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Cambricon's Valuation Premium — Based on the Role of Fundamentals and Investor Sentiment

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Abstract. In recent years, the artificial intelligence industry has experienced rapid development. Artificial Intelligence (AI) chips are a crucial link in this industrial chain, constantly iterating and yielding numerous research results. Currently, Cambricon Technologies Corporation Limited, a unicorn company in this field in China, has seen its stock price surge multiple times since 2023, yet it has remained unprofitable. It wasn't until its 2025 interim report that the company achieved profitability for the first time. Recently, its market capitalization once again exceeded 500 billion yuan, making it a hot topic in the market. Against this backdrop, this paper will take Cambricon as the research object, using its financial data from 2017 to 2025 and employing a discounted cash flow (DCF) model to calculate the company's meaningful value. Additionally, variables such as investor sentiment and market returns are introduced for regression analysis to examine the logic behind the high valuation. The results show that the intrinsic value of the company is significantly lower than its market capitalization, by as much as 30 times, and the influence of investor sentiment is also an important factor driving the stock price.

Keywords: Cambricon, discounted cash flow valuation, AI chip

1. Introduction

In recent years, the artificial intelligence industry has experienced rapid development globally. According to China Report Hall, by the end of 2024, the scale of China’s artificial intelligence industry had exceeded 700 billion yuan, maintaining a high growth rate of over 20% for many consecutive years. As the infrastructure of artificial intelligence, AI chips have become increasingly important, and their development trend has attracted much attention. The valuation of related companies was once high. China’s AI chip field has maintained an active development trend. In 2023, the market size of China’s AI chip market was 120.6 billion yuan; in 2024, the market size further increased to about 141.2 billion yuan [1]. However, it should be noted that behind the wave of the industry, whether the valuation of related companies by the capital market is reasonable has become a question worth considering.

Cambricon Technologies Corporation Limited, abbreviated as Cambricon, is a leading enterprise in China's artificial intelligence chip industry. The company was established in 2016 and quickly showed its strength in the field of AI. In the early stage, venture capital was introduced, and the

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market response was positive in the short term, which played a huge role in transforming scientific and technological research and development into actual productivity [2].

Since its listing on the Science and Technology Innovation Board in 2020, Cambricon's stock price has experienced significant fluctuations due to industry optimism and domestic policy support. On the first day of Cambricon's listing, the secondary market price far exceeded the intrinsic value of the stock due to the high uncertainty of the company's value at the time of listing and fluctuations in investor sentiment [3].

Especially after the launch of ChatGPT by OpenAI in 2023, the development of artificial intelligence was once again pushed to a climax. Cambricon's stock price also ushered in a new round of significant increases, and its upward trend continues to this day, with its market capitalization once exceeding that of some traditional leading companies. The capital market gave it extremely high valuations before it had even achieved profitability and before its profitability had been verified. Studies have shown that in a relatively optimistic market sentiment, investors' overconfidence can drive up market prices [4]. Furthermore, excessive volatility in my country's A-share market and changes in investor sentiment may lead to excessive trading behavior [5]. Therefore, behind such phenomena, there may be both reasonable expectations for future growth and irrational market sentiment. This paper takes Cambricon as its research subject, focusing on the analysis of "valuation premium" to attempt to answer the following questions: Is its valuation expectation derived from the company's fundamentals, such as quantifiable financial indicators like revenue growth and Research and Development (R&D) investment, or is it influenced by irrational factors such as investor sentiment and market enthusiasm, or a combination of both?

To this end, this paper will conduct an absolute valuation analysis of Cambricon using a discounted cash flow (DCF) model and explore the roles of fundamentals and investor sentiment in stock price formation through regression analysis, thereby revealing to some extent the rationality of pricing for emerging high-tech companies in the capital market.

There are serious practical implications of studying this issue. Academically, the uncertainties and subjectivity of valuation of emerging technology companies is controversial and pertinent literature is yet to decide in unison. This field can be represented and targeted through this case study. Furthermore, from a practical perspective, investors can learn from this to better identify the growth potential and potential risks of emerging technology companies and reflect on their investment decisions. For regulators, regulating market behavior, guiding rational investment, and preventing industry bubbles are also extremely important.

2. DCF valuation

2.1. Research methods

To scientifically assess the intrinsic value of Cambricon, this paper attempts to conduct valuation analysis using the discounted cash flow (DCF) model. First, based on Cambricon's financial data disclosed in the Wind database from 2017 to 2024, the data in the balance sheet, cash flow statement, and profit statement are analyzed. 2017 is taken as the base year, the change in working capital is set to zero, and the free cash flow (FCF) of the company over the years is calculated according to formula (1). Since the financial data in this study is up to the first half of 2025, the data for 2025 are multiplied by 2 to ensure relative scientificity. The results show that Cambricon has been in a high-investment, unprofitable stage since 2017. Data shows that when Cambricon went public in 2020, R&D investment accounted for 167% of operating revenue. As shown in Figure 1, except for 2022, FCF has consistently been negative. The decline in 2019 was mainly due to

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increased management expenses, which gradually improved afterward. Notably, Cambricon achieved profitability for the first time in the first half of 2025, with cash flow gradually improving.

Given Cambricon's strategic position and potential growth in the AI chip industry, this paper forecasts FCF for the next five years (2025-2029) based on historical FCF data, following the trend of first turning a profit and then gradually stabilizing, to calculate the company's value.

$$FCF = EBIT(1-T) + DA - CAPEX - \Delta NWC \tag{1}$$

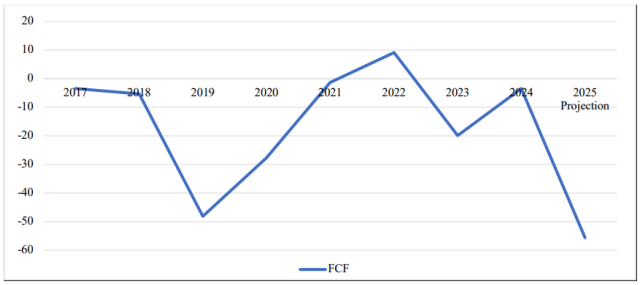

Figure 1. Historical FCF trend (picture credit: original)

2.2. WACC calculation

$$WACC = \frac{E}{V} \times R_e + \frac{D}{V} \times R_d \times (1-T) \tag{2}$$

Where:
E: Equity
D: Debt
V=D+E Enterprise Value
Re:Cost of Equity
Rd:Cost of Debt
T:Income Tax Expense(15%)

2.2.1. Calculation of R_d

Table 1. Equity, debt and asset

Items	Values(unit:100 million yuan)	Date
Equity	67.6279	2025.6.30
Debt	16.87326	2025.6.30
Capital	84.20117	2025.6.30

According to Table 1:

$$\frac{E}{V} = 0.8032$$

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$$\frac{\mathrm{D}}{\mathrm{V}}=0.2004$$

According to Cambricon's 2025 interim report, interest expenses were RMB 0.00408 billion, from which the debt cost can be calculated.

$$R_d = \frac{InterestExpense}{TotalDebt} = \frac{0.00408}{16.87326} = 0.024\% \tag{3}$$

Calculations show that Rd is only 0.024%, indicating that the cost of Cambricon's debt financing is very low. For the sake of rationality, this paper assumes that the company's borrowing rate is the risk-free rate of approximately 1.88% (10-year Treasury yield) plus a 1% risk premium, i.e., Rd equals 2.88%.

2.2.2. Calculation of R_e

Using the Capital Asset Pricing Model (CAPM) model to estimate the cost of equity, β (100 weeks) is 1.52. The 10-year Treasury yield of 1.88% is used as the market risk-free rate Rf, and the Shanghai Composite Index return of 10.32% over the past ten years is used as the market return R_m .

$$R_e = R_f + \beta(R_m - R_f) \tag{4}$$

Calculations show that Re is approximately equal to 14.71%.

In summary, the Weighted Average Cost of Capital (WACC) for Cambricon satellites was calculated.:

$$\mathrm{WACC}=0.8032\times14.71\%+0.2004\times2.88\%\times(1\text{-}15\%)=12.31\%$$

2.3. Prediction of future FCF

Based on Cambricon's revenue growth and the rapid development of the AI chip industry, this paper assumes that free cash flow will maintain a high growth rate over the next five years (2026-2029), as shown in Table 2.

Considering that Cambricon is projected to achieve profitability for the first time in 2025, it is expected that with the expansion of market demand for AI chips and factors such as cost optimization and technological upgrades, Cambricon's free cash flow shortfall will gradually narrow in 2026, and turn positive in 2027. This assumption references Cambricon's historical revenue growth rate and the financial evolution patterns of other similar technology companies, such as Huawei Ascend and Nvidia in their early stages.

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Table 2. Forecast table of growth rates for the next five years

Year	FCF	Assumption of Growth Rates
2025	-105.437825	Base Period
2026	-52.7189125	50%
2027	5.27189125	110%
2028	13.17972813	150%
2029	42.17513	220%

2.4. Terminal value

This paper assumes that firms will enter a period of stable growth starting in 2030. Under a steady-state macroeconomic environment, the perpetual growth rate is assumed to be gt = 3%.

$$TV = \frac{FCF_{2029} \times (1+g_t)}{WACC - g_t} \tag{5}$$

$$TV = \frac{42.18 \times (1+3\%)}{12.31\% - 3\%} = 466.60 \tag{6}$$

The calculation shows that TV is 46.66 billion yuan.

2.5. Enterprise value

Cambricon's enterprise value can be obtained by discounting the predicted value and adding the future value.

$$EV = \sum_{t=2025}^{2029} \frac{FCF_t}{(1+WACC)^{t-2024}} + \frac{TV}{(1+WACC)^5} \tag{7}$$

The calculation shows that EV is 16.10586058 billion yuan.

2.6. Results analysis

According to the DCF model, Cambricon's enterprise value is approximately 16.1 billion yuan under the assumptions of a WACC of 12.31% and a perpetual growth rate of 3%. However, according to Wind data, as of September 2025, the company's market capitalization was approximately 500 billion yuan, a difference of more than 30 times, as shown in Figure 2. Such a huge discrepancy is difficult to explain using traditional absolute cash flow valuation models. The DCF model focuses more on estimating the company's future development based on its current revenue and has certain limitations in reflecting the impact of expectations. It is evident that the market has extremely high expectations for Cambricon, and these expectations are likely to be significantly influenced by investor sentiment.

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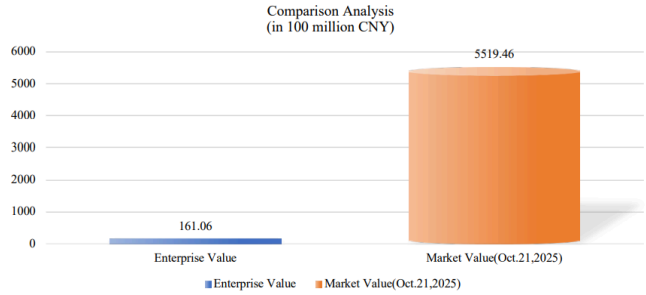

Figure 2. Cambricon's enterprise value and market capitalization comparison chart (picture credit: original)

3. Judging by emotional factors

3.1. Model setting

To further analyze whether market sentiment-driven valuation components exist in Cambricon's stock price, this paper constructs the following regression model from a behavioral finance perspective:

$$R_t - R_f = \alpha + \beta_1 x_{SENT} + \beta_2 x_{(R_m - R_f)} + \varepsilon \tag{8}$$

Where R_t is Cambricon's monthly return, R_f is the risk-free rate (using the monthly average of the one-year Treasury bond yield), x_{SENT} is the investor sentiment variable, and this paper uses the monthly turnover rate as a proxy indicator; R_m-R_f is the market return, selected from the monthly return of the China Securities Index (CSI) 300 Index. Given Cambricon's significant growth trend since 2023, this paper selects a sample period from January 2023 to September 2025, totaling 33 monthly observations.

3.2. Regression results

Table 3. Analysis of regression results

Variable	coefficient	standard error	t-statistic	p-value	lower limit of 95% confidence interval	upper limit of 95% confidence interval
Intercept(α)	-0.130	0.129	-1.006	0.323	-0.395	0.134
SENT	0.442	0.194	2.276	0.030	0.045	0.839
MKT-Rf	2.178	1.095	1.990	0.056	-0.061	4.417
R^2	0.207	-	-	-	-	-

Note: The significance levels are respectively $p < 0.01$, $p < 0.05$, $p < 0.10$

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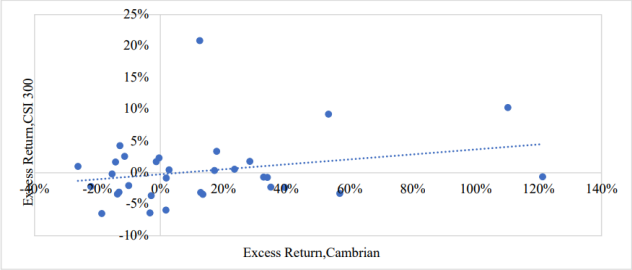

Figure 3. Scatter plot of Cambrian excess returns and CSI 300 excess returns (picture credit : original)

Regression results indicate that the regression coefficient of the sentiment variable (SENT) is equal to 0.442 and its p-value is equal to 0.030, which is significantly positive at the 5% significance level. This implies that there is a strong relationship between the turnover rate of Cambricon and its excess returns. This shows that high investor sentiment is linked to the high stock price performance. Excess returns of Cambricon, as illustrated by Figure 3, are also positively related to excess returns in the market. Hence the Cambridge Con stock price growth against the backdrop of AI concept boom reflects the change in fundamentals besides the sentiment premiums.

As shown in Table 3, the market excess return term (MKT-Rf) coefficient is 2.178, which is not significant at the 10 per cent level (p=0.056). This implies that the price of Cambricon is tremendously exposed to market-wide factors, and its beta factor is much higher than one, implying that the company may have a high risk of systemic risk and, consequently, may be considered as a high-risk, high-volatility stock.

More than that, the coefficient of determination (R^2) of the model stands at 0.207, which means that approximately 20.7 percent of the surplus volatility of returns is attributed to investor sentiment and returns of the market. Although the explanatory power is small, it is in the typical range of the behavioral finance study, which indicates the large role of the irrational factors in high-tech growth stocks valuation.

4. Outlook

Cambricon is currently in a critical stage of transitioning from low growth to rapid expansion. Uncertainties in the international environment, such as the US export restrictions on companies like Nvidia [6], may provide Cambricon with opportunities for counter-trend development, or they may impose constraints; both scenarios increase the difficulty of valuation. However, the author believes that the development trend of AI chips in my country will not stagnate. At the same time, the DCF model relies on the company's continuous operating capacity and stable cash flow, which puts forward high requirements for data quality and prediction accuracy [7]. Future research can extend the sample period and compare multiple AI companies to test the generality of the sentiment effect, and can also introduce machine learning sentiment indicators or news text sentiment analysis to improve the accuracy of sentiment measurement. In summary, Cambricon's high valuation reflects the capital market's long-term expectations for the AI industry rather than its current cash flow generation capacity. It also indicates that speculation still exists in China’s capital market. However, value investment based on profitability and growth is still effective [8].

In the long run, companies need to rely on technological iteration and market expansion to substantiate the bubble formed by the sentiment premium with real value, thereby achieving a

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convergence between valuation and fundamental value [9,10]. This study provides a useful reference for understanding the valuation deviation and market behavior of emerging technology companies.

5. Conclusion

This paper is a comprehensive evaluation of the intrinsic value and market performance of Cambricon based on the analysis of the discounted cash flow (DCF) model and market performance sensitivity to the investor sentiment assessment. The outcome of the DCF computations indicates that the sum of the free cash flow in the forecast period equals to about -10 billion RMB and the current value of the terminal value equals to approximately 26.1 billion RMB. Its estimated enterprise value is around 16.1 billion RMB that is very low compared to its market capitalization of more than 500 billion RMB. This high deviation portrays how much of a growth premium is being charged by the capital market on AI chips, as well as implies that the DCF model is limited to a considerable degree in its high growth technology scenario.

The empirical study indicates that investor sentiment is the central source of stock returns of Cambricon and its influence is mostly positive, whereas market factors are not very relevant. Contrary to the calculation of the DCF, the market price of Cambricon was far exceeding the intrinsic price forecasted by the fundamentals of the company that supported the prospects of AI, which implies that the price of the stock in the sample period was largely influenced by high expectations and sentiment over the future of AI and not by fundamentals like cash flow. It also discloses the archetypal sentiment pricing that is present in the AI sector.

Altogether, both the cash flow approach, and the behavioral finance approach can give an indication that the current valuation of Cambricon is overvalued. Because of market capitalization being considerably underestimated by the value provided by DCF, sentiment regression confirms the existence of irrational investor expectations. On this basis, three implications can be made: (1) The value of high growth technology companies requires dynamically adjusting the discount parameters acclimatized to the technology cycle, the policy support, and the expectations of the market; (2) Investors must be rational in the developing artificial intelligence industry and track the sentiment biases; (3) Regulators and institutional investors should be attentive to the volatility risk presented by sentiment pricing and restore market rationality.

References

[1] China Business Industry Research Institute. (2023). 2024-2029 China artificial intelligence chip industry market development monitoring and investment potential forecast report [Report]. Shenzhen: China Business Industry Research Institute.

[2] Wang, J., & Tang, X. (2025). Research on the impact of venture capital on the performance of high-tech enterprises - a case study of Cambricon Technologies Corporation Limited. Inner Mongolia Science and Technology and Economy, (15), 70–76.

[3] Lou, Z. (2023). Research on the pricing of unprofitable companies listed on the Science and Technology Innovation Board [Master's thesis]. Central University of Finance and Economics.

[4] Liu, J., & Mao, L. (2025). Research on the mechanism of investor sentiment affecting stock market volatility from the perspective of behavioral finance. China Collective Economy, (23), 105–108.

[5] Wang, D., Fan, X., Jia, Y., et al. (2022). Investor sentiment, excessive trading and volatility of China's A-share market - an analysis based on the survey data of securities investor confidence index. Journal of Management Science, 25(07), 85–105.

[6] Trueman, C. (2022). US government blocks sale of some Nvidia and AMD AI chips to China. Network World (Online).

[7] Han, J. (2023). Application of DCF model in enterprise value. In Proceedings of the 2023 3rd International Conference on Enterprise Management and Economic Development (ICEMED 2023) (Vol. 254, p. 12). Springer

DOI: 10.54254/2754-1169/2026.BJ30808

Nature.
[8] Gan, W., & Zhang, D. (2018). An empirical study on multi-factor pricing model based on value investing in China's capital market. Economic Perspectives, 35(4), 5.
[9] David, D., & Paolo, F. (2020). Uncertainty, investor sentiment, and innovation. The Review of Financial Studies, (3).
[10] Wickboldt, L. A., & Machado, M. A. V. (2025). Value premium, sentiment and uncertainty in Latin America: reason or emotion?. Review of Behavioral Finance, 17(3), 563–582.