

Enterprise Value Assessment Based on the EVA Model: A Case Study of Aerospace CH UAV Co., Ltd.

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Abstract: This paper focuses on the evolution of enterprise value assessment within the context of the new economic landscape, particularly following China's emphasis on new quality productive forces and the low-altitude economy. With the low-altitude economy emerging as a new frontier, the enterprise value assessment system requires restructuring, considering factors such as technological innovation, market potential, and policy support. This study uses Aerospace CH as a case study to examine its enterprise value and how to accurately assess the potential value and growth prospects of companies in the low-altitude economic sector. The research provides investors and decision-makers with precise enterprise value assessment tools and methodologies, offering valuable insights for strategic planning and development in the low-altitude economy era.

Keywords: Low-Altitude Economy; Economic Value Added; Unmanned Aerial Vehicles.

1. Introduction

The Third Plenary Session of the 20th Central Committee of the Communist Party of China adopted a resolution to deepen comprehensive reforms and advance the modernization of socialism with Chinese characteristics, emphasizing the development of general aviation and the low-altitude economy to optimize China's economic structure and promote high-quality development. The Central Economic Work Conference at the end of 2023 identified the low-altitude economy as a strategic emerging industry. By the end of 2023, there were 19,825 general aviation enterprises with operating licenses and using civilian drones, a net increase of 4,695 from the previous year, indicating robust industry growth.

Civilian drones are increasingly utilized within these general aviation enterprises, becoming a new highlight of industry development. The number of registered users and the number of drones has increased significantly. The total number of registered drone users reached 929,000, with a total of 1.267 million registered drones, a 32.2% increase compared to the end of 2022. This data indicates the expanding market potential and development space for drones as a key component of the low-altitude economy. Concurrently, the number of drone operators is steadily increasing. By the end of 2023, there were 194,400 valid drone operator licenses, a 27.2% increase from the end of 2022, reflecting the growing demand for professional talent and the improvement of industry standardization and specialization. The 2024 Government Work Report of the State Council listed the development of the low-altitude economy as a key task, marking the official commencement of its development.

2. Overview of Aerospace CH-Rainbow

Aerospace CH-Rainbow's core business encompasses unmanned aerial vehicle (UAV) technology and new materials development. In 2023, the company's primary revenue streams were: UAVs and related products, accounting for 1.674 billion yuan (58.41% of revenue); backing film and insulation materials, at 648 million yuan (22.61%); optical

film, at 402 million yuan (14.04%); and technical services, at 96 million yuan (3.34%). UAVs and related products constitute the largest segment, representing 58.41% of total revenue.

In the UAV sector, Aerospace CH-Rainbow is a leading domestic provider of comprehensive solutions for medium and large-sized UAVs, specializing in the research and application of the CH series UAV systems. These products feature stealth capabilities, high speed, high altitude operation, and extended flight endurance, finding applications in both defense and civilian sectors. The company holds numerous independent intellectual property rights. The CH series UAVs and the AR series air-to-ground missiles have achieved world-class performance, earning multiple awards and a strong international reputation, solidifying their status as a high-tech representative of "Made in China." Domestically, the company aligns with national strategies, promoting in-depth military-civilian integration. It has become the leading domestic provider of medium and large-sized UAVs, playing a crucial role in key areas such as land surveying and emergency response.

3. Financial Analysis of Aerospace CH-Rainbow

(1) Solvency Analysis

Solvency analysis is a critical component of assessing a company's financial health. Its primary function is to reveal a company's financial strength and risk tolerance in meeting its debt obligations. By analyzing relevant ratios, stakeholders such as investors, creditors, and management can accurately assess whether the company possesses sufficient liquidity to cover short-term debts and the sustainability of long-term debts. This analysis provides a crucial basis for investment decisions, credit approvals, risk management, and the formulation of corporate financial strategies [1].

Table 3-1. Analysis of Aerospace Rainbow's Solvency from 2019 to 2023

	2023	2022	2021	2020	2019
Current ratio	2.75	3.77	4.18	2.47	2.57
Quick ratio	2.32	3.22	3.58	2.13	2.19
Cash ratio	0.85	1.27	1.40	0.41	0.46
Asset-liability ratio	22.90 %	18.22 %	17.09 %	23.01 %	19.42 %

From 2019 to 2021, Space Rainbow's liquidity ratios, including the current ratio, quick ratio, and cash ratio, all exhibited an upward trend. Simultaneously, the debt-to-asset ratio decreased, indicating an improvement in the company's short-term and long-term solvency. However, in 2022 and 2023, the company's financial condition changed, with the aforementioned three short-term solvency indicators showing a clear decline, although they remained within the industry's healthy standards. At the same time, the increase in the debt-to-asset ratio revealed an increase in the company's long-term debt burden, which may pose new challenges for future financial strategies and capital management.

(2) Profitability Analysis

Profitability analysis is a key diagnostic tool for corporate financial health, with its core function being to deeply examine a company's revenue composition, cost structure, and profit levels to reveal the nature and efficiency of the company's profitability. This analysis is crucial for investors, management, and other stakeholders, as it helps them accurately assess the company's operating performance, market competitive position, cost management capabilities, and potential for capital returns, thereby providing important decision support for investment choices, resource allocation, strategy formulation, and enterprise value assessment.

Table 3-2. Analysis of Aerospace Rainbow's Profitability from 2019 to 2023

	2023	2022	2021	2020	2019
Return on Net Assets	1.94%	3.94%	3.32%	4.22%	3.67%
Return on Total Capital	2.39%	4.48%	3.70%	4.75%	4.43%
Net Profit Margin on Sales	5.49%	8.11%	8.28%	10.01%	8.25%
Operating Net Profit	5.48%	8.11%	8.28%	10.02%	8.25%

(3) Operational capability

Operational capability reflects a company's resource utilization and process optimization in daily operations, significantly impacting its development. Enhancing operational capability can substantially improve profitability by accelerating asset turnover and increasing operational efficiency. Furthermore, improved operational capability enables businesses to respond more flexibly to market dynamics, solidify their current market position, and expand market share, thereby enhancing their overall competitiveness. Strengthening operational capability also promotes refined internal management, reduces operating costs, and mitigates operational risks, providing robust support for corporate innovation and sustainable development.

Table 3-3. Analysis of Aerospace Rainbow's Operational Capability from 2019 to 2023

	2019	2020	2021	2022	2023
Accounts receivable turnover ratio	2	1.77	1.6	2.03	1.33
Total asset turnover ratio	0.39	0.35	0.32	0.4	0.28
Inventory turnover ratio	4.27	3.88	3.29	3.97	2.42
Current asset turnover ratio	0.88	0.73	0.61	0.72	0.49
Accounts payable turnover ratio	3.12	2.63	2.57	3.58	2.35

Between 2019 and 2023, Space Rainbow's operational efficiency metrics exhibited significant volatility. Key indicators such as accounts receivable turnover, total asset turnover, inventory turnover, and current asset turnover fluctuated over the five-year period, with a notable decline observed in 2023. This suggests potential challenges in asset management, sales efficiency, and liquidity, warranting management attention and corrective measures to ensure the company's long-term stability.

4. Overview of the Economic Value Added (EVA) Model

Economic Value Added (EVA) is a financial metric used to assess a company's ability to generate wealth, calculated by subtracting the cost of capital from the net operating profit after tax. EVA's advantage lies in its comprehensive consideration of capital costs, including the cost of equity, providing a more accurate reflection of operational performance. A positive EVA indicates that the company's earnings exceed its capital costs, thereby increasing shareholder value, while a negative EVA signifies a decrease in shareholder value. EVA becomes the primary objective. The EVA calculation formula is as follows [2]:

$$EVA = NOPAT - (WACC \times TC)$$

Where: EVA represents Economic Value Added; NOPAT is Net Operating Profit After Tax; WACC is the Weighted Average Cost of Capital; and TC is Total Capital.

5. EVA Calculation for Space Rainbow

(1) Space Rainbow's Net Operating Profit After Tax (NOPAT)

Net profit serves as a critical metric for evaluating a company's operational efficiency. To incentivize management's focus on capital allocation, research and development expenses should be added back when determining NOPAT. Furthermore, as non-recurring gains and losses are typically unrelated to the core business and are subject to uncertainty, these items should be excluded when assessing the company's true profitability. Additionally, asset impairment provisions, which do not represent actual

expenses, should be excluded from current period profit calculations to provide a more accurate representation of the company's financial position. Adjustments should also be made for deferred tax assets and liabilities, which arise from discrepancies between accounting and tax regulations and do not reflect the company's actual assets and liabilities. The adjusted net profit provides a more precise reflection of the

company's economic performance and return on capital.

After computer selection, it can be found that Aerospace Rainbow's after-tax operating profit has remained relatively stable over the past five years, averaging approximately 650 million yuan. It showed a growth trend from 2019 to 2020, but declined in 2021, which was attributed to the impact of the epidemic. The significant rebound in 2022 reflected the resilience of the company [3]. At the same time, due to geopolitical conflicts, the demand for UAVs and related products in the international market increased. Coupled with the surge in domestic demand, UAVs have become the focus of equipment procurement. In 2023, the company's UAV-related revenue reached 1.674 billion yuan, a year-on-year decrease of 32.30%, mainly due to changes in the product verification and project bidding schedules of domestic customers, which in turn reduced the profit contribution.

Regarding Aerospace Rainbow's total capital, adjustments to the calculation of Economic Value Added (EVA) for central state-owned enterprises, as per Document No. 33 of the State-owned Assets Supervision and Administration Commission of the State Council, are as follows [4]:

$$\text{Adjusted Capital} = \text{Average Shareholders' Equity} + \text{Average Total Liabilities} - \text{Average Interest-Free Current Liabilities} - \text{Average Construction in Progress}$$

(2) Space Rainbow's Weighted Average Cost of Capital

The Weighted Average Cost of Capital (WACC) is crucial within the Economic Value Added (EVA) model, serving as a benchmark for assessing a firm's capital costs, reflecting the expenses incurred in raising and utilizing capital. As a core parameter in the EVA model, WACC discounts future cash flows to determine the difference between Net Operating Profit After Tax (NOPAT) and capital costs. This difference represents the EVA, which gauges a firm's wealth-generating capacity. Consequently, WACC significantly influences not only the valuation outcomes within the EVA model but also impacts investment decisions, capital structure optimization, and performance evaluation. The calculation formula is as follows:

Weighted Average Cost of Capital = Cost of Equity × Weight of Equity + After-tax Cost of Debt × Weight of Debt. Furthermore, the Cost of Equity = $R_f + \beta(R_m - R_f)$, representing the risk-free rate, determined by the five-year treasury bond yield of 1.81%; β denotes market systematic risk, obtained from the Tonghuashun platform; R_m is the expected return rate of investors in the market, and $R_m - R_f$ represents the premium required by investors for bearing risk, using GDP growth rate to substitute for the risk premium.

Table 5-1. Cost of Equity Capital of Aerospace Rainbow from 2019 to 2023

	2019	2020	2021	2022	2023
Risk-free rate of return	1.81 %	1.81 %	1.81%	1.81 %	1.81 %
β	1.19	1.27	1.05	0.94	1.01
Market risk premium	6.00 %	2.20 %	8.10%	3.00 %	5.20 %
Cost of equity capital	8.95 %	4.60 %	10.31 %	4.63 %	7.06 %

The cost of debt capital is the pre-tax return creditors receive from lending to a firm. Corporate debt financing primarily comes from commercial bank loans. Therefore, this analysis uses the latest 4.75% medium-term lending facility

(MLF) rate from the People's Bank of China (PBOC) for 2024 to represent the cost of debt capital.

(3) Aerospace Rainbow EVA Calculation

By substituting the aforementioned data into the formula $EVA = NOPAT - TC \times WACC$, the EVA results for Aerospace Rainbow can be obtained, as shown in Table 5-2.

Table 5-2. Calculation of Aerospace Rainbow's EVA Unit: Hundred Million Yuan

	2019	2020	2021	2022	2023
NOPAT	6.53	6.81	6.44	7.274	6.229
TC	67.19	70.95	76.53	82.127	85.512
WACC	8.62%	4.56%	10.12%	4.60%	6.93%
EVA	0.73	3.57	-1.31	3.485	0.302

An analysis of the Economic Value Added (EVA) of CASIC-Rainbow over the period of 2019-2023, as detailed in Table 5-2, reveals significant fluctuations. Specifically, EVA peaked in 2020, reaching 3.571. This surge can be attributed to an increase in CASIC-Rainbow's net profit compared to 2019, which subsequently boosted its net operating profit after tax. Furthermore, the deceleration of China's GDP growth in 2020, used as a proxy for market risk premium in this analysis, led to a reduction in the weighted average cost of capital (WACC). These factors collectively contributed to the substantial improvement in CASIC-Rainbow's EVA in 2020.

In 2021, the EVA turned negative. This decline was primarily due to the underperformance of the capacitor film business, which the company divested during the reporting period. The new materials business was also significantly impacted by industry cycles and geopolitical tensions, which caused volatility in raw material prices, such as oil. Additionally, the international military trade of unmanned aerial vehicles (UAVs) decreased by 33.19% year-over-year due to the pandemic. These factors increased the company's WACC, and combined with an increase in total capital, resulted in a negative EVA [5].

A second peak in EVA occurred in 2022, driven by two UAV sales contracts announced in September 2022 and January 2023, totaling RMB 600 million and USD 60 million, respectively. This indicates a robust order backlog. The revenue from UAVs and related products increased by 121.27% compared to 2021, which improved the net operating profit after tax. Moreover, CASIC-Rainbow's ongoing market expansion, along with improvements in its production, procurement, and internal management, led to significant cost reductions, thereby lowering the WACC. Consequently, the EVA in 2022 showed a marked improvement compared to 2021, with an increase of 366.64%.

6. Conclusions

This study assesses the enterprise value of Aerospace Rainbow UAV Co., Ltd. using the Economic Value Added (EVA) model. While the application of EVA in the general aviation sector is relatively limited, this research provides a valuable reference. However, the EVA model's implementation involves subjective adjustments to accounting items. Differences in project adjustments and data selection among evaluators may lead to valuation discrepancies.

Aerospace Rainbow, a leading domestic provider of comprehensive solutions for large and medium-sized UAVs,

demonstrates strong competitiveness in the general aviation sector, encompassing UAV R&D, production, sales, and services. The 2023 Central Economic Work Conference's emphasis on developing "low-altitude economy" and other strategic emerging industries will create new opportunities for the "low-altitude aircraft" industry, particularly UAVs. Furthermore, the Russia-Ukraine conflict has highlighted the extensive battlefield application of UAVs. The absence of comprehensive high-intensity confrontation and air superiority competition, coupled with incomplete regional air defense systems, has granted UAVs relatively unrestricted operational space. Both sides have increased the frequency and intensity of UAV operations, establishing their critical role in combat. This conflict has altered the traditional air combat paradigm centered on manned aircraft, initiating a new model of collaborative operations integrating manned and unmanned forces.

UAVs have enhanced capabilities in joint long-range strategic strikes, low-altitude target interception, and stealth penetration, establishing an operational advantage of unmanned over manned systems. The widespread use of UAVs on the battlefield signifies the advent of the UAV

warfare era, fundamentally changing future warfare forms and operational methods. Based on the above analysis, Aerospace Rainbow presents a degree of investment value for investors.

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