# BYD of China: An Automotive Company on the Road to Global Dominance?

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*This case is a follow up to a previous case on the Chinese company BYD which had hoped in 2008 to soon become the world's largest car company. With the support of American Warren Buffett, the company which had only been in existence for a few years at that time caught the attention of not only Mr. Buffett, but also many in the auto industry. This case re-examines the Company, explains the progress made by the Company since the original case was written, and explores its current strategic position. From rather humble beginnings not long ago BYD has become a major player in the Chinese auto industry and a global leader in electric vehicles.*

## BYD COMPANY LIMITED

BYD Company Limited (BYD) is a Chinese company primarily involved in the manufacturing of automobiles, rechargeable batteries, solar panels, and mobile phone components. The Company which employs over 180,000 people worldwide is a publically traded firm listed on the Hong Kong and Shenzhen stock exchanges. While automobile manufacturing makes up about half of BYD's sales, auto manufacturing contributes much more profitable for the Company, especially the manufacturing of electric vehicles (EVS). BYD in 2015 sold more electric cars than Tesla and General Motors and has branched out into other electric vehicles including buses, taxis, and forklifts. The Company started in 1995 by making batteries. Although Chinese-made batteries were already available, they were of poor quality. Imports of higher quality batteries were available in China mostly from Japan, but they were expensive for Chinese consumers. To satisfy the need for high quality and low cost batteries, Wang Chuan-fu started BYD, which stands for "Build Your Dreams." Wang, who was a graduate of the Beijing Non-Ferrous Institute, found his competitive advantage by studying Japanese batteries and finding creative ways of making similar batteries at a lower cost. Wang had been fascinated with batteries as a graduate student at the Institute and capitalized on that interest.

While most Americans had never heard of the Company, BYD captured international attention when Berkshire Hathaway bought a 10% interest in the Company. Warren Buffett wanted to buy 25% of the company, but BYD refused the offer. A company known for being cost-conscious and frugal, BYD has

consistently been profitable. Located in Shenzhen, a manufacturing megacity better known for electronics, the company gained a competitive advantage by finding creative and innovative ways to manufacture batteries of high quality at costs lower than foreign rivals. The founder of the firm bet on the substitution of low-cost labor for expensive machinery, and attention to detail, and these strategies had proven successful. By 2000, BYD had become the biggest producer of cell phone batteries. In 2003 Wang had the opportunity to purchase a failing state-owned automobile manufacturer. He thought that the company could leverage its battery competence in the auto industry by producing electric cars. Skill, determination, and insight helped Wang develop the electric automobile industry in China.

## ELECTRIC AND HYBRID CARS

Electric cars (also known as electric vehicles or EVS) rely exclusively on battery power. With an EVS there is no internal combustion engine, muffler, gasoline tank, air and fuel filters, and other parts needed to run a gasoline powered system. The vehicle itself also produces no tailpipe emissions, and by getting its power from a more efficient utility company, overall it produces fewer greenhouse gases. This is especially true if the electricity is produced with nuclear power. EVS can also be less expensive to fuel on a per mile basis. Electric cars, however, have a shorter driving range and are difficult to operate with long distance travel.

Hybrid vehicles run on battery power until the battery reaches exhaustion and then a gas powered engine kicks in to power the vehicle and to recharge the battery. Given the relatively short driving range of electric vehicles, hybrid vehicles have been the logical first step towards all electric cars and the replacement of the internal combustion engine. Hybrid cars became popular items when the price of gasoline soared in 2008, but then fell back sharply as the price of gasoline fell. The appeal of electric vehicles now appears to be more with environmental issues. Back in 2009 Andy Grove (of Intel fame), stated that “batteries will become a competitive advantage for the automakers of the future.” He supports a position whereby the government takes a more active role in promoting and protecting an “infant industry” in new battery technology. The Obama administration took steps in 2009 to provide significant funding of battery research and the production of environmentally friendly automobiles. GM, Ford, Toyota, Nissan, Daimler Benz, BMW, and Volkswagen all have moved into the electric or hybrid market. While many auto companies from different countries have been moving into the electric car market, industrial policy geared towards making electric automobiles a priority have been much more extensive in China.

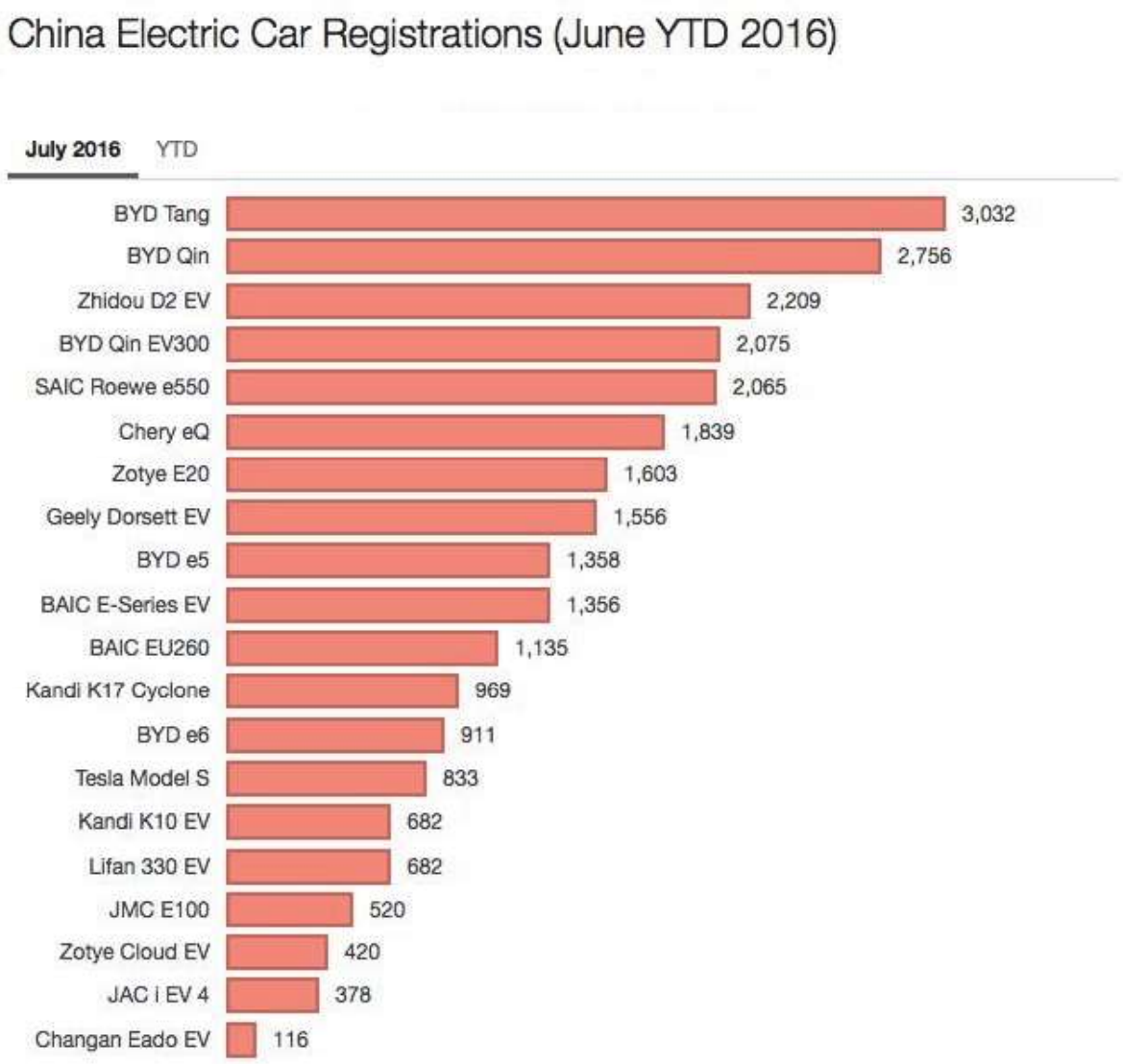
## ELECTRIC AUTO SALES IN CHINA

EVS sales in China have been soaring, thanks in part to government industrial policy which provides subsidies to manufacturers and consumers. While gasoline powered sales of autos in China have been flat in recent years, the sale of electric vehicles remains strong and is expected to continue to grow in the coming years. China is the largest automobile market in the world and is now the largest market for electric vehicles as well (Figure 1). Only certain auto manufacturers are favored by the government and BYD is one of those companies. BYD faces competition for EVS sales in China with many competitors, yet held three of the top fifteen positions in the market in 2015. BYD's Tang and Qin models showed very strong sales performance beginning in 2016, holding the two top positions by mid-year (Figure 2). Increasingly Chinese consumers are showing a preference for SUVs, a market which BYD has yet to capitalize. BYD's Tang model is an SUV and along with the larger sedan model Qin have helped BYD improve its market position. In addition, BYD has developed a gasoline powered SUV called Song to meet the growing demand for SUV models in China. BYD's automobile offerings can be seen in the appendix.

**FIGURE 1**
**EVS SALES BY COUNTRY**


Source: The Economist, July 30, 2016

**FIGURE 2**
**TOP ELECTRIC AUTOMOBILE SALES IN CHINA MIDYEAR 2016**




Source: chinatechica.com

BYD receives subsidies from both Shanghai and Shenzhen for producing electric vehicles which is an attempt by the Chinese government to reduce air pollution in major Chinese cities. In addition, Chinese consumers receive subsidies when purchasing electric vehicles which have helped fuel the growth of EVS sales in China. Reported cases of fraud concerning the consumer subsidies have been reported, including the suicide of a BYD dealer which captured media attention. The fraud typically involves selling a defective automobile to a partnering consumer who returns the vehicle yet retains the subsidy. The fraudulent activity isn't limited to BYD dealers and has the potential to reduce or eliminate the generous subsidies offered by the Chinese government.

## IT'S STILL ALL ABOUT THE BATTERY

Writing of the earlier case in 2008, lithium ion was the first choice for EVS power. Lithium ion is still the current choice for batteries to power electric cars. Lithium ion batteries are lighter and more powerful than traditional batteries. Lithium, a metal compound, can be found in large quantities in South America, especially in Bolivia, Chile, and Argentina. Chile is a large producer of lithium, along with Australia and China. Bolivia has very large known deposits of lithium in the Salar de Uyuni region, however, due to political issues cannot at present capitalize on this resource. With a big shift towards lithium batteries as a power source for vehicles (Tesla plans to produce 500,000 by 2018 alone) there is the possibility of supply problems. Tesla is actively searching for supply and the possible shortage could impact BYD's global expansion as well. A significant cost of EVS is the battery and increased prices due to lithium shortages may negatively impact the more cost-conscious consumers of China. BYD has employed 15,000 engineers to work on battery development in an effort to combat lithium supply issues, and perhaps develop the next generation of EVS batteries. Tesla recently began partnering with Panasonic to boost lithium-ion battery output by combining silicon and graphite to the current battery composition. Such a breakthrough, if successful, could give electric cars greater range, however, lithium supply could still be a hurdle to Tesla's goal of mass production of its electric car.

## BYD MOVES FORWARD

BYD has been able to maintain consistent profitability. Some BYD product offerings such as solar panels have not been as profitable as the Company would like, however, BYD has developed its "Three Green Energy Dreams" - new energy vehicles, energy storage and power, and solar power. BYD seeks to move forward as a leading environment friendly global leader. Company sales and especially profitability are dependent on electric auto sales. Over the past five years BYD has done increasingly well financially as can be seen in Table 1. With some variation in revenue and profitability, BYD and its stock price (Figure 3) have performed well. The fiscal year 2015 was an especially good year for the Company.

**TABLE 1**
**BYD FIVE YEAR REVENUE AND PROFIT**
**RMB '000**

| | 2015 | 2014 | 2013 | 2012 | 2011 |
|---|---|---|---|---|---|
| Revenue | 77.6M | 55.4M | 49.8M | 44.3M | 46.3M |
| Net Income | 3.1M | 740K | 776K | 212K | 1.6M |

Note: 1 USD = approximately 6.67 RMB

**FIGURE 3**
**BYD STOCK PRICE**


While BYD generates about 90% of its revenue in China, it has aspiration for global expansion. BYD operates 24 manufacturing facilities in China and one in both Brazil and the United States. In both foreign facilities the Company is producing electric vehicles for public transportation. In Brazil BYD is manufacturing buses and taxis, and in the United States the Company is manufacturing electric buses. The American operation began in 2013 to manufacturer electric buses for the local transportation authority in Southern California. In 2016, BYD announced that it was tripling the size of the California facility. BYD produces some of the most efficient electric buses in the world with the longest range on a single charge. At present the buses can travel approximately 150 miles on a single charge. BYD buses can be found in Hong Kong, Japan, Finland, Denmark, Uruguay, and on the campus of Stanford University in California. Most of the foreign expansion has focused on public procurement such as local government transportation bodies and airports. The strategy of BYD is to make foreign markets familiar with the BYD brand. In addition, BYD has provided electric autos to be used as taxis in Chicago and New York. With the same thinking, BYD is selling electric forklifts to Singapore in order for consumers to become familiar with the brand and overcome the perception of poor Chinese quality in manufacturing. Samsung of Korea has partnered with BYD and built a battery manufacturing facility in China. China's supply of lithium and BYD's skill in battery production were attractive to this foreign partner. Further international partnering, not an uncommon practice in automobile manufacturing in China, could provide BYD with additional expertise and market opportunities.

## CONCLUSION

BYD so far has not been able to achieve its goal of becoming the largest automobile manufacturer in the world. In fact it is still far from it. While performing well, BYD faces both domestic competition as well as foreign competition in China. Foreign auto brands are still seen as of better quality and BYD must compete with VW, GM, Tesla, and others in its own country. There are many automobile manufacturers in China at present and more hopefuls, including companies such as NextEV. NextEV has a dedicated team of engineers producing no automobiles but devoting itself exclusively to research and development in the hope of creating a better battery for electric vehicles and then manufacturing automobiles. Breakthroughs in battery research could significantly alter the competitive position of EVS manufacturers and represents a strong disruptive force in the industry. In the United States in the early days of automobile manufacturing there were many companies producing cars, each with their own vision of building a dream. China most likely will experience the same industry consolidation which occurred in the United States with only the stronger firms surviving. BYD hopes not only to be one of the survivors but still aspires to be the leader in the automotive industry.

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NOTE: A Teaching Note for the case is available for verified instructors.

## APPENDIX
## BYD AUTOMOBILE MODELS

### Model e5

**MODEL e6**


**MODEL TANG**

**MODEL QIN**


**MODEL SONG**