

Tesla's transcendence of traditional industries and its prospects

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Abstract. It is becoming increasingly necessary for the worldwide automobile industry to use new energy sources as soon as possible in the future development process to protect the environment from increasingly severe global environmental pollution. This paper introduces some of Tesla's most popular goods and some of its most exciting new developments. Additionally, by studying Tesla's financial report to demonstrate the opportunities presented by its business. Evaluations using PEST, Financial data analysis, and ESG criteria provide conclusive evidence of the company's economic potential and commitment to protecting the environment. This paper's results show that tesla has long-term investment potential based on the results of a PEST study, which shows that the company has a positive cash flow and income. It is considered that this captures the future development pattern of mainstream energy as determined by ESG research. Accordingly, the paper of this appraisal offers a blueprint for the future success of other businesses and a model for globally effective methods of environmental protection.

Keywords: Tesla; PEST; ESG; Management strategy.

1. Introduction

Exhaust emissions from fossil fuel-powered vehicles are a major contributor to worsening air quality. Vehicle exhaust contains various pollutants, such as carbon monoxide and sulfur dioxide. After being discharged, the contaminants of automobile exhaust exist in the air for a long time, which are closely related to people's lives and seriously affect the urban atmosphere and people's health. Some scholars have researched automobile exhaust, and the results suggest that the carbon monoxide emitted by automobile exhaust is extremely harmful to the human body [1]. Carbon monoxide is a highly toxic gas that is colorless and odorless and can last for about two years in the air. In the city most people live in, there are a lot of vehicle exhaust emissions every day, which means our health is threatened every day. Inhalation of very little carbon monoxide in the body will produce a state of hypoxia, ranging from dizziness to damage to brain cells and even death. Sulfur dioxide easily forms acid rain and suspended particulate matter, which can harm the human lungs. The particulate matter contained in automobile exhaust has a certain degree of toxicity and is in the range of inhalable particulate matter [2].

So, people passionately push to transition to a low-carbon economic paradigm worldwide. Building a resource-saving, environmentally friendly society and ecological civilization necessitates a shift in the mode of development, which can be achieved through the vigorous development of low-carbon industries, low-carbon energy, and low-carbon technologies. Nowadays, businesses are working hard to improve their reputation through building up an environmentally friendly brand image, notably—Tesla. Three factors are essential to Tesla's success: (1) the battery electric vehicle industry is set for explosive growth, (2) Tesla Motors is perfectly positioned to take advantage of this growth opportunity, and (3) a "new technology" approach to marketing management is at the heart of Tesla's success today and in the future [3]. Through this paper, by analyzing Tesla, people will know more about this important company.

2. Analysis of the Company

2.1 The Company Overview and the Most Important Director

The Tesla Corporation was founded in Delaware on July 1, 2003. Its primary activities include designing, developing, manufacturing, and marketing high-performance electric cars and sophisticated electric vehicle power system components and providing electric vehicle power systems and OEM production services. Tesla's electric vehicles are built to the auto industry's highest quality, safety, and quality standards. They offer cutting-edge aerial upgrades and complete charging solutions, which help lessen the world's reliance on nonrenewable energy for transportation while simultaneously achieving zero emissions. The firm also manufactures and markets energy storage solutions for residential, commercial, and utility customers [2]. Elon Musk, CEO of Tesla, was born on June 28th, 1971, in Pretoria. He established the Space Exploration Technologies Corporation, the online payment system PayPal, and the Tesla electric car company. Musk has a bachelor's degree in economics and a master's degree in physics from Penn. As of the 23rd of June 2020, Elon Musk rated 18th on the Hurun Global Top 100 Entrepreneurs list [4].

2.2 Tesla's Main Products

Over ten years, Tesla has developed and produced four distinct vehicles: Roadster, Model S, Model X, and Model 3.

Roadster is marketed as the first consumer fully electric convertible racing vehicle globally. The mileage reaches 320 kilometers, the acceleration from 0 to 100 kilometers per hour is less than 4 seconds, and the top speed is 200km/h. Launched in 2008, prices start at about \$110,000.

Model S is marketed as a premium four-door electric vehicle with standard all-wheel drive provided by two motors. In addition, the premium versions have a rear-mounted engine. The 85-kWh long-range model can go 480 kilometers on a single charge and reach 100 km/h in 4.4 seconds. Model S also has a separate instrument cluster, a 17-inch LCD touch screen, and an available autonomous driving assistance system. They went on sale in 2012 at a starting price of about \$57,000.

Model X features a "2+3+2" seating configuration and aims to bridge the gap between SUVs and coupes with its all-electric prowess. There's a wing door design for the trunk that's both stylish and technologically advanced. A 17-inch LCD touch screen, an autonomous instrument cluster, and an automated driving assistance system are all standard, just as they are in the Model S. Prices for the 2015 debut range from about \$100,000.

Model 3 is positioned as a pure electric compact sedan. The long-range version can accelerate from 0 to 100 kilometers per hour in only 5.3 seconds, with a cruising range of 668 kilometers, cancel the independent instrument panel, replace it with a 15-inch LCD touch display, and carry a new automatic assisted driving technique. It can adapt its speed to road conditions, change lanes without human intervention, and park itself. Available in 2017, prices start at \$35,000 [2].

2.3 Financial and Operational Summary

According to the company's financial report, Tesla Motors' first-quarter revenue was \$18.756 billion, an increase of 81% relative to the \$10.389 billion it made at the same time a year ago; the company's operating profit was \$3.280 billion, up from \$464 million. There was a \$3.318 billion increase over the prior-year period's operating profit attributable to equity holders, which was \$438 million.

After the first quarter of its fiscal year, which concluded on March 31st, Tesla Motors recorded total sales of \$18.756 billion, up 81% from \$10.389 billion in the first quarter of 2016. This is a significant increase over last year when Tesla Motors posted a net profit of \$464 million. Compared to the same time a year ago, Tesla's first-quarter net profit attributable to common shareholders was \$3.318 billion, or \$2.86 per diluted share. Earnings per diluted share during the first quarter of fiscal 2021 for Tesla Motors were \$0.39, or \$438 million. As of the end of the first quarter, Tesla's adjusted net profit attributable to common stockholders was \$3.736 billion, up 255% from the same period

last year's \$1.052 billion; as of the end of the first quarter, adjusted diluted earnings per share were \$3.22, up 246% from the same period last year's \$0.93.

Tesla's total revenue from auto-related businesses in the first quarter was \$16.861 billion, an increase of 87% from \$9.002 billion in the same period last year and an increase from \$15.967 billion in the previous quarter. Among them, the revenue from the automobile sales business was 15.514 billion US dollars, compared with \$8.187 billion in the same period last year and \$15.025 billion in the previous quarter; the revenue from the sale of automobile carbon emission credits was \$679 million, This compares to \$518 million in the same period last year and \$314 million in the previous quarter; revenue from car rentals was \$668 million, compared to \$297 million in the same period last year and \$628 in the previous quarter One hundred million U.S. dollars.

Tesla's first-quarter gross profit was \$5.460 billion, up 147% from the \$2.215 billion it made at the same time a year before. This also increased over the \$4.847 billion it made in the previous quarter. The total gross profit margin was 29.1%, compared to the previous year, increased by 779 basis points compared to the last quarter's total gross margin of 27.4%. First-quarter operational profit for Tesla was \$3.603 billion, up 507% from \$594 million at the same time last year; the operating profit margin was 19.2%, up 1,349 basis points from 5.7% in the first quarter of 2016.

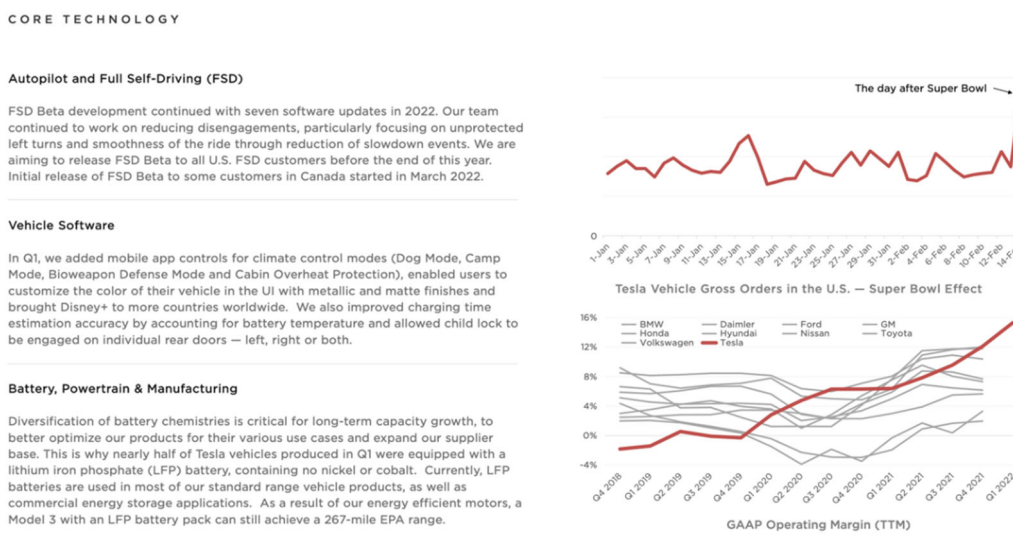


Figure 1. Tesla's first-quarter financial report (2022) [5]

Tesla also disclosed production and delivery data for various models in its earnings report. The report shows that Model S and Model X produced 14,218 vehicles in the first quarter, compared with 0 in the same period last year; deliveries were 14,724, an increase of 625% compared with 2,030 in the same period the previous year. The number of Model 3 and Model Y vehicles produced in the first quarter was 291,189, up 61% from 180,338 in the same period last year; the number of vehicles delivered was 295,324, up 62% from 182,847 at the same time last year.

To sum up, regarding vehicle production, there will be an annual increase of 50% in car deliveries at the corporation. The cash issue is enough to cover the company's current and future operational needs, product road map, and long-term capacity development objectives. Tesla continues to innovate on the profit issue to reduce manufacturing and operating costs, but over time, the company's hardware-related profits are expected to accelerate alongside software-related profits.

2.4 PEST Analysis of the External Environment

2.4.1 P part

Nowadays, the world's government has started several policies to support environmental-friendly vehicles. For example, On May 26, the U.S. Senate pushed forward the new "American Clean Energy Act," the largest of which is the "electric vehicle subsidy" of up to \$174 billion. The Electric Vehicle Subsidy Act proposes to subsidize each electric vehicle by \$7,500; if it is assembled and

manufactured in the United States, an additional subsidy of \$2,500; if the vehicle manufacturer joins the American Auto Union, an additional subsidy of \$2,500, up to one The subsidy for new energy vehicles is 12,500 US dollars, equivalent to about 70,000 yuan. It is the same for the whole world; the government in the other country is also starting policies for environmental-friendly vehicles.

From the data shown below, in 2021, the Chinese and European markets will account for the largest electric car market share. Global sales of electric vehicles (BEV+PHEV) are expected to reach 6.5 million in 2021, up 109% from 2020, according to technology and smartphone-focused research and advisory firm Canalys. That's equivalent to nine percent of all passenger cars sold worldwide. To wit, 85% of all sales originate in either China or Europe. For every one million new cars sold in China, fifteen thousand were sold in Europe, and vice versa. The United States has 535 thousand cars, about 4% of the global total. China is home to half of the world's electric cars, while Europe is home to 35 percent of the total [6-7].

Tesla leads the EV market, but competitors gather

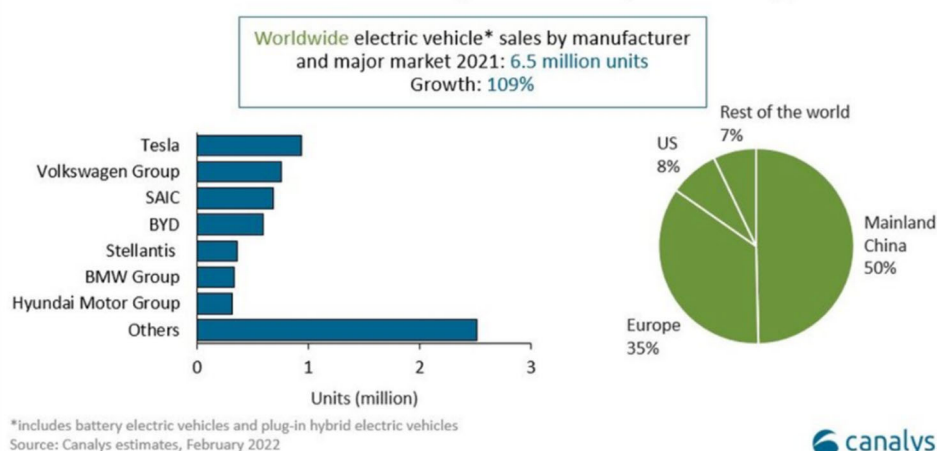


Figure 2. The EV market from Canalys [6]

2.4.2 E part

Due to the support for electric cars in various policies, the development of Musk's Tesla has gradually begun. For the whole of 2021, Tesla sold a total of 930,000 vehicles worldwide, nearly double the nearly 500,000 vehicles sold in 2020. For the full year of 2021, Tesla made \$5.5 billion in GAAP net profits and \$5 billion in free cash flow despite spending \$6.5 billion on new plant expansion and other capital expenditures. This has allowed Tesla to maintain its lead in market value for more than two years. According to Tesla's present growth strategy, the next critical step is expanding into the European market. There have been two setbacks at the German facility, and it is hoped that it will finally be put into production in early 2022; the construction of the factory in Texas, USA, is also in full force, which is the approximate rate of output in the year 2022. From the beginning of 2023 to the middle of 2023, Tesla may quadruple its output from the existing construction scale, referring to the two-car manufacturing facilities now functioning by Tesla. Among them, Berlin, Germany, mainly plans to produce the Model Y. In addition to the Model Y, Texas will also launch the Cybertruck, which American consumers look forward to.

2.4.3 S part

However, even though it seems that electric vehicles are so popular in many places, many people still worry about the safety of the new energy cars. After all, it is not just a wind that comes out of nowhere. At about 8 pm on April 21, 2019, a Tesla sedan suddenly emitted white smoke in the underground garage and then caught fire. Other vehicles, including those parked nearby, were damaged by the fire. More so, on May 3 of this year, a Tesla Model S caught fire in a private garage in San Francisco, USA. The good news is that people nowadays are still more concerned about the environment and the accidents that happen are rare.

2.4.4 T part

According to Electrek, Tesla has released an upgrade to its software that improves Autopilot's use of regenerative braking. With the intelligent use of regenerative braking, the efficiency of electric powertrains will further widen the gap with internal combustion engines. Automakers have employed this technology in several ways to control the strength of regenerative braking, including recovering energy to charge the battery when the vehicle decelerates. Despite its reputation for having one of the most powerful regenerative braking systems, Tesla offers the fewest customization options of any major automaker. In the past, there were just two trim levels available from the manufacturer: Standard and Low. However, for 2020, Low has been discontinued, leaving only Standard as the standard. It may take a while for new EV drivers to get used to the more regenerative braking capability, which often results in an immediate halt when the accelerator is released, making one-pedal driving possible. Now, Tesla has begun rolling out a new software update (2022.4) that strikes a better balance by increasing regenerative braking at low speeds. With the improvement of technology, Tesla can still be way better in the future and solve problems that might be dangerous to people.

2.5 ESG Action

On May 18, S&P Dow Jones Indices announced the adjustment of the S&P 500 ESG Index, which removed 35 companies, including Tesla, from the S&P 500 ESG Index this month. Still, people should not ignore the significant contribution by Tesla. It is more important to consider from other sides, such as whether the company's contribution to the global environment, the social contribution of all the countries where it is located, and the management system of all the branches are reasonable. The company's contribution cannot be limited to one aspect.

2.5.1 E part

Musk puts a lot of emphasis on the energy consumption of Tesla factories and takes full advantage of local renewable energy sources. Tesla says its Fremont plant is certified zero-waste. And there are even waterless car washes in some areas.

More than anything else, the raw materials used to make batteries might be the source of environmental damage caused by Tesla's manufacture of electric vehicles. In reality, Tesla's mission is to guarantee an ethical supply chain by only working with environmentally conscious vendors.

Supplier	Material	Country	Type
Albemarle	Lithium	Australia (mine); China (refinery)	Integrated Mine Site + Refiner
Livent	Lithium	Argentina (mine); China, USA (refinery)	Integrated Mine Site + Refiner
Ganfeng	Lithium	China	Refiner
Yahua	Lithium	China	Refiner
Guizhou CNGR	Cobalt, Nickel	China	Refiner
Hunan CNGR	Cobalt, Nickel	China	Refiner
Huayou	Cobalt, Nickel	China	Refiner
Glencore Kamoto Copper Company	Cobalt	Democratic Republic of Congo (DRC)	Mine site
Glencore Murrin Murrin	Nickel	Australia	Integrated Mine Site + Refiner
BHP Nickel West	Nickel	Australia	Integrated Mine Site + Refiner
Prony Resources	Nickel	New Caledonia	Mine site
Vale	Nickel	Canada	Integrated Mine Site + Refiner

Figure 3. Tesla's list of battery material suppliers [8]

The goal of Tesla's newest battery generation is to make the battery completely cobalt-free and hence easily recyclable. Even once its useful life is done, the battery will find a new home in a Tesla vehicle, where it will continue to store energy for another 20 years or so until finally being recycled.

Environmental Planning and Design at the United States Environmental Protection Agency found that nickel- and cobalt-based batteries, such as lithium-ion batteries, pose the highest potential environmental risk. Tesla then designed the battery pack and battery management system controller to manage current and the battery's microclimate [8-9].

2.5.2 S part

Tesla has opened up new market sectors for new energy vehicles all over the world as a pioneer in the field of pure electric vehicles by developing a novel idea of employing Internet-based thought in the production of automobiles.

As a result of global warming and diminishing fossil fuel reserves, society is now in the third phase of transition. What Tesla is doing now is taking multiple considerations for social energy and environmental technology [8].

2.5.3 G part

Key Corporate Governance Decisions: Tesla's corporate governance structure has contributed to several key decisions that have contributed to Tesla's long-term success.

Tesla's Sustainability Council, comprised of corporate executives, is responsible for collecting data, conducting research, and writing the report's content. The Sustainability Committee also provides similar data to Tesla's top executives. The Board regularly considers stakeholder input, such as suggestions given at the annual meeting, and assesses the effectiveness of the Board's corporate governance structure, procedures, and policies. The board of directors often meets with the executive team and the Sustainability Committee. The Board of Directors is responsible for assessing the organization's management's effectiveness, determining whether new directors should be appointed, and researching and vetting potential directors for election or reappointment.

Strong corporate governance is essential for Tesla's future success, and the company has made strides in this direction across the board. Although there have been scandals like racial discrimination in the factory, there is no denying that Tesla is progressing and improving. These include the resources (such as water and electricity) required to produce the product, the security of the company's clients and workers, and the product's cost and availability [10].

3. Conclusion

In summary, this paper investigates and discusses the world's famous company: Tesla. Eventually, the current situations and perspective of future development and outlook of the protection of the environment are proposed accordingly; specifically, based on the PEST and ESG valuation, this company has economic investment potential and is beneficial to the environment. Overall, these valuation results offer a guideline for future success for other companies and successful ways to protect the environment for the whole world.

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