,306</b>	<b>6,571</b>
Leasing Vehicle	4,511	3,091	2,447	2,090	4,117
Solar System	5,765	5,979	6,138	6,271	6,347
PP&E	18,884	12,747	10,396	11,330	10,028
Intangible Asset	257	313	339	282	362
<b>Non-current Asset</b>	<b>35,031</b>	<b>25,431</b>	<b>22,206</b>	<b>21,433</b>	<b>22,085</b>
<b>Total Asset</b>	<b>62,131</b>	<b>52,148</b>	<b>34,309</b>	<b>29,740</b>	<b>28,655</b>

As shown in Table 1, the simultaneous explosive growth in cash flow and inventory indicates that 2019 to 2020 is one of the most important phases in Tesla's development. The foundation of substantial cash flow and the steady growth of inventories indicate that Tesla's production system is well established, its market share is stable and its sales system is mature. Combined with the long period of strides in accounts payable, the beginnings of a trend at Tesla in the early years, with the long period of growth in accounts payable lagging behind the growth in cash flow. Tesla is in a healthy, stable, and upward growth position.

Tesla's main businesses are electric vehicles, power batteries and photovoltaic energy storage. Each of the main business segments has achieved good performance and harvested a lot of resources while also illustrating the numerous developments in the different areas of technology. The doubling of cash flow and total assets, two of the most important indicators, in just five years demonstrates the success of Tesla's operational strategy and technological leadership.

The fact that Tesla's market share and market capitalization have continued to expand while maintaining a steady and optimized growth in solvency ability. Besides, this enhanced ability demonstrates that Tesla's management systems have not become cumbersome and slow in the process of expansion. It means that operational decision-making systems have been optimized to remain efficient, production technology has continued to develop and update sales systems and market share has gradually expanded and stabilized. There is still plenty of potential for Tesla to grow.

### 3.3 The Analysis of Accounting Performance

**Table 2.** Part Table of Income Sheet (Data Source: Macrotrends [1])

Unit: million	2021	2020	2019	2018	2017
Revenue	53823	31536	24578	21461	11759
Cost Of Goods Sold	40217	24906	20509	17419	9536
Gross Profit	13606	6630	4069	4042	2223
R&D Expense	2593	1491	1343	1460	1378
Selling, General & Administration Expense	4517	3145	2646	2835	2477
EBIT	6523	1994	-69	-388	-1632
Net Income	5519	721	-862	-976	-1962

#### 3.3.1 The Analysis of Revenue, Net Income & Profitability

As shown in Table 2, focusing on long-term and cost-containment planning, Tesla's production efficiency and inventory turnover have been enhanced significantly. A steady increase in sales, constant technological innovation, continuous optimization of production processes and cost reduction are the fundamental reasons for Tesla's rising profitability. Access to local government loan concessions and control of low fixed asset costs is one of Tesla's key strategies for internationalization. The financial performance proves the feasibility and correctness of this strategy.

Operating income growth has been sustained at over 100% for a long period. 2021 gross margin was 26.6%, double the industry median for the same period. Net margin was 14.9%, compared to -0.4% for the same period for the rest of the industry. The operating expense ratio is 9.9%, a third of the industry's figure in the same period.

As can be seen, Tesla not only uses a strategy of controlling low costs in manufacturing but also follows this strategy in its marketing strategy. Tesla achieves high profits with operating expenses that are well below those of its industry peers.

#### 3.3.2 The Analysis of Operating Cost

Changes in the cost of electric vehicles, Tesla's largest main business segment, will largely affect the overall company cost changes. The cost of a vehicle has a lot to do with the scale of production capacity, the cost of components, research and development, and Elon Musk's push for minimalist design, which is Tesla's extreme for cost compression. Whether it is a reduction in the number of components in the body, a shortening of the wiring harness, a simplification of the production process or a high degree of automation in production, the aim is to reduce marginal costs. This places high

demands on Tesla's ability to export demand, integration, resource consolidation and supply chain management. However, in terms of financial performance, Tesla has invariably been very successful in all these areas.

Regarding Tesla, the annual growth rate of deliveries this year may be slightly less than 50% due to the high number of vehicles in transit to consumers, but deliveries can grow by an average of 50% in the coming years, with the actual growth rate depending on factory operating hours, equipment capacity and supply chain bottlenecks.

With technological advances, technological innovations and the current slowdown in market share, Tesla is cutting operating and vehicle manufacturing costs to ensure stable supply and reduce marginal costs to increase margins.

### 3.3.3 The Analysis of Liquidity and Solvency

Based on Figure 5., these three dwindling ratios, especially the financial leverage (Total Asset/Total Equity), and two decreasing coverage ratios (Figure 6.), the Interest coverage ratio and Fixed Coverage ratio, mean the rising solvency ability, the stability and security of the company's future development capacity and the unlikely possibility of a tight capital chain in the short term.

In particular, the coverage ratio which turned from negative to positive indicates that Tesla has moved away from a situation where its cash flow was unable to fully cover its loans as they matured promptly.

The Coverage and Solvency ratio combination indicates that Tesla's overall loan position is much better than before and that it can repay most of its loans promptly. This indicates that the business situation has improved and at the same time gives a lot of confidence to the market and consumers.

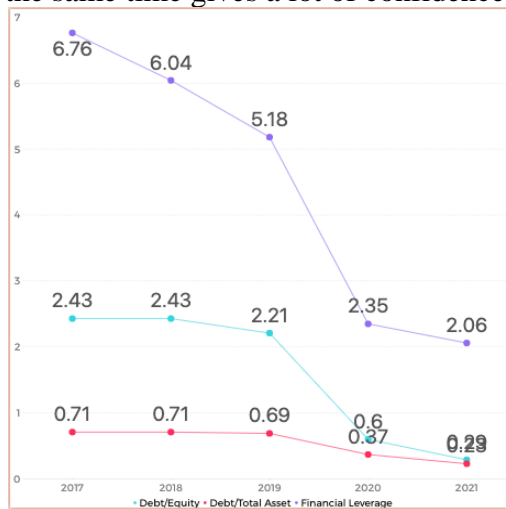


Fig. 5 Three Solvency ratios (Data Source: Macrotrends [1], Photo Credit: Original)

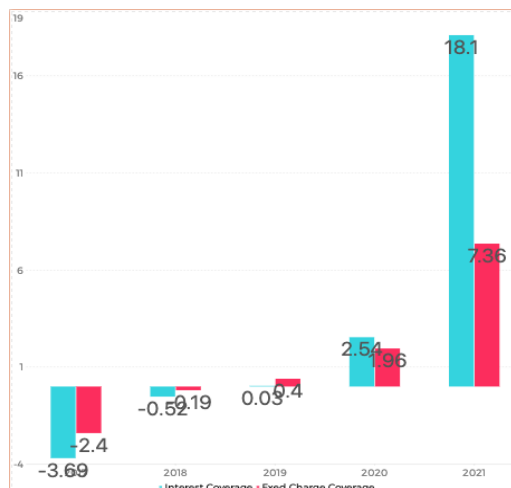


Fig. 6 Two Coverage Ratios (Data Source: Macrotrends [1], Photo Credit: Original)

### 3.3.4 The Analysis of Development

Tesla has exceeded expectations for "growth" in the new energy vehicle field, breaking the rules of the traditional vehicle industry. Since 2020, Tesla's share price has been on a parabolic trend, with the upward trend remaining intact despite several declines over 21 months.

The reason for this is clear the tendency across the world is to turn to renewable or sustainable energy. The electric vehicle company will be in a favourable position for rapid growth in the upcoming years [5].

Analyzed at the level of technological prospects, the most central technological innovations under Musk's leadership are mainly threefold. They are respectively solving the challenge of managing the charging and discharging of high-volume lithium cells in vehicle battery packs, reconfiguring the digital architecture of vehicles in the sustainable energy era to provide more possibilities, and attempting to achieve a breakthrough in the field of autonomous driving with the power of a single vehicle company[6]. A reasonable forecast for Tesla's share price over the next 12 to 24 months is that the share price could rise to an all-time high but not exceed that threshold again. The reason for this is that Tesla is still grossly overvalued, despite its handful of disruptive technologies [5].

In terms of fundamental analysis, Tesla's revenues have been soaring over the past half-decade years, growing from \$11.7 billion in 2017 to \$53.8 billion in 2021. Factors affecting the company's future margins include the on-track operation of Tesla's mega-factory within the planning route and potential price declines on several irreplaceable raw materials. Besides, EBITDA margins are on a steady rise.

In light of Koyfin's report, one of the Investment Analysis institutions, Tesla's current market value of \$729 billion is 14.5 times the projected revenues for 2021. Analysts expect revenue could increase by respectively 35% in 2022 and 25% in 2023 [5].

The forward P/E ratio is 134, which is expected to have growth of 33% and 24% in 2022 and 2023. Apart from that, this index reflects the market's positive reflection on the future of Tesla.

However, several factors could influence this most recent uptrend, among the increasing cost of raw materials, the difficulty of maintaining the Tesla super factory on the planning operation track and developments prepared for the regulatory policy that is able to affect Tesla's sale of carbon credits to rivals. Overall, the trend for the company is still positive for 5 years, with a high probability of the stock and market capitalization maintaining their growth trend.

## 4. Marketing

Based on the SWOT model analysis, in terms of Tesla's Strengthen, Tesla has opened a research and investing wave of electrification and autonomous driving in the vehicle field(Fig. 7). For example, the Model 3 not only makes further improvements to the engineering aspects of the tripoelectricion but also features a centralized component similar to that of a smartphone, which means that a more efficient and faster CPU and user interaction interface are used to control all the hardware on the vehicle. Analysing the information mentioned by Tesla numerous times to the public with the change Tesla adopted, there is a signal pretty outstanding that the core value of the future automotive industry will no longer be the traditional power components such as engines, but the lighter and equally power-efficiency battery, data processing model, and onboard operation systems. The competitors of traditional vehicle companies are not limited to the automotive industry with competitors such as BMW, Mercedes, and Volkswagen, but Apple, Google and other companies with relevant technology.

In addition, Tesla is accelerating its globalization strategy and is expected to replicate Apple's story of "Silicon Valley innovation + Chinese market". Tesla has received support from local governments around the world in terms of land, credit, and other aspects, while the strategic layout of Tesla's global production chain is also well placed, with the Shanghai factory having unignorable manufacturing capabilities and industry chain-supporting capabilities that will enable Tesla to reduce costs by more than 20% after production [3]. The California factory is constantly generating considerable technology revenue for Tesla.

Tesla has adopted the path of three generations of products positioned sequentially positioned to a depth degree, with electrification as an entry point and intelligence as a differentiator as a means to expand its user demographic while preserving its environmental and technological brand image. In terms of administration and operation policies, the board of directors has absorbed the lessons of the development of the first generation of products and has gradually built up its identity as a core competitor by focusing more on the combination of innovation, actual manufacturing, user performance and viability in the subsequent product life cycle.

From the production perspective, with the adoption of independent design or collaboration ventures in core components such as electric motors, Tesla achieved the target that firmly grasps the dominant bargaining power in the production chain both with supply and demand. Besides, Tesla meets the goal of constantly reducing marginal costs by the economic scale effect to realize optimizing utility and maximizing unit productivity.

From the perspective of the product matrix, the small but precise, multilateral interaction matrix has a minimalist style, which allows Tesla is able to focus on constructing breakout models, thereby amortizing the R&D fee of each individual model.

In terms of brand marketing and service, Elon Musk is Tesla's best advertising and marketing strategy, bringing Tesla superb traffic and media exposure. Meanwhile, Tesla has implemented a drop-shipping delivery model rather than a traditional delivery process, using software to further improve user performance by offering over-the-counter service throughout the entire lifecycle of the vehicle[7].

The retrospective analysis demonstrates that the number of patent applications and authorisations began to proliferate after 2009, primarily concerning the preparedness of the Model S. The number of applications reached a spike in 2012 and that of authorisations culminated in 2013 [8]. Regarding the countries of application, the number of applications filed in the US still leads the way, while filings in Europe and China have been increasing swiftly in recent years, in line with Tesla's global marketing strategy.

On top of that, the increasing safety events over the elapsed time have invoked public questions about safety and stability. How to appropriately deal with public sentiment, and at meanwhile maintain the confidence of investors in Tesla's innovative technology is a serious challenge to this monopolistic supranational business group.

After the electric vehicle and clean energy area becoming into an area that has great growth potential and attracts substantial external competitors, the increased barrier to entry ensued which benefits Tesla to focus on competitors within the area rather than all potential competitors over the market like previously. However, the barrier to exit is also increased due to the limitations of the application of the technology and the restrictions of the supply lines. Thus, optimizing cost structure and taking more control over the raw material to maintain and enhance margin revenue appear at the top of the TODO list of these companies. In conclusion, the competitive focus moved from erupting earnings to maintaining marginal revenue and market share.

Nevertheless, the business environment varied more challenging than previously, due to the high market share and distinct brand exposure which have been done before other competitors entered this area, Tesla still owns incomparable advantages over others. That means when facing the same deteriorating business environment and aggressive policy, Tesla could prevail over others with less marginal cost, meanwhile, the others consume more resources and time.



Fig. 7 SWOT Model (Photo Credit: Original)

## 5. Suggestion

Tesla stock has done incredibly well over the past two years as the tendency has shifted to sustainable energy. Meanwhile, the EV revenues index has made a profit from this, scaling to record heights.

Tesla should maintain developing innovative technology in ensuring driver safety which is a popular headline and regular feature in the public debate. Safety should not be a controversial topic. Only ensuring public focus on growth potential and tendency is a healthy signal for a technology company in the consumer discretionary area.

## 6. Conclusion

The new energy vehicle industry has transitioned from a highly concentrated Embryo phase to a phase of intense competition. The current increase in the number of substitutes available across the industry, the substantial increase in the threshold and the cross-industry competition have increased the difficulty of survival for every company in the industry, including Tesla.

Nevertheless, Tesla still owns absolute advantages which can win a time horizon that can be used to optimize structure on operating and production aspects. In the future, Tesla should seriously think about its approach to dealing with its competitors, whether it is a traditional vehicle company or a competitor in the technology industry. Although there is numerous challenging waiting for Tesla in the future, Tesla has a reliable steady growth potential space.

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