



# The Investable Value Analysis and Industry Prospect of SVOLT Energy Technology Co., LTD

Ketong Chen<sup>1</sup>(✉), Meilin Chen<sup>2</sup>, Xianjiang Fan<sup>3</sup>, and Dan J. R. Yao<sup>4</sup>

<sup>1</sup> New York University Shanghai, Shanghai 200000, China

kc4158@nyu.edu

<sup>2</sup> Plant Science and Technology, Southwest University, Chongqing 400715, China

<sup>3</sup> Bachelor of Commerce, The University of Sydney, Sydney 2006, Australia

<sup>4</sup> School of Finance, Central University of Finance and Economics, Beijing 100000, China

**Abstract.** In this ever-changing business battlefield, thousands of start-ups face huge risks and opportunities at the same time. Therefore, how to objectively evaluate the development status and investment value of start-up companies is a required process for every investor, which will help them earn more profits in each investment activity. Therefore, based on the POCD framework, this paper will conduct an investment value analysis on a start-up enterprise engaged in the new energy battery industry -- SVOLT Energy Technology Co., LTD. We will explain how SVOLT efficiently builds the company's internal structure and working mode from three dimensions of people, opportunity and environment, explain its current investment value, and briefly analyze the current development status and future development opportunities of the new energy battery industry.

**Keywords:** POCD framework · SVOLT · Start-up · Electric vehicles battery · Investment analysis

## 1 Introduction

Environmental pollution has been a hot discussion topic with the development of modern society and sustainable development has been used to guide the balance between environmental protection and social development. China has also been an active player in the sustainable development strategy, seeking ways to reduce the pollution caused by human industrial activities. The last decades have witnessed the fast development of China's vehicle market. China has become the most significant automobile player globally since 2009 surpassing the US market [1]. The expansion of automobile vehicles makes people's lives more convenient with faster transportation but also causes air pollution and global warming. The atmospheric environmental problem in China is largely caused by vehicle emissions released by the burning of fossil fuels so the gas emission has been considered a significant factor that contributes to air pollution [2]. The urgent need for reducing vehicle gas emissions leads to the rapid development of electric vehicles which

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K. Chen, M. Chen, X. Fan, and D. J. R. Yao—These authors contributed equally.

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have fewer emissions than gasoline vehicles [3]. Therefore, the increasing demand for electric vehicles boosts the demand for electric vehicle-related products such as electric batteries. In November 2020, The General Office of the State Council issued the Development Plan for The New Energy Vehicle Industry (2021–2035). It plans to reduce the average power consumption of new pure electric vehicles to 12.0kwh/100km by 2025, and the sales volume of new energy vehicles accounts for about 20% of the total sales volume of new cars. By 2035, pure electric vehicles will become the mainstream of new vehicles sold, and public vehicles will be fully electrified [4]. As mentioned above, in the future, the replacement of traditional gasoline vehicles with electric vehicles created growth opportunities for the electric vehicle battery market since it is a key component of producing an EV, which makes it a lucrative investment opportunity for investors. In addition, electric vehicles already have certain functional and symbolic benefits that will appeal to the general public [5], which means the prospect of the electric battery is very positive and promising. Compared to conventional batteries, new energy power batteries mainly include lead-acid batteries, lithium batteries, and hydrogen fuel batteries, and energy density is the main index to measure their effectiveness [6]. However, China is far behind foreign products in terms of product efficiency and safety because it pays too much attention to the number of enterprises in the early stage of the development of the clean energy industry and is eager to seize the market. The United States, Japan, Europe, and other countries not only firmly grasp the core technology of the new energy battery industry, but also attach great importance to the development of supporting industries, such as new energy vehicles. Therefore, they have been in the international leading position in the field of new energy batteries. China's battery sales relying on the number of enterprises is not enough to maintain the market position [6]. At the same time, the deficiency and high-priced raw materials of energy batteries such as cobalt [7] and lithium [8] could be a significant factor hindering the development of the energy battery industry. Also, although ownership of new energy vehicles rose fast in China in 2015, the key technologies have not yet been fully mastered, and some performance levels could not match the market needs [9]. Thus, the industry still needs a lot of innovation and development.

Previous researches show the promising prospect of the development of the electric battery market; however, it is still challenging for the start-up electric battery company to succeed in this favorable macroenvironment when considering the fierce competition brought by the mature companies in the market deficiency of the material resources. SVOLT only takes a minor market share compared to mature companies like CATL and BYD. Unlike CATL which supplies both Chinese and foreign companies such as NIO and Tesla to diversify the supply chain, SVOLT has a similar stable supply chain to BYD, which supplies its own BYD electrics. Spun off from its parent company Great Wall Motors in 2018, SVOLT continues to supply electric batteries to companies affiliated with Great Wall Motors. However, Great Wall Motors ranks 5th position in the market sales, but the sales are around 300% less than the top 3 companies (BYD, Tesla, SAIC-GM Wuling). Also, any negative shock like the rollback of the government subsidies for the electric vehicle market will hurt the start-up company more than those mature companies. It is of interest to know how SVOLT competes as a newcomer, what

comparative advantages are supporting it, what disadvantages are lagging its development, and whether or not SVOLT is a good investment target. SVOLT, a Chinese electric battery company, is chosen to be analyzed as a representative to see how the start-up company is performing in the electric battery market.

## 2 Method and Data

### 2.1 Method

POCD framework is widely used to analyze start-up companies for investment suggestions on the company. It contains four-part, people, opportunity, context, and deal. Since it is impossible to get the deal and contract of SVOLT directly, the paper will only focus on the first three-part. People, in the POCD framework, refer to individuals or groups that are directly or indirectly related to the business decision process of the start-up company. Opportunity refers to how the company generates the future return and the investment needed in the business. Context refers to the macroeconomic changes such as taxes, regulations, policies, or other changes that can affect the whole market where the company is operating.

### 2.2 Data

SVOLT, a start-up company formerly known as the power battery division of the Great Wall Motors (601633. SH), as an independent subsidiary of its parent's corporation in February 2018 and changed to a brother corporation with Great Wall Motor. Focusing on the battery system and covering the whole industrial chain of new energy batteries, the company is committed to becoming a world-class new energy battery manufacturer.

## 3 Results and Analysis

### 3.1 People

In this company, there are a lot of people that have concentrated in the high-technology industry for many years, such as its main manager and the legal representative. At the same time, so many talented people may be one of the reasons that SVOLT is growing well. Next, I will introduce some key staff.

#### 3.1.1 A Brief Introduction to Main Personnel

The first one is Yongxin Yang. He is a member of the board of directors, also the chairman, general manager, and legal representative. In 2003, he joined Great Wall Motor. At that time, he was fully responsible for the development of a new energy three-power system and made Great Wall become the first Chinese auto company to successfully pass the certification. In February 2018, He worked for SVOLT as president. He led the company to make breakthroughs in innovation and launched a series of innovative achievements such as the AI intelligent factory for vehicle specifications.

The second one is Xuejie Huang. He is the independent director He is the founder and chief scientist of Xingheng Power Supply Company Limited, a leading figure in Lithium batteries in China. He has published many papers in international journals on behalf of the Institute of Physics on lithium-ion Battery research and undertaken “863” new material fields “and other major projects.

### **3.1.2 A Brief Introduction to Employee**

From the employee’s perspective, due to the lack of relevant channels, we can only find the following information from some social networking sites, for reference only.

The daily work pays attention to the underlying logic, and the staff starts from the foundation. To ensure the independence of all employees in the follow-up work, any work should start from simple electricity, to understand the concept and technology of electricity and simple logic control. But there are also views that the SVOLT’s daily overtime is serious, and the workload is very large. However, there is one opinion saying that SVOLT’s working atmosphere is harmonious.

## **3.2 Context**

### **3.2.1 Market Overview**

The new energy vehicle market in China has been growing at a fast speed and the market is divided mainly into three types of vehicles, battery electric vehicles, plug-in hybrid vehicles, and fuel cell electric vehicles. According to a statistical report of the leading country in the electric vehicle index 2020, China was the leading country in technological development and industry. The market share ranks only second to Germany. Moreover, the sales volume of new energy vehicles has been growing at a fast speed (CAAM, 2022) and nearly 83% of sales are battery electric vehicles (PWC, 2019). The growth is fueled by the Chinese government’s policies and regulations. The below analysis will focus on the policy in the new energy vehicles industry and also the comparison between the electric vehicle and plug-in hybrid vehicles market share forecast based on the current situation.

### **3.2.2 Policies and Regulations**

The regulations and policies in the Electric Vehicle market mostly involve three dimensions: 1. Focus on standardizing the lithium-ion battery industry, and transformation and upgrading are the keys; 2. Safety assurance, highlighting the importance of technical details; 3. Further, strengthen the management of decommissioned power batteries. The policies and regulations are mostly about vehicle manufacturers and importers, manufacturing subsidies, tax exemptions, and support for the construction of electric vehicle charging stations.

### **3.2.3 Government Practice**

First about the regulations on vehicle import to reach the less emission goal. In 2019, the policy required Chinese vehicle manufacturers and importers which produce or import

more than 30,000 vehicles to make or import at least 10% electric vehicles and 12% in 2020. This ensures the demand for electric vehicle batteries which provides growth opportunities since the government helped to foster the electric vehicle market. Second, the Chinese government provides subsidies to electric vehicle manufacturers which fueled the high growth of sales from 2014 to 2019. However, the industry seems to be over-relied on the subsidies. Recently in 2019, the Chinese government decided to roll back the subsidies and the sales of electric vehicles show a huge decline in the last half of 2019. Then the government decided to extend the subsidy to 2022 and the sales immediately bounced back and continued to increase. This brings the question of what will happen after the subsidy is rolled back in 2022. Without subsidy, the production cost will likely increase, and it is challenging for the company to remain at the same price. If the price has to increase, the demand will likely drop. This will affect the battery supplier like SVOLT if the sales decrease. Also, SVOLT gains little market share in the battery market and is more vulnerable to the fiercer competition after the rollback. The third is the tax exemption. This is certainly a favorable condition for a company like SVOLT. The Chinese government exempts electric vehicles from consumption and sales taxes and also the registration fee to help them reduce costs which will certainly foster the growth. The last one is the support for charging infrastructure. Since there are around 80% of the new energy vehicles in the market are battery electric vehicles, and the rest smaller shares are plug-in hybrid vehicles, if the policy goes well and the infrastructure for plug-in charging vehicles is set up in the future, this will be a negative shock to the electric battery vehicle market (PWC, 2019). We can make assumptions that the large market share of the battery electric vehicle now is taking advantage of the incomplete infrastructure of the charging system. So, the support for charging infrastructure is not a favorable sign for a company like SVOLT which will curtail the market share and lead to competition. Generally speaking, the macroenvironment in China is good for the development of electric vehicles and thus creates a growing demand for electric vehicle batteries. Challenges for SVOLT appear in the technology innovation and the force of competition from big companies like BYD and CATL.

### 3.3 Opportunities Analysis

The energy battery has become one of the centers of investment nowadays because the battery is the most critical component for the EV industry together with the rise of EVs. Therefore, this industry's prospect is considerably lucrative.

#### (1) Promising industrial prospects

In China, industrial giants like CATL spent nearly \$530M in R&D in 2020 according to the company data, which has already surpassed all the expenses that some startups spent in their entire life. Therefore, the energy battery industry is an industry with high technical barriers and the living conditions in such an industry for the startups could be tough. What makes things worse is that the resources in such companies like lithium and cobalt, their price are variable, which could cause uncertainty to the production cost of the company. As for the procurement of the company or the customers in this industry, it would usually be dealt with by bidding or contract. For example, to obtain raw material, one of CATL's subsidiaries has obtained lithium exploration right in Yichun by bidding and finally signed cooperation with the local government on April 20th, 2022, for

\$127M, to find the customers is usually the same case, just change the government into the downstream market to the energy battery industry like EV company. Therefore, the purchase for both the customers and the sellers could be quite complicated and requires a great deal of capital and network in such an industry, however, once the contract was confirmed, then the supply for the material or the commodity could be stable and predictable.

### (2) Master core technology

To survive in the energy battery industry, a company would need to make lots of innovative achievements, and SVOLT has been continuously developing its technologies through several dimensions including standard, production process, material, etc.. The most significant one among them would be the world's first cobalt-free battery invented by SVOLT.

This battery is highly regarded by the world batteries industry. The cobalt-free battery became so attractive because it means a great decline in the production cost. Cobalt is an essential raw material used to produce batteries. According to the data from Cobalt Institute, the demand for Cobalt in 2023 will reach roughly 220,000 tons assuming a 100% utilization rate. However, the Global and Chinese storage of Cobalt is 7,600,000 and 80,000 respectively in 2021 according to the United States Geological Survey, and its production is 170,000 in 2021, and China only takes up roughly 1% of the Global storage based on the data. Therefore, the Cobalt supply is quite tight right now.

Because of the rapid expansion of batteries and the lack of storage Worldwide. Such a situation of short supply could lead to the price of Cobalt facing more uncertainty in the future. Industry giants including Panasonic, LG, and CATL are racking their brains to get rid of the resource dependence on cobalt since the expanding demand for EVs and energy batteries. In this case, the Chinese company SVOLT's Cobalt-Free battery could be regarded as a solution to such circumstance, On June 2021, SVOLT held the first mass-production offline ceremony of Cobalt-Free batteries in Jiangsu and was loaded by EV at an exhibit in Chengdu in August 2021. This means that the world's first Cobalt-Free battery went out of the laboratory and officially realized mass production. Specifically, compared with the same level of high nickel ternary battery, SVOLT Cobalt-Free battery has significant advantages of high-security performance, high energy density, high circulation lifespan, and low cost. Also, the Cobalt-Free battery has already acquired 90 domestic patents and 46 international patents. All in all, the advent of cobalt-free batteries will indeed bring significant changes to the industrial chain during the resource shortage period. Also, producing cobalt-free batteries would become a global consensus. Therefore, the Cobalt-Free battery could be a knockout for the SVOLT to strengthen its position in the industry.

### (3) Competition analysis

Analysis of competitors can also provide insight into business opportunities. Since 2020, the global EV boom has boosted battery businesses to expand capacity as new competitors enter the race (Writer, 2021). In the power energy industry, the two biggest competitors of SVOLT are Contemporary Amperex Technology Co. Limited (CATL) and LG Energy Solution (LGES).

CATL is a Chinese battery and technology business that was created in 2011 and specializes in the production of lithium-ion batteries for EV and energy storage systems,

as well as battery management systems (BMS) [Wikimedia Foundation, 2022] It is presently the world's largest lithium battery maker (KRASIA, 2022). In 2021, CATL held a 32.6% market share of the global vehicle lithium-ion battery market and installed a powerful battery capacity of 96.6 GWh (SNE Research, 2022). CATL's products are in high demand as a supplier to major EV automakers like Tesla and Volkswagen (Shah, 2022).

LGES was established in 2020 and specializes in Advanced Automotive batteries, Mobility & IT Battery, and ESS Battery enterprises (LGES, n.d.). LGES is the world's second-largest manufacturer of EV batteries (Infrahub, 2022) and occupied a 20.2% market share and a total capacity of 59.9 GWh (SNE Research, 2022).

### 3.3.1 SVOLT and Industrial Giants

These industry giants dominate most of the market, and their existing reputation and status make it impossible for many small businesses to compete. Besides, the huge production volumes of these large businesses are difficult to reach, and most of the technology developed by them is protected by patents. However, since a monopoly has not yet appeared, the competition among enterprises is still fierce, and technology is constantly innovating and improving. Thus, continuing research and development (R&D) is quite significant.

To strengthen its position, CATL has made a series of investments in the sector and formed partnerships and joint ventures with over 100 firms (Writer, 2021). CATL is researching cell to chassis (CTC) technology, which helps extend driving range, optimize power distribution, and reduce power consumption (CATL, n.d.). Besides, CATL announced the sodium-ion battery, which will give a new option for sustainable energy consumption and transportation electrification, advancing the aim of carbon neutrality sooner (CATL, n.d.). Additionally, CATL is developing EVOGO battery swap services (CATL, n.d.) as part of its goal to develop the battery management business (Writer, 2021).

Due to its higher energy density, battery manufacturers and automakers around the world are working to build an all-solid-state battery (ASSB), which allows for longer mileage and shorter charging times than existing EV batteries. LGES and the University of California San Diego collaborated to create a next-generation solid-state battery that is safer and more durable than current models. The solid-state electrolyte and all-silicon anode in this new battery enable faster charge rates in a room of low temperatures while maintaining high energy densities (Kim & Kim, 2021).

In addition to LGES, other companies including CATL (Writer, 2021) are developing the ASSB (Kim & Kim, 2021), and CATL is also working on cobalt-free batteries (Writer, 2021), which SVOLT developed first (SVOLT, n.d.).

In 2021, SVOLT occupied a 1% market share and a production capacity of 3.1 GWh (SNE Research, 2022). Established in 2018 (SVOLT, n.d.), SVOLT was a top 10 global EV battery installation company in 2021 (SNE Research, 2022), which shows a really fast growth rate of the company. However, according to data from CATL, the investment price per GWh would be \$37millions. On December 8th, 2021, SVOLT announced its production capacity goal is to reach 600GWh in 2025, which would cost SVOLT roughly \$22 billion to reach this goal, and the SVOLT has raised \$3 billion

by now, which is far from its goal. Moreover, as we mentioned above, the cost of materials is unstable nowadays. In this case, to maintain the stability of the material cost, mainstream companies like CATL, BYD, and LGES have already been working on seizing resources by investing and acquiring. Nevertheless, for startups like SVOLT, such a situation would not be decent since they have little bargaining power or capital in their industry, and there's not much for a company like SVOLT to do when dealing with the issue of cost increase. Therefore, such a market environment would not be so optimistic for the SVOLT. Fortunately, SVOLT has started to massively produce the unique cobalt-free battery which could partly mitigate this situation.

Furthermore, SVOLT has also introduced a new short blade product category for extensive electrification applications. The newly introduced short blade cells come in a variety of sizes and cover the whole charging range. They may be utilized in a variety of applications, including passenger battery electric vehicles (BEV), hybrid electric vehicles (HEV), energy storage and commercial vehicles, and off-highway and lower speed EVs (CISION, 2021).

## 4 Conclusion

Based on numerous statistics and information from the related articles and the SVOLT official website, we analyzed whether SVOLT is worth investing in or not through POCD Framework. Nevertheless, whereas SVOLT is a startup, we could not find any financial statement about it, therefore in the paper we only focus on the other three dimensions of POCD to analyze SVOLT.

In summary, this paper suggests that: From the people's perspective, according to SVOLT's official websites, the internal structure of SVOLT is really orderly, which can lead to the high efficiency of working. Also, there are a large number of talented people working for this young company. Most employees have concentrated on the new energy industry for a long time, such as its main manager Hongxin Yang. Hence, it is possible for SVOLT to have huge development potential in the future relying on its human resources; Secondly, SVOLT is facing fierce competition from the aspect of context since the rollback of government subsidies will certainly increase the cost of the production. Given the favorable policies on the electric vehicle market, SVOLT has the potential to grow to take more market share in this relatively new and developing industry. The negative shock of the rollback will force some companies to exit the market, but we have faith in SVOLT that it can sustain its current advantage and even has the potential to take more market share; Thirdly, from an opportunity perspective, according to SVOLT's empirical performance, we proposed that SVOLT has pioneered a succession of innovative breakthroughs and has a great potential to develop. However, the high industrial entry barriers, which require substantial funding in the future to surmount, could be a deterrent for SVOLT in the future. Nevertheless, even though the industry giants dominate the majority of the market, SVOLT's ability to innovate and develop can support the company to continually compete with these industry giants in the future. SVOLT has ranked tenth among worldwide EV battery manufacturers in terms of installed capacity in 2021 (SNE Research, 2022), and this also proves that SVOLT is a company with great potential. Therefore, given the great potential to develop and its strong ability for the innovation of the company, it is valuable to invest in SVOLT.



Although there are some disadvantages waiting to be overcome by SVOLT, the achievements such as the cobalt-free battery that SVOLT accomplished could not be ignored and we believed that those achievements could also cancel out some of SVOLT's adverse factors in development. This paper and its findings could be a good reference for those who have investment propensity in the energy battery industry or other industries related to it. However, due to the lack of financial data on startups, we could only evaluate SVOLT qualitatively and without any financial statement data, which could negatively affect the accuracy of the assessment. Therefore, how to analyze startups based on POCD Framework and what other dimensions of a company could we use to replace the Deal part could be the area that future research focuses on.

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