

# Internal Consulting Report of CATL based on financial statements

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**Abstract:** This essay mainly describes the financial analysis of a new energy power industry company--CATL, which has been in the leading position for years. A brief introduction of the company and its main business is first made. And the financial analysis based on CATL's balance sheet, income statement and cash flow statement were shown. Apart from that, the cost objects and compositions was explicitly listed and Du-point analysis was did. Besides, according to the cost components, I summarize the main issues of the cost management of CATL. The main issues are the excessive proportion of direct materials and insufficient investment in R&D. Based on the analysis, the suggestions that based on the market and the industry are given to help CATL to solve the problems. Based on the analysis, a strategy map and a balanced scorecard was made to to help CATL to have a clear insight into its current circumstance and solve the problems.

**Keywords:** CATL; financial statements; internal consulting report.

## 1. Introduction

Contemporary Ampere Technology Co., Ltd(CATL) was established in 2011 and listed on A-share (300750) on June 11, 2018. In 2017, CATL power battery shipments reached 11.84GWh, which is a year-on-year increase of 50%. Besides, its battery installed capacity ranked first in the world, and its revenue reached 20 billion yuan. Listed on the ChiNext in June 2018, the market value of the first day was about 80 billion yuan. CATL has an industry-leading intelligent manufacturing system, and continues to lead equipment and process innovation through independent research and development by top technical teams.

### 1.1. Main business and products

CATL's main business consists of three parts, including power battery system, energy storage system and lithium battery materials (ternary precursors).

#### 1.1.1. Power battery system

Power battery system products are mainly cells, electrical boxes and battery packs, which are used in the manufacture of new energy passenger vehicles, new energy commercial vehicles, etc. The battery cell is the smallest unit of the power battery, has a high energy density, and can store electrical energy; A module is a package of multiple cells in a housing frame; The battery pack is composed of multiple modules controlled by the battery management system (BSM) and the thermal management system. Its power battery system has the characteristics of high energy density, many cycles, safety and reliability, etc., which can meet the needs of start-stop function, fast charging, long service life and long mileage.

#### 1.1.2. Energy storage system

Energy storage system products include batteries, electric boxes and battery cabinets, etc., and the technical route is lithium iron phosphate batteries. It can be used in the field of power generation, transmission and distribution and electricity consumption, covering solar or wind power generation energy storage support, industrial enterprise

energy storage, etc., which can effectively make up for the shortcomings of irregular output of wind energy or solar power generation, fill the line loss power compensation, track the planned peak shaving and valley filling, improve the energy utilization rate of wind power and photovoltaic power generation systems, and achieve a balance between peak and valley electricity in the field of electricity consumption.

#### 1.1.3. The lithium battery materials

The lithium battery materials business is related to ternary precursors, which are raw materials used to manufacture cathode materials for lithium-ion batteries. First, valuable metals such as nickel-cobalt-manganese-lithium in waste lithium-ion batteries are produced through processing, purification, synthesis and other processes to produce lithium-ion battery materials such as ternary precursors, so that resources such as nickel-cobalt-manganese-lithium can be recycled; Second, the processing and production of lithium-ion battery materials through purchased materials. The business is carried out through Guangdong Bangpu, of which CATL holds 34.03% of the shares.

## 1.2. New energy power battery industry

From the upstream of the power battery industry, mainly lithium-ion battery material manufacturers and other enterprises, responsible for providing raw materials such as positive and negative electrode materials and electrolytes, the composition of raw materials is closely related to metal nickel, manganese and lithium. Midstream enterprises are lithium-ion battery manufacturers, producing battery cell products, and then combining the specific needs of end customers to select battery cells and battery management system solutions. Downstream application scenarios are mainly divided into three parts: first, power fields such as electric vehicles and electric bicycles; the second is the field of energy storage; The third is consumer electronics such as mobile phones and laptops. The upstream and downstream industrial chain of the new energy power battery industry is shown in Figure 1.

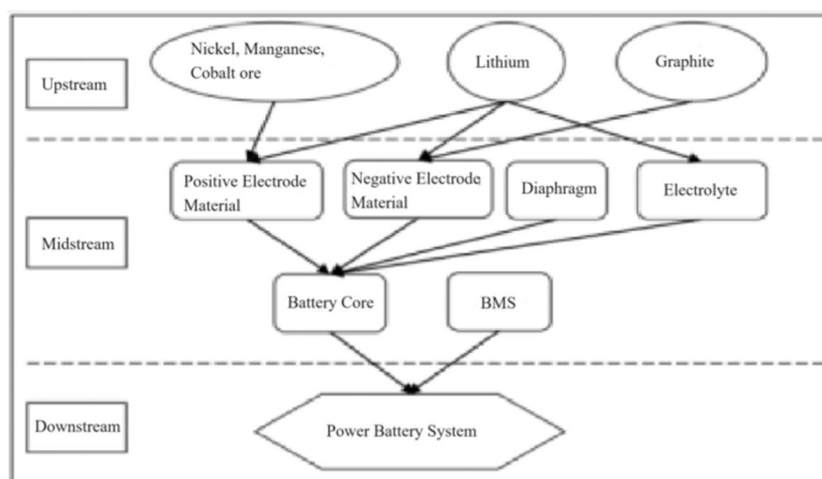


Figure 1. The upstream and downstream industrial chain

### 1.3. Background of the new energy industry

In the cost of the whole vehicle, the proportion of power batteries is as high as 35%-45%, which shows its importance. Therefore, it is called the "heart" of new energy vehicles. And the vigorous development of power batteries is closely related to the development of its upstream and downstream enterprises. Due to the gradual development and expansion of new energy vehicles, China's power battery products have ushered in a vigorous development trend.

As shown in Figure 2, from 2016 to 2021, China's power

battery shipments and installed capacity in absolute terms showed an upward trend. It can be seen from the data that the development momentum of the power battery industry is very good, and the production capacity is increasing year by year. However, affected by the epidemic, the annual shipments and installed capacity of the Chinese market in 2020 will be greatly affected, but the gap will gradually narrow with the improvement of the epidemic, and the shipments and installed capacity in 2021 will increase significantly compared with 2020.



Figure 2. China's power battery shipments, installed capacity and growth rate from 2016 to 2021

## 2. Balance Sheet Analysis

### 2.1. Asset Quality Analysis

| Balance sheet(million yuan)               | 2020           | 2021           | 2022           |
|---|----------------|----------------|----------------|
| Cash and cash equivalents                 | 43.68%         | 28.95%         | 16.56%         |
| Accounts receivable, net                  | 13.52%         | 8.20%          | 8.60%          |
| Inventories                               | 8.44%          | 13.07%         | 18.92%         |
| Prepaid expenses and other current assets | 6.42%          | 7.55%          | 10.91%         |
| <b>Current assets</b>                     | <b>72.06%</b>  | <b>57.77%</b>  | <b>54.99%</b>  |
| Property, plant and equipment, net        | 16.20%         | 23.49%         | 22.39%         |
| Intangible assets, net                    | 1.61%          | 1.46%          | 1.62%          |
| Long-term equity investment               | 3.07%          | 3.56%          | 2.89%          |
| other long-term assets                    | 7.06%          | 13.72%         | 18.11%         |
| <b>Non-current assets</b>                 | <b>27.94%</b>  | <b>42.23%</b>  | <b>45.01%</b>  |
| <b>Total assets</b>                       | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> |

Figure 3. CATL's Assets

### 2.1.1. Current assets

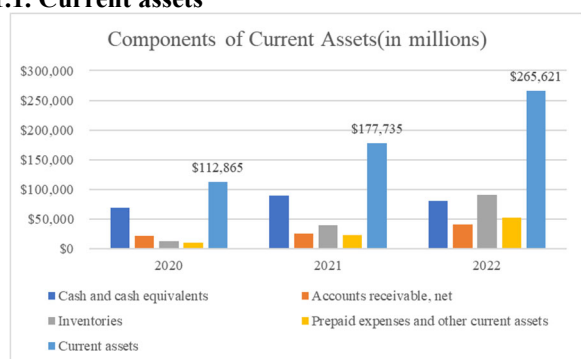


Figure 4. Components of Current Assets

In the last three years, the current assets occupied a larger proportion of the total assets of CATL, among which the cash and cash equivalents decreased drastically from 43.68% in 2020 to 16.56% in 2022. Apart from that, the amounts of inventories continued to grow, from \$13225 million in 2020 to \$91388 million in 2022.

### 2.1.2. Non-current assets

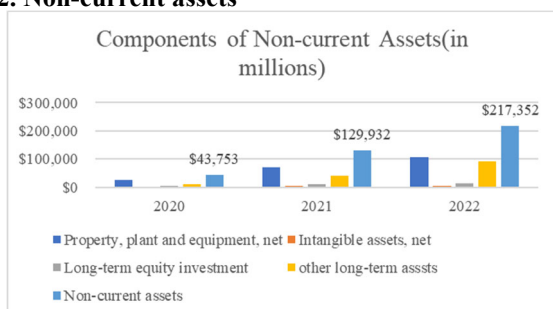


Figure 5. Components of Non-current Assets

From the common-size of balance sheet, the chart saw a significant increase in total non-current assets in 2022. The non-current assets accounted for 27.94%, 42.23% and 45.01% in 2020, 2021 and 2022 respectively, meaning that CATL improved the utilization of its fixed assets to maintain business.

## 2.2. Capital Structure Analysis

| Liabilities and Stockholder's Equity | 2020           | 2021           | 2022           |
|--------------------------------------|----------------|----------------|----------------|
| Short-term borrowings                | 4.05%          | 3.94%          | 2.40%          |
| Notes and accounts payable           | 19.97%         | 34.83%         | 36.74%         |
| Contractual liabilities              | 4.39%          | 3.75%          | 3.73%          |
| Employee salaries payable            | 1.70%          | 1.67%          | 1.58%          |
| Taxes payable                        | 2.40%          | 0.43%          | 0.80%          |
| Other accrued liabilities            | 2.60%          | 3.90%          | 3.97%          |
| <b>Current liabilities</b>           | <b>35.11%</b>  | <b>48.52%</b>  | <b>49.22%</b>  |
| Long-term debt                       | 3.87%          | 7.19%          | 9.83%          |
| bonds payable                        | 9.18%          | 5.15%          | 3.19%          |
| Long-term accounts payable           | 0.76%          | 0.33%          | 0.17%          |
| Deferred revenue                     | 2.50%          | 3.93%          | 3.32%          |
| Other long-term obligations          | 4.40%          | 4.75%          | 4.83%          |
| <b>Non-current liabilities</b>       | <b>20.72%</b>  | <b>21.35%</b>  | <b>21.35%</b>  |
| <b>Total liabilities</b>             | <b>55.83%</b>  | <b>69.87%</b>  | <b>70.57%</b>  |
| Paid-in capital (or share capital)   | 1.49%          | 0.76%          | 0.41%          |
| Capital surplus                      | 26.60%         | 14.03%         | 14.79%         |
| Less: Treasury stock                 | 0.45%          | 0.14%          | 0.04%          |
| Undistributed profits                | 11.90%         | 11.08%         | 10.52%         |
| Minority shareholders' equity        | 3.18%          | 2.64%          | 2.07%          |
| Other comprehensive income           | 0.54%          | 1.48%          | 1.60%          |
| <b>Total shareholders' equity</b>    | <b>44.17%</b>  | <b>30.13%</b>  | <b>29.43%</b>  |
| <b>Total liabilities and equity</b>  | <b>100.00%</b> | <b>100.00%</b> | <b>100.00%</b> |

Figure 6. CATL's Liabilities and Stockholder's Equity

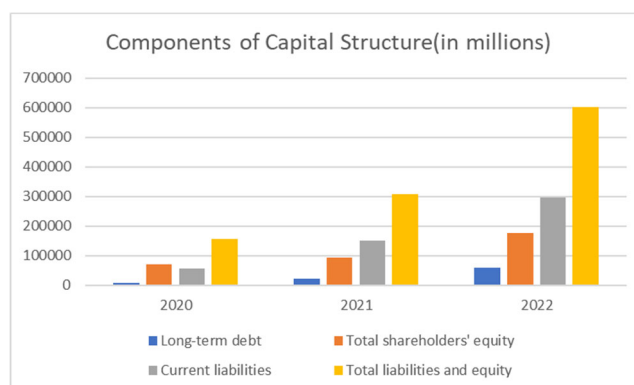


Figure 7. Components of Capital Structure

According to the common-size financial statement of liabilities, the long-term debt mainly accounted a large proportion of liabilities and increased to 59.1 billion yuan in 2022, compared to 22.12 billion yuan in 2021, where the change was up to 167.17%. In 2022, CATL focused on the research and development of Huxi lithium-ion power battery production base project and power and energy storage battery research and development project, and has also conducted public fundraising in addition to long-term loans from banks. Another reason is that the annual interest rate on long-term borrowings reached a maximum of 6.25% in 2022, an increase of 1.35% compared to 2021.

Apart from that, the shareholders' equity increased by 1117.99 million yuan compared with 2021, because CATL issued 109,756,100 shares to specific targets according to the resolution of the first extraordinary general meeting of shareholders in 2021, of which the share capital increased by 1097.56 million and the capital reserve increased by 447603.57 million yuan.

## 3. Income Statement Analysis

| Income Statement                          | 2022          | 2021          | 2020          |
|---|---------------|---------------|---------------|
| Total revenue                             | 100%          | 100%          | 100%          |
| Cost of revenue                           | -79.73%       | -73.68%       | -72.23%       |
| <b>Gross profit</b>                       | <b>20.27%</b> | <b>26.32%</b> | <b>27.77%</b> |
| Research and development expenses         | 6.84%         | 8.48%         | 10.60%        |
| Sell, general and administrative expenses | 3.38%         | 4.55%         | 4.41%         |
| <b>Operating income</b>                   | <b>10.05%</b> | <b>13.29%</b> | <b>12.76%</b> |
| Interest expense                          | 0.65%         | 0.89%         | 1.27%         |
| Other income(expense),net                 | 1.76%         | 2.84%         | 2.39%         |
| Income before tax                         | 11.16%        | 15.24%        | 13.88%        |
| Income tax expense                        | 0.98%         | 1.55%         | 1.75%         |
| <b>Net income</b>                         | <b>10.18%</b> | <b>13.69%</b> | <b>12.13%</b> |

Figure 8. CATL's Income Statement

### 3.1. Revenue Analysis

In 2022, by product, CATL's main operating income comes from power battery system, accounting for 72.00% of the total operating income, which is its core product, while lithium battery material is its second main business, followed by energy storage system; by region, CATL's main operating income comes from within China, which reaches 251.7 billion yuan, but according to the trend, the operating income of Ningde Times outside of the country has a relatively However, according to the trend, Ningde era's operating income outside of China has a more obvious growth, indicating that it has expanded its business outside of China.

### 3.2. Cost Components Analysis

Figure 9 and Figure 12 below will start from the composition of different items of direct materials, direct labor and manufacturing costs in the main business costs of CATL, as well as the cost composition of different products of power battery systems, energy storage systems and lithium battery materials. From 2020 to 2022, the direct material cost of CATL is 25,73,864.47 million yuan, 7,787,531,300 yuan, and 2,266,5608.27 million yuan, which is given in the CATL' annual financial report, which shows that its growth rate is very fast. At the same time, the direct labor cost of CATL in the past three years is 314118.68 million yuan, 6237068 million yuan, 8908 million yuan, which is estimated by the given production personnel in the annual report multiply by their salaries.

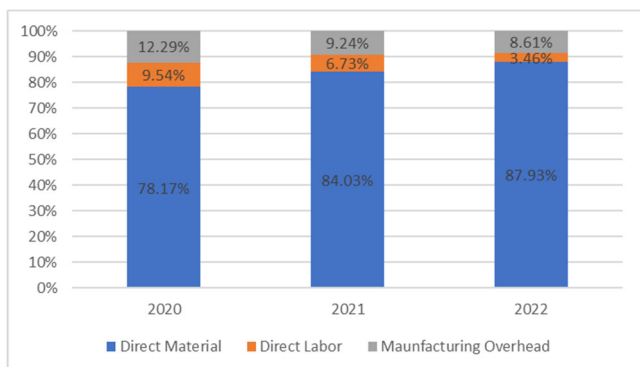


Figure 9. Cost chart of main business of sub-project

As can be seen from the above figure, the proportion of direct material costs to the main business costs from 2020 to 2022 will reach 78.17%, 84.03% and 87.93% respectively, showing a trend of increasing year by year. Direct material costs account for the highest proportion compared to the cost of direct labor and manufacturing expenses. Direct labor and manufacturing expenses are showing a downward trend, due to the rapid growth rate of main business costs, although direct labor costs and manufacturing expenses have maintained an increase in value, but the proportion of direct labor costs in main business costs has decreased year by year. Among them, the increase in direct labor costs is related to the large number of production personnel and the higher wage standards in the regions where the production base is located.

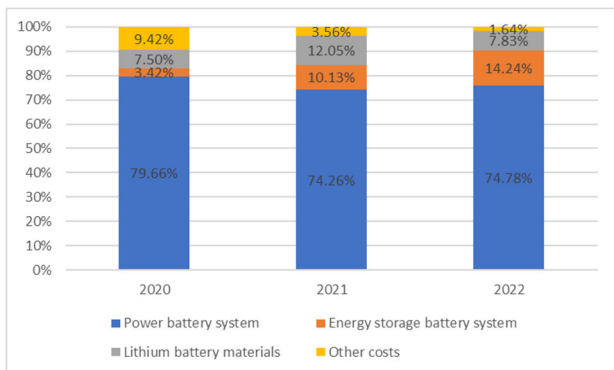


Figure 10. Cost chart of main business of sub-project

From the above data, it can be seen that the proportion of power battery systems in the main business costs of different products from 2020 to 2022 is 79.66%, 74.26%, and 74.78%, respectively, all of which are as high as more than eighty

percent, and this product is also the company's main product. At the same time, the figure above also shows that the raw materials required for the production of power battery systems account for the largest proportion of the main business costs. Due to the large fluctuations in the market price of raw materials in the past two years, especially the price of cathode materials, it has had a direct impact on the cost of power battery systems.

### 3.3. Expenses Analysis

| Projects/Units: 100Million Yuan | 2020   |            | 2021   |            | 2022   |            |
|---------------------------------|--------|------------|--------|------------|--------|------------|
|                                 | Value  | Percentage | Value  | Percentage | Value  | Percentage |
| Marketing Expenses              | 111    | 3.77%      | 43.68  | 3.92%      | 22.17  | 0.51%      |
| Manament Expenses               | 69.79  | 2.38%      | 33.69  | 3.02%      | 17.68  | 0.41%      |
| Financial Expenses              | -28.00 | -          | -6.412 | -          | -7.126 | -          |
| R&D Expenses                    | 21.32  | 0.73%      | 76.91  | 7.15%      | 35.69  | 0.82%      |

Figure 11. Expenses of CATL

The data in Figure13 above shows that the expenses of CATL decreased year by year, except for R&D expenses, and the proportion of operating income fluctuated slightly, and was generally stable. Among them, the proportion of sales expenses and management expenses in operating income fluctuated greatly, and the proportion gradually decreased in the past three years. Due to the acceleration of the landing of new battery technologies in 2021, CATL has successively released new technologies such as CTP/CTC, sodium-ion batteries, and battery swap solutions, and R&D expenses have peaked in 2021.

### 3.4. Financial Status Analysis

At the end of 2022, CATL achieved a total operating income of 32,859,398.75 million yuan, a year-on-year increase of 152.07%. CATL 2019~2020 net profit growth rate and operating income growth rate declined, its net profit year-on-year growth rate is also declining, after checking the financial report learned that because of the large amount of R & D investment and raw material costs of enterprises and policy changes or fierce market competition caused, and in 2020 because of the impact of the epidemic, the company's revenue and profits have been seriously hit may also become an important influencing factor. In 2021, the growth rate of net profit and operating income showed a sharp upward trend, and the growth rate of operating income was higher than the growth rate of total assets, indicating that the enterprise has good development in terms of operating income, and the company's growth ability is rapidly strengthening and sustainable development is strong.

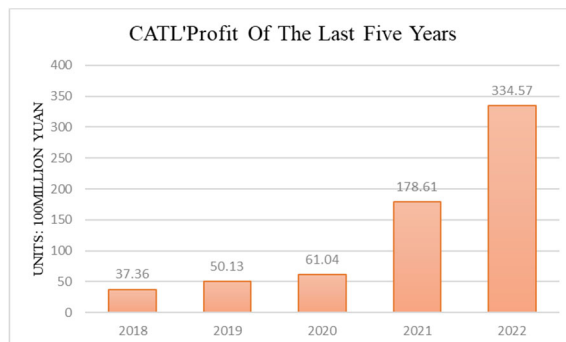


Figure 12. CATL's profit of last five years

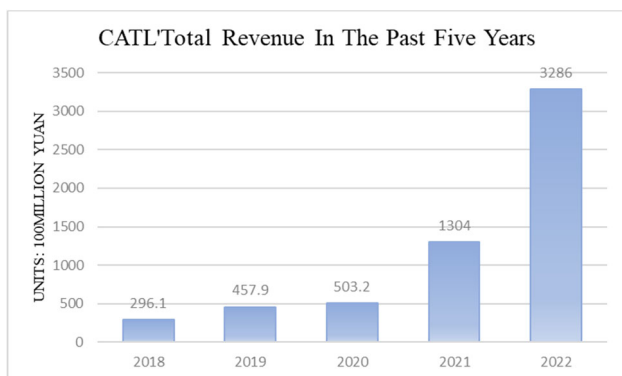


Figure 13. CATL's total revenue in the past five years

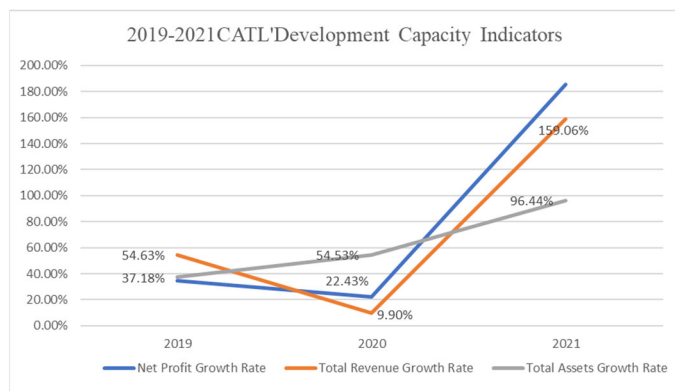


Figure 14. 2019-2021 CATL's development capacity indicators

#### 4. Cash Flow Statement Analysis

| Indicators\Time   | 2020   | 2021    | 2022   |
|---|--------|---------|--------|
| Cash flow ratio   | 33.52% | 28.73%  | 20.69% |
| Net debt ratio  | -0.79  | -0.55   | -0.57  |
| Growth rate of net cash flows from operating activities | 36.80% | 132.82% | 42.65% |

Figure 15. Cash Flow Indicators

The significance of cash flow analysis is to reflect the survival and sustainable development ability of the enterprise, to observe the source of cash inflow, outflow and flow of the enterprise, to judge the cash payment ability of the enterprise, and to evaluate the efficiency of the enterprise's capital operation as well as the degree of virtuous circle.

From the comparison of net profit and net cash flow from operating activities of CATL, although the total amount of net profit is increasing steadily year by year as a whole, the growth of net cash flow from operating activities is obviously larger, with an increase of 24.48 billion yuan in 2021 compared with 2020, a year-on-year increase of 132.82%. The reason for the large difference between the two can be explained by the typical characteristics of asset-heavy enterprises. Heavy-asset enterprises generally have a large amount of fixed asset investment, which belongs to the outflow of investment activities, which is different from the outflow of investment activities. outflow from investment activities, which is not related to operating activities, and therefore will not affect the change of net cash flow from operating activities, but the change of net cash flow from investment activities will not be affected.

However, the depreciation of fixed assets formed by the outflow from investment activities will offset the net profit. However, the depreciation of fixed assets formed by the outflow from investment activities will offset the net profit, so the difference between the net profit and the net cash flow

from operating activities will not affect the change of the net cash flow from operating activities. There will be a large difference. If a company has an increasing proportion of heavy assets, the difference between its net profit and the net cash flow from operating activities will also have a larger difference.

The net debt ratios of the last three years are all less than zero, indicating that the enterprise's cash is able to cover its liabilities, suggesting that the enterprise's business model of using the effect of financial leverage to further increase the proportion of debt-based financing is feasible.

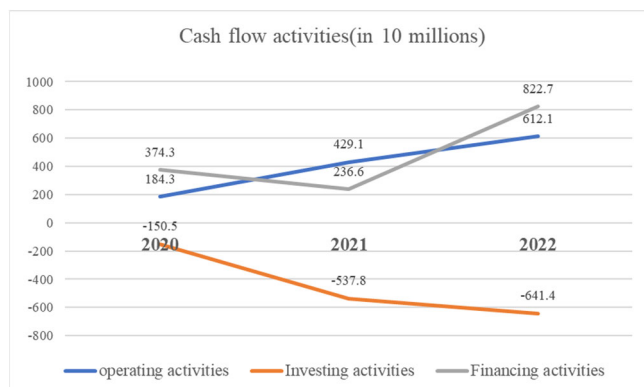


Figure 16. Cash flow activities

In terms of CATL's three categories of cash flows, cash flows from operating activities increased year on year, mainly due to favorable product sales and advance payments from some customers, which was in line with CATL's sales performance. In addition, while cash flow from operating activities is favorable, CATL's net cash flow from financing activities from 2021 to 2022 has grown tremendously, and the growth in net cash flow from financing activities is greater than the growth in net cash flow from operating activities, which indicates that CATL has increased its external financing while its performance is growing. The endogenous growth brought about by CATL's performance growth has been far from meeting the financial needs of CATL's development, so it needs to raise a large amount of external financing. As can be seen from the fixed increase plan of "Plans for Issuance of Shares to Specific Targets" announced by CATL in August 2021, the scale of funds raised by CATL's issuance of shares in 2021 is very large, and the net cash flow generated by CATL's fundraising activities in 2020 is relatively large. Combined with its rapid development background in recent years, CATL is also seeking the further development of its market share, investing in the establishment of more factories to meet the growing market demand and consolidate its leading position in the industry. From the CATL August 2021 announcement of the "plan to issue shares to specific objects" can be obtained, 2021 CATL issue shares to raise funds is very large, and 2020 CATL net cash flow from financing activities compared to a larger increase. The use of funds for financing is mainly for its main business of investment and construction of factories, combined with the background of its rapid development in recent years, CATL in high-speed growth at the same time, is also seeking further development of its market share, investment in the establishment of more factories to meet the growth of market demand and to stabilize its position as a leader in the industry.

## 5. Du-Pont Analysis

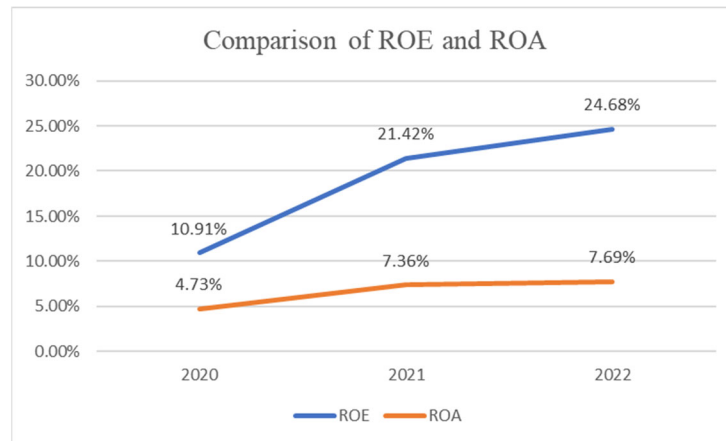


Figure 17. Comparison of ROE and ROA

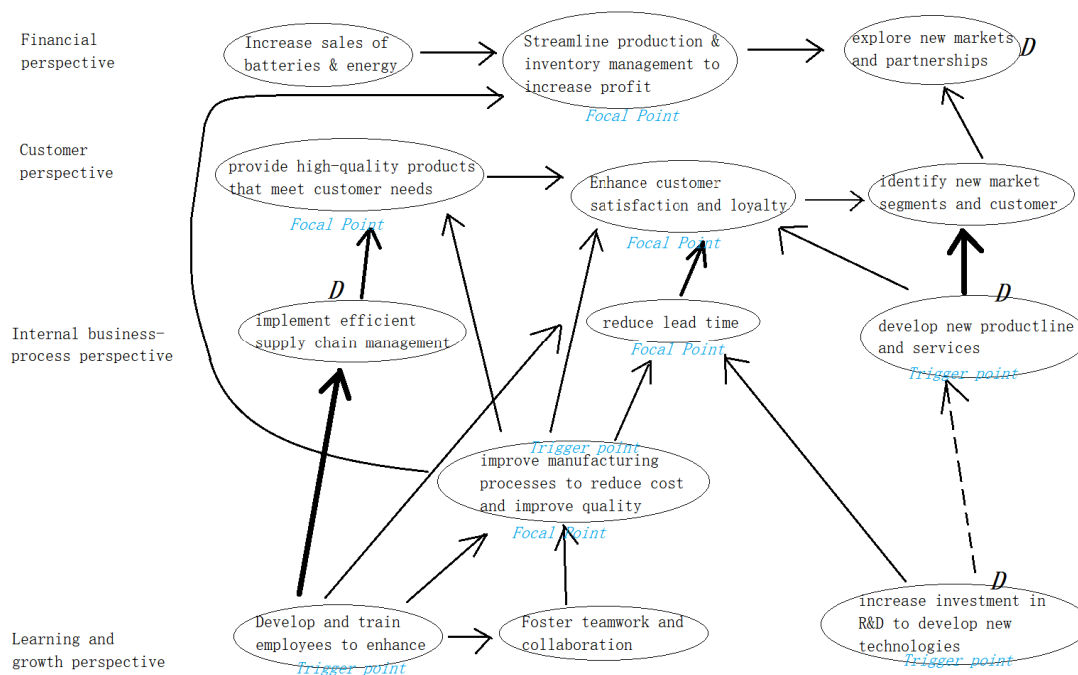


Figure 18. Strategy map

| Return ratios | ROE =  | ROA x | Leverage |
|---------------|--------|-------|----------|
| 2022          | 24.68% | 7.69% | 3.21     |
| 2021          | 21.42% | 7.36% | 2.91     |
| 2020          | 10.91% | 4.73% | 2.31     |

| Disaggregation of ROA | ROA = | Net profit Margin x | Total Asset turnover |
|-----------------------|-------|---------------------|----------------------|
| 2022                  | 7.69% | 10.18%              | 0.76                 |
| 2021                  | 7.36% | 13.69%              | 0.54                 |
| 2020                  | 4.73% | 12.13%              | 0.39                 |

Figure 19. Du-Pont Analysis

ROE (Return on Equity) is a measure of the relationship between a company's profits and net assets. A higher ROE means that the company is able to effectively use its net worth to generate revenue. According to the data provided, CATL's ROE increased from 10.91% to 24.68% in these three years. This indicates that the company has achieved significant profitable growth during this period, showing improvements in its operational efficiency and financial management.

However, over the same period, ROA (return on total assets) has not changed as significantly as ROE. ROA measures the return a company makes for each invested asset. Although CATL's ROA also increased, the increase was relatively small. Specifically, ROA rose from 4.73% to 7.69%. This could mean that CATL has improved its return on investment less than its return on equity over these three years.

Comprehensively analyzing these indicators, we can

conclude that CATL has achieved good profitability and asset operation performance in the past 3 years. The significant increase in ROE indicates that the company has successfully improved its profitability and effectively utilized its net worth. However, a smaller increase in ROA may indicate that companies have room for improvement when managing assets and investments.

## 6. Main Issues of CATL

CATL's product system includes power battery systems, energy storage systems and lithium battery materials. The production process of enterprises involves the procurement of raw materials, semi-finished product processing and finished product production. In the semi-finished product production stage, the company will receive raw materials according to the production order, and put into the production of self-made semi-finished products, and the self-made semi-finished products will be put into storage after completion. In the production stage of finished products, the company receives self-made semi-finished products and some raw materials according to the production work order, and puts them into the production of finished products, and the finished products are stored after completion.

At present, the cost accounting method of CATL is the variety method. The method is to take the variety of products as the cost calculation object, and further aggregate and allocate production costs. Among them, the direct material is directly aggregated to the production cost of the produced product through the production work order. Direct labor and manufacturing costs are apportioned according to factors such as man-hours produced in the current month as allocation factors. If the work order of the current month is not completed in time, then the materials, labor and expenses collected by the work order will all be included in the current product cost. If all the products produced in the month are completed, the materials, labor, and expenses collected by the work order are collected into the production cost of the produced product and included in the inventory goods.

In CATL's current cost management, the company's finance department is fully responsible for cost accounting, control and analysis of this series of workflows. Among them, including the formulation of CATL cost management system and cost accounting standards, various cost measurement methods, as well as providing cost information and data support for management, finding the key points of cost management, supervising the specific implementation of the plan, etc., the company's current cost management process integrates this accounting, analysis, control and assessment. Nowadays, there are problems such as the high proportion of direct materials and insufficient R&D investment in CATL's cost management, as follows:

### 6.1. The proportion of direct materials is too high

From the above cost composition data of CATL, it can be seen that from 2020 to 2022, the raw materials necessary in the production process of CATL's main product power battery system accounted for more than 80% of the main business cost. It can be seen that the procurement cost of CATL is very high, and this also means that CATL is not in place in terms of direct material cost control. The highest proportion of raw materials in power batteries is cathode materials and PACK battery packs, with a proportion of nearly half. In other words,

the procurement of these two materials and the connection with their suppliers deserve attention. At the same time, the cost control can also be appropriately strengthened for negative electrode materials, separators, electrolytes, copper foils and BMS. With limited room for the decline in the price of upstream raw materials, CATL can only create a scale advantage, improve the yield rate through diaphragm thinning, cathode high nickelization, etc., so as to further improve energy density and reduce unit cost. Or choose to extend the industrial chain, acquire upstream enterprises, and control the procurement cost of raw materials of enterprises.

### 6.2. Insufficient investment in R&D

The R&D and design process is the starting point of the entire product life cycle of the enterprise, and it is also the core value-added link of the enterprise. However, the cost of R&D does not necessarily translate into full value of the product. It is precisely for this reason that many small and medium-sized enterprises have given up the R&D and design link, used funds to expand production capacity, purchase equipment and machinery, etc., and followed the leading enterprises in the industry in the choice of technical path. However, for the power battery industry, scientific research strength determines the completeness of the power battery technology system, which in turn directly affects the energy density, safety, service life and stability of the power battery terminal products. In order to improve the technological research and development capabilities of enterprises, talent and capital are two indispensable elements. To some extent, R&D investment reflects the importance and confidence of enterprises in the R&D environment. According to the financial data disclosed by CATL, the proportion of the company's R&D expenses to the main business income from 2020 to 2022 was 0.73%, 7.15% and 0.82%, respectively. Except for 2021, although the proportion of R&D investment has shown a trend of increasing year by year, and has a certain advantage compared with domestic enterprises in the same industry, the proportion of R&D investment in the entire main business income is still very low.

## 7. Suggestions and solutions

### 7.1. Improve the innovation ability of enterprises

Increase capital investment and continuously improve the technological innovation and research and development capabilities of enterprises. As a high-tech enterprise, in order to maintain its R&D advantages, CATL should increase the investment in R&D funds, improve the existing technology, and at the same time recruit people of insight from the world, strengthen the research and development of new energy power batteries, follow the pace of the international mainstream technology route, and launch power batteries that meet market demand in the future. On the other hand, CATL should strengthen industry-university-research cooperation, conduct research and development with well-known domestic universities and scientific research institutions, and provide a solid foundation for cultivating professional talents required by enterprises.

### 7.2. Industrial chain coordination, all-round market expansion

At present, the domestic industrial chain and industrial clusters are not competitive enough compared with foreign

countries, and the gross profit rate of battery companies is squeezed by upstream and downstream, constantly declining, and can only continuously reduce costs. The way to achieve low cost lies in improving battery energy and cycle stability, using low-cost materials, updating the battery material system, reforming various processes, and realizing the effective recovery and regeneration of waste batteries, which all need to achieve industrial chain coordination, strong alliance with leading enterprises in the industrial chain, resource sharing, promote the symbiotic development of the industry, and strengthen international competitiveness. CATL should focus on the international market and increase the international market share in order to promote the continuous optimization and long-term advantages of technology.

### 7.3. Establish the concept of strategic cost management

At present, how to establish a more effective management system and further improve the internal control system is an important issue facing CATL. If the company's management system and human resources coordination ability cannot be improved with the expansion of business, the future business development of CATL will inevitably be affected, which requires every employee to have a sense of strategic cost management. Only when every employee has the awareness of strategic cost management and voluntarily applies strategic cost management in practice can enterprises effectively control costs. CATL can obtain maximum output in reasonable and appropriate inputs to maximize cost-effectiveness.

Strategic cost management attaches great importance to the value created by individuals in the activities of the enterprise value chain, because people have subjective initiative. Different from traditional cost management, which only focuses on means of production and does not pay attention to employees, strategic cost management attaches great importance to the role of employees, and hopes to enhance the subjective initiative of employees, popularize the ideological concept of strategic cost management, and give full play to the role of people. CATL can adopt the production of publicity brochures, the formulation of regulations, the holding of regular meetings, the implementation of training and other methods to popularize all employees and implement the concept of strategic cost management.

### 7.4. Strategy Map&Balanced scorecard

A strategy map was drawn to describe that how CATL create value by connecting objectives in cause-and-effect relationships with each other in four aspects: financial, customer, internal-business-process and learning-and-growth perspectives.

From this strategy map, you can clearly see CATL's orphan objective and distinctive objective. CATL's orphan objective is an investment in R&D, which makes it difficult to develop new product lines and new technologies due to insufficient R&D investment. CALT's distinctive objectives include expanding overseas markets, developing new product lines, and investing in research and development of new technologies.

Then according to the strategy map, a simple balanced scorecard can also be easily created.

| Strategic Objectives                         | Measures  |
|--|---|
| <b>Financial Perspective</b>                 |   |
| Increase profit                              | Gross margin percentage                           |
| Expand new market                            | Market share of competitors                       |
| Increase sales & reduce costs                | Sales growth rate<br>Cost reductions in key areas |
| <b>Customer Perspective</b>                  |   |
| Increase customer satisfaction               | Customer-satisfaction rating                      |
| Acquire new customers                        | Brand recognition rate                            |
| <b>Internal-Business-Process Perspective</b> |   |
| Implement efficient supply chain management  | Supply and demand forecasting                     |
| Reduce lead time                             | Delivery timeliness                               |
| Develop new productline                      | number of new products or services                |
| Improve manufacturing process                | Product defect rate                               |
| <b>Learning-and-Growth Perspective</b>       |   |
| Train employees to enhance skills            | Employee skill levels                             |
| Foster teamwork                              | Employee-satisfaction ratings                     |
| Increase investment in R&D                   | New technologies availability                     |

Figure 20. A balanced scorecard of CATL

In this balanced scorecard, each measure represents a different dimension that is closely related to CATL success. Each measure requires a corresponding goal and monitoring its progress over time. When all objectives are added to the Balanced Scorecard and properly tracked, CATL performance can be evaluated more comprehensively, systematically and sustainably.

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