

Analysis on the Motivation and Performance of Enterprise 'Snake Swallowing Elephant' Mergers and Acquisitions: Taking Nanling Civil Explosion Acquisition of Explosive as an Example

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Abstract: As the invisible cornerstone of the national economy, the civil explosive industry has faced problems such as overcapacity and fierce competition while it continues to develop. Therefore, this paper studies the motivation of 'snake swallowing elephant' mergers and acquisitions (M&A) in the civil explosive industry and the impact of M&A on performance. Taking Nanling Civil Explosion's acquisition of Explosive as an example, this paper selects financial data of the past five years and adopts literature research method, case study method, event study method and AMPS model to analyze the motivation of M&A, market reaction after M&A and changes of financial indicators. The study found that the merger improved the market performance of the enterprise, enhanced the profitability, solvency, operating capacity and growth capacity, and promoted the technical and financial innovation of the civil explosive industry, which is of great significance to the development of the entire civil explosive industry. Reasonable merger and acquisition and resource integration will help the long-term development of the enterprise, and will bring more opportunities and challenges for the enterprise. This paper provides some reference value for the 'snake swallowing elephant' type M&A in this industry in theory and practice.

Keywords: Civil explosive industry, 'Snake swallowing elephant' type M&A, M&A motivation, Performance analysis

1. Introduction

1.1. Research Background

With the rapid development of China's economy, the conventional way of development has been unable to meet the needs of enterprise development, and enterprises are face numerous problems. China is pursuing high-quality development, and the government has introduced various incentives

to encourage consolidation and restructuring among enterprises to achieve industrial optimization. According to PricewaterhouseCoopers China M&A 2023 review and outlook, China's M&A transactions will total US\$333.1 billion in 2023, with a total of 8,563 M&A deals. Due to the rapid development of the industry, the broad prospects of the market and the strong support of the policy, many enterprises have enhanced their market competitiveness through M&A and reorganization.

In recent years, more and more enterprises have become the leading enterprises in the industry through 'snake swallowing elephant' type M&A, which tend to be more complex than general M&A, and there are not many case studies on 'snake swallowing elephant' type M&A. This paper will take Nanling Civil Explosion as an example to analyze in depth the related acquisition motivation as well as the financial performance in the later stage, so as to enrich the theoretical research on 'snake swallowing elephant' type M&A

'Snake swallowing elephant' type M&A is also a very risky way of M&A, this paper hopes that by analyzing the M&A before and after the impact on the enterprise's financial and non-financial data, so that in the future, want to use the 'snake swallowing elephant' type M&A of enterprises can identify the possible Impact, to make appropriate decisions.

1.2. Literature Review

The views of different scholars on the impact of M&A on firms vary. Zhang Jialin argues that China's listed companies have a high M&A failure rate, which may have a positive impact in the short term, but the cumulative excess returns are significantly negative in the long term, with only a small number of companies realizing higher Abnormal Return [1]. Xue Yunjian and others proposed five major integration strategies, arguing that companies should take technology enhancement and brand building as their strategic goals as a way to improve the success rate of M&A [2]. Yao Peng and others conducted an analysis and found that after a weak brand acquires a strong brand, consumers' evaluation of the strong brand may significantly decrease, affecting consumers' purchase intention and loyalty [3]. Cai Qingfeng and others argue that some M&A by non-state-owned enterprises may only be 'policy arbitrage' to obtain government subsidies [4]. Sun Chang and others believe that the risk of corporate M&A must be considered, and should be made through the appropriate way to maximize the benefits of enterprises in expanding the scale of the enterprise at the same time, can improve the competitive advantage of the enterprise, to promote diversification, so as to reduce the risk of business operations, which has a positive significance for the development of social and economic [5].

1.3. Research Method

1.3.1. Literature Research Method

The literature, reports and journals on M&A and the 'snake swallowing elephant' type M&A at home and abroad were searched, sorted out and used for reference.

1.3.2. Case Study Method

This paper selects the Nanling Mountain Civil Bomb M&A Bomb Company as a case to analyze the problems in its motivation, performance and experience, and finally provides suggestions and enlightenment.

1.3.3. Event Study Method

Based on the Nanling Civil Explosion merger and acquisition of Explosive event, this paper uses the event study method to evaluate the impact of the merger on the short-term market effect of enterprises.

1.3.4. AMPS Model

AMPS model can clarify the direction and content of research. The model is divided into the following four steps:

First, Ask the Question: Put forward why Nanling Civil Explosion choose to adopt ‘snake swallow elephant’ style M&A of Explosive and what the impact of the acquisition.

Second, Master the Data: The gross product data of the civil explosive industry and related companies, the stock price data of Nanling Civil Explosion Company and Explosive Company, and the financial indicators data in the financial statements were used for data analysis

Third, Perform the Analysis: Use a variety of methods to analyze relevant data.

Last, Share the Story: Visualize the data in the form of charts, so as to better analyze the causes and effects of problems.

2. Case Description

2.1. Introduction of the M&A Parties

Nanling Civil Explosion is an important backbone of the national civil explosives industry, and the production capacity of all kinds of products ranks the forefront of the country [6]. Explosive is a comprehensive large-scale civil explosives enterprise integrating the research and development, production, sales and engineering blasting integrated service of civil explosives, and it is the leading application unit of on-site mixing and loading integrated service model in China.

2.2. M&A Process

On August 1, 2022, ENERGY CHINA proposed to spin off its subsidiary Explosive restructuring and listing, Nanling Civil Explosion acquired Explosive to become the first listed company with the largest production capacity in the civil explosives industry. In December 2022, the CSRC unconditionally approved the passage [7].

In January 2023, the controlling shareholder of Nanling Civil Explosion was changed to China Gezhouba Group Company Limited, and the actual controller was changed to the State-owned Assets Supervision and Administration Commission of the State Council of the People's Republic of China (SASAC). Explosive Co., Ltd. became the controlling subsidiary of Nanling Civil Explosion. Explosive Co. Ltd. became a holding subsidiary of Nanling Civil Explosion. On May 22, 2023, the name of the Company was changed from ‘Hunan Nanling Civil Explosion Company Limited’ to ‘Explosive Company Limited’. On July 6, 2023, the company's stock abbreviation was officially changed from ‘Nanling Civil Explosion’ to ‘Explosive’, and the stock code remained unchanged [8].

2.3. M&A Motivation Analysis

2.3.1. External Motivation Analysis

(1) Favorable policies

The strong support of national policies is a key factor in the rapid development of the civil explosive industry. In November 2021, the ‘14th Five-Year Plan’ Civil Explosive Industry Safety Development Plan issued by the Ministry of Industry and Information Technology mentioned the promotion of enterprise restructuring and integration, giving policy support to leading backbone enterprises and enterprises that have completed substantive restructuring and integration, and optimizing the industrial structure. Nanling Civil Explosion acquisition of Explosive is in line with relevant policy guidance.

(2) Adapt to the development of the industry

In recent years, the civil explosive industry has been driven by policies and the market has continued to expand. China's civil explosive industry still faces serious problems. Figure 1 shows the proportion of the gross product of China's civil explosive enterprises in 2020-2022, obtained from the WeChat public account of China's civil explosive information. It can be seen that China's civil explosive market still faces the problem of low market concentration. In the future development planning of the industry, optimizing the industrial structure is extremely important.

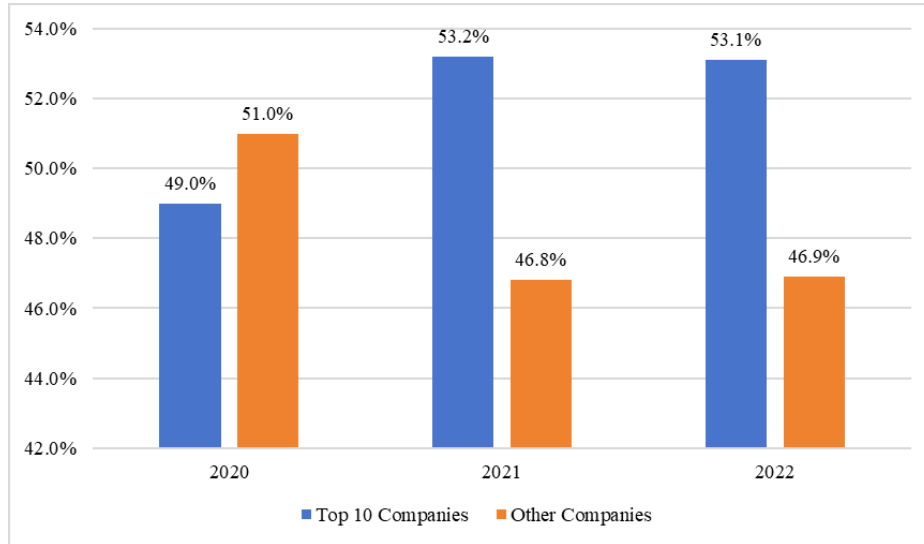


Figure 1: The proportion of the gross product of the top 10 enterprises in China's civil explosive industry in 2020-2022

2.3.2. Internal Motivation Analysis

(1) Forming synergy effect

Through the merger and acquisition, Nanling Civil Explosion and Explosive can play a complementary advantage to achieve operational synergy [9]. Compared with cross-industry M&A, M&A in the same industry can better form business complementarity and improve management level. At the same time, management coordination was realized [10]. After the reorganization was completed, the construction of talent echelon was strengthened, management efficiency was improved, and long-term stable development of Nanling Civil Explosion was promoted [11].

(2) Realize industrial transformation

Before the merger and acquisition, the main source of revenue of Nanling Civil Explosion was the production and sales of civil explosive equipment. In 2021, the business of civil explosive equipment dominated, with a gross profit rate of about 34%, and relatively few service businesses. With the adjustment of policies, civil explosive enterprises should shift to the production and service type. Through the acquisition of Explosive, Nanling Civil Explosion gained its customer resources and experience in blasting service industry, promoted the 'integration' of scientific research and production blasting services, and gradually realized transformation [12].

(3) Increase market share

Nanling Civil Explosion merger and acquisition of Explosive, forming complementary advantages, while improving market share, improve the competitiveness of enterprises in the industry. Table 1 shows the gross production of China's major civil explosive enterprises from 2022-2023. It can be seen that after the merger and acquisition, the market share of Nanling Civil Explosion increased significantly, from the 8th to the 2nd.

Table 1: Gross production of major civil explosive enterprises in China

Company	2022 Gross Production (100 million yuan)	Percentage (%)	2023 Gross Production (100 million yuan)	Percentage (%)
Nanling Civil Explosion	16.37	4.16%	42.26	9.67%
Poly Union	22.02	5.59%	26.22	6.00%
Yahua Industrial Group	21.91	5.57%	25.78	5.90%

3. Performance Appraisal

3.1. Performance Analysis Under the Event Study Method

(1) Determine the event date, event window and estimation window

On August 1, 2022, ENERGY CHINA proposed to spin off its subsidiary Explosive for restructuring and listing, and Nanling Civil Explosion acquired Explosive, which will be treated as the date of the event. The event window is chosen to be ten trading days before and after, i.e., [-10, 10]. To obtain more data for accurate comparative analysis, the estimation window is chosen to be the first 100 trading days of the event window, i.e., [-110, -11].

(2) Determining the linear relationship

By calculating the Cumulative abnormal return, perform parameter estimation and calculate the normal return, use the Capital Asset Pricing Model (CAPM) to construct the relationship between individual stock returns and market returns thus calculating the estimates α_i of and β_i .

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

R_{it} is the stock yield, R_{mt} is the Market Profitability. Since Explosive is listed on the Shenzhen Stock Exchange, the daily return of the Shenzhen A-share market is selected as Market Profitability, and the data source is from CSMAR. α_i and β_i are model parameters, ε_{it} is the random error term.

The equations for Explosive stock yield R_{it} and Market Profitability R_{mt} are as follows.

$$R_{it} = \frac{(P_{it} - P_{it-1})}{P_{it-1}} \quad (2)$$

$$R_{mt} = \frac{(P_{mt} - P_{mt-1})}{P_{mt-1}} \quad (3)$$

P_{it} and P_{it-1} respectively represent the closing prices of stocks on trading days t and $t-1$, P_m and P_{mt-1} represent the closing prices of index m on trading days t and $t-1$. The above model is applied to parameterize the estimation window, which is chosen to be the first 100 business days of the event window, i.e., [-110, -11].

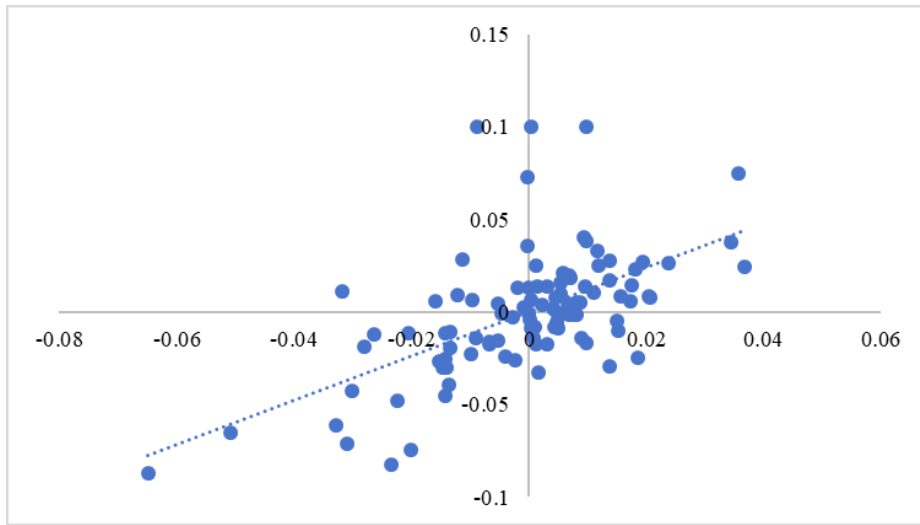


Figure 2: Linear plot of Explosive stock yield versus SZSE A-share Market Profitability

The regression equation can be obtained from Figure 2.

$$R_{it} = 1.1933R_{mt} + 0.0002 \quad (4)$$

SZSE A-share Market Profitability is the independent variable R_{mt} , Explosive individual stock return is the dependent variable R_{it} , stock yield is linearly related to Market Profitability.

(3) Abnormal return (AR) and Cumulative abnormal return (CAR)

AR refers to the difference between the actual and normal returns of the stock yield during the time period, reflecting the economic impact of the event. CAR refers to the simple summation of the abnormal returns for each day of the time window, reflecting the full impact of the event on performance [12].

Table 2: Explosive Stock Yield Abnormal Returns and Cumulative Abnormal Returns

Event Date	R_t	R_{mt}	Forecast	AR	CAR
-10	3.88%	1.34%	1.61%	2.27%	2.27%
-9	10.02%	0.53%	0.66%	9.37%	11.64%
-8	1.66%	0.73%	0.89%	0.77%	12.41%
-7	-1.07%	-0.91%	-1.07%	0.00%	12.41%
-6	0.07%	-0.32%	-0.36%	0.43%	12.84%
-5	-2.73%	-0.72%	-0.84%	-1.89%	10.94%
-4	0.00%	1.21%	1.46%	-1.46%	9.49%
-3	9.97%	0.16%	0.21%	9.76%	19.25%
-2	-0.20%	0.49%	0.60%	-0.81%	18.44%
-1	0.27%	-1.07%	-1.25%	1.52%	19.96%
0	-3.22%	0.56%	0.69%	-3.91%	16.05%
1	-7.70%	-2.90%	-3.44%	-4.26%	11.79%
2	-2.48%	-0.95%	-1.12%	-1.36%	10.43%
3	-1.23%	0.87%	1.06%	-2.29%	8.13%

Table 2: (continued).

4	-2.57%	1.41%	1.71%	-4.28%	3.85%
5	0.88%	0.85%	1.03%	-0.15%	3.71%
6	-1.83%	0.04%	0.07%	-1.90%	1.81%
7	0.65%	-0.31%	-0.35%	1.00%	2.81%
8	0.24%	1.67%	2.01%	-1.77%	1.04%
9	-1.36%	-0.05%	-0.04%	-1.33%	-0.29%
10	5.69%	0.25%	0.32%	5.37%	5.08%

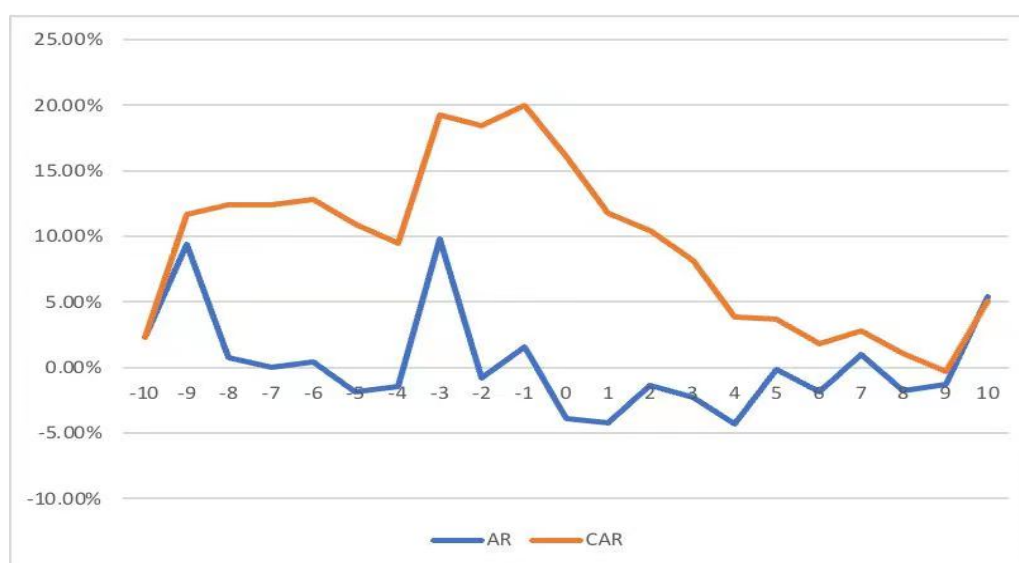


Figure 3: Explosive's stock yield and cumulative abnormal return chart

(4) Short-term performance appraisal

As can be seen in Figure 3, the Cumulative abnormal return has a better performance throughout the time period and the overall return is positive. The sharp increase in Cumulative abnormal return in the (-10, -3) time period implies that the M&A information may be leaked and some investors are informed in advance and make relevant reactions in the Market. After the event date, the Cumulative abnormal return showed a downward trend, indicating that the market overreacted to the M&A. After a period of time, investors adjusted their investment behavior and pulled back their stock expectations, and the stock price retreated, only to rebound after the ninth day after the event date. The short-term Cumulative abnormal returns were all positive, indicating that the capital market viewed the M&A positively, and the performance of the returns during the window was excellent.

3.2. Performance Analysis Under Comparative Analysis

3.2.1. Profitability Analysis

During the study period shown in Figure 4, the return on equity of Explosive Company increased dramatically in 2022 and dropped to 10.72% in 2023, but it was still significantly higher than the value before the merger and acquisition. The nearly 4-fold increase in the return on total assets and the net profit rate on sales after the merger indicates that the performance of the company after the

completion of the merger has kept up with the expansion of assets, higher corporate income and significantly enhanced profitability.

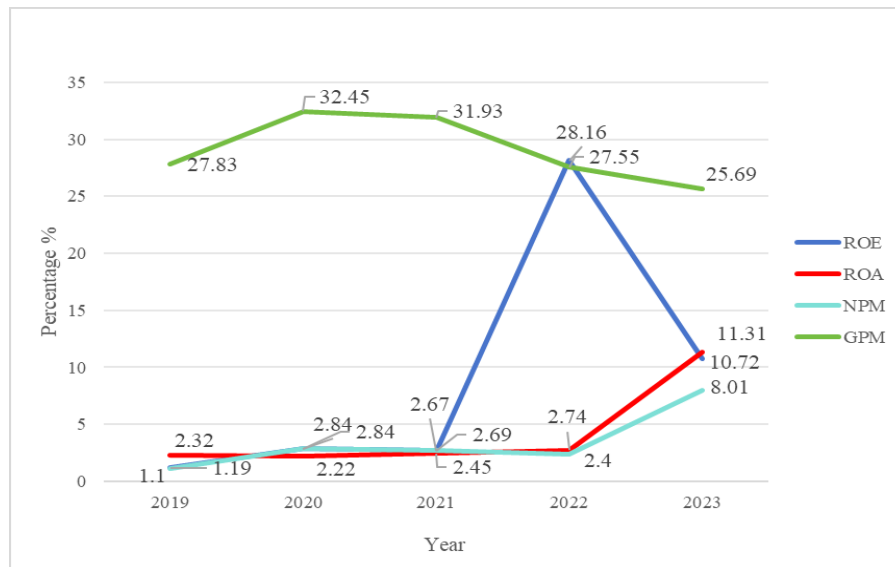


Figure 4: 2019-2023 Explosive profitability indicators

3.2.2. Solvency Analysis

It is more appropriate to maintain the minimum quick ratio and the minimum current ratio at 1 and 2 [13]. Figure 5 During the study period, both indexes remained in the appropriate range and rose steadily after the merger and acquisition, and the asset-liability ratio and the property rights ratio declined significantly after the merger and acquisition. The ‘snake swallowing elephant’ type merger rapidly expanded the asset scale several times, but the debt ratio did not increase, the capital structure was optimized, the long-term solvency was strengthened, and the operating risk was reduced.

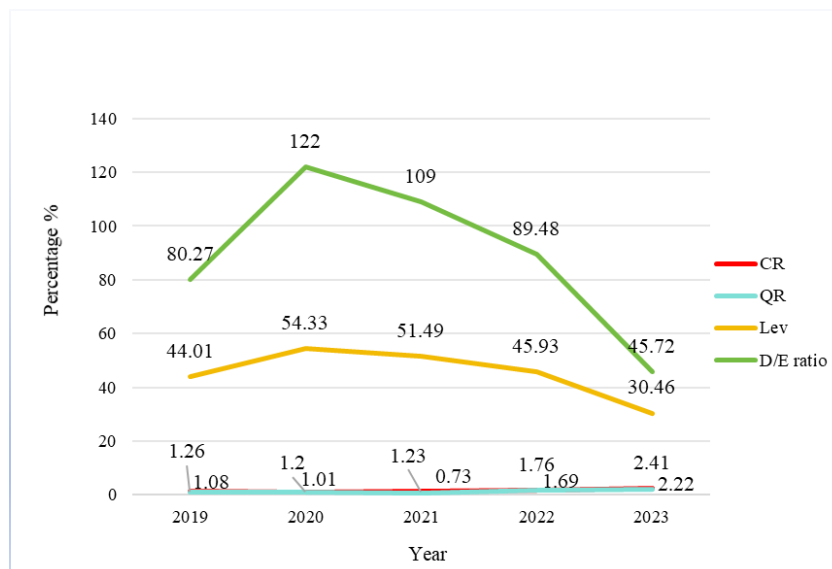


Figure 5: 2019-2023 Explosive solvency indicators

3.2.3. Operational Capacity Analysis

In Figure 6, the inventory turnover rate rises to 21.56 in 2023, and the accounts receivable turnover rate doubles, indicating that the realization speed of the enterprise after the completion of the merger and acquisition is greatly improved, the speed of inventory conversion into assets is faster, the debt collection cycle is shorter, the bad debt loss is reduced, the operating risk is reduced, and the efficiency of capital use and recovery is high. To sum up, the operation capacity of enterprises has been improved and is in a positive and stable development.

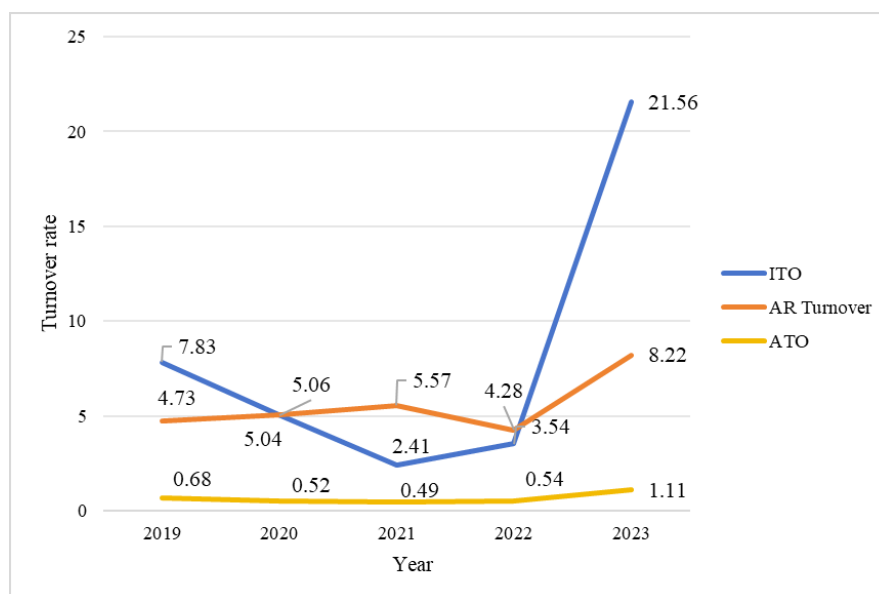


Figure 6: 2019-2023 Explosive operating capacity indicators

3.2.4. Growth Ability Analysis

The three indicators in Figure 7 all increased after the acquisition, and the net profit increased significantly. Nanling Civil Explosive's acquisition of Explosive formed complementary advantages in terms of production capacity and channels, complied with the national development policy, and enhanced its competitiveness. In 2023, the value of operating income and net profit rose steadily, and the value creation ability and growth ability of Explosive after the 'snake swallowing elephant' type merger and acquisition were improved, and the future development prospects of the enterprise were good.

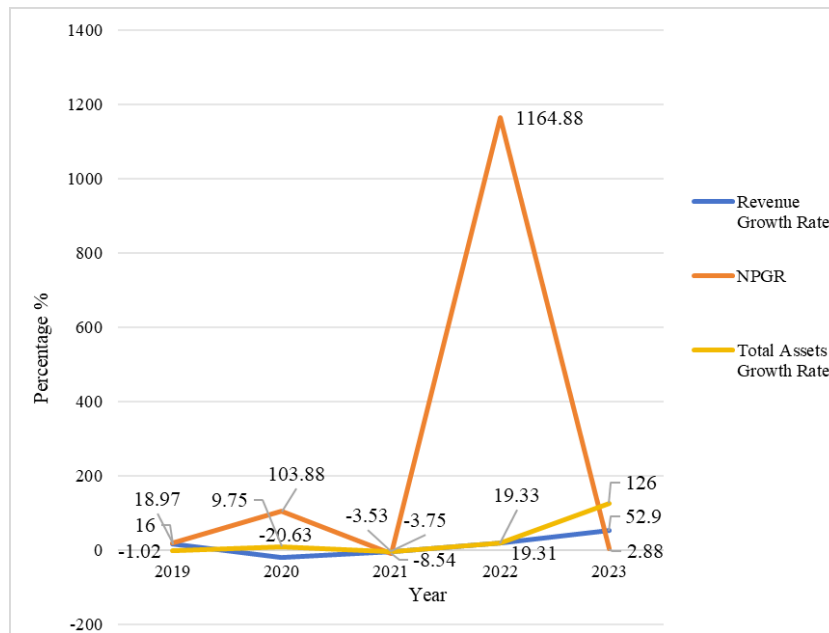


Figure 7: 2019-2023 Explosive growth capacity indicators

3.3. Performance Analysis of Non-financial Indicators

3.3.1. Analysis of Technological Innovation Ability

As can be seen from Table 3, R&D expenses increased year by year from 2019 to 2021, indicating that Explosive pays more attention to scientific and technological innovation. In 2022, business income from M&A and R&D investment increased relatively, and the increase of business income was greater than the increase of R&D expenses, resulting in a decrease in the rate of R&D expenses. In 2023, the merger was completed and the R&D expense rate rebounded. To sum up, Explosive absorbs external technological innovation after the merger and acquisition to enhance its competitive advantage.

Table 3: 2019-2023 Explosive R&D expense ratio

	2019	2020	2021	2022	2023
R&D (Billion)	0.64	0.772	0.781	1.939	3.467
Operating income (Billion)	25.216	20.016	19.309	55.119	84.277
Research and Development (%)	2.54	3.86	4.04	3.52	4.11

Before the acquisition, the number of patent applications of the company was relatively small and the growth was slow. After the merger, the number of patent applications rose sharply in 2022 and peaked in 2023. By acquiring the technology and R&D strength in the field of civil explosive and combining with its own resources and funds, Explosive accelerates the research and development and application of new technologies, optimizes the production efficiency and product quality of the company, promotes the cooperative research and development of the two parties, and improves the company's status and reputation in the industry [14].

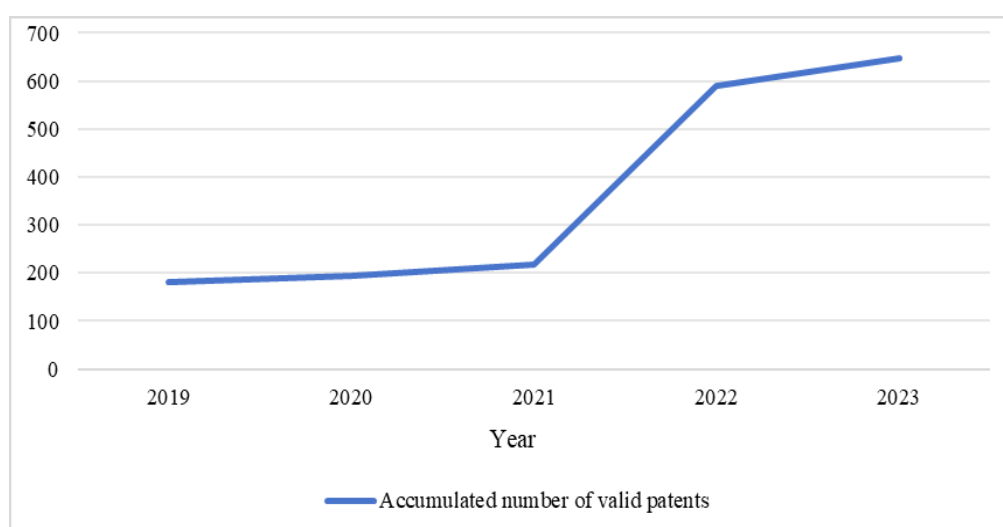


Figure 8: 2019-2023 Accumulated number of valid patents

3.3.2. Main composition analysis

It can be seen from Figures 9 and 10 that before the merger and acquisition in 2022, the production and sale of civil explosive equipment was the main source of revenue for Nanling Civil Explosion, while the service business was relatively small. After the merger and acquisition, the main income composition has been significantly adjusted, and the proportion of blasting service business has increased to 64%. Nanling Civil Explosion has realized industrial transformation by relying on Explosive's customer resources and blasting service business experience, and the blasting service industry has achieved good results and driven the profit growth of the enterprise [15].

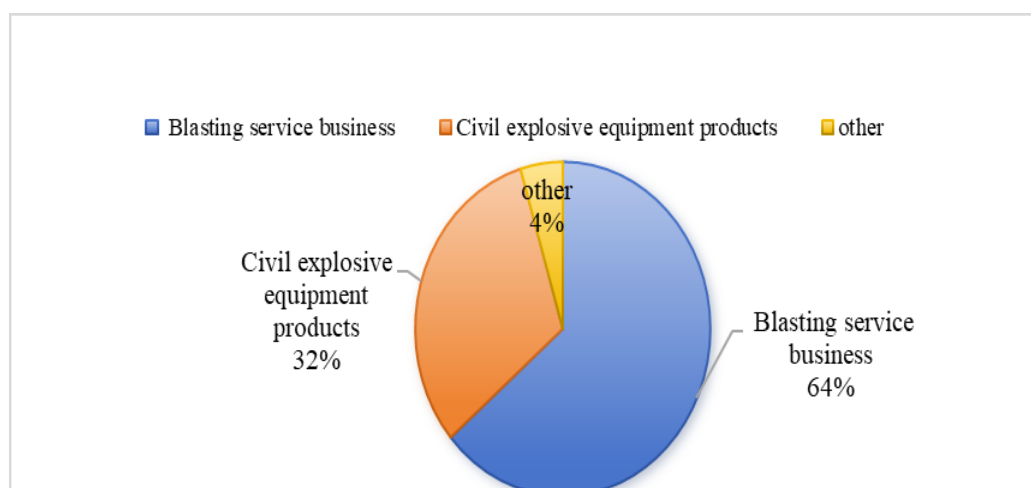


Figure 9: Main revenue in 2023 (Billion yuan)

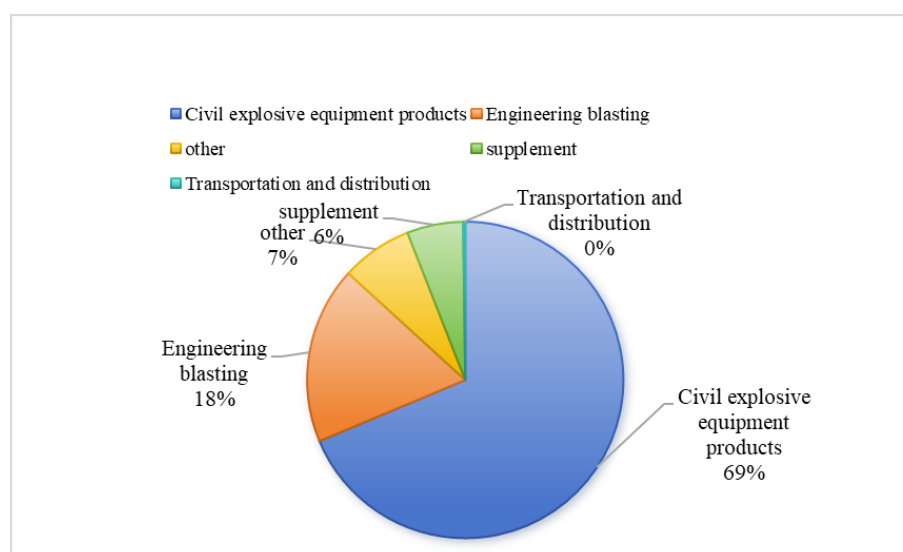


Figure 10: Main revenue in 2022 (Billion yuan)

4. Enlightenment

4.1. Reasonable Selection of Merger and Acquisition Methods

Choosing the M&A method that the enterprise itself can master will have a positive effect on the future development of the company. If the M&A method exceeds the operating limit of the enterprise, it will bring heavy burden to the operation of the enterprise. Nanling Civil Explosion has restructuring and integration experience, so choose to carry out 'snake swallow elephant' type M&A.

4.2. Enterprise Development Should Conform to Policy Guidance

By taking advantage of national policies and actively participating in M&A, enterprises can quickly realize their own development and enhance their competitiveness. In addition, the support of national policies can reduce the cost of M&A to a certain extent. While enjoying policy dividends, enterprises also support the implementation of policies and provide strong support for China's economic development [16].

4.3. Focus on Resource Integration and Give Play to Synergies

M&A in the same industry can share complementary resources, so as to improve business activities and achieve the goal of operating synergy. At the same time, the management personnel of both sides should communicate more after the merger, set up corresponding departments to coordinate the impact brought by the change of organizational structure, avoid potential conflicts and contradictions, and achieve management coordination.

5. Conclusion

This paper first describes the research background of M&A at home and abroad, and then introduces the significance of the research. Using case study method, event study method, AMPS model and other research methods, taking Nanling Civil Explosion acquisition of Explosive as a case, combined with the background of civil explosive industry and national policy analysis, the following conclusions are drawn:

In terms of the motivation analysis of M&A, firstly, the national policy is favorable, and M&A is in line with the development trend of the industry. Secondly, through M&A, Nanling Civil Explosion can achieve operational coordination and management coordination. Thirdly, M&A have made Nanling Civil Explosion realize industrial transformation. Finally, M&A have improved the market share and competitiveness of Nanling Civil Explosion. In terms of performance analysis, this merger has significantly improved the company's market performance. In addition, the four major capabilities have been enhanced, and the merger has completed several times the expansion of the asset scale of the enterprise, while the proportion of debt has not increased, which has optimized the capital structure of the enterprise, strengthened the solvency of the enterprise, and reduced the operating risk. After the merger and acquisition, the integration of technical resources experience, increase research and development costs, increase the number of patents and open up new fields, but it is worth thinking about whether the 'snake swallowing elephant' type M&A is only the integration of the existing technical resources of the acquired enterprise, but can't drive its own internal power to upgrade the level of research and development.

As the annual report of Explosive 2024 has not been published at the time of writing this paper, there is no financial data for 2024, while Nanling Civil Explosion acquired Explosive in August 2022, and the data after the merger is only 2023 and as of April 2024, the data after the merger is less, and the analysis of financial performance is slightly insufficient. Therefore, the next step in the future research on the M&A performance of civil explosive enterprises needs to continue to improve the data, conduct in-depth research, and come up with more targeted and convincing suggestions for the industry.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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