

Tesla's Development and Pricing Strategy in China ——Compare with BYD

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Abstract: Since Tesla entered China, the electric car market has developed fastly, forming into an oligopoly market. Tesla's development strategy has significant reference values for other electric car companies. Starting from 2020, Tesla initiated multiple price cuts of its products to enlarge its market share. This paper adopts the literature research method, comparative method, and analysis of Tesla's price elasticity to study Tesla's advantages and disadvantages of its pricing strategy, and the measure that should be taken. Through the comparison with BYD, it is concluded that Tesla has localized economic advantages and direct-sale caused brand advantages. Tesla's larger demand elasticity and smaller supply elasticity enable it to use price cuts to increase sales in a short term.

1. Introduction

With the development of new energy technology and the transformation of the automobile industry, pure electric vehicles have become the main direction for China's automobile industry. China also strongly promotes the development of electric vehicles. The "New Energy Vehicle Industry Development Plan" issued by the State Council at the end of 2020 indicated that China's new energy vehicle industry has entered a new stage of accelerated development, and it suggests the industry to stick to the development direction of electrification, interconnection, and intelligence. At present, competition in China's new energy automobile industry is becoming increasingly fierce, and industry pricing directly affects the relevant decisions of enterprises, consumers, and the government.

Tesla, founded in 2003, as the leader in the new energy vehicle industry, has advanced technology and innovative marketing models. According to Tesla's quarterly financial report, Tesla's annual revenue for 2020 is 31.536 billion U.S. dollars, which is also the first time in Tesla's history that it has achieved annual profit. More importantly, the user's acceptance of Tesla—its long-term image of high-end products attracts consumers' choices.

Since May 2018, Tesla has repeatedly changed its electric vehicle sales prices. Take the most high-end Model X P100D as an example, the price before the adjustment on November 22 last year was 1,572,200 yuan, and the latest price has dropped to 848,200 yuan. (13) The substantial price cuts have had a considerable impact on China's new energy vehicle market. As Tesla gradually dominates the Chinese market, product quality issues and consumer rights protection issues have erupted, making Tesla stand on the cusp of the storm. As a pioneer in the new energy vehicle market, Tesla's pricing fluctuations will have a certain impact on China's electric car market, which is still at the early stage of development.

The domestic research on Tesla's pricing model is not precise. This paper uses Tesla as the research object and compares it with the domestic company BYD Auto to summarize the advantages and disadvantages of Tesla's pricing and propose pricing opinions for Tesla. Because Tesla has a leading position in the market, its pricing model can be the target of imitation by other domestic companies.

Based on China's unique new energy vehicle market, the paper summarizes Tesla's pricing strategy and makes recommendations for the future development of new energy vehicles in China.

Literature Review:

There are adequate research results about the pricing pattern of China's new energy vehicle market. The pricing of new energy vehicles must first consider the product's own cost and product attributes, and then study consumer psychology and analyze the intensity of competition among automotive products to choose appropriate pricing. The competition-oriented pricing method is most in line with the real market. (2) In the same way, in addition to product cost, the auto industry should also consider the extended attribute characteristic variables such as consumer behavior perception and market competition. (3)

In April 2014, Tesla entered the Chinese market by its successful sale of Model S. Analysis about Tesla's initial pricing strategy has the following research. Tesla has a relatively fair sales price compared to other high-end brands. Tesla's sales price is in sync with its price in America. The actual price is the sum of American sales price, freight, and various taxes for entering China. In order to enlarge market share, Tesla should reduce the sales price of its car by manufacturing cars in China. (1) In addition, the ingenuity of Tesla's pricing strategy is that Tesla allows customers to pay a deposit first, and then invest the deposit money on developing new models. For example, the R&D expenses of only Model S costs one billion dollars. The use of large cash flow on developing new models also indicates Tesla values technology innovation the most. (4)

After seven years of exploration, Tesla has gradually formed its unique pricing model in China. The domestic research on Tesla's pricing is as follows. Tesla's pricing in the Chinese market is based on demand because of the large number of Chinese middle-class groups. Targeted pricing can increase sales and profits. (7) In the same way, Tesla's "three-step" strategy is to first build high-priced electric vehicles for the rich, and then build medium-sized electric vehicles for the wealthy families to provide funding for the third step, and the third step is to the masses build low-cost, high-volume electric vehicles. Tesla provides suitable price models for all income classes, and Tesla has a high-end, atmospheric, and high-tech reputation in people's hearts. These methods make it an advantageous position in the competition. (9)

BYD, as a domestic enterprise that has transformed into a new energy vehicle earlier, has a pricing model that is different from that of Tesla. Unlike Tesla's "luxury" positioning, BYD has been attracting more consumers through its lower price and has become a spokesman for the popular brand.

(12) However, there are also many negative comments about BYD's pricing in China. BYD does not follow the real market demand well, too much production and low price will give consumers a cheap feeling. Its pricing is not differentiated according to consumer needs, habits, and consumer characteristics, vague positioning, generalized pricing, and lack of competitiveness, which makes it difficult for BYD to stand out in pricing. (5)

With its advanced technology and marketing model, Tesla has had a notable commercial performance since entering the new energy vehicle market. Sales of electric vehicles increased by 4% in 2019. Tesla's total sales in the first half of the year were 134,300 units worldwide. The Tesla Model 3 holds the number one position in China and the United States. (14)

Tesla also faces many issues for future growth. Tesla's thermal management system technology will continue to evolve as Tesla launches its models. A Tesla needs to consider the functionality of the thermal management system, as well as the accessories and after-sales service. (15)

This paper will analyze Tesla's pricing strategy in an oligopolistic market and summarize the differences and implications of Tesla's and BYD's pricing and sales models. Finally, the analysis of Tesla's recent price reduction decision will be used as a guide to be drawing the long-, medium- and short-term pricing decisions that Tesla should make in the market.

2. Tesla's Pricing Strategy

a. Oligopoly Market

Tesla and BYD are currently in an oligopoly new energy vehicle market. As shown in figure 1, Tesla and BYD accounted for 33.8% of China's new energy vehicles sales in 2020. About one-third of the sales reflect Tesla and BYD's dominance in the market.

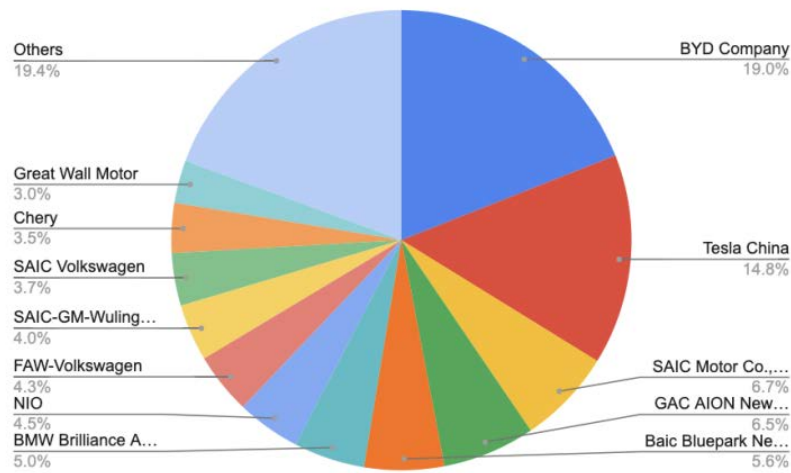


Figure 1. China's top 20 new energy passenger car sales in 2020

At the same time, the competition in China's electric car market is getting fierce, and there will be more barriers to enter the market. As shown in figure 2, The top seller BYD has a market concentration of 19%. The sum market concentration of the top five sellers is 52.6%. In conclusion, the market is influenced mainly by a few big vehicle companies. This paper chooses BYD as a "control group" because of its top sales and market concentration. Analysis of these two companies will prove many pragmatic suggestions for the development of China's new energy vehicle market.

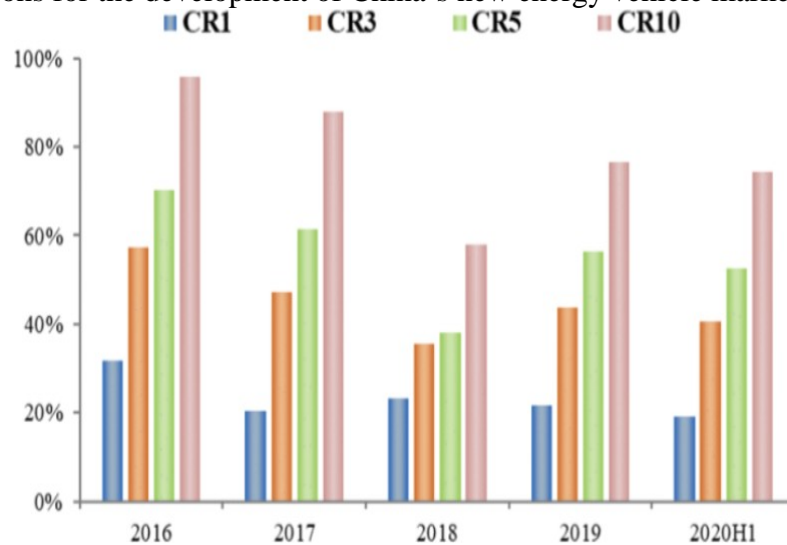


Figure 2. China's new energy passenger vehicle market concentration from 2016 to 2020

b. Oligopoly pricing mechanism

i. Analysis of demand elasticity

Tesla's has a demand-based pricing mechanism in an oligopoly. First, the middle-class is the highest demand in China. If Tesla wants to increase its sales in China, the first thing necessary is to develop models aimed at the bourgeoisie. Tesla first needs to reduce prices that can increase demand. Also, they can try to reduce the purchase cost of raw materials or avoid high taxes and freight through localization. If Tesla can develop cars in China, the cost of manufacturing cars will be reduced a lot. Demand-based pricing is a very reasonable pricing method. For example, because most people in the epidemic have suffered a lot of economic losses, at this time, demand will shift to the left because Tesla is in an oligopoly. So, it is flexible pricing, which means that if you want to increase sales, you need to lower the price. And Tesla needs to lower prices to obtain higher income. The success of Model

3 aimed at the middle class has provided a strong performance buffer for Tesla during the epidemic. In the first half of 2020, Tesla's revenue in the Chinese market accounted for 20% of the total revenue. In the second quarter of the same year, it rose to 23.19%, while last year's revenue at this time was only 11%. This strongly reflects that Tesla's performance during the epidemic has not been greatly affected but has shown an upward trend, which also shows that demand-based pricing is a very correct decision.

ii. Supply Elasticity Analysis

The elasticity of supply is the ratio of the rate of change of the quantity supplied to the rate of change of the price. Teslas have a small supply elasticity. In the fourth quarter of 2018, Teslas delivered a total of 90,700 vehicles. With the gradual reduction of Tesla's selling price, in the fourth quarter of 2020, Teslas delivered a total of 180,570 vehicles. This shows that the price reduction did not affect the supply and Tesla even increased the supply. This is due to the completion of Tesla's factory in Shanghai in 2019, which saw a significant uptick in production. This makes Tesla's production capacity unrestricted. When the supply is larger, the supply price elasticity is smaller. Moreover, the price reduction of Tesla's cars is intentional by a Tesla and aiming to take over the market quickly. Therefore, its car supplies will remain at a stable ratio

iii. Short Term, Mid Term, and Long-Term decisions According to the analysis above, Tesla has a large demand elasticity and small supply elasticity, which creates a friendly condition for Tesla to make a profit. Thus, Tesla can keep the current pricing

Strategy in the short term—uses price cuts to increase sales. But for mid-term and long-term decisions, Tesla should adopt different strategies. According to the Bertrand model, customers tend to choose products with lower prices if the products are complete replacements for each other. In this model, the demand function is the following:

$$Q_i(P_i, P_j) = \begin{cases} Q(P_i), & \text{if } P_i < P_j; \\ 1/2Q(P_i), & \text{if } P_i = P_j; \\ 0, & \text{if } P_i > P_j \end{cases}$$

According to the function, Tesla will continue cutting prices for more profit, until $P_i = P_j = C$, when the two companies reach the Bertrand equilibrium. The two companies would divide the market in half. But only the company with the lowest price can dominate the market. Companies would repeatedly cut prices until sales price equals marginal cost. The problem is that the long-term profit for companies will be zero.

As for Tesla, its price advantage and production advantage due to the establishment of the mega factory in Shanghai encourages it to cut prices for more profit. But in the long run, the profit is getting smaller and smaller until it reaches zero. The model provides a good suggestion: Tesla should consider maintaining the price in the long run, instead of blindly cutting prices. In an oligopoly market, if Tesla forms a cartel with BYD, then they will divide the market in half and bring both sides a stable profit.

iv. Price Discrimination

Domestic price discrimination does not exist for Tesla. It makes sure that sales prices across the country remain the same. As shown in the table below, according to Tesla's unified national common maintenance items released in February, Tesla has achieved a unified maintenance price across the country.

Table.1. Price of Tesla's common maintenance items

Model	Common maintenance item	Unit Price include tax (Renminbi)	Working Hours price (Renminbi)	Tot a l price includetaxes (Renminbi)
Model S	Replace airconditioner desiccant	76	497.2	573.2
Model S	Replace battery coolant	176	621.5	797.5
Model X	Change brake fluid	132	341.8	473.8
Model X	Replace Wiper Blade kit	278	31.3	587.1
Model X	Tire rotation	0	124.3	124.3

In the long run, Tesla does not need to have price discrimination. Even though price discrimination could bring the deadweight loss to zero, it is very likely to confuse the customers about Tesla's product position. If it wants to increase its competitiveness and occupy the market through lower prices, Tesla

should maintain a unified national approach. In the future, Tesla can consider second-level price discrimination—through cooperation with the government or other institutions to increase sales while at a lower price.

3. Reasons and effects behind price cuts Domestic factory to reduce costs

The localization of Tesla can greatly reduce the cost of Tesla. China is currently promoting the widespread use of new energy vehicles. At the same time, the government also has policies to support the development of new energy vehicles. If Tesla does mass production in China, they will save a lot of money on export costs.

Occupy the market

A large part of Tesla's price reduction is because they need to occupy the market. With the appearance of Model Y and Model 3 in the form of low prices, Tesla's reputation instantly attracted a large number of consumers. It can be said to be a great move to quickly occupy the middle-class consumer market. So in the next step, Tesla should consider how to reduce the price as much as possible while ensuring quality to create a car that belongs to the lower class. In this way, it completely occupies the market of new energy vehicles and is difficult to be surpassed because Tesla's style never changed and it has the repute of high-end car if it tries to be a low-cost car I'm pretty sure It will be much easier to sell than other cars with the same price.

Effects on the brand

Tesla's price cuts make it more suitable for mass customers. Price cuts accelerate Tesla's third step—produce cars for lower-class customers. This is not a bad thing for Tesla's original goal. However, repeated price cuts may confuse consumers about Tesla's product position. In the short period, it can increase Tesla's competitiveness, and in the long run, it can gradually change Tesla's high-end brand image, which would transform into making cost-effective cars for the mass consumers.

Impact on domestic enterprises represented by BYD

The entry of Tesla poses a great challenge to other domestic new energy vehicles like BYD, because first of all, they enjoy the same benefits and subsidies as domestic new energy vehicles, which also shows that Tesla and BYD are essentially in China. There is no difference in the above, so there will be no geographical advantages such as local companies. Secondly, Tesla's sales positioning in China is high-end consumers. In fact, it did not have much impact on BYD at the beginning because BYD mainly it is obvious that low-cost cars are sold in different consumer groups, but Tesla is willing to make a lot of changes. With the emergence of Model Y and Model 3, Tesla is quickly occupying the middle-class market in China. For new energy vehicles such as BYD It started to have a greater impact and waiting for Tesla to produce low-priced cars may have a greater impact on BYD or even directly replace BYD's position.

4. The difference in sales strategy

a. Tesla Direct operations

Tesla's sales model in China is the same as in the US: Tesla abandons the 4S store sales model and books new cars online and through its experience locations. This approach reduces consumers' own time to purchase a car and ensures price parity. They provide consumers with a consumption environment.

b. BYD's cooperation with other companies BYD's sales strategy is different because they choose the dealership model to sell EVs. BYD is divided into different marketing zones according to the consumer level and regional culture and sells EVs through person-to-person marketing, advertising, and exhibition marketing.

Personnel sales are salespeople who communicate directly to consumers in a positive way. The salesperson can solve the problems raised by the customer in more detail.

Advertising. That is, to stimulate consumers' desire to buy through promotional messages. BYD invests a lot of money in advertising. Its ads are very successful in terms of production and placement. For example, the amount of advertising in TikTok is relatively high, and the content in the ads is very short and exciting.

Exhibition marketing is promoting cars to consumers through exhibitions. This allows companies to communicate with targeted consumers in person in a short period of time. Exhibitions not only send messages more directly to target customers but also provide better insight into competitors.

5. Conclusion

In an oligopoly market, Tesla has a larger elasticity of demand and a smaller elasticity of supply. Therefore, it is recommended that Tesla maintain a pricing strategy of reducing selling prices in the short term. However, according to the Bertrand model analysis, Tesla will continue to reduce the price until it equals the marginal cost in the long period. In this case, Tesla's long-term profit is zero. Therefore, it is recommended that Tesla maintain the current prices in the long run and try to develop new suitable models for the public. Compared with BYD's dealer model, Tesla's direct operation largely avoids price discrimination. Its high-end brands and the sharp reduction in costs after the establishment of domestic factories have made Tesla more proactive and more competitive in the Chinese market. Domestic companies should learn from the novel side of Tesla's model, but also be careful of Tesla's expanding business influence.

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