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Value Evaluation of Contemporary Amperex Technology Co., Ltd Based on EVA Model

Qu Tianci[1,a], Guo Xuefei[2,b]

[1]School of Management, Sichuan University of Science & Engineering, Yibin, Sichuan, 644000, China
[2]School of Management, Sichuan University of Science & Engineering, Zigong, Sichuan, 643000, China
[a]1761207851@qq.com, [b]20391842@qq.com

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Abstract: Now, enterprises to achieve the overall value maximization has become the goal of management, more and more attention to value evaluation incentive mechanism and value creation and other fields. The EVA (economic value added) model becomes an effective tool to assess the long-term value of high-tech enterprises by taking the cost of capital into account. This paper takes Contemporary Amperex Technology Co., Ltd (hereinafter referred to as "CATL") as an example, and uses EVA model to carry out relevant value evaluation and analysis.

1. Introduction

1.1 Research Background

CATL maintains the leading position in the global power battery market. At present, China's power battery industry is entering the oligopoly stage, and the CATL occupies the dominant position, which hinders the effective competition in the market. To promote the healthy and sustainable development of the industry, the key is to deeply analyze the enterprise value and its success, first to evaluate the enterprise value, and mining the key factors of its value growth, indicate the direction for its future development, but also for other industry enterprise strategic planning and operational decisions to provide valuable reference.

2. Financial situation analysis of CATL

2.1 Company profile of CATL

Since its establishment in 2011, CATL has rapidly grown into the worlds top new energy technology innovative enterprise, focusing on providing excellent solutions and services for new energy applications around the world. According to SNE Research authoritative data statistics, CATL in the field of power battery usage in the world for many years.

2.1.1 Solvency analysis

As shown in Table 1, the solvency of CATL has shown a certain fluctuation trend in recent years. The current ratio of CATL has been greater than 1, which shows that the short-term solvency of enterprises is excellent. The quick ratio dropped rapidly from 2020 to 2021 because the outbreak has just been effectively under control and companies need more capital and loans to operate and expand their companies. Cash flow ratio and asset-liability ratio fluctuate greatly, so enterprises need to pay attention to the changes in their current assets, current liabilities and cash flow status to ensure the stability and sustainability of their solvency.

Table 1: The solvency index of CATL.

A particular year	2019	2020	2021	2022	2023
Current ratio	1.572	2.053	1.190	1.331	1.567
Quick ratio	1.320	1.812	0.921	1.052	1.409
Cash flow ratio	0.295	0.335	0.287	0.207	0.323
Asset-liability ratio (%)	58.370	55.820	69.900	70.560	69.340

(Data source: CATL Financial statements)

2.1.2 Analysis of operation capacity

As shown in Table 2 ,CATL operating capacity of the indicators in 2019 to 2020, this should be caused by the outbreak, but after the two years got significantly improved, the company assets utilization efficiency, operational efficiency and capital return speed are improved, reflects the company in asset management and operation management and continuous optimization. From 2022 to 2023, the indicators of operating capacity have declined except the inventory turnover, which reflects that the enterprise has achieved some achievements in inventory management, but there are still deficiencies in the overall asset management and accounts receivable management.

Table 2: Operating capacity indicators of CATL.

a particular year	2019	2020	2021	2022	2023
Total assets turnover rate (secondary)	0.523	0.390	0.562	0.723	0.608
Inventory turnover rate (times)	3.501	2.934	3.587	4.475	5.046
Accounts receivable turnover rate (times)	2.697	2.570	5.620	7.579	6.301
Current asset turnover ratio (secondary)	0.446	0.326	0.495	0.670	0.604

(Data source: CATL Financial statements)

2.1.3 Profitability analysis

As shown in Table 3, the profitability of CATL has been significantly improved in recent years, and all the profit indicators have shown a trend of steady growth. This fully shows that the company has achieved excellent results in capital operation, cost control and other important aspects of profit distribution, and builds a solid and solid foundation for the long-term development of the company in the future.

Table 3: Profitability indicators of CATL.

A particular year	2019	2020	2021	2022	2023
Return on equity: (%)	12.780	11.270	21.520	24.670	24.040
Return on total assets of (%)	5.720	4.730	7.690	7.360	7.100
Gross profit rate (%)	29.060	27.760	26.280	20.250	22.910
Net profit ratio (%)	10.950	12.130	9.660	10.660	11.660

(Data source: CATL Financial statements)

2.1.4 Analysis of growth ability

As shown in Table 4, CATL company has shown very strong growth capabilities over the past few years. Its main business revenue and net profit have achieved significant growth, and the growth momentum is strong. At the same time, the company's asset scale is also rapidly expanding, and the asset quality continues to improve.

Table 4: Growth ability index of CATL.

A particular year	2019	2020	2021	2022	2023
Main business revenue growth	102.941	-2.692	134.523	162.271	53.134
Net profit growth rate of (%)	83.451	-1.976	162.084	66.968	159.436
Net asset growth rate of (%)	22.554	40.72	46.985	80.410	50.157
The growth rate of total assets is	56.535	32.36	88.968	115.380	36.664

(Data source: CATL Financial statements)

3. The EVA value calculation

3.1 Model introduction

EVA (Economic Value Added) model is a value analysis tool and evaluation index for the comprehensive and accurate evaluation of the enterprise performance, which fully considers the capital cost of the enterprise. The basic calculation formula of the EVA model is: EVA = NOPAT - TC × WACC

3.1.1 EVA calculation of CATL

3.1.1.1 Calculation of adjusted net profit after tax

Table 5: Adjusted Net Operating Profit after tax (Unit: RMB 100 million Yuan)

A particular year	2019	2020	2021	2022	2023
Total net profit	50.13	61.04	179.00	335.00	468.00
Income tax expenses	7.48	8.79	20.26	32.16	71.53
Capital charges	2.8930	6.4040	11.611	21.324	34.4650
Rate of income tax	13.00	12.60	10.20	8.80%	13.30%
Plus: minority shareholders profit and loss	4.52	5.21	19.29	27.28	26.40
Plus: R & D expenses	29.92	35.69	76.91	155.00	184.00
Less: after-tax non-recurring profit and loss	5.85	12.62	22.35	22.95	34.94
Plus: deferred income tax liabilities	0.99	0.86	10.39	18.08	13.65
Less: deferred income tax assets	20.79	31.67	55.43	94.84	174.00
Net operating profit after tax NOPAT	61.43	64.09	218.18	436.87	512.76

(Data source: CATL Financial statements)

As shown in Table 5, the calculation formula is: after-tax net operating profit NOPAT = (total net profit + income tax expense + interest expense) * (1-13%) + profit and loss of minority shareholders-non-recurring profit and loss after tax + deferred income tax liabilities-deferred income tax assets.

3.1.1.2 Calculation of total capital

As shown in Table 6, the calculation formula is: adjusted total capital TC = owners' equity + short-term borrowing + non-current liabilities due within one year + long-term borrowing + long-term borrowing + bonds payable + long-term payables-projects under construction + deferred income tax liabilities-deferred income tax assets + R & D expenses-after-tax non-recurring gains and losses.

Table 6: Adjusted Total Capital Index (Unit: RMB 100 million)

A particular year	2019	2020	2021	2022	2023
owners equity	422.00	692.00	926.00	1769.00	2199.00
Plus: short-term borrowing	21.26	63.35	121.00	144.00	152.00
Plus: Non-current liabilities due within one year	10.78	13.49	35.49	72.32	70.09
Plus: long-term borrowing	49.81	60.68	221.00	591.00	834.00
Plus: payable bonds	15.08	144.00	159.00	192.00	192.00
Plus: Long-term payment payable	8.74	11.94	10.10	10.50	15.20
Reduction: projects under construction	19.97	57.50	310.00	354.00	250.00
Plus: deferred income tax liabilities	0.99	0.86	10.39	18.08	13.65
Less: deferred income tax assets	20.79	31.67	55.43	94.84	174.00
Plus: R & D expenses	29.92	35.69	76.91	155.00	184.00
Less: after-tax non-recurring profit and loss	5.85	12.62	22.35	22.95	34.94
Adjusted Total capital TC	511.96	920.22	1172.11	2480.11	3201.00

(Data source: CATL Financial statements)

3.1.1.3 Calculation of the weighted average cost of capital

(1) The weighted average cost of capital is composed of the equity cost and the debt cost. The calculation formula is: WACC = (E / V) Re + (D / V) Rd (1-Tc).

(2) In this paper, the β coefficient is selected from the value Master network. No wind return rate Rf. This paper adopts the interest rate of five-year Treasury bonds, which is 4.27%, 3.73%, 3.40%, 3.30% and 2.97%. In this paper, the domestic GDP growth rate is selected as the market risk premium (Rm-Rf).The specific calculation process is as shown in Table 7:

Table 7: Cost calculation of equity capital of CATL.

A particular year	2019	2020	2021	2022	2023
Rm(%)	10.27	5.93	8.30	6.30	8.47
Rf（%）	4.27	3.73	3.40	3.30	2.97
Rm-Rf（%）	6.00	2.20	4.90	3.00	5.50
β price	1.22	1.27	1.16	1.34	1.35
Cost of Equity Capital	11.59	6.52%	9.08%	7.32%	10.40%

(3) As shown in Table 8, calculate the ratio of debt capital and equity capital ratio.

Table 8: Capital Structure of CATL (Unit: RMB 100 million Yuan)

a particular year	2019	2020	2021	2022	2023
Capitalization	503.	829.	1303.49	2576.32	3255.09
Total debt capital	81.8	137.	377.49	807.32	1056.09
Total equity capital	422.	692.	926.00	1769.00	2199.00
Debt capital ratio	0.16	0.17	0.29	0.31	0.32
Share of equity capital	0.84	0.83	0.71	0.69	0.68

(Data source: CATL Financial statements)

(4) As shown in Table 9, calculate the after-tax capital cost rate.

Table 9: Calculation of after-tax debt capital cost ratio.

A particular year	2019	2020	2021	2022	2023
Short loan	21.26	63.35	121.00	144.00	152.00
Long loan	49.81	60.68	221.00	591.00	834.00
Non-current liabilities arising due within	10.78	13.49	35.49	72.32	70.09
Total debt capital	81.84	137.52	377.49	807.32	1056.09
Proportion of short-term borrowing	25.97%	46.07%	32.05%	17.84%	14.39%
Short loan rates	4.35%	4.35%	4.35%	4.35%	4.35%
Proportion of Long loan rates borrowing	74.03%	53.93%	67.95%	82.16%	85.61%
Long loan rates	4.75%	4.75%	4.75%	4.75%	4.75%
Cost of debt capital ratio before tax	4.65%	4.57%	4.62%	4.68%	4.69%
Rate of income tax	13.00%	12.60%	10.20%	8.80%	13.30%
After-tax debt capital cost ratio	4.04%	3.99%	4.15%	4.27%	4.07%

(Data source: CATL Financial statements)

(5) As shown in Table 10, computing the adjusted weighted average cost of capital WACC.

Table 10: Adjusted Weighted Average Cost of Capital (Unit: RMB 100 million).

A particular year	20	2020	2021	2022	2023
Total debt capital	81.	137.52	377.49	807.32	1056.09
Total equity capital	42	692.00	926.00	1769.00	2199.00
Debt capital ratio	0.1	0.17	0.29	0.31	0.32
Share of equity capital	0.8	0.83	0.71	0.69	0.68
Equity capital cost	11.	6.52%	9.08%	7.32%	10.04%
After-tax debt capital cost	4.0	3.99%	4.15%	4.27%	4.07%
WACC (%)	10.	6.10%	7.65%	6.36%	8.10%

3.1.1.4 EVA calculation of CATL, as shown in Table 11:

Table 11: EVA value calculation (unit: RMB 100 million)

A particular year	2019	2020	2021	2022	2023
NOPAT	61.43	64.09	218.18	436.87	512.
Capitalization TC	511.9	920.2	1172.1	2480.1	3201
WACC(%)	10.36	6.10	7.65%	6.36%	8.10
EVA price	8.37	7.95	128.49	279.05	253.

The change in EVA experience added value of CATL Company is mainly due to the substantial increase in net operating profit after tax and the expansion of total capital. This change provides a positive signal for investors and the market, indicating that the company may achieve higher profitability and stronger market competitiveness in the future. The value of the company has increased during this period, and this clear growth trend highlights its strong momentum. This is

mainly due to the rapid expansion of the new energy market and the strong support of national policies. Under the vigorous development of the market and the strong promotion of policies, the market value and operating conditions of CATL have achieved a significant leap.

4. Suggestions on improving the value of CATL based on EVA model

4.1 Expand financing channels and optimize the capital structure

1) Enterprises can broaden financing channels, optimize financing structure and other ways to solve the negative impact of long-term borrowing in the debt capital of CATL[1]. CATL is mainly based on bank loans, using long-term borrowing as the basic financing method of enterprises. Enterprises can actively seek equity financing and bond financing to diversify the financing risks[2]. The company establishes long-term cooperative relations with financial institutions, and strives for more favorable financing conditions and interest rates[3].

2) As the proportion of debt capital in the CATL is increasing year by year, enterprises should strengthen their internal management and improve the efficiency of asset use[4]. At the same time, on the premise of ensuring product quality, efforts should be made to reduce production costs and period expenses to increase the profit space of enterprises. Companies can expand without increasing their debt and gradually optimize their capital structure.

4.2 Seize market share and vigorously develop science and technology

(1) CATL occupies a large share in the domestic new energy battery market, but after many emerging companies join the market battle, the price war in the domestic market has been continuing[5]. CATL in this case it is difficult to further expand the domestic market share. CATL can choose at the right time to actively expand business to abroad, to foreign markets, looking for new profit direction[6].

(2) Science and technology is the primary productive force. In the face of market competition, enterprises should adhere to innovation and strive for innovation[7]. The enterprise actively observes the market trend, stays close to the market and the government, in order to make innovative products that are in line with the trend of the social market[8]. Only with new technology products that surpass other enterprises, can enterprises survive for a long time without being eliminated by the market.

4.3 Focus on accounts receivable management and improve the inventory turnover rate

1) Most of the downstream customers of CATL are large and medium-sized automobile manufacturing companies, which often bring a large number of orders, resulting in high accounts receivable balance. If not timely recovery, it will seriously affect the operation of enterprise funds. Therefore, it is very important to strengthen the accounts receivable management[9]. First of all, it is necessary to fully investigate and record the customers credit status, establish files, and track and manage the whole process of cooperation. Secondly, we should formulate strict credit policies, raise the threshold of credit sales, improve the management system, and do a good job in aging analysis and risk control.

2) The inventory scale of CATL continues to climb, and the inventory turnover rate in 2020 is not performing well. Although CATL has a strong ability to resist risks, under the background of macroeconomic slowdown, it is still necessary to formulate emergency plans to avoid the inventory backlog problem in 2020. First of all, CATL needs to deepen the strategic cooperation with upstream suppliers, strengthen information sharing, timely adjust the production demand, and adopt

a more flexible economic order mode to reduce the inventory overstock[10]. Secondly, the company should increase its production, publicity and sales efforts, attract more customer orders, and improve the inventory turnover speed with excellent products and competitive prices.

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