

# Evaluation of Tesla Based on PEST, POCD, SWOT and DCF

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**Abstract.** Tesla is one of the world's most valuable companies, which is founded by Elon mask in 2003. Since Tesla released its first electric race car in 2008, it has driven the global shift from diesel to electric vehicles through publicly available technology patents. This paper will evaluate Tesla based on POCD framework, PEST, SWOT and Discounted cash flow analysis. We discovered that Tesla has been provided with many opportunities to develop, along with the support from policy that enable itself to expand its influence around the world. Nevertheless, since investors have put too much expectations on the company, and their investing behaviors affected by COVID-19, Tesla's real market value has been overvalued that further inflate its stock price. Consequently, we suggest investors to sell Tesla's stock. In general, the analysis provides readers sufficient information to analyze, which also enables investors to derive a more comprehensive consideration about Tesla. These results can be helpful for investors to some extent when they are valuing this company.

**Keywords:** Tesla; Electrical Vehicle; Self-driving cars; Competition analysis; PEST; POCD; SWOT; Discounted Cashflow valuation.

## 1. Introduction

Self-driving cars provide a way of individualized transportations which could be used to alleviate downside consequences brought by auto use. The advanced technology was fresh to the public and it soon get welcomed by many people. History of autonomous vehicles industry is relatively short, as the experiment of self-driving cars started since 1939. It was until 1980s did the first car, which is truly autonomous, was invented. Then, since 1987, a large number of self-driving cars companies as well as research organizations have invented autonomous vehicles including General Motors, Continental Automotive Systems and so on. Tesla, which designs and manufactures electric vehicles, is the world's most valuable automaker with a market capitalization of more than US\$760 billion. This firm is good at manufacturing electric vehicles with lithium-ion battery (to store energy) as well as establishing solar panels [1]. Since the foundation of company-Tesla in 2003, the company have made huge process and gain reputation around the world because of its excellent skill in the market of electrical vehicle market along with fantastic inventions. In this essay, we will evaluate Tesla in four different ways and finally give out an comprehensive evaluation on the real market value of Tesla.

Due to the unstable political climate, several nations in Europe and the United States are weaning themselves off of oil products made in Russia. As a result of this, the growth of the electric vehicle sector is on the brink of entering a new stage today [2]. It is anticipated that the market for electric vehicles would expand gradually as a result of increased market penetration among customers. The company has already moved into the EC area, which was previously considered a specialist industry, and is now shifting into competitive environments with major vehicle producers as well as other businesses. As Tesla establishes itself as the industry leader in the EV market and manufactures additional goods linked to EVs, the company anticipates seeing growth that is greater than that of the general trend in EVs. As a result of Tesla's cutting-edge innovations and technological advancements, the company is now in a position to dominate the electric vehicle (EV) industry [3].

In this paper, we use four research methods, which are PEST, POCD, SWOT, and DCF (discounted cash flow). Firstly, PEST is an abbreviation that stands for "political, economic, social,

and technical," which are the four drivers of change. PEST analysis can be utilized to get a comprehensive strategic risk and detects macro-environmental changes and consequences on a firm's competitive position. They are susceptible to a variety of exogenous factors, which may have a significant impact on the firm's competitive positioning. It is crucial to know external factors and evaluate how business models will need to evolve to adapt to their environment [4]. Secondly, the POCD framework evaluates businesses from four vantage points: People-Opportunity-Context-Deal. People include founders, investors, suppliers, etc., and are evaluated to see whether they can assist the growth of the business. An opportunity exists when a consumer is prepared to pay more than anticipated for a product or service, despite the fact that it will need further investment and will have higher running expenses. The implications of affecting opportunities are referred to as context. Deal refers to a startup's tacit or expressed contract with all resource providers [5]. Since transaction is not included in our analysis, deal will not be considered in this essay. In times of indecision, it is common practice for organizations to conduct a SWOT analysis, which stands for an evaluation of the firm's strengths, weaknesses, opportunities, and threats. This type of evaluation has become a vital tool for firms to assess their market position and is extensively used to study the internal and external environments of enterprises during indecision. Internal components of an organization that help accomplish its objectives are referred to as strengths, whereas the internal factors of the organization that impede its progress are referred to as its weaknesses. External variables that assist an organization attain its objectives are chances to correct gaps and start new initiatives. Threats are external factors that impede or might impede an organization's aims [6]. The last one is the discounted cash flow, or DCF, and technique assigns a value to the business based on the net present value (NPV) of its projected future free cash flows, which are then subjected to the applicable discount rate [7].

As self-driving cars industry is relatively new to the public without sufficiently mature technology, its future is full of uncertainty. To analyze this industry in greater detail and to gain better understanding towards self-driving vehicles, we will pick one of the biggest companies that produce self-driving cars-Tesla, as an example. Tesla will be evaluated in four different ways including 'PEST analysis', 'POCD framework', 'Discounted cash flow valuation' and 'The value proposition analysis'. After that, the next chapter will talk about the investment suggestions based on our analysis after Tesla is discussed in diverse perspectives. Then, this essay will talk about the limitations and deficiency of our research ideas. Moreover, the future outlook of the industry from our perspectives will be written next. At last, there will be a conclusion that summarize all of the key points.

## **2. Basic Description**

### **2.1 About Tesla**

With the target to accelerate the world's transformation in to renewable sources of energy, Tesla Inc. is founded by Elon mask in 2003 in United state. Starting with the release of the first Tesla electric race car in 2008, it has driven the global shift from diesel to electric vehicles through publicly available technology patents. According to the annual financial report released by "United States Securities and Exchange Commission" in 2021, the company has two main divisions: automotive business and energy business. For the Automotive system, Tesla has mastered the entire process of design, develop, manufacture, sell and lease of high-performance electric cars, while the main products types of cars sold are "Model 3", "Model Y", "Model S and Model X". Additional serviced like sales of supervised auto credit, aftermarket vehicle services, sales of used vehicles, retail merchandise, and vehicle insurance are all included in the automotive business. For the Energy Generation and Storage segment, Tesla focuses on the design, manufacturing, placement, sales and leasing process of solar power and energy storage products. Other related services and sales of solar system incentives are all part of the scope of the company's business. In 2021, Tesla took the top position in the global electric vehicle industry with 13.84% market share, thanks to its technology, scale, ecosystem, and brand, which are beyond the reach of other competitors. In the meantime, Tesla

has gradually transformed from a local U.S. company to a multinational company over the past five years, with 44.5% revenue from US, 25.7% from China and 29.75 from other international countries.

## 2.2 Income statement

According to Tesla's Income Statement, automotive sales is the most important source of revenue for Tesla, accounting for 82% of total revenue in 2021. The entire Energy generation and storage segment provide 5.18% of total revenue. Withstanding continuous spread of covid-19 and restrictions like the zero-covid policy in China, Tesla presented an acceleration in their sales, where total revenue had increased by 15%, 28% and 71% in 2019, 2020 and 2021, respectively. Automotive sales had increased by 79% in 2021, and its mainly due to sour in production of Model 3 and Model Y in Gigafactory Shanghai and the Fremont Factory. Energy generation and storage also showed a growth of 40% in revenue. Under this rapid growth caused by expansion in productivity, net income (loss) attributable to common stockholders section improved from a loss of 862 millions in 2019, to a profit of 721 million in 2020, and reached 5519 million in 2021. It proves Tesla's business model's ability to earn positive profit, and the higher profits in the future with continued expansion.

Within the expenses section, Tesla is constantly using 5% of their total revenue for research and development. Advance technology is the Tesla's major advantage comparing to other electric car business, and quick expansion in their revenue allow Tesla to improve their product and widen margin of safety from others at a faster pace. Selling, General and Administrative Expense to revenue had been falling from 11% in 2019, to 10% in 2020 and 8% in 2021, which proves operational efficiencies.

Gross margin shows a constant improvement since 2019. This figure increased from 21.0% in 2020 to 25.3% in 2021, which rise from 25.6% to 29.3% for automotive, and fall from 0.9% to -4.6% for energy generation and storage segment). Net profit margin (net income attributable to common stockholders) also presents a positive change from -3.5% in 2019, to 2.28% in 2020 and reach 10.25% in 2021. These two indexes proves that less cost of goods sold and other expenses is taken from each dollar of revenue, which indicate that Tesla is reaching economic of scale and will become more profitable after expanding.

## 2.3 Balance sheet

According to the Balance Sheet, all three sections (i.e., asset, liability and equity) grew during 2021, by 19%, 7.5% and 35.8% respectively compared to the previous year. There are several items showing significant change. Cash and cash equivalent that take 28.3% of total asset in 2021 shows a fall by 9% (1808 million), and this will be explained in the cashflow statement. Property, plant and equipment that take 30.4% grew by 48%, reflect the rapid worldwide expansion in productivity. Accounts payable that 32.8% of total liability increased by 65.7%, which should bring positive effect to cashflow. Tesla had issued 1033 shares at December 31 2021 that brought 2543 million of fund. Retain earnings had shown a significant improvement, from negative 5399 million to positive 331 million dollar. Financing from new shares issued and increase in liability would improve free cashflow, while high investment into non-current asset consumes a significant amount of money.

From 2019 to 2021, Asset turnover grow from 0.71 to 0.87, return on equity grow from -10.4 to 18.2, return on asset grew from -2.26 to 9.08. Improvement in these ratios represents increasing efficiency, in usage of both equity and asset. In addition, higher inventory turnover ratio represents a higher efficiency in selling, while higher receivable turnover shows that customers are paying more frequently in shorter time period. Moreover, current ratio had fall from 1.87 to 1.37, falling below 1.5. It is not a good sign as Tesla may not be able to repay their short-term liabilities within time limit.

## 2.4 Cashflow

Cashflow is generally more important comparing to profit for investors, because dividend is paid in cash. However, Tesla does not pay dividend, they choose to reinvest money for improvement. Net inflow of operating cashflow in 2021 is 11497 million, which mainly came from large increase in income due previous heavy investment into research and development, and large increase in accounts

payable. Cash used in investing activities presents a net outflow of 7868 million. It is caused by construction of Gigafactory Texas and Gigafactory Berlin and the expansions of Gigafactory Shanghai and the Fremont Factory, which will bring positive effect on revenue. Net cash outflow in financing activities is 5.2 billion due to increase in net repayments of debts and convertible notes.

### **3. PEST**

#### **3.1 Political factors**

Contemporarily, the world's environment has been seriously affected by CO<sub>2</sub> emissions. As a result, authorities are currently aiming to promote electric automobiles run by alternative fuel, which can be seen as a notable political factor for Tesla. For instance, to boost the sales of electric vehicles, the US government provide approximately USD 7500.00 tax credits to their buyers [8]. Moreover, the trade war between the US and China under Trump administration has affected Tesla to a large extent. The company had to pay tariff for parts of manufacturing electric cars. To resist the policy, Tesla engaged in lobbying, which cost the company a lot of budget. Luckily, Tesla's lobbying budgets is relatively lower compared to other electric automobile manufacturers, with only about USD 36,000.00 used for lobbying in 2020 [9]. Cobalt is a raw material which is widely used in the production of Tesla's car. Besides, the Democratic Republic of Congo produce approximately 58% of the total. Cobalt rash raise the risk of clash, child labour and corruption in Congo [10].

#### **3.2 Economic Factors**

It is reported that the current price of USD137 per kilowatt-hour for lithium-ion will drop as low as USD 100 per kWh by 2023, according to Bloomberg New Energy Finance report [11]. This enables price of the car to be lower, having the potential to attract more consumers for Tesla. Besides, the renewable energy cost has also been cut down, further lowering the price. In addition, Tesla is also benefited from government tax incentive, which is given to electric car manufacturers.

#### **3.3 Social Factors**

Public's awarenesses towards protecting the environment is rising eventually. As a result, low-carbon lifestyle has become more and more popular. Consumer may show more preference for the one with renewable energy when they are choosing cars, which can be seen as a positive implication for Tesla of improving its financial performance. Moreover, wealth distribution has improved that enables consumer who comes from relatively remote area to gain more purchasing power. The wealth distribution trend raise the population of potential buyers for Tesla's relatively expensive cars.

#### **3.4 Technological Factors**

The promotion of Tesla's automotive and energy solutions business is heavily rely on the available technologies. At present, technological skills are changing all the time at a relatively fast speed. On one hand, the high speed of change in technology provide opportunity for Tesla to update its products' technologies. However, on the other hand, this threatens the company, as there will be potential risk of rapid obsolescence of technologies used in their products. Furthermore, expense for updating its new product is costly. In addition, increase in business automation is a trend that provide opportunities for Tesla. For instance, Tesla can gain more by further automation of its business processes.

### **4. POCD**

#### **4.1 People**

Although Tesla is leaded by a group of highly educated and experienced leaders, Elon mask (the CEO and co-founder) is still recognized as the most outstanding one. After graduation from University of Pennsylvania, he went to Stanford University for a PhD in energy physics. After raising

sufficient funds through the sale of Zip2 and Pay-pal, their first and second company, Musk founded SpaceX. The company has performed many miracles: they sent the first private rocket to International Space Station; made the first Falcon 9 Rocket that can be reused in 2017; BFR Mission to Mars aims to turn Mars into a human colony; plans to launch thousands of satellites to improve internet services. In 2003, because SpaceX was underfunded, Musk founded Tesla, an electric car company, and after several financial crises, brought electric cars to the world. In 2017, Musk created The Boring Company to dramatically improve cities. Almost every one of the five companies Musk has founded so far has been able to make a dramatic difference in the world. For Tesla, beside his strong entrepreneurial and operational capabilities, Musk is also the biggest advertiser. He saves the company a huge amount of money on advertising by sending out a tweet or attending a seminar and getting the attention of people around the world.

## 4.2 Opportunity

The electric vehicle industry has great potential. The proportion of all electric vehicles compared to the entire vehicles industry is still very low. With governments targeting low carbon emissions, electric vehicles are likely to replace today's fuel cars. The industry is just getting started, so even if Tesla is No. 1 with a 13.4% market share in 2021, it could still broaden the market significantly. In the beginning, Tesla released two high-end models, the Model X and Model S, targeting people with high incomes who care about the environment or are interested in electric cars. Nonetheless, it was clear that it was difficult to penetrate the market with high-end models that were expensive and far less capable than diesel cars. Therefore, Tesla continued to invest heavily in research and development, creating the Model Y and Model 3, two mid-market models, and expand explosively. Tesla is currently preparing to enter the low-end market with a lower-priced model, while this new model will boost sales and increase market share.

As shown in annual report, both gross profit and net profit is continuously reducing, which shows it's ability to improve cost control and generate higher profit. This improvement is due to several reasons. First of all, in the manufacture of batteries. Then, Musk just started the business, he used new ideas and designs (replacing the batteries of the once-static car with a large number of smaller batteries) to reduce the price of the batteries dramatically. Later, by recycling, he reduced the cost again. Secondly, Tesla use free media promotion, they spend 0\$ in traditional advertising, which minimised their cost to acquire consumer. Creating interesting hotspots in the Internet is one of the ways attract consumer. For example, in 2019, 4 minutes after Space X Falcon Heavy rocket is launched, a new Tesla is released from the rocket on orbit, and this had successfully advertised Tesla to the whole world. The other main channel for advertisement is Elon Musk himself. His personal twitter had more than 100 million of followers, and he usually write more than one post almost everyday. With his continued activity on Twitter and frequent appearances at offline events, he has been a constant advertisement for Tesla. Thirdly, Tesla's factories are characterized by almost no people, producing machines with machines. The initial investment in plant and equipment expansion was very large, but labor costs during production were drastically reduced, resulting in very low marginal costs. Moreover, the expansion in size of production helped Tesla to reach economic of scale, which further reduce per unit cost. Finally, delivery costs for Tesla is relatively low. As a MNC, Tesla has factories in major countries where it sells cars, such as the new Gigafactory in Shanghai, China. This dramatically reduces shipping distances and costs, while increasing efficiency.

It is true that many Tesla owners are finding lots of problems with their cars. Due to problems during their production process, Tesla cars always have some small quality problems. Due to general problems with all EVs, like range shortens easily as batteries are easily affected by weather, and hardness to find chargers, consumer is having bad experience. However, Tesla is still the best EV company world wide, as several features builds strong margin of safety and protect its marketshare. First of all, as the first mover, Tesla gains high market share, strong brand recognition, and strong consumer loyalty. Secondly, Elon Musk, a person with continuously increasing number of fans is increasing Tesla's potential loyal consumers. Thirdly, Tesla has advance technology in Battery and

Autopilot. Construction of Autopilot is a machine learning process, while billions of miles of data provide much stronger than other competitors. Fourthly, Tesla has the scale that other competitors don't, which allow them to enjoy lower unit cost. Fifthly, Tesla has its own supercharger network that none of other EV companies have. Superchargers allow Tesla to be almost fully charged in 30 minutes, faster than most of other chargers. Moreover, Tesla's charger is distributed all over the world, which is one of the keys for expansion of EVs. All these above give Tesla the opportunity to protect and expand their market share while the entire EV market grows.

### 4.3 Context

From a macroeconomic point of view, the environment is not friendly. Inflation is soaring in countries such as the US and Europe, political conflict is happening between several countries, new pneumonia and oil prices have reduced consumer power, China's zero-covid policy has led to the shutdown of Tesla's largest gigafactory in Shanghai... However, in any case, the whole electric vehicle industry is very promising. Although electric vehicles are not yet a substitute for gasoline vehicles in many respects, all major governments are unanimously acquiescing to the reduction of CO<sub>2</sub> emissions in the context of increasing global warming. This is one of the reasons why China is fully supporting Tesla's entry in many ways. From a market perspective, the penetration of electric vehicles in most countries is still very low, and there is a lot of room for technological advancement, and most markets are very promising. Moreover, Tesla, as the leader in the EV industry, has an absolute advantage in both sales and technology. However, as more large car and even battery companies enter the EV industry, Tesla's market share may be gradually divided.

## 5. SWOT

### 5.1 Strengths (SO strategies)

As a result of its ongoing commitment to research and development, Tesla is widely regarded as one of the most inventive corporations now operating in the industry. Unlike traditional vehicles, which get most of their energy from burning fossil fuel gas, its use of electricity as a source of energy makes Tesla a pioneer in the industry; this is one of the company's primary strengths, along with the fact that it is an efficient use of energy [12]. In 2018, Tesla put \$1.8 billion on the development of new and innovative technologies, leaving the majority of its competitors in the dust. On this basis, the customers who are extremely curious about the development of technologies for electric cars have highly positive attitudes toward this firm, which enhances its popularity and profits.

As the company's goal isn't just to produce the cars but also to make driving the ideal driving experience, Tesla puts a lot of effort into improving the quality of the user experience and the quality of its products. Tesla is a corporation that has considered all of its customers' concerns and created supercharger charging stations in response, and there is no longer any need for us to be concerned about the cost of fueling the automobile. Therefore, when customer satisfaction rises, the company's brand image gets stronger, which is one of the most important things that makes sales go up.

Additionally, the employment rate is one of the most essential strengths that Tesla possesses, so there is no doubt it is one of its strengths. The business was highlighted in a recent issue of Forbes magazine as one of the greatest places to work in 2019. The total number of employees at Tesla in 2020 was 70,757, representing an increase of 47.36 percent over 2019. Afterward, the number of employees at Tesla is increasing at a consistent rate as the company continues to expand. Overall, the company had over 100,000 competent personnel by the year 2020. According to a study, Tesla's technological innovations and well-known brand helped the EV industry in China grow [1], so it was reasonable to expect that the number of employees would go up significantly after the Shanghai Gigafactory opened for business and started ramping up production by the end of 2020. As the two new plants, Giga Texas and Giga Berlin, enter commercial production in the same year, each with at least the same manufacturing projection as Giga Shanghai, 2022 is expected to see an even more pronounced growth compared to the time between 2020 and 2021. So, it is well known that Tesla is

a fantastic firm for younger people to put their talent and energy into since the company has embraced a culture that is both inventive and diverse.



**Fig. 1** Tesla quarterly profit/loss.

### 5.2 Weaknesses (WT strategies).

Even if Tesla managed to become competitive with the largest automobile manufacturers in the world in such a short period of time, its manufacturing force is considerably weak in comparison to that of other companies, i.e., loss a lot of money as given in Fig. 1. The company originally only had one plant, which was located in California, and it is only capable of producing a limited number of vehicles. It's probably aware of this serious problem too and has built new factories in Shanghai, Texas, and Berlin in recent years to manufacture the cars. More importantly, the imbalance between the demand and supply ratio has become serious, which is still invading and is unable to meet the rate of production for Tesla. Hence, the members of the firm are quite concerned about not being able to buy the electric batteries or their production of them, its inability to achieve large manufacturing numbers [1], which caused delays in the delivery of prior models and is now one of the company's biggest issues. Moreover, Tesla has been unable to turn a profit due to its high operating expenses and its restricted manufacturing capacity. As a result, the business has been burning through cash and ended the year 2016 with a debt of \$2.5 billion. Therefore, it becomes one of the hugest challenges. The inability of the company to reverse its pattern of financial loss has a detrimental impact, both on the perceptions that investors have of the company and on the share values of the company.

Even if Tesla's annual sales climb by a significant amount, the United States will continue to constitute the company's primary market. In 2018, the US contributed 70 percent of its revenues as it earned \$14.9 billion, the firm also has a large presence in China, yet still small compared to the US, as it generated 1.8 billion dollars in 2018. Tesla's lack of strength in nations other than the United States and China is a barrier to the company's development and expansion, given that the company's rivals have established robust distribution networks all over the globe.

Tesla has managed to preserve its reputation as a luxury automobile manufacturer and has developed premium goods for a specialized market. Because of the high pricing of these items, the firm has a very limited and narrow target group, which makes it difficult for the company to accelerate its growth. Hence, the imbalance between the demand and supply ratio has become serious, which is still invading and is unable to meet the rate of production for Tesla. Even though Tesla's client base has risen thanks to the Model 3, which is more affordable than the company's prior models, the brand still only appeals to a limited part of the population.

### 5.3 Opportunities (WO strategies)

Tesla is still popular in Europe, the United States, and the United Kingdom, but the company has yet to establish a strong foothold in the Asian market. It is a really excellent chance for Tesla to offer its goods in Asia to enhance not only the stability of the market but also the stability of the company's financial situation. So, it's obvious that Asian markets are the markets with the quickest growth rate

in the world. If the firm places a greater emphasis on Asian countries, particularly China and India, they have the potential to significantly boost the company's sales on a broad scale and emerge as one of Tesla's most important markets. Tesla has managed to make its own, which will result in a considerable reduction in the cost of producing automobiles and other goods as well as creating more new employment possibilities for individuals. The rapid expansion of the market for sustainable goods may be attributed to increased awareness among consumers of the critical nature of transitioning away from fossil fuels and toward renewable sources of energy. As Tesla is one of the few forerunners in the area of goods based on renewable energy and electric vehicles, i.e., the demand for its goods and potential rises by the day. Especially, "Autonomous Self-driving" this technology is so significant that it could be considered a reform in the automotive market that the entire world has been waiting for, and Tesla's autopilot technology is known to be one of the most successful ones in terms of safety and convenience.

#### 5.4 Threats (ST strategies)

Even though Tesla is regarded as the industry pioneer for electric vehicles, its competitors, who have been in the business for hundreds of years, caught up with the technology swiftly, and their comparatively lower costs may one day draw customers away from Tesla. In the same way that Tesla brought innovation to the car industry, the concept of more sustainable energy programs has been sparked in the sector, which has allowed for an increase in the number of inventions and contests, and it is also possible that some firms wish to follow the route that Tesla is taking with the manufacturing of high-end automobiles and compete in the same market category, despite the fact that industry barriers have gotten greater. Furthermore, Tesla asserts that the items it offers with high standards and are of premium quality. However, the corporation was forced to defend itself in a number of lawsuits arising from manufacturing and design faults that posed significant safety risks. Because of the widespread nature of these issues, Tesla runs the risk of having the faith of its customers shaken, which might result in irreparable damage to the company's brand image. Subsequently, Tesla is focusing on autopilot technology, but no nation, including the US, has sufficient legislation for self-driving vehicles. This legal intricacy threatens Tesla's future and discourages buyers.

## 6. Discounted Cashflow

The free cash flow is used in this way,  $FCF(\text{Free cash flow}) = \text{EBIT} - \text{Taxation} + \text{Depreciation} \& \text{Amortization} - \text{Changes in Working Capital} - \text{Capital expenditure}$   $FCFF = \text{EBIT} * (1 - t) + \text{Depreciations} - \text{NWC} - \text{Capex}$ . The results of the Growth Model DCF forecast are presented in Table 1.

**Table 1.** Three Scheme comparing

Time	2026	2025	2024	2023	2022	2021	2020	2019	2018
<b>Revenue</b>	<b>122.85</b>	<b>108.72</b>	<b>96.21</b>	<b>68.72</b>	<b>60.82</b>	<b>53.82</b>	<b>31.54</b>	<b>24.58</b>	<b>21.46</b>
Growth Rate	13.00%	13.00%	40.00%	13.00%	13.00%	-	-	-	-
EBIT	48.99	38.92	30.98	19.87	15.78	12.54	6.54	4.32	3.46
% of revenue	39.88%	35.80%	32.20%	28.91%	25.95%	23.30%	20.70%	17.60%	16%
Tax rate	0.1175	0.1175	0.1175	0.1175	0.1175	0.11	0.25	0.17	-0.06
Depreciation	6.58	5.95	4.75	4.03	3.43	2.91	2.32	2.15	1.9
Capital expenditure	14.74	13.05	12.5	8.25	6.514	3.232	1.432	2.319	6.69
% of revenue	15.00%	14.00%	13.00%	12.00%	12.10%	10.24%	5.96%	10.80%	11.00%
Working capital	4.9	4.9	4.9	4.9	4.9	7.39	12.47	1.43	-1.68
FFCF	30.17	26.92	14.69	8.415	5.766	-	-	-	-
WACC	6.90%	6.90%	6.90%	6.90%	6.90%	-	-	-	-

For Revenue, after rapid growth in 2020 and 2021 due to publish of Model 3 and expansion in new markets like China, We believe Tesla's growth rate would be lower in most of the following years at

13%. However, we believe Revenue will grow rapidly at 40% in 2024, because there will be a new model released around 2024, which will help Tesla to enter Mid to low end market and quickly expand its market share. For EBIT. We predict this figure by using the ratio of “EBIT : Revenue”. As Tesla expand, they will enjoy more effects from economic of scale, which will gradually increase this ratio. For Capital expenditure, the ratio of “Capital expenditure: Revenue” is relatively stable, while the amount of expenditure still growth as revenue increase. For Tax rate and working capital, we take the average from 2018 to 2020. The competition is quite fierce in this industry, which is possible to influence the growth of Tesla, although Tesla has been innovating and striving for development. After estimating the free cashflow from 2022 to 2026, we discounted the cashflow using WACC as our discount rate. We took 6.9% as discount rate according to official website [13]. The sum present value of the future five years cashflow, the terminal value, is \$64.2 billion.

After 5 years, we predict that Tesla will enter a relatively stable period, with a low but steady growth rate at 3%/year. By using formula  $[FCF5(1 + g)/(r - g)]$ , Tesla's perpetual annual value at 1695billion, with is 1214 at the present. By adding terminal value to present perpetual annual value, we finally prove that Tesla's present value should be 1278.2billion, higher than its current market value at 929billions.

## 7. Investment suggestion

Tesla has made huge process in developing fields that includes clean transport as well as clean energy production. From both PEST and POCD analysis, Tesla has been provided many opportunities to expand its influence globally. Moreover, Tesla's excellent control on market and its innovations in technology enable itself to become superior to other competitors. In addition, our calculations and analysis predict that there will be an increase in Tesla's earnings as well as cash flow in future years. Owing to these factors, it is very likely that investors may pose extremely high expectations on Tesla's growth in the future, which further inflate Tesla's real market value [1]. On the other hand, COVID is also a reason that inflate Tesla's real market value. During such a period, most companies are performing under its historical levels, which finally result in a decrease in their stock value. Tesla reached investors' expectations (positive trend stock) as it is the one of the fastest companies to restart its work. Many investors are therefore relatively satisfied with Tesla that this will lead to an increase in demand to trade on Tesla's stock [3]. Meanwhile, Tesla further its effect from growth because its number of shares are limited. As a result, investor's behaviors are affected due to the uncertainty which tend to trade with stock in a riskier way. In conclusion, those factors affect both Tesla and investors at the same time, enabling Tesla's stock price to be overvalue.

## 8. Limitation & Prospects

The empirical results reported herein should be considered in the light of some limitations especially in Method and data collection process. We can subdivide it into two parts, limited access to data, lack of previous studies in the research area, and business valuation. The primary limitation to the generalization of these results is data collection, some data are related to new innovations and technical skills about Tesla, and others involve the internal privacy of the company. On the other hand, Tesla has not stopped in the field of artificial intelligence in recent years and adheres to the concept of innovation; relatively speaking, we may not able to find tons of scholarly papers and information with detailed and accurate studying. Hence, the study is not as in-depth as it might be since some of the material is not available. Another part is the business valuation. In this paper, we used discounted cash flow as a methodology to estimate the value of Tesla. Even if it offers the most rigorous and financially productive implications for company valuation, the discounted cash flow model (also known as the DCF model) does have a few drawbacks. The assumptions were very sensitive, and there were a lot of uncertainty when figuring out the business's final values.

In this research, the future growth prediction of Tesla under the assumptions of the DCF model might be affected by variables (e.g., the downsides of automated driving, market rivalry, policies and restrictions, and other similar considerations). These variables have the potential to affect the results obtained from a DCF model, which exemplifies the uncertainty and over-sensitivity inherent in DCF models [1]. The findings of the study highlight the necessity for future research to make use of a sample that is more representative; given that Tesla has released new innovative products in recent years, some of the relevant values for Tesla will be quite different from those of previous years, which we refer to. A difference in our valuation is also the result of the fact that we are unable to obtain certain facts following invention and development. Therefore, the valuation becomes more accurate if more relevant values exist and we can use them after the innovation of Tesla.

## 9. Summary

In conclusion, this paper evaluates Tesla based on four different methods, including POCD framework, PEST, SWOT, and DCF analysis. According to the analysis, Tesla has been provided a large number of opportunities to develop itself and expand its influence around the world. Nonetheless, due to the effect brought by COVID that distract investors' investment behavior as well as investors' high expectations towards the company, Tesla's real market value is inflated that its stock price is overvalued consequently. Therefore, it is suggested investors to sell Tesla's stock. In general, the analysis we did in four diverse ways provides readers sufficient information to analyze, which also enables investors to get a more comprehensive consideration about Tesla. In addition, our investment suggestion can be helpful for investors to some extent when they are valuing this company. However, due to those limitations shown related to diverse valuation methods illustrated above, more studies and calculations should be taken to make its real market value more precise.

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