

Evaluation of Synergistic Effect of Continuous Mergers and Acquisitions in Biomedical Enterprises Take Luye Pharma in China as the Example

Qian Liang^{1,*}, Youmeng Ke²

¹ Enter Author Affiliation Yunnan Normal University

² Enter Author Affiliation Yunnan Normal University

*Corresponding author. Email: 1620690117@qq.com

ABSTRACT

With the development of economy and the continuous improvement of national health awareness, the scale of China's biomedical market continues to grow rapidly, becoming an indispensable part of the international biomedical industry. This paper adopts case analysis method to take Luye Pharma of China as an example, and evaluates and studies the collaborative development mode of Luye Pharma acquiring patents through mergers and acquisitions, creating star products and realizing rapid revenue growth, in order to provide experience for the new development mode of mergers and acquisitions of biomedical enterprises.

Keywords: Continuous mergers and acquisitions, synergies, biomedicine, Luye Pharma.

1. BRIEF INTRODUCTION OF PHARMACEUTICAL INDUSTRY

The international pharmaceutical industry can be divided into patented innovative drugs and generic drugs two different pharmaceutical categories. Patented innovative drugs are highly profitable, although often more than 100 percent, due to patent protection (patent protection lasts for 20 years, but usually less than 10 years after the approval of phase III clinical trials). However, many pharmaceutical companies spend a lot of time and money on R&D of patent drugs, but they don't get new drugs at last. It can be said that the investment in patent drug R&D is a bottomless pit. Large international pharmaceutical enterprises, such as Pfizer of the United States, invested 8.65 billion DOLLARS in patent drug R&D in 2019, accounting for 16.7 percent of the total revenue. In addition, if the phase III clinical trial is not successfully completed, most of the R&D investment in the early stage will be wasted. Therefore, small and medium-sized pharmaceutical companies cannot afford it. Looking at the international market, only large pharmaceutical companies such as Pfizer, Roche and Johnson still insist on the high R&D and investment of patent drugs. In generics, competition is fierce because there are no patents to worry about, no high patent fees to pay, just the investment of pharmaceutical resources and

fixed production costs. Therefore, the price competition of generic drugs is very fierce. For such enterprises, the key is how to optimize the cost, otherwise their profits are usually squeezed by the price war, or even they cannot make profits.

2. LUYE PHARMA INTRODUCTION AND BASIC DISCUSSION OF MERGER AND ACQUISITION

2.1. Introduction to Luye Pharma

Luye Pharma Group Co., LTD., formerly known as Asia Pharma Co., LTD., was formally established on April 28, 2014. In 2014, the first year after its establishment, Luye Pharma Group was successfully listed in Hong Kong Stock Exchange with an IPO price of 5.93 YUAN and raised nearly HK \$6 billion.

Luye Pharma Group Co., Ltd. is not only a national key high-tech enterprise approved by the Ministry of Science and Technology of The People's Republic of China, but also a member of the APEC Chinese Enterprise Joint Conference, a member of the Shanghai Cooperation Organization Business Committee, an industrialization base of the 863 Program achievements and a state-level enterprise technology centre. Luye Pharma's main business is the production, development

and sales of natural drugs, chemicals and new preparations.

2.2. Luye Pharma continued mergers and acquisition conditions basis and reasons

Luye Pharma has accumulated a lot of experience in nearly 20 years of operation, and has the ability to select high-quality enterprises for mergers and acquisitions. The accumulation of these experiences can not only strengthen and enhance the integration ability after THE merger and play a synergic effect, but also enhance the independent innovation ability of Luye Pharma through the merger and acquisition, and avoid or reduce some risks brought by the merger and acquisition. Luye Pharma has accumulated experience from the manufacturing and export of API. Through international mergers and acquisitions, Luye Pharma has acquired R&D teams from all over the world and listed drugs globally, with business covering more than 90 countries and regions. The choice of collaborative development strategy of M&A should rely on the resources of the enterprise. For example, the advantage of large international generic drug companies is that they can produce APIS by themselves, and their factories and technologies are all self-owned, leading to a very good cost control effect of APIS. Luye Pharma, a non-traditional pharmaceutical giant established less than 20 years ago, obviously does not have this advantage, so it is not suitable for generic drugs. However, if it chooses the patent drug industry, it will lack a large number of top scientific researchers and R&D funds, and the risk of R&D failure is beyond its capacity. Therefore, Luye Pharma chooses to rely on external mergers and acquisitions to obtain patents, create star products, and realize the collaborative development model of rapid revenue growth.

2.3. Luye Pharma M&A risk control

Luye Pharma pays great attention to risk prevention in merger and acquisition. First of all, many pending drug patents can be extended through the improvement of

pharmaceutical formula and other methods. The extension of pending patent directly extends the life cycle of the product, not only improves the profit margin of the product, but also reduces the risk of merger and acquisition. For example, Paclitaxel Liposome for Injection is the composition and formula patent of Luye Pharma, which was obtained in 2007 when it acquired Nanjing Sike Pharmaceutical. Secondly, a large margin of safety was set aside in the merger and acquisition of Luye Pharma, without relying on the historical performance of the target enterprise to judge the future profit development space. Due to the fact that the risks of M&A in the biomedical industry are very high. First, the investment in mergers and acquisitions is usually very high. Second, the uncertainty of synergistic development of mergers and acquisitions will be intensified once alternative drugs appear or political policies of various countries change suddenly.

3. SYNERGISTIC EFFECT EVALUATION OF LUYE PHARMA UNDER CONTINUOUS MERGER AND ACQUISITION

The growth and development of Luye Pharma cannot be separated from continuous mergers and acquisitions. In 2007, Luye Pharma realized its first M&A of the target enterprise -- Nanjing Sike Pharmaceutical Co., LTD., and acquired the anti-tumour drug -- Paclitaxel Liposome for Injection, which also strengthened the core business field of Luye Pharma -- anti-tumour patent drugs. These drugs acquired through mergers and acquisitions have been successfully built into best-selling products by Luye Pharma, exerting synergistic effect and creating a large proportion of Luye Pharma's revenue and profits. Luye Pharma continued its M&A strategy after its successful listing at the end of 2014. The specific synergetic effect evaluation research system is as follows table 1^[1]. (Positive index means that the higher the index value is, the stronger the enterprise is in this aspect Index; Negative index means that the higher the index value is, the weaker the enterprise is in this respect.)

Table 1. Evaluation index of synergistic effect system

| Indicator type | Indicator name | Index abbreviation | Calculation formula | Index nature |
|-------------------|--------------------------|--------------------|--|----------------|
| Operating Synergy | Return on equity | ROE | (Net profit after tax / Average annual net assets) | Positive Index |
| | Net Assets Growth Rate | NAGR | (Net assets at the end of this year / Net assets at the end of last year) / Net assets at the end of last year | Positive Index |
| | Operating Revenue Growth | ORG | (Main business income of this year - Main business income of | Positive Index |

| | | | | |
|--------------------|-----------------------------|------|---|----------------|
| | | | last year) / Main business income of last year | |
| Financial Synergy | Current Ratio | CR | (Total Assets / Current Liabilities) | Moderate index |
| | Quick Ratio | QR | ((Total Assets – Inventory) / Current Liabilities) | Moderate index |
| | Debt Ratio | DR | (Total Debt / Total Assets) | Moderate index |
| Management Synergy | Scale Charges Ratio | SCR | (Operating Expense / Total Revenue) | Negative Index |
| | Total Asset Turnover | TATO | (Main business income / Annual average total assets) | Positive Index |
| | Account Receivable Turnover | TRTO | (Main business income / Average annual accounts receivable) | Positive Index |

3.1. Evaluation of operating synergy effect

Operating synergies are mainly reflected by the business conditions of enterprises after M&A, such as patent barriers caused by acquiring patents through M&A, expanding market share and improving production efficiency^[2]. Therefore, Return on Equity (ROE), which represents the ability to obtain profits, and Net Assets Growth Rate (NAGR) and Operating Revenue, are selected in this paper Growth (ORG) to measure the operating synergies of Luye Pharma under continuous mergers and acquisitions.

Table 2. Operating synergistic effect evaluation data of Luye Pharma 2015-2019

| | 2019 | 2018 | 2017 | 2016 | 2015 |
|------|-------|-------|-------|-------|-------|
| ROE | 16.4% | 17.2% | 15.0% | 14.0% | 13.7% |
| NAGR | 10.1% | 10.3% | 11.1% | 5.6% | 10.4% |
| ORG | 22.7% | 35.8% | 30.6% | 13.8% | 0.9% |

Data source: Luye Pharma Annual Report

As shown in Table 2, ROE, the most typical indicator of profitability of Luye Pharma, showed a trend of steady rise in the 5 years of continuous M&A after successful listing. Although ROE in 2019 decreased by 0.8% compared with 2018, it also increased by nearly 20% compared with 2015. It indicates that Luye Pharma spent a lot of money on mergers and acquisitions, which did not affect the normal profitability of the company. Besides, patents and products acquired in mergers and acquisitions were well integrated, which enhanced the profitability of the company. Similarly, ORG, a typical indicator of development capacity, also maintained steady growth from 2015 to 2019, rising from 0.9 percent in 2015 to 35.8 percent in 2018. In 2019, it declined but

also maintained a growth rate of over 20 percent. It shows that the patents and products acquired in the continuous acquisition enrich the product line of the company and expand the market at the same time. Although the growth rate of NAGR is small, it is generally stable. Except for 5.6% in 2016, the growth rate of overall net assets remains at 10%, indicating that enterprises have good risk control and strong ability to integrate the resources of acquired enterprises in continuous mergers and acquisitions. From the perspective of non-financial indicators, Luye Pharma has a clear business purpose in the multiple merger and acquisition. For example, Luye Pharma acquired Acino of Switzerland at the end of 2016, with the main purpose of acquiring transdermal drug release system (TDS), which expanded the product line as well as the European market and improved the business capability of the company. Therefore, no matter from the perspective of financial indicators or non-financial indicators, Luye Pharma has demonstrated good operating synergies in the 5-year continuous merger and acquisition after its listing in Hongkong Stock Market at the end of 2014.

3.2. Evaluation of Financial synergy effect

Financial synergies are mainly reflected by the financial status of enterprises after mergers and acquisitions^[2], among which the most obvious is the change of solvency, because mergers and acquisitions may optimize the capital structure of enterprises, reduce financial risks or increase the efficiency of the use of funds. Therefore, three typical indicators, Current Ratio (CR), Quick Ratio (QR) and Debt Ratio (DR), are selected in this paper to measure the financial synergies of Luye Pharma under continuous M&A.

Table 3. Financial synergistic effect evaluation data of Luye Pharma 2015-2019

| | 2019 | 2018 | 2017 | 2016 | 2015 |
|----|--------|--------|--------|--------|--------|
| CR | 167.0% | 105.8% | 172.3% | 222.4% | 485.1% |
| QR | 156.2% | 98.6% | 160.8% | 203.4% | 457.8% |
| DR | 54.0% | 54.8% | 35.9% | 28.7% | 17.8% |

Data source: Luye Pharma Annual Report

First of all, it should be noted that the three indicators to measure the financial synergies under continuous M&A are moderate indicators, which are different from the positive indicators to measure the operating synergies mentioned above. As shown in Table 3, from 2015 to 2019, CR and QR representing short-term solvency of Luye Pharma showed a downward trend. However, these two indicators are moderate indicators, and it is generally believed that the QR of the enterprise is maintained at about 100% and the CR150%, which not only ensures the short-term solvency of the enterprise, it avoids the sudden debt financial risk, and also improves the capital utilization rate of enterprises, increases the leverage income, and forms the financial synergistic effect. Similarly, the difference between CR and QR of Luye Pharma is also decreasing in these five years, which indicates that continuous mergers and acquisitions also expand product sales, reduce the amount of ending inventory, and improve the real short-term solvency of the enterprise. Although pharmaceutical leaves these five years of DR revealed a rising trend, the main reason is the starting year of DR is too low, causing a large number of idle funds through continuous acquisition under the background of capital structure optimization, the formation of financial synergy, finally in 2019 at 54%, a relatively reasonable level, such both neither can cause a lot of money, it avoids the risks caused by excessive financial leverage. This also shows that Luye Pharma pays great attention to risk control in mergers and acquisitions, leaving a margin of safety and avoiding the negative impact of blind mergers and acquisitions on enterprises.

3.3. Evaluation of Management synergy effect

The management synergies are mainly reflected by the assets management status of the enterprises after the merger, such as the reduction of expenses and the improvement of operating capacity during the period after the merger. As a result, in this paper, Scale Charge Ratio (SCA), Total Asset Turnover (TATO), Accounting Turnover (TRTO) measures the synergies under the continuous acquisition of Luye Pharma.

Table 4. Management synergistic effect evaluation data of Luye Pharma 2015-2019

| | 2019 | 2018 | 2017 | 2016 | 2015 |
|------|-------|-------|-------|-------|-------|
| SCA | 49.4% | 49.0% | 49.1% | 50.3% | 49.0% |
| TATO | 0.34 | 0.36 | 0.39 | 0.35 | 0.38 |
| TRTO | 5.4 | 4.9 | 4.2 | 3.6 | 4.0 |

Data source: Luye Pharma Annual Report

As shown in Table 4, the SCA of Luye Pharma during the representative period from 2015 to 2019 basically maintained at 49%, which is an inverse indicator, slightly higher than the industry average of 44.6%, indicating that Luye Pharma's ability to control the expenses during the period was not significantly improved by continuous merger and acquisition. The main reason is that the sales cost is too high, accounting for 80% of the period cost. TATO, which represents operating capacity, shows a similar trend, remaining at 0.34 to 0.39 visits per year over the five years. And the TRTO is slightly below the industry average of 0.40. And on behalf of the operating capacity of another indicator TRTO revealed a gradually rising trend, by the year 2019 has reached 5.4 times a year, has reached the industry average, show continued to enhance the enterprise accounts receivable management after the merger, to a certain extent, to realize the improvement of the asset management capabilities, has formed a certain management synergy, but it needs to be further improved.

4. CONCLUSION

As mentioned above, Luye Pharma has formed good operating synergies, financial synergies and certain management synergies after continuous mergers and acquisitions. The problems brought by the continuous acquisition of Luye Pharma are also obvious. For example, Luye Pharma has the simple strength of its core products (patent of composition and formula, valid until 2021) mentioned above, and the pending patent obtained by modifying the formula is approaching again. Whether to continue to extend the patent term by other means or turn to research and development of new core products is a tricky issue at the present stage. It is also a problem that other pharmaceutical companies that want to imitate the development mode of Luye Pharma merger and acquisition need to face most.

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