

# Analysis of the Valuation of Tesla Inc

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**Abstract:** Tesla, as a world-famous electric vehicle brand, has been continuously innovating and leading the industry. In recent years, Tesla's share price has also been at a high level. With SWOT and other tools to analyze Tesla's internal and external and industrial environment, and the relative valuation method, this paper evaluates Tesla and conclude that Tesla's share price is overvalued and will show a downward trend in the near future. However, from a medium to long term perspective, Tesla is still worth investing in, so it gives the investment that investors can buy at this low price.

**Keywords:** Tesla; business analysis; SWOT; market valuation.

## 1. Investment Thesis

In recent years, electric vehicles have become the main choice of many car owners. In particular, the recent Russian-Ukrainian war has intensified the rise in international energy prices. Oil prices have risen significantly this year, making people more interested in electric vehicles.

Tesla is an electric vehicle and energy company in the United States. Founded in 2003, it mainly produces and sells electric vehicles, solar panels, and energy storage equipment. It is one of the major electric vehicle brands in the world. It has always been in the leading position in the industry in terms of vehicle performance and model design. However, due to the vigorous development of the new energy industry in recent years, many new enterprises or original traditional automobile brands have also started to enter the electric vehicles industry. Such brands like BYD and NIO have gradually increased their market share with the advantage of low prices. At the same time, Tesla's stock price has also shown some downward trends from the initial sharp rise to the recent. In such a macro environment and industry background, Tesla is worth studying. I want to try to explain the information behind the stock price and explore its investment value by studying the stock price.

## 2. Business Strategy

According to Tesla's annual report in 2021, I know about the business strategy of Tesla for the future.

Firstly, Tesla thinks that competitiveness in the Environmental value (EV) market will be determined by the ability to add capacity across the supply chain and ramp production. Thus, the brand will aim to increase its production as quickly as it can, not only through ramping

production at new factories, but also by maximizing output from its established factories.

Secondly, Tesla will make the Full Self-Driving (FSD) software remain one of the primary focus areas and the software-related profit should accelerate overall profitability.

Thirdly, FSD is a key component to improve automobile safety, as well as to further accelerate the world's transition to sustainable energy through higher utilization of our vehicles.

## 3. Company Analysis

### 3.1 SWOT Analysis

#### 3.1.1 Strength

Tesla has strong technical advantages. Tesla has explored the field of unmanned driving earlier and achieved remarkable results, and its attempt at intelligent network connection is also at the forefront of other new energy vehicles. Virtual touch screens, voice wake-up AI assistants and other technologies are also the main reasons for Tesla's popularity. Strong innovation advantages make Tesla's development prospects in the industry even broader.

Tesla Motors' industrial chain is perfect. For new energy vehicles, the biggest problem is charging. In California, for example, Tesla has built hundreds of stations, which has solved the charging bottleneck.

Tesla has the luxury configuration to meet the needs of high-end customers. Compared with BMW and Mercedes Benz, Tesla's interior configuration is no inferior, which can bring consumers a more comfortable and luxurious experience.

As the leader of the new energy automobile industry, Tesla's net profit is far higher than that of some competitors entering the market. For example, although the operating income is also very high, BYD's net profit is far lower than Tesla's. The high net profit not only reflects Tesla's strong profitability, but also provides support for its further research and development in the future.

### 3.1.2 Weakness

The profitability of Tesla Motors is highly risky. Electric vehicles are still a new industry. Therefore, they are affected by policies, the economy and people's cognitive levels. If the demand for Tesla Motors fluctuates slightly, the impact on the huge Tesla industry will be great. The probability of safety accidents caused by batteries is large, which has a great impact on Tesla's stock price. In some cases, batteries are prone to fire and explosion. If battery safety accidents continue to occur, Tesla's market value will soon evaporate.

### 3.1.3 Opportunity

The world is short of oil resources and the oil price continues to rise, making new energy become the best substitute for traditional cars. In recent years, the situation of international energy shortage has become increasingly obvious. The Russia-Ukraine war at the beginning of this year has exacerbated the world energy crisis. At the end of June this year, the international oil product price even rose to 130 dollars per barrel, and the prices of oil products in various countries have also risen. In this case, the low-cost advantage of new energy vehicles is more obvious.

China has huge market potential. As an energy-deficient China, China's external oil procurement accounts for more than 70%. In the past few years of the rise of new energy, the Chinese government has been increasing subsidies for new energy vehicle buyers, which has led to a wave of new energy vehicles in China, a populous country. The Chinese market is not only huge in scale, but also has huge profit potential for Tesla.

The arrival of the era of science and technology. Tesla released its first humanoid robot this year. Today in the era of artificial intelligence, Tesla has earlier seized the opportunity in the robot field and has also proved its innovation ability with a lot of research and development. Driven by the era of science and technology, Tesla's investment in the robot field will also provide significant opportunities for the company's development.

### 3.1.4 Threats

The technical barrier of battery management systems for new energy vehicles is low, and other companies can easily obtain this technology.

Some new energy vehicle brands with lower prices are flocking to the market. While Tesla is developing vigorously, many new energy vehicle brands are on the market, such as BYD, NIO and Xiaopeng. Although their

car intelligent systems are not as perfect as Tesla's and their appearance is not as beautiful as Tesla, they have won the love and attention of many consumers with their low-price advantage. This undoubtedly poses a major threat to Tesla's future development.

## 3.2 Financial Analysis

First of all, based on the balance sheet of the company's 2021 annual report, Tesla's asset-liability ratio is decreasing year by year. Although Tesla's total assets and total liabilities have been increasing in the past five years, its total assets are growing much faster than its total liabilities, which shows that Tesla has gradually developed towards the direction of low financial cost, low risk, strong solvency and stable operation in the past five years. In 2021, Tesla's asset-liability ratio was 49.17%, which showed that Tesla could make good use of financial leverage to expand production while ensuring low financial risk.

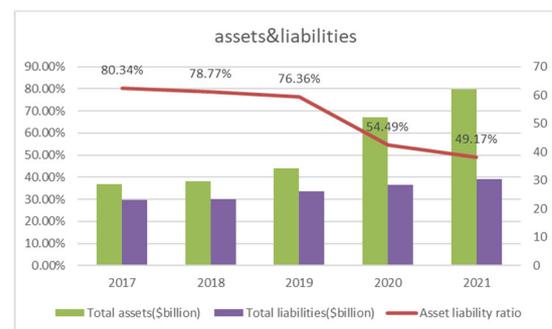


Fig. 1 Assets & Liabilities

At the same time, from the perspective of short-term debt repayment ability, Tesla's current ratio is maintained between 1 and 2, the growth rate of current assets is also matched with the growth rate of total assets, and the growth rate of current assets is higher than that of current liabilities, so short-term debt repayment pressure and financial risk are small. Excluding the impact of inventory, look at the quick ratio. Tesla's quick ratio remains at 1, indicating that the inventory turnover and capital utilization are both high.

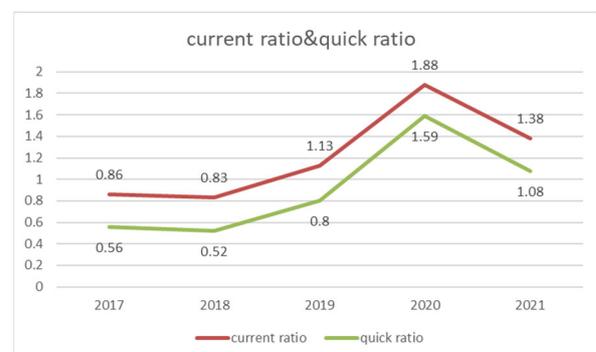


Fig. 2 Current ratio & Quick ratio

Second, based on the profit statement of the company's annual report in 2021, Tesla's operating income and net profit margin have increased significantly in the past five

years. It is worth noting that the company's net profit was negative from 2017 to 2019. Analyzing the reasons, it is not difficult to find that R&D expenses and marketing management expenses accounted for a relatively high proportion in the three years. Although these two types of expenses also increased in 2020 and 2021, the growth of expenses slowed down, that is, In the early stage, Tesla reduced its net profit due to a large amount of R&D investment and fixed expenses. However, in recent two years, the economic benefits of R&D investment have become increasingly significant, and Tesla's net profit has also increased significantly. In 2021, Tesla's annual report shows that its net profit margin is 10.49%, which is 5 times that of the previous year.

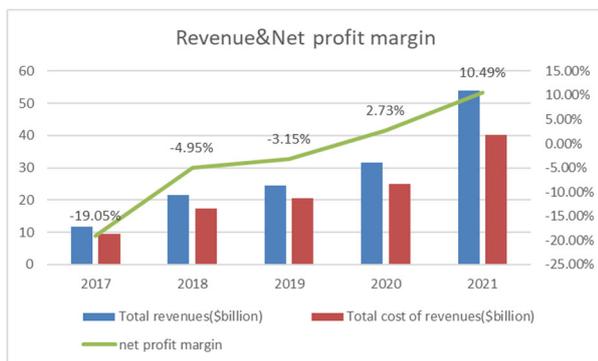


Fig. 3 Revenue & Net profit margin

According to the composition of its revenue, Tesla's revenue is mainly divided into two parts: automotive & services and energy generation and storage segment revenue. Automotive sales in automotive & services are the main driving force for the company's revenue growth. Compared with 2020, the total revenue in 2021 will increase by more than 22,000 million, of which 20,000m is from the growth of automotive sales.

Table 1 Composition of revenue

	2021	2020	2019
Automotive sales	\$44,125	\$24,604	\$19,358
Total automotive & services and other segment revenue	\$51,034	\$29,542	\$23,047
Total revenues	\$53,823	\$31,536	\$24,578

Analyze the ROE of the company by combining the balance sheet and income statement. As an important indicator to measure the profitability of listed companies, ROE refers to the ratio of profit to the average shareholders' equity, which reflects the ability of self-owned capital to obtain net income. The higher the index is, the higher the income from the investment is; The lower the return on equity, the weaker the profitability of the owner's equity. From the perspective of Tesla's ROE in the past five years, the ROE of the company will start to be positive after 2020. In 2017, the ROE of the company was -43.63%, indicating that the income from Tesla's investment was very low at that time. In the 2021

annual report data, Tesla's ROE increased to 21.06%. Generally speaking, it is considered that the ROE of 15% to 39% is the most appropriate. Therefore, Tesla has a strong net income from its capital at this time. Using the DuPont analysis method, the ROE is analyzed by decomposing it into net sales interest rate, total asset turnover rate and equity multiplier. It can be seen that Tesla's total asset turnover rate has been maintained between 0.7 and 1, and the turnover of total assets is good. The main impact on ROE is the net interest rate. Since the initial net interest rate is negative, the ROE is negative in 2017-2019. It can also be seen from the chart that Tesla's equity multiplier has decreased from 6.76 in 2017 to 2.06 in 2021, indicating that Tesla's debt level is decreasing year by year, and the financial leverage of the enterprise is also decreasing year by year. This also reflects that Tesla's financial risk is decreasing.

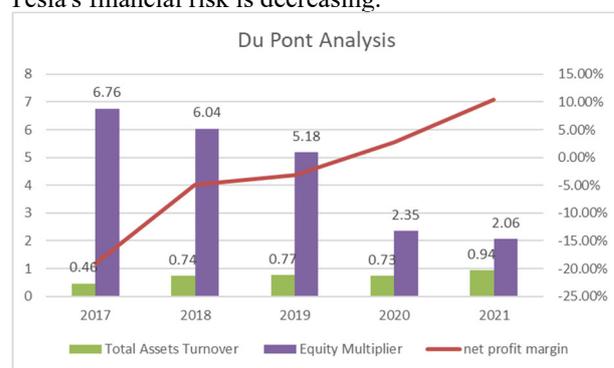


Fig. 4 DuPont Analysis

Finally, through the enterprise's cash flow statement, it can be seen that Tesla's cash flow is relatively sufficient, and the increase in cash flow from operating activities is the main source of Tesla's cash flow. With the continuous growth of Tesla's sales, the company's year-end cashes and cash equivalents balance has also increased year by year, and Tesla's cash and cash equivalents balance at the end of 2021 is up to 18.14 billion, which shows that Tesla has a strong grasp of cash.

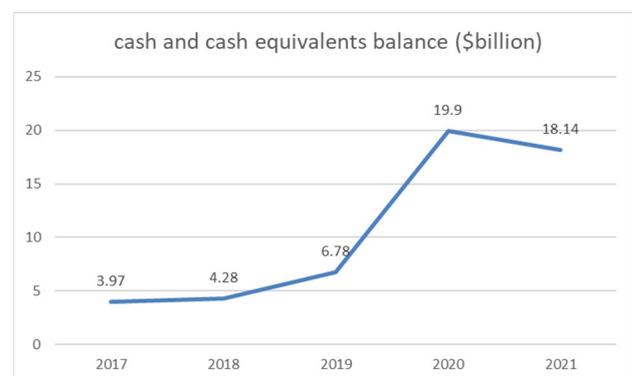


Fig. 5 Cash and cash equivalents balance

#### 4. The Industry Analysis

As Tesla's main business is new energy vehicles, I choose the new energy vehicle industry, a booming field in recent years, for industry analysis. Next, I will use the PEST

model to analyze the macro environment of the new energy automobile industry.

#### 4.1 Politics

Due to the impact of global warming and environmental degradation, many countries have introduced plans or regulations related to carbon neutrality, and many European countries have begun to strictly control carbon emissions. For example, Norway is expected to achieve zero emissions in 2025 and implement the policy of exemption of purchase tax, import tariff and value-added tax on pure electric vehicles; Germany plans to reduce the total greenhouse gas emissions by 55% in 2030 compared with 1990, implement a 130-billion-euro European recovery plan, and increase subsidies for pure electric vehicles with a price of fewer than 40000 euros by 50% to 9000 euros. Under the background that all countries promote preferential policies for new energy vehicles, the sales volume and popularity of the electric vehicle industry will increase significantly.

#### 4.2 Economy

In recent years, there is a shortage of international energy, and the price of international refined oil is rising. At the beginning of 2022, the outbreak of the Russian - Ukrainian war is the result of international tension, and European countries are also in the predicament of energy shortage. In China, another major consumer market of new energy vehicles, the oil price is also rising. Due to the short-term gasoline and rising oil prices, the market and consumers will be more interested in electric vehicles in the future.

#### 4.3 Society

Traditional cars often use petroleum extracts such as diesel and gasoline, and their exhaust gas causes ecological problems such as smog, acid rain, and climate warming, which pose a great threat to the sustainable development of human society, which arouses people's awareness of environmental protection. With the active publicity of various countries and the continuous improvement of our national quality, people begin to pay attention to the environmental problems around them, actively respond to national policies, and choose green travel and use public transport. Meanwhile, the sharing economy has also emerged. In the face of environmental problems, adhering to the social atmosphere of low-carbon travel has laid the ideological foundation for the promotion of electric vehicles in society.

#### 4.4 Technology

With the development of science and technology, many traditional automobile companies are exploring the field of new energy. At the same time, many electric vehicle patents have emerged. All countries have carried out a series of research to explore the technology upgrading of electric vehicles, and electric vehicles have gradually met the needs of various consumer groups in terms of shape and performance.

## 5. Valuation

### 5.1 Selection of comparable enterprises

According to the composition of Tesla's revenue, its main revenue is automobile sales revenue. Therefore, the selection of comparable enterprises is positioned as the automobile industry. I chose Toyota, GM, NIO, BYD and XPEV according to the industry competitiveness and market share of comparable enterprises. These five enterprises are also currently entering the new energy vehicle industry or are potential or future competitors of Tesla in the market.

I selected the data of these five enterprises on September 30, 2021, to conduct a relative valuation of Tesla.

### 5.2 Relative valuation

Table 2 Average PE&PS

Company	PE	PS
Tesla	87.34	12.37
GM	6.06	0.35
BYD	134.2	2.66
TOYOTA	9.62	0.81
NIO	-18.6	4.48
XPEV	-9.47	2.37
average	24.362	2.134

Because PE is particularly vulnerable to the impact of economic cycles, that is, in industries with frequent fluctuations in industry prosperity, it is impossible to use the industry's average P/E ratio to conduct a true and effective valuation of enterprises. The automobile industry to which Tesla belongs is particularly vulnerable to the impact of economic cycles, so PE valuation is not suitable. At the same time, we can also see that the PE of NIO and XPEV is negative, which is inconsistent with Tesla's high PE. PS is stable, reliable and not easy to be manipulated, so PS is selected to evaluate Tesla. (Sales per share is the data for the past 12 months)

Table 3 Results of valuation

Sales revenue per share \$	34.23
Average PS	2.134
Valuation price \$	73.04682
Actual price \$	266.25

Using the average PS to evaluate Tesla, it is calculated that Tesla's price is \$73, which is far lower than its real share price of \$266.25. From the valuation results, the current Tesla stock price is overvalued.

## 6. Conclusion

From the valuation results, Tesla's share price is overvalued. In my opinion, Tesla's share price is overvalued, but the extent of overvaluation is not that large. Since October 2022, Tesla's share price has also declined significantly. On November 14, 2022, Tesla's share price fell to 183.34 dollars. Therefore, using the data

on September 30, 2022, to evaluate Tesla, it is correct to conclude that Tesla's share price is overvalued. The stock price of Tesla will show a downward trend shortly for three reasons:

First, the production of Shanghai factories was reduced due to the epidemic in the first half of the year; Second, the sale of Tesla shares caused by Musk's acquisition of Twitter; Third, some investors worry that Musk's focus on Twitter will lead to a decline in Tesla's attention.

However, I don't think the extent of overestimation is that large, because Tesla is indeed the leader of the new energy vehicle industry, and its market scale is huge. Using the average PS valuation of the industry, the selected relevant enterprises are either new entrants such as NIO and XPEV, or some companies currently mainly engaged in traditional vehicles, and their operating income scale cannot be compared with Tesla.

In the future, Tesla is still a company worthy of investment in the medium and long term. First of all, the new energy industry is still on the rise, with considerable profit growth in the future; Secondly, next year, both Cybertruck and Semi, which are higher in Tesla's profits, will start to deliver in large quantities ; Third, Tesla will launch several low-cost models to cater to the broader consumer market. Therefore, the most depressing period of market sentiment is exactly the best Tesla investment period. As Buffett said, invest when others are afraid .

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