

An Overall Financial Analysis of Tesla

Jingyuan Fang^{1,*}

¹ *Jingyuan Fang, School of Business Administration, Huaqiao University, Quanzhou, 362000, China*

**Email: FangJingYuan666@163.com*

ABSTRACT

In recent years, with the increasing demand for sustainable development, low-carbon travel has gradually become the consensus of most people all over the world, and the electric vehicle industry came into being. As an emerging industry, the operation status and future of the electric vehicle industry are widely concerned by consumers and investors. Tesla is one of leader companies in this industry. Therefore, this article will analyze Tesla's performance mainly from a financial perspective. The major objective of this article is to have a deeper understanding of Tesla's financial position and performance throughout the year 2018 to 2020, which could give some necessary support to investors and consumers of this company. In this overall financial analysis, ratio analysis is the main method, which is calculated on the data collected from Tesla's annual report. The whole analysis would be divided into profitability, solvency, operating capacity and growth ability. Finally, from these different dimensions of financial analysis, we can reach a conclusion that Tesla is a promising company.

Keywords: *Ratio Analysis, Profitability, Solvency, Operating Capacity, Growth ability*

1. INTRODUCTION

Electric vehicle industry is a popular emerging industry nowadays. Tesla is a well-known electric vehicle manufacturer based in the United States. It is a clean energy and electric vehicle firm offering a variety of products including electric automobiles, battery energy storage, solar panels, and other associated services and products [1]. I choose it as an analysis object because it plays a leader role in the electric vehicle. According to the 2020 study, Tesla has ranked as the world's best plug-in selling company, with a 16 percent market share and a 23 percent battery-electric section, based on a three-year ratio analysis of the company's financial position.

The analysis of a company's financial status is depicted by a ratio analysis. Different financial ratios could be used to determine whether the company is doing well or not. As a result, this paper will use ratio analysis to portray Tesla's financial situation over 2018 to 2020.

2. FINANCIAL ANALYSIS

In this part, I will assess Tesla's financial performance from four perspectives: profitability, solvency, operating capacity and growth ability of Tesla.

2.1 Profitability

2.1.1 Return On Equity (ROE)

Table 1. Return On Equity of Tesla in 2018-2020

\$in millions	2020.12.31	2019.12.31	2018.12.31
Net profit	721	-862	-976
Average equities	14,421.5	5,770.5	4,580.12
ROE	5.00%	-15%	-21.3%

ROE is the percentage of net profit to average shareholders' equity, measuring the overall profitability of the firm. It can be observed that ROE was rising rapidly from -21.3% in 2018 to 5.00% in 2020 and appeared positive and exceeded the average industry level in 2020 for the first time in these three years.

The main cause for this was the negative growth of net profit margin, which resulted in a negative return on equity, but with positive growth in net income or profit, Tesla's return improved as well. So Tesla's overall profitability was growing over time thanks to its improvement in the ability to generate profit from sales

and capital structure leverage as well as its effort in keeping the ability to generate sales from its assets efficiently.

Thus, from the end of 2020, Tesla had a profitable performance in terms of possible investment opportunities because the return was higher.

2.1.2 Return On Asset (ROA)

Table 2. Return on asset of Tesla in 2018-2020

\$ in millions	2020.12.31	2019.12.31	2018.12.31
Revenue	31,536	24,578	21,461
Net profit	721	-862	-976
Average assets	43,228.5	32,024.5	29,197.7
Net profit margin	2.29%	-3.51%	-4.55%
Total asset turnover	0.73	0.77	0.74
ROA	1.70%	-2.70%	-3.40%

Tesla's ROA, like its ROE, had improved dramatically over 2018 to 2020, with the company reaching its highest ROA of 1.70 percent in 2020.

From the calculation of ROA (net profit margin* total asset turnover), we could find that total asset turnover was relatively stable over these three years, while net profit margin increased dramatically and reached a positive amount for the first time in 2020. So we could conjecture that such increase in ROA can be attributable to the increase in net profit margin.

Thus, it was denoting that at the end of 2020, Tesla was in a position where it could make more money with less investment.

2.1.3 Net Profit Margin

Net profit margin refers to the proportion of net profit in sales. It is an important indicator to measure the profitability of a company. Generally, higher net profit margin means greater profitability of this company.

Table 3. Net profit margin of Tesla in 2018-2020

\$ in millions	2020.12.31	2019.12.31	2018.12.31
Revenue	31,536	24,578	21,461
Cost of revenues	24,906	20,509	17,419
Gross profit	6,630	4,069	4,042
Other expenses	5768	4844	5105

Net profit	862	-775	-1,063
Net profit margin	2.73%	-3.15%	-4.95%

From the chart, it was obvious that net profit and net profit margin increase constantly over these 3 years and both of them reached a positive amount in 2020.

To figure out why, we must refer to the growth of revenues and expenses. Take 2019 to 2020 as an example. Compared with 2019, revenue increased 28%, cost of revenues increased 21% and other expenses increased 19% in 2020, which mean with the expansion of sales, some related cost increased as well, but it increasing at a much lower rate than revenues. Hence here we could have a conclusion that the growth in net profit can be greatly attributable to the soared revenue.

From Tesla's financial report, we found the reason behind it. In 2020, COVID-19 had spread all over the world, and most manufacturers had suffered heavy losses in production and sales. However, Tesla showed a net income for the first time in 2020, which was one year after the launch of the more affordable Model 3 and one year before the launch of Model Y, two latest vehicles [2]. The progress made by Tesla and its expansion into the middle market attracted more investors. This also reflected the improvement in performance made by Tesla.

2.2 Solvency

Table 4. Solvency ratio analysis of Tesla in 2018-2020

	2020.12.31	2019.12.31	2018.12.31
Current Ratio	1.88	1.13	0.83
Quick Ratio	1.59	0.80	0.52

2.2.1 Current Ratio

Tesla's current ratio increased continuously over the three years, according to the estimated current ratio. And the company had the best current ratio of 1.88, which was higher than 1.5 and approaching 2.

This increased current ratio indicated that, by the end of 2020, Tesla will have a consistent and efficient quantity of current assets to meet short-term commitments and sustain operations.

2.2.2 Quick Ratio

Like the current ratio, Tesla's quick ratio, had also increased over the three years. Moreover, in 2020 the highest quick ratio of this company was 1.59. Tesla's greater quick ratio showed that it will transform its liquid

assets into cash swiftly in order to maintain financial stability and pay down short-term obligations.

However, although quick ratio of Tesla increased constantly over 3 years and appeared to have an increase trend, it was noticeable that quick ratio in 2020 had reached 1.59, which was over 1 and getting closer to 2. The amount of quick ratio of Tesla should be limited to a reasonable range, because the company had spent too much money on fast-moving assets, as a result, the opportunity cost of its investment had increased. Meanwhile, Tesla's high quick ratio may resulted from its high receivables, this did not imply that the company was in good financial shape, as there was much doubt about whether the accounts receivable could be retrieved. More analysis of accounts receivable will be shown in the operation capacity analysis section.

2.3 Operating Capacity

Table 5. Operating capacity ratio analysis of Tesla

		2020.1	2019.1	2018.1
		2.31	2.31	2.31
Days	accounts receivable outstanding	18.6	16.9	10.9
Inventory	turnover days	56.1	49.5	56.3
Days	accounts payable outstanding	72.0	53.3	60.7
Cash cycle (Days other	financing required)	2.7	13.1	6.5

2.3.1 Days Accounts Receivable Outstanding

Days receivables outstanding measure how efficiently a company can collect receivables. Days receivables outstanding were 18.6 days, 16.9 days and 10.9 days for 2020, 2019 and 2018 respectively. Although not high in general, this turnover ratio was growing every year, which meant it takes longer for Tesla to collect its account receivables.

This change meant Tesla reduced its efficiency in collecting cash. That may because of more delinquent customers or the amount of credit given to customers was too high. Hence there was a high risk for Tesla of unable to collect receivables in time, which had an adverse impact on Tesla's cash flow and operation.

But from another side, Tesla's special customer payment policy could be favorable because giving longer credit time can attract more customers to a certain degree.

2.3.2 Inventory Turnover Days

Inventory turnover was expected to increase,

resulting in faster usage or sale of goods with less danger of degradation. Significantly, it was discovered that Tesla's projected inventory turnover fluctuated during a three-year period, with the company's inventory turnover days reaching 56.1 in 2020.

By considering this fluctuating inventory turnover days of Tesla, it could be said that Tesla's inventory turnover was justified by Tesla's order-production strategy. This means that Tesla won't start to manufacture a car until the to-be owner places the order, resulting in almost zero inventory and long waiting time compared to other vehicle manufactures. There were mainly two reasons for this strategy. One was that each order is specially-tailored with different combinations of certain components chosen by each customer, so scale production was not suitable. The other was that with this strategy, Tesla was able to reduce its inventory to nearly zero, saving the storage charges as much as possible. After a few months of manufacturing, the car ordered will be directly delivered to its owner with great care. It seemed customers were willing to wait for months in return for the service, quality and ideology they pursue. Therefore, this was not a necessarily a disadvantage of Tesla.

2.3.3 Days Accounts Payable Outstanding

It was quite obvious that days accounts payable outstanding were pretty long and were getting even longer over time. Notice that Tesla was a manufacturer, and its purchases made during the production which added value to inventory were not clearly pointed out in amount, so I used cost of goods sold instead.

Through the Industry analysis, I thought that the bargaining power of Tesla's suppliers was stronger than Tesla itself due to a lack of suppliers in certain resources, especially the lithium-ion batteries, the key technology of Tesla [3].

As a result, current accounts payable turnover is an alarming signal for Tesla, warning it of the possibility to wear out suppliers' patience. Tesla might need to speed up the payment process.

2.3.4 Cash Cycle (Days Other Financing Required)

As indicated, it only took as few as 2.7 days in 2020 for Tesla to get it cash back, which was very efficient in terms of cash conversion in automotive industry. This was supposed to be a positive signal.

However, we must be aware that with accounts receivables turnover and inventory turnover being almost fixed and stable, a long period of accounts payable outstanding was the biggest contributor to this efficiency [4]. That is to say, if Tesla will have to speed up its paying process as suggested, it will eventually increase the days

other financing required. In other words, the figures were deceptive to an extent, which might tempt managers to let go of the existing loopholes in the operation cycle.

2.4 Growth Ability

2.4.1 Overall Revenue Growth Rate

Table 6. Revenues components of Tesla in 2018-2020

\$ in millions	2020.12.31	2019.12.31	2018.12.31
Total revenues	31,536	24,578	21,461
Total automotive revenues	27,236	20,821	18,515
Energy generation and storage	1,994	1,531	1,555
Services and other	2,306	2,226	1,391

Tesla’s net income attributable to common stockholders were \$ (976) million, \$ (862) million and \$ 721 million in 2018, 2019 and 2020 respectively. Net income was increasing over time, and a positive net income showed up in 2020 for the first time (see the previous section). No doubts, such increase was favorable, which could be explained by a large increase in total revenues, especially in automotive sales.

Although the cost of revenues and operating expenses were growing, their percentages to total revenues both declined, meaning revenues grow faster.

In order to take a clearer look, I have collected information from Tesla’s notes in the annual report and made a table for its cost of goods sold and gross margins of various revenue sources.

2.4.2 Automotive & Services And Other Segment

Table 7. Gross profit and gross profit margin of automotive & services and other

	2020.12.31	2019.12.31	2018.12.31
Automotive	6,977(26%)	4,423(21%)	4341(23%)
Service and others	-365	-544	-489
Total	6,612(22%)	3,879(13%)	3,852(19%)

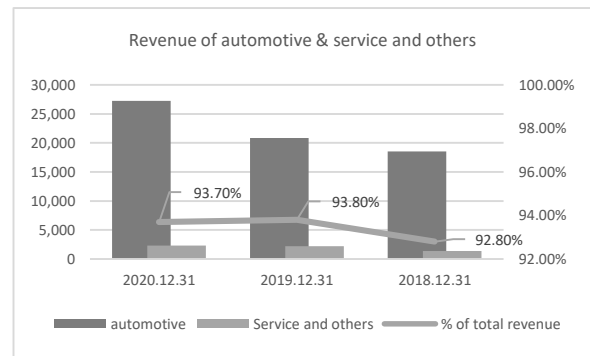


Figure 1. Revenue of automotive & service and others

The automotive & services and other segment accounted for 93.68% of the total revenues, significantly determining the increase in total revenues. Gross profit of total automotive increased from \$4,341 million in 2018 to \$6,977 million in 2020. Gross profit of total automotive & services and other segment increased from \$3,852 million in 2018 to \$6,612 million in 2020. In addition, gross margin of total automotive grew from 21% to 26%, and gross margin of total automotive & services and other segment grew from 17% to 22%. Gross profit meant sales revenue net of cost of goods sold, and gross margin was the percentage of gross profit to sales revenue. These two numbers measured the profitability of the products, indicating that Tesla was earning more out of one vehicle in recent years.

2.4.3 Energy Generation And Storage Segment

Table 8. Revenue of energy generation and storage

\$ in million	2020.12.31	2019.12.31	2018.12.31
Revenue	1,994	1,531	1,555
% of total revenue	6%	6%	7%
Gross profit	18	190	190
Gross profit margin	1%	12%	12%

The revenue of energy generation and storage accounts for 7% of total revenues. The gross profit of energy generation and storage segment dropped a little, leading to a great fall in its gross margin, from 12% to 1%. Although this unfavorable change didn’t have much impact over net income due to its small share, it’s worth noticing that the products were almost unprofitable. This dis-satisfactory performance might be linked to a bigger share of Solar Roof in its total energy business, which had lower gross margins due to temporary manufacturing under-utilization during product ramp [5].

Apart from that, reduced average selling prices as a result of its low-cost solar strategy resulted in lower gross margins in its solar cash and loan business, which was somewhat offset by lower materials and production costs. So it's suggested that Tesla can review its cost strategy carefully and see whether there has been any under costing. And some evaluations of future cash flows and potentials in profitability were also needed to determine what to do with the energy generation and storage segment.

3. DISCUSSION

3.1 Development Opportunities

Nowadays, with the popularity of environmentally friendly lifestyles, electric vehicles may become the trend in the future [6]. In recent years, with the proposal of green travel advocated by major countries and the increasing awareness of residents' environmental protection, the market demand for electric vehicles will undoubtedly increase. At the same time, there were some government's proactive policy put forward some tax incentives and other bonus for both electric suppliers and consumers.

Thus, Tesla had a great external environment for development. If it operated in line with law and regulations and took advantage of these benefits, the future of Tesla would be quite bright.

3.2 Risk And Challenges

Based on a thorough assessment of Tesla's financial condition, it was possible to conclude that the company's financial performance from 2018 to 2020 was satisfactory. However, from the analysis before, We discovered that Tesla's financial performance varied in terms of receivable turnover, total assets turnover, and, more precisely, net profit margin. As a result, these under-performing components of the business may raise the risk of insufficient asset management, a long debt collection duration, and low profitability [7]. The following are recommendations offered to Tesla's management based on these highlighted areas.

To begin, Tesla's management should reduce accounts receivables within current assets in order to boost total assets turnover and usage of assets to create more sales [8]. As a result, improving receivables efficiency was critical. For a speedy debt collection procedure, management should reward customers who pay on time and boost billing efficiency.

Furthermore, in terms of profit margin, management is advised to reduce operating costs, because lower costs would enhance the sales margin. Thus, profitability would be improved as well.

Meanwhile, there are some operational risks of Tesla. Tesla has a safety hazard on the brake. In recent years, news of safety accidents caused by brake failure of Tesla electric vehicle has emerged one after another. This is undoubtedly a fatal blow to Tesla's reputation and is not conducive to attracting customer groups. So at the business level, Tesla needs to emphasize the importance of safety to all employees and invest more in the research and development in the safety of equipment. That can enhance the confidence of shareholders and attract more investors.

4.CONCLUSION

From the different dimensions of financial analysis, we can gain a conclusion that from 2018-2020 the overall performance of Tesla is getting better and better despite the global manufacturing industries have been hit by COVID-19. Therefore, if Tesla can grasp the development opportunities and properly deal with internal and external risks, in general, Tesla's future development is very clear.

However, financial analysis also has limitations to a certain extent. The financial ratios calculated according to the data of the financial statements, which are all point data, so they are static [9]. Thus, the financial statements cannot reflect the specific operation status of the company in a year. At the same time, it can be manipulated in the choice of accounting policies. What kind of depreciation method of PPE and inventory valuation method are selected may make the financial statements change in the direction of being beneficial to managers [10]. So financial report data analysis cannot be used as a single basis for investors' decision-making. More analysis of Tesla's strategy, accounting and prospect are necessarily needed.

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