

Analysis of M&A in Electrical Manufacturing Enterprises: Evidence from Midea's Acquisition of KUKA

Han Han ^{1, †}, Xingjian Lin ^{2, *, †} and Beijiyi Ni ^{3, †}

¹ United World College, Suzhou, China

² School of Economics, Zhejiang Gongshang University, Hangzhou, China

³ School of Management, China University of Mining and Technology Beijing, Beijing, China

* Corresponding author: 1935010217@pop.zjgsu.edu.cn

† These authors contributed equally.

Abstract. Contemporarily, M&A is common in electric manufacturing industry. This paper investigates the specific process of Midea's merger and acquisition of Kuka, and interprets the merger effect from the perspective of environmental analysis, financial index analysis and market analysis based on the annual financial and market development indicators of Midea Group. The case study presented in this paper demonstrates that Midea actively responded to the "Made in China 2025" proposal by seeking technological expansion and advancement. Through acquiring KUKA's industrial robot technology and manufacturing skills, Midea built a smart home industry chain and expanded its business scope appropriately, further realizing its strategic layout for global business. Performance analysis shows that Midea's innovation and technological capabilities significantly improved after the acquisition, leading to enhanced market competitiveness and influence. However, due to the substantial cost of the acquisition, Midea's profitability declined in the short term. The reasons and effects of Midea's merger and acquisition of Kuka are demonstrated, and effective suggestions and implications are put forward accordingly.

Keywords: Merger & Acquisition, technology upgrades, financial indicators.

1. Introduction

With the rapid development of global science and technology, every industry is closely related to technology. In particular, the manufacturing industry has been developing continuously since 2000, and artificial intelligence (AI) has gradually come into people's view. The industrial age will usher in another revolution. Direct and close relationships between countries and win-win cooperation exist. There are also a lot of enterprises to complete the acquisition and reorganization. On July 28, 2010, Panzhihua Steel and Angang Steel merged and reorganized, and then established Angang Group Company as the parent company [1]. On January 6, 2017, Midea Group made a large-scale acquisition of Germany Kuka Group. The acquisition price was high and involved the core technology of Kuka Group, so it attracted the attention of all parties. For both sides, it is related to the future development of the enterprise. It is a key measure to help the development of the enterprise. Kuka Group attaches importance to the Chinese market, while Midea Group hopes to complete its strategic transformation through Kuka Group. After the completion of the acquisition, both parties will face new challenges [2].

For a long time, the motivation of company merger and reorganization has been fully researched. When Liu studying the reorganization case of Changjiang Corporation, he proposed that inter-enterprise restructuring is an effective way to enhance the competitive advantage of enterprises and occupy market shares in the situation of fierce competition between multinational and local enterprises [3]. Yang took the example of Shanghai Chaori Company, a representative enterprise in the photovoltaic industry, to demonstrate the importance and effectiveness of debt restructuring for the optimization of enterprise management structure from two aspects of business performance and financial status in enterprise reorganization [4]. Wang constructed the evaluation index system based on the performance evaluation model of asset reorganization, compared the changes of financial

indicators before and after the enterprise reorganization, and proved that the enterprise reorganization can create value for its subsequent development [5-10].

The research approach of this paper is as follows. Firstly, we analyze the case environment from four aspects: national policies, economic environment, social environment, and industry technology. Then, this study analyzes the selection of the target company from the perspectives of technology and financial status. Subsequently, the focus of this paper is on the analysis of the M&A effect, discussing the effects of technology upgrading, growth potential, and market impact. The following is the arrangement of this paper. The second part describes the case from the perspectives of background and acquisition process. The third part analyzes the case from three aspects: environment, target company selection, and restructuring effect. The fourth and fifth parts are strategic recommendations and conclusions.

2. Background

Midea Group was founded in 1968, which is the leader in the domestic household appliances industry, with a wide and comprehensive home furniture industry chain. Following the development strategy of household appliance market in recent years, Midea put forward the M-Smart smart home plan to start the business transformation, and officially announced to entry the robot industry with the origin of 'Double Wisdom' and develop online related services. Kuka Group was founded in 1898. As a German manufacture model, Kuka has more than 100 years development history and its main business is the development, manufacture, and sales of robots. From the perspective of the current situation of related industries, the development of China's household appliance industry has entered a balanced and mature period, it is difficult to make innovation and breakthrough. As for market demand, with the continuous development and progress of AI, smart home life has become an important measurement basis for people to choose, and household appliances need to be high-end oriented and intelligent. Some of the manufacturers represented by Kuka Group are in the upstream of the industrial chain with extremely high technology. While most of the domestic manufacturers are in the downstream, the competition on smart home is fierce, but the general research and development level is not high.

Midea Group is optimistic about Germany Kuka Group's competitive advantages and development prospects, to Kuka formally issued a merger invitation. At the beginning, the movement was opposed by some German government officials, who feared that Kuka's core technology and resources would be compromised. On this basis, Midea takes Kuka Group as the largest shareholder after the acquisition as a condition to respect each other's technology patents and ensure the independence of its later development. Since 2016, Midea Group announced a cash acquisition of the German Kuka Group shares. In January 2017, Midea became the control share holder of Kuka through a tender offer, then holding about 94.55%. In 2021, Midea Group announced that it planned to fully acquire Kuka equity and privatize it. In March 2022, Kuka announced that Midea would pay 80.77 euros per share in cash way to remaining shareholders in Kuka. In November 2022, Midea completed the acquisition of 100% shares of Kuka, which was 'go dark' from the Frankfurt bourse.

3. Analysis

In this study, we chose six years before and after the merger and acquisition of Midea Group and Kuka Group, combined with various financial indicators to analyze the performance changes after the merger and acquisition. It mainly includes profitability analysis, solvency analysis, operation analysis and enterprise growth analysis. To be specific, we mainly select ROA, JROA and ROE to measure the profitability of enterprise. As shown in Fig. 1, the three indicators show a downward trend with different degrees. Since Midea Group started merger and acquisition in 2016, is has invested loads of money in business activities such as buying shares of Kuka, recruiting official persons, and expanding the scale of enterprise. Midea cannot obtain the profits in short time, and

funds are raised in debt, such as JROA and ROE decreased from 10.6% and 25.4% in 2016 to 8.5% and 24.7% in 2018. In the year of 2018 and 2019, due to the continued activity of merger and acquisition, Midea gained core manufacturing technologies such as industrial robots and profits rebounded. But due to the complex process of merger and acquisition and the large amount of capital investment, the overall trend is still declining.

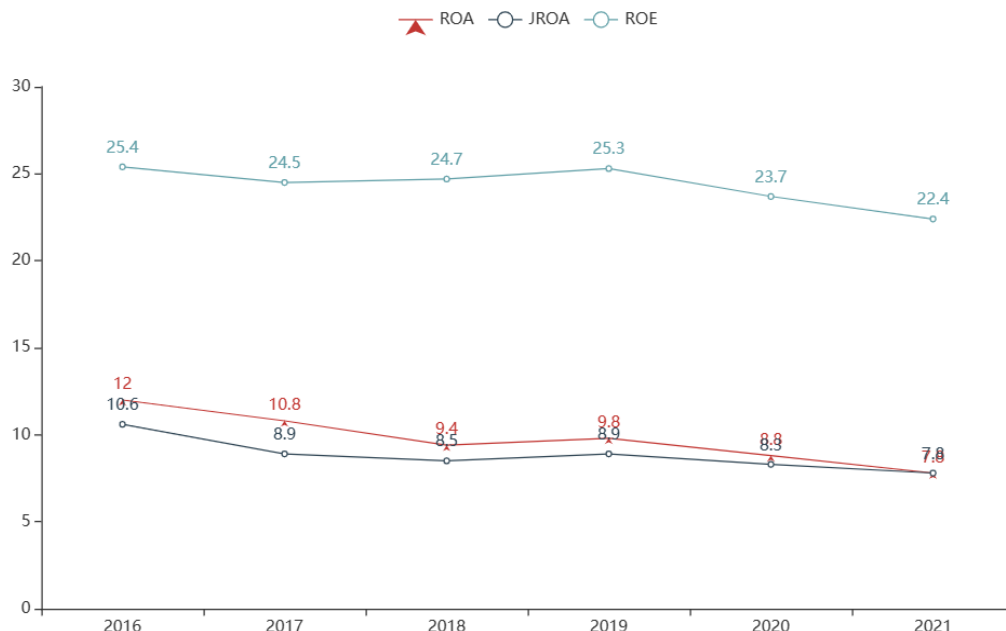


Figure 1. Profitability line chart

To measure the solvency of enterprise, CR, OR and TDR are utilized. Seen from Fig. 2, the solvency index of Midea Group in the first three years is relatively stable. According to CR and OR, Midea has stable ability to repay debts in the way of realization in the early stage of merger and acquisition. In 2019 it peaked at 1.43 and 1.2 respectively, and most of the financial and operational risks are under the control. However, it has been declining year by year since 2019, and the amount of capital invested in the later stage of merger and acquisition has increased, as same as the debt repayment risk. The TDR of Midea Group did not show significant fluctuation, but showed a slow growth trend, indicating that the debt repayment level of the enterprise has improved but debt is growing.

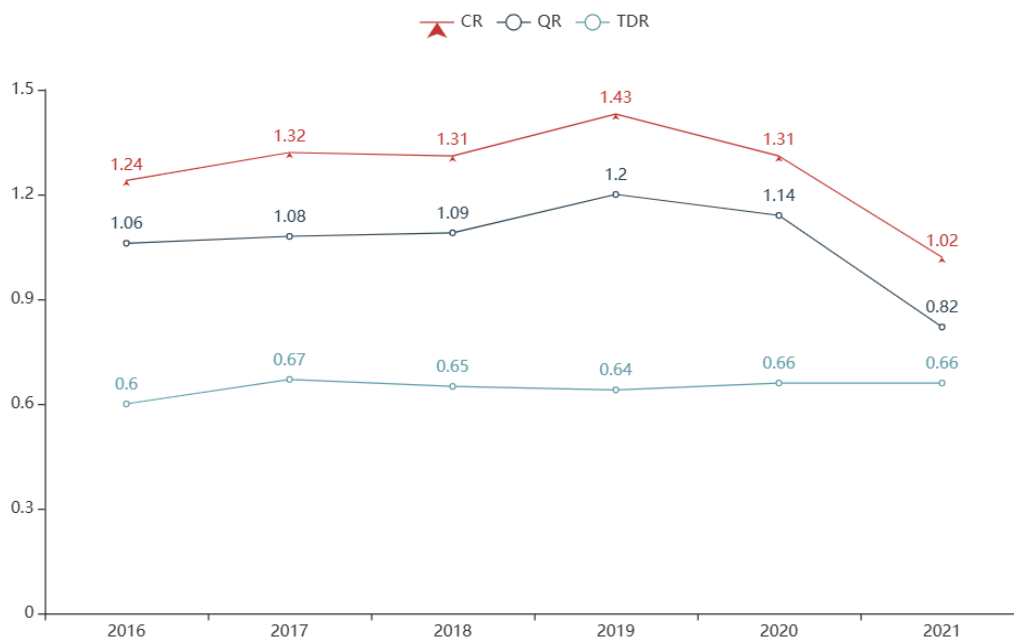


Figure 2. Solvency line chart

ART, ITO, and TAT are used to measure the operation capacity of enterprise. As depicted in Fig. 3, the ART of Midea were fluctuates in these years. Between 2016 and 2017, ART increased from 13.4 to 15.5, indicating that its capital realization ability was improved and the speed of capital turnover was accelerated after merger and acquisition began. There is a decline in the following year, with slower turnover of funds and Midea need to pay attention to risks and problems with accounts receivable. Its TAT has been maintained at a low level, occasionally with small waves, but that merger and acquisition activities brought Midea a better change in capital management ability. ITO has been declining from 2016 to 2019, which indicates that the inventory of Midea has a problem of lagging sales and brings the risk of capital turnover questions. After realizing this problem, Midea actively adjusted its sales strategy. In the following two years, its ITO increased and the backlog of good decreased.

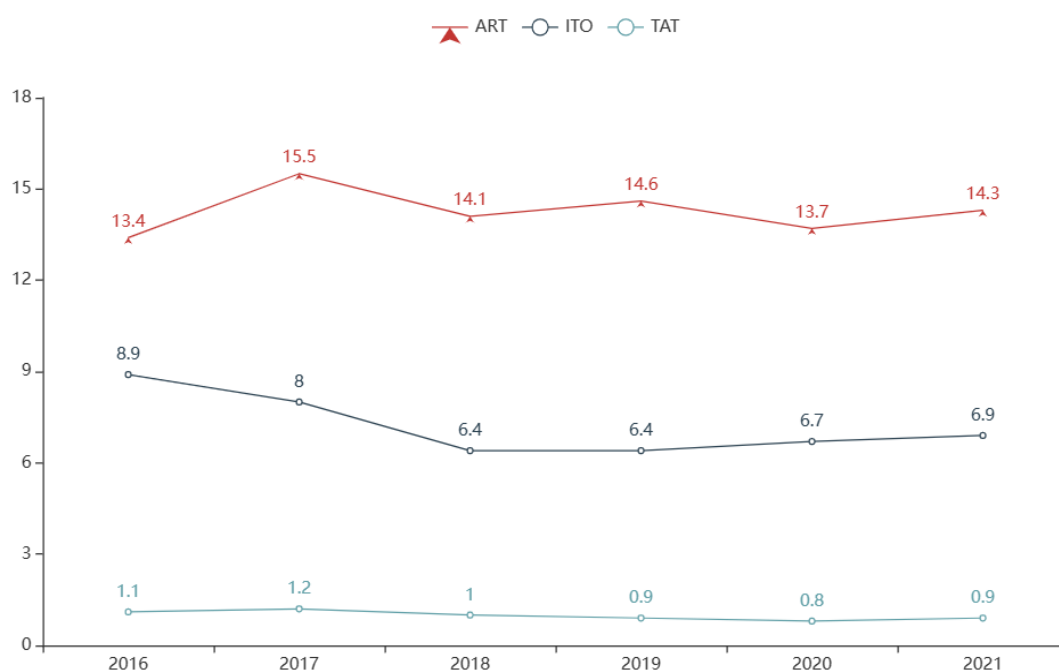


Figure 3. Operation capacity line chart

Table 1. NOG Chart.

Midea Group						
Year	2016	2017	2018	2019	2020	2021
NOG	-0.40	-0.449	-0.518	-0.537	-0.346	-0.372

We chose NOG as the growth index of Midea before and after merger and acquisition. According to the data in the Table. 1, the NPG are all negative in the merger and acquisition process, indicating that Midea are not profitable in the short term among this period. The NPG was obvious negative in 2018 and 2019. If this situation continues in the next few years, the enterprise will have serious loss in profit. As a leading enterprise in China's household appliance manufacturing industry, Midea's continuous improvement in research and development capabilities will enable it to maintain a leading position in a fiercely competitive market and achieve long-term business success. On the one hand, through continuous research and development, it can continuously improve the technical level of its products, thereby improving product quality and performance, and develop more advanced new products to gain a competitive advantage in the market. On the other hand, the improvement of research and development capabilities can help understand customer needs and thus better satisfy them.

Table 2. Technical Capabilities

Year	Number of R&D Personnel	Percentage of R&D Personnel	R&D Expenditure	R&D Expenditure as a Percentage of Operating Income	New patents granted
2016	8741	9.07	6045800	3.8	13546
2017	10520	10.33	8500000000	3.53	16934
2018	12321	10.74	9810805000	3.78	15895
2019	13727	10.18	9638137000	3.46	13525
2020	16071	10.77	10118667000	3.56	570
2021	18105	10.92	12014907000	3.52	Not shown

Table 2 presents the changes in Midea Group's technical capacity indicators from 2016 to 2021. It is evident that following the completion of the KUKA AG acquisition in 2016, Midea Group significantly increased its investment in research and development (R&D), which signifies potential technological improvements resulting from the acquisition of the high-tech firm. Furthermore, a comparison of the proportion of R&D personnel from 2016 to 2021 indicates a substantial increase after the acquisition. In fact, Midea Group continually optimized and adjusted its compensation structure, improved performance evaluations and incentive plans for the management team, and closely linked compensation with the profits of various business units after the acquisition. By further promoting value creation, the compensation structure was tilted towards benefit-related positions, which effectively attracted and motivated core talent in the long term. Moreover, the time series of patent counts indicates that Midea Group's actual innovation level has also significantly improved. Since the acquisition in 2016, the number of patents owned by Midea Group has steadily increased. However, there has been a certain degree of decline in the number of patents since 2020, likely due to the impact of the COVID-19 pandemic.

The diversification brought about by the acquisition has promoted Midea's development advantages, guiding the rational allocation of resources and saving related operating costs. After the acquisition, KUKA was not interfered with and its original management system was completely respected. Therefore, from the overall perspective of the acquisition, it is more inclined towards the integration of technology and innovative thinking. The joint venture and production base established by Midea and KUKA are expected to usher in further integration. Both parties have reached a consensus on their overall strategic vision and are willing to jointly explore China's robotics market and develop Midea's diversified businesses. KUKA provides technical support to produce intelligent robots and smart homes, which is also an important backing for Midea's production of new robots. In addition, in terms of logistics, Annto, a subsidiary of Midea, will enhance cooperation with Swisslog to further develop smart logistics. In terms of sales, Midea provides KUKA with sales channels to enhance KUKA's product sales in China. As the acquisition is not achieved overnight, the integration is still limited at present, but it has already had a positive impact on Midea and KUKA.

4. Suggestions & Implications

After the merger and acquisition, the enterprise of both sides combined actively and exchange related manufacturing technologies to clarify the strategic objectives of next step. In addition, according to the problems arise from activities, it is necessary to adjust industrial structure in time and combine the original advantages with core technology to achieve the goal of 1+1>2. In addition, it should appropriately learn from foreign management ideas and production experience to strengthen the cultural integration. Moreover, one ought to establish a mutually recognized corporate development culture to promote sustainable progress.

5. Conclusion

In summary, taking the case of Midea's acquisition of KUKA as an example, this paper illustrates Midea's positive response to the "Made in China 2025" proposal. Recognizing the limitations of current market demand on its own enterprise development, Midea actively sought technological expansion and progress. By learning KUKA's industrial robot technology and manufacturing process skills, Midea has constructed a smart home industry chain, expanded its business scope appropriately, and further implemented a strategic layout for business globalization to broaden the growth space of the company. After the completion of the acquisition, Midea leveraged KUKA's solid and reliable customer base and close customer relationships to promote brand awareness, establish a good corporate image, and achieve the goal of enhancing Midea's competitiveness. Nevertheless, this study has some shortcomings, e.g., the analysis is not comprehensive enough and did not explore the benefits of this acquisition from the perspective of excess rate of return. In addition, owing to the lack of in-depth analysis of Midea's business and production aspects, only relying on data indicators may not fully reflect the impact of this acquisition on Midea's technical and innovative capabilities. For the further study, it would be beneficial to incorporate a more comprehensive analysis that considers the impact of the merger and acquisition on the excess return rate of the acquiring company. Overall, these results offer a guideline for policymakers and investors to make informed decisions regarding mergers and acquisitions. In addition, the findings highlight the significance of considering the long-term effects of the transaction, e.g., its impact on a company's innovation capability and market competitiveness.

References

- [1] Liu X. Research on M&A Performance of Iron and Steel Enterprises -- Based on Angang's M&A of Panzhihua Iron and Steel. *Business Story*, 2015, 13: 32 - 33.
- [2] Huang X. Midea Group completes the acquisition of 100% equity of Kuka Plus code robot business. *The securities times*, 2022 - 11 - 16 (A06).
- [3] Liu J. Practical exploration of central enterprise restructuring and integration based on the case analysis of CRRC Yangtze Co., Ltd. *Fiscal Supervision*, 2016, 13: 2.
- [4] Yang X. Research on the Financial Impact of Debt Restructuring on Listed Companies: Based on the Case Analysis of Shanghai Chaori Company. *Time Finance*, 2020, 769(15): 107 - 108.
- [5] Wang L. Case analysis of asset restructuring. *Times Economics and Trade*, 2017, 13: 9 - 11.
- [6] Cheng Q, Sun C, Zhang X, et al. Short-Term load forecasting model and method for power system based on complementation of neural network and fuzzy logic. *Transactions of China Electrotechnical Society*, 2004, 19 (10): 53 - 58.
- [7] Fang F. Research on power load forecasting based on Improved BP neural network. Harbin Institute of Technology, 2011.
- [8] Economic globalization and national economic sovereignty. *Yangtze River Series*, 2017, 08: 133.
- [9] Chen Y X. Research on the Influence of Foreign capital Economy on China's National Economic Autonomy. Fuzhou University, 2017.
- [10] Liu Y. Case analysis of mergers and acquisitions of small and medium-sized enterprises in the new third board. *Financial Communication*, 2018, 1: 10.