

# Research on the Influence of R&D on Cosmetic Company in China's Market

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## ABSTRACT

This paper mainly studies the relationship between R&D investment, company revenue, and company value in the growth stage of Chinese cosmetics companies, and predicts the company's future value with the DCF model. In the selected experimental samples, Chinese companies are all start-up and growing cosmetics companies, and the comparison samples are all world-renowned multinational cosmetics companies. Qualitative conclusions are drawn by comparing R&D investment and revenue data of different companies in different years. The final result is that, in the growth stage, the R&D investment of Chinese companies is positively correlated with revenue, while in the mature stage, the revenue has little relationship with R&D investment, but has a greater relationship with the external macro-environment. The significance of this paper is to provide Chinese cosmetics companies with suggestions on whether to increase research and development.

**Keywords:** *Hysteresis effect, R&D, Chinese cosmetic market.*

## 1. INTRODUCTION

Since the beginning of 2019, COVID-19 has swept the world. The pandemic has affected every aspect of human life, large and small, from the global political and economic landscape to individual lives. The pandemic has certainly accelerated the changes that are being driven by today's rapidly advancing technology. For the consumer industry, consumers are rapidly adjusting their needs, and enterprises need to adjust their development strategies in time according to the changes in consumer needs, to achieve higher revenues, profits, and social awareness in 2022 and beyond.

For consumers in the cosmetics industry, according to Euromonitor, consumers are increasingly paying attention to "organic" and "natural" labels. This trend in consumer preference has made R&D increasingly important in corporate strategy. For a company, R&D takes a long time and a lot of money to invest, and unlike marketing revenue, R&D investment can be quickly reflected in financial statements. The impact of R&D investment on revenue is uncertain, revenue is not stable, and the impact on enterprises has a lag.

After data analysis, Vasconcellos and Gregolin used a

table to show the required level of integration between the R&D and marketing departments of a cosmetics raw material manufacturer in Brazil, how to achieve the level of integration and the representation of the company's level of integration, the determinants of valuation and results. Vasconcellos and Gregolin went on to suggest that the more important a project is, the higher the level of integration between R&D and marketing. Finally, Vasconcellos and Gregolin analyze the impact of this paper on the decision-making process of enterprise managers and provide experimental evidence and information sources for promoting the integration of R&D and marketing departments [1]. Ahn et.al investigated the cognitive data of R&D activities of 285 T&CM manufacturing SMEs and found that the natural cosmetics manufacturing SMEs (NC SME) had the highest R&D expenditure, and these enterprises were very dependent on internal R&D operations. They tend to see their product-related businesses as the focus of future R&D investment. Finally, they explore the possibility that the results can be used to reduce the gap between T&CM product manufacturers and decision-makers to support R&D [2]. Britton used a 45-question survey to ask 137 people about their makeup use, behavior, and personal habits, And use The Texas Social Behavior Inventory (TSBI) scale, which Is intended to be an objective

measure of an individual's feelings of self-worth or social competence. Britton then used a series of regression models to study the data and found that different levels of self-esteem and personal habits did not affect cosmetic-related beliefs, attitudes, and behaviors. Finally, Britton analyzed the background limitations of the respondents. They were all female college students aged 18-23 with relatively homogeneous experience and backgrounds. At the same time, the data is affected by the subjectivity of respondents [3].

Sveikauskas reviewed the research and development literature, Guidelines for recent efforts to include R&D in the national income accounts for the US Department of Labor. Based on the summary of literature review of different papers, Sveikauskas concludes that the overall return on R&D is very large, with a private return of perhaps 25% and a total social return of 65%. However, these returns apply only to privately funded industrial R&D and the return on publicly funded R&D is close to 0%. Finally, Sveikauskas explores the possibility of the transfer of R&D conducted in developed countries to developing countries, which requires a more complete understanding of technology transfer channels [4]. Chen tested customer education on customer choice through survey and statistical analysis. The impact of the sustainable cosmetics decision explores the key factors that contribute to the successful spread of sustainable innovation, as well as the obstacles that sustainable cosmetics companies need to overcome to thrive in an already saturated cosmetics industry. Chen concludes that product quality/effectiveness and price are still the most important factors in deciding whether consumers buy a product or not. In addition, building a sustainable image helps cosmetics companies gain more trust and build long-term customer loyalty. Chen's advice can help cosmetics companies better integrate sustainability into their business strategies and management strategies at the core of their operations [5]. Chouhan et.al Through a survey of the Korean cosmetics market, Chouhan provides a quantitative analysis of the market segments, current trends, estimates, and dynamics of k-beauty products market analysis from 2019 to 2027 identified market opportunities. The market research included key drivers, constraints, and market opportunities for K-beauty products. Chouhan analyzed the current risks and opportunities in the Cosmetics market in South Korea, as well as the impact of COVID-19 on the market. Chouhan observed that with the outbreak of the COVID-19 pandemic, manufacturers increased social media advertising using herbal skincare products to reach a consumer base. This report is a relatively complete and detailed reflection of the indicators and trends of the Korean cosmetics market from 2021 to 2027 [6].

To answer the research questions, Hofer designed an online survey with 29 questions and allowed participants to express additional comments and opinions. A sample of 126 people participated in the survey. Hofer analyzed

the survey results and believed that most people would decide whether to buy cosmetics based on average reviews, while the promotion success rate of buying cosmetics based on recommendations of people around them was very high. At the same time, Internet celebrity marketing is an effective means to positively influence consumers' purchasing behavior, thus increasing sales and spreading positive word of mouth. Finally, Hofer expressed the limitations of this paper, that is, the sample size is too small and the respondents are mainly from Germany and Austria [7]. Dr. KV Raghavan et al formed a research team to collect a large amount of data from the open literature and to study the current profile. The R&D status of the Chemical industry in India through opinion surveys and direct interaction with subject matter experts. The R&D team mainly discussed the impact of R&D on the entire Indian chemical industry. All its important sub-sectors, including R&D intensity, intellectual property management, industry-University (IU) linkages, nurturing of new enterprises, utilization of government-funded R&D, and human resource management. The R&D team concluded that the overall R&D intensity of the Indian chemical industry was estimated at 0.9% in 2007-2008, and a sample analysis of 250 leading companies in different sub-sectors showed that their turnover growth did not match R&D expenditure. While industries such as pharmaceuticals and organics have shown the sensitivity of R&D intensity to company size, such behavior has been more modest in all other industries. At the same time, Indian universities do not contribute well to industry, and funding for relevant researchers has little industrial relevance [8].

Grebel and Nesta used the two-stage Cournot competition game to show that the R&D reaction function symbol depends on the four environments of product competition and technology spillover. Grebel and Nesta tested the model's predictions at the world's largest manufacturing firms, assuming that firms made R&D investments based on the R&D efforts of representative competitor firms, and developed a dynamic panel data model that explains the endogeneity of competitor firm decisions. The empirical results confirm the validity of the theoretical model. If the product is a similar substitute, technology spillover will affect the R&D and production of competing companies. Whether companies profit from their research work depends on the extent of knowledge spillover and product substitution. Ultimately, Grebel and Nesta conclude that spillovers may spur corporate R&D investment [9]. Based on the Mannheim Innovation Group's (MIP) series of companies covering the period 2006-2010, Hud and Hassinger analyze the impact of public R&D subsidies on R&D investment by Small and medium-sized enterprises (SMEs) in Germany during the economic crisis. Hud and Hassinger pointed out that although R&D subsidies had an overall positive impact on SMEs 'R&D investment behavior, there was a crowding-out effect in 2009, and in 2010 when the

economy was recovering, the subsidy effect was smaller than in the previous years of the crisis. The authors test that the temporary crowding out effect is due to the unwillingness of subsidy recipients to invest in R&D rather than to counter-cyclical innovation policies. Finally, they explore possible research directions for the impact of collaboration on the effectiveness of R&D subsidies during an economic crisis[10].

Therefore, this paper mainly studies the impact of R&D investment on the revenue and profit of multinational cosmetics enterprises and small and medium-sized cosmetics enterprises.

## **2. METHOD**

The ultimate purpose of an enterprise is to make profits, and the purpose of RESEARCH and development is to develop new products and create new profit points. When research and development produces results, productivity increases. According to this idea, the following hypotheses are proposed: 1. R&D investment has a positive impact on the current income of the enterprise. 2. R&D investment has a lag effect on enterprise income. In this sample, 15 listed cosmetics companies in the world are selected as research objects, among which 4 are world-class multinational cosmetics companies and 11 are Chinese A-share listed cosmetics companies. The purpose is to compare the ratio of R&D investment to operating revenue of different companies, and whether the lag period of different companies has regular time changes. This research and development data involves the change of enterprise R&D investment expenditure from 2015 to 2020, as well as the change of enterprise main business income during the same period, so as to obtain the qualitative impact of R&D investment on enterprise main business income.

### **2.1 Research Object**

The research objects we selected for this study are Estee Lauder, L'Oreal, Shiseido, Procter & Gamble, Coty, Shanghai Jahwa, Huaxi Biological, Aimeike, Lancy Shares, Puraiya, Shuiyang Shares, Yixian E-commerce, Wamei Shares, Lushang Development, Qingsong Shares, Lafang Jahwa. The first four are multinational cosmetics giants, while the remaining 11 are cosmetics companies listed on China's A-share market or the US stock market.

### **2.2 Reasons for Selecting Research objects**

The five multinational cosmetics companies selected this time are representative companies, among which Estee Lauder and Procter & Gamble are all American companies, L'Oreal and Coty are European companies and Shiseido is an Asian company. These five companies are located in three continents, and these three continents are the world's top three cosmetics revenue distribution. So the geographical distribution of these four companies is representative.

According to Beauty Packaging data, in 2021, L'Oreal, Estee Lauder, PROCTER & Gamble, and Shiseido ranked first (\$27.2 billion), third (\$11.8 billion), fourth (\$11.8 billion), and sixth (\$7.3 billion) among cosmetics companies in the world [1]. All five companies are among the top 10 in the world in terms of revenue in 2021, so they can be representatives of multinational cosmetics giants.

The remaining 11 cosmetics companies are generally based in China or founded by Chinese nationals. They can be called Chinese companies. For example, Yixian E-commerce, which is listed in the U.S. but is based in China, was included in the study. These companies generally have representative star cosmetics products. Although the scale is not as large as the multinational cosmetics companies mentioned before, they are already represented in the same industry in China.

### **2.3 Research Methods**

#### **2.3.1 Selection of Study samples**

The research method selected in this study is to intuitively compare the R&D investment amount from 2015 to 2020 with the main business income data. Wind and financial data from major company announcements were used for research.

#### **2.3.2 DCF Model**

DCF's two-stage model is used to estimate the expected cash flow of enterprises in the next 10 years. As the selected subjects, especially cosmetics companies in the Chinese market, almost all of them are newly listed or newly restructured companies, so the development stage of the companies is almost in the growth stage and will enter the mature stage in 5-10 years. Therefore, the valuation model of the company will not choose the sustainable growth model, but the two-stage growth model. This condition is to make the valuation more accurate. If continuous growth model is used for valuation, horizontal comparison between small and medium-sized cosmetic companies can also be carried out, but it may not get accurate comparison between large companies and small and medium-sized companies.

This study divides the future into two stages. The period from 2021 to 2026 is the first stage, which is the growth stage, and the growth rate of corporate cash flow enters a stage of rapid growth. 2026 to 2032 is the second stage, which is the mature stage, and the growth rate of corporate cash flow enters the sustainable growth stage. After five years of development, the growth rate of the enterprise gradually tends to be stable, and gradually close to the mature multinational companies. Without the change of special external environment or internal environmental conditions, the development rate of enterprises is relatively constant.

### 2.3.3 Determination of Important Parameters

#### 2.3.3.1 Determination of The Free Cash Flow Growth Rate

As for the growth rate of free cash flow, this study will obtain the growth rate of announced cash flow from 2015 to 2020 according to the financial data of Wind and the company's announcement, and take the growth rate of cash flow in these six years as the average, to take the growth rate of cash flow in the next five years, namely, from 2021 to 2026. After the second stage, the sustainable growth rate will be based on the annual growth rate of China's nominal gross national product. According to the data, from 2015 to 2020, China's GDP growth rate is 7.04%, 6.85%, 6.95%, 6.75, 5.95% and 2.35% respectively [11]. The annual GDP in 2020 was severely affected by the epidemic and fluctuated greatly. As the GDP growth rate for 2021 has not yet been announced, Xianchun Xu, a professor at the School of Economics and Management of Tsinghua University, predicted at the launch of the Annual Report on China's Macroeconomic Situation Analysis and Forecast (2021-2022) that the economy will grow around 4% in the fourth quarter of 2021 and 8% in the whole year, and GDP will recover [12]. Even higher than pre-epidemic levels. Since GDP in 2020 is a serious deviation value, this study chose to exclude this data. Take the GDP growth data from 2015 to 2019 and 2021 and average them out to get a value.

Equation (1) aims to calculate the average GDP rate between 2015 to 2020.

$$\text{average GDP growth rate} = \frac{r^1+r^2+r^3+r^4+r^5+r^6}{6} \quad (1)$$

where  $r^1, r^2, r^3, r^4, r^5, r^6$  respectively, denote every year's GDP rate from 2015.

Therefore, in the second stage, the sustainable growth stage, the value of the sustainable growth rate will be 6.93%.

#### 2.3.3.2 Determination of The Discount Rate

The discount rate is generally determined by the summation method.

Equation (2) aims to calculate the discount rate.

$$\text{discount rate} = \text{risk - free return rate} + \text{risk premium rate} + \text{inflation rate} \quad (2)$$

For the discount rate, this study chose the interest rate of the national debt as the reference value to assume the discount rate. According to data released on the website of China's Ministry of Finance, The average interest rate

on five-year Treasury bonds was 3.81 percent from 2011 to 2018, While the average interest rate on three-year Treasury bonds was 3.39 percent. According to Xu Xiaoping, chief economist of Dune Capital Management, China may enter an era of long-term low-interest rates from 2022, making it difficult for the 10-year Treasury bond yield to return above 3 percent. As a result, the study assumes an interest rate of 3.5% over the next 10 years, slightly lower than the rate for the previous decade.

For risk compensation, the Shanghai Composite Index rose 4.8% in 2021, as of December 31, 2021.

In terms of the inflation rate, according to the data of China's National Bureau of Statistics, the inflation rate from 2018 to 2020 was 2.1%, 2.9%, and 2.5% respectively [13]. The inflation rate is averaged over the three years at 2.5%.

Therefore, the discount rate = 3.5%+4.8%+2.5% = 10.8%. For the convenience of calculation, the discount rate in this study is 10%. Because it is a horizontal comparison of companies in the same industry, the calculated data does not affect the final result.

#### 2.3.3.3 Calculation of The Fair Value

DCF valuation is calculated using an Excel table.

Equation 3 aims to calculate the fair value of the company to decide whether this company is worth to invest.

$$\text{fair value} = \text{the sum of PV (rate, Nper, PMT, [FV], [type])} \quad (3)$$

where the rate is the discount rate, NPER is the number of years, PMT is 0, [FV] is the net profit of the current year, and [type] is 0.

## 3. Results and Discussion

### 3.1 R&D Fees

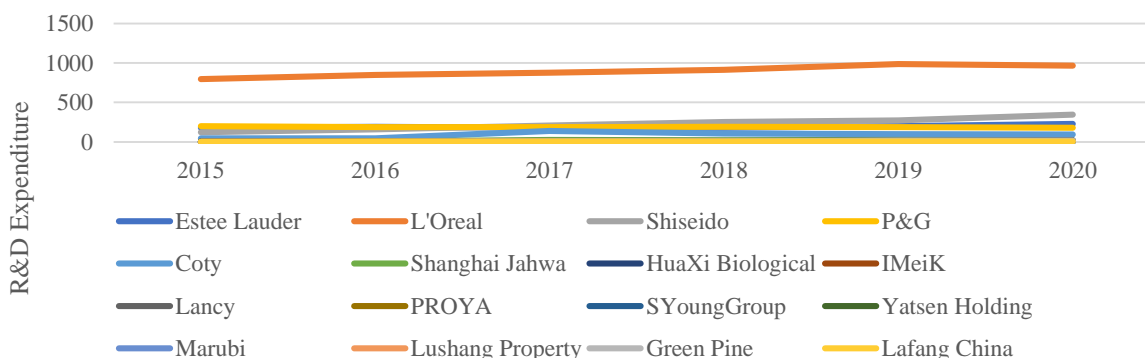
For multinational companies, R&D data of Estee Lauder [14] and L'Oreal [15] come from Statista, R&D data of Shiseido come from annual reports [16] on the company's official website, R&D data of P&G[17] and Coty[18] come from Finbox.

For Chinese companies, the R&D data of 10 companies all come from the official website of Flush [19].

As most listed companies in the US and Chinese stock markets have not released their 2021 annual reports, the data ends in 2020.

**Table 1.** R&D expenditure from 2015 to 2020 (Unit: million dollars)

Year	2015	2016	2017	2018	2019	2020
Estee Lauder	178	191	179	181	202	228
L'Oreal	794	850	877	914	985	964
Shiseido	123	158	210	253	275	345
P&G	199	188	187	191	190	180
Coty	47.4	47.7	139.2	108.1	98.5	93.4
Shanghai Jahwa	4.4	4.1	24.1	23.6	27.2	22.6
HuaXi Biological	0.0	0.0	4.0	8.3	14.8	22.2
IMeik	0.0	0.0	4.5	5.3	7.6	9.7
Lancy	10.1	10.2	12.6	13.0	16.2	14.6
PROYA	0.0	7.5	6.4	8.1	11.7	11.4
SYoungGroup	0.0	0.0	5.8	7.2	6.9	7.5
Yatsen Holding	0.0	0.0	0.0	0.0	0.0	0.0
Marubi	0.0	0.0	4.4	5.3	7.1	7.9
Lushang Property	0.0	0.0	3.8	4.7	7.2	12.1
Green Pine	2.8	3.6	4.2	7.4	16.4	19.5
Lafang China	0.0	5.6	5.4	5.4	6.0	5.7



**Figure 1** R&D expenditure from 2015 to 2020 (unit: million dollars)

As shown in Table 1, it can be observed that L'Oreal's R&D expenses in the selected samples are much higher than those in other samples. In 2020, L'Oreal spent 322.81 percent more on R&D than Estee Lauder in the second place in the sample, mainly because L'Oreal also had higher revenue than Estee Lauder. The R&D expenditure of the sample of 5 mines was much higher than that of the remaining 10 Chinese companies for two main reasons. First, the company has entered the mature stage, and R&D expenses account for a relatively healthy proportion of operating revenue, which is suitable for the long-term development and operation of a company. However, the samples of Chinese companies are still in the development stage, paying more attention to marketing expenses, and paying less attention to R&D. Second, the operating income of multinational companies is much higher than that of Chinese companies. Some R&D data of Chinese companies were lacking before

2017 because the company was only established in 2017. Compared with multinational companies, Chinese companies have the far fewer business scope and customers. From Figure 1, the R&D expenditure of the sample of selected companies shows an overall upward trend and will peak in 2020. There are two main reasons. The first is that with the development of the company, its business has gradually expanded and its operating income has steadily increased, with more money to invest in research and development. Second, due to the global epidemic, the company has saved some of the expenditure originally used for offline marketing, which is now used for RESEARCH and development.

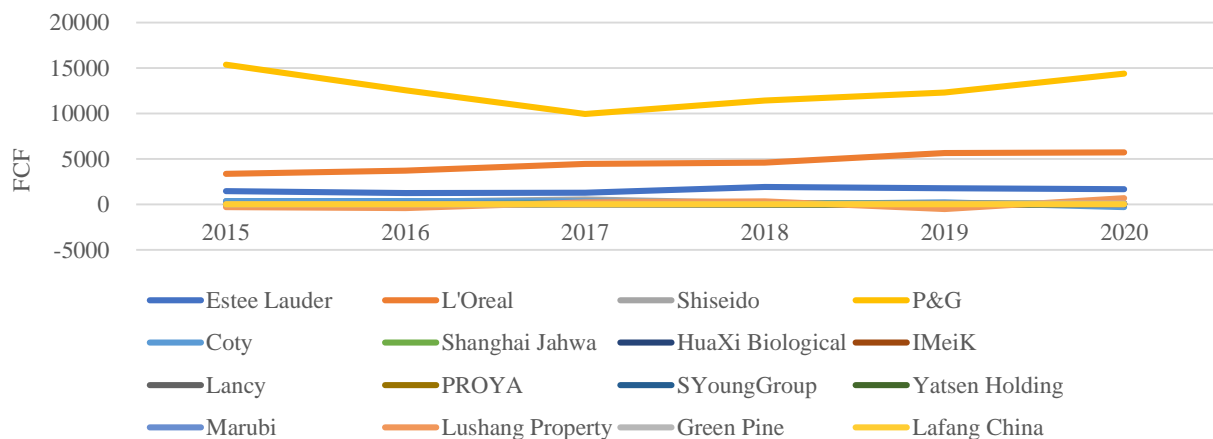
### 3.2 Free Cash Flow

For international companies, free cash flow data are all from Macrotrends[20]. For Chinese companies, the

data of free cash flow all come from annual reports.

**Table 2.** Free cash flow from 2015 to 2020 (Unit: million dollars)

Year	2015	2016	2017	2018	2019	2020
Estee Lauder	1470	1264	1298	1933	1775	1657
L'Oreal	3373	3710	4455	4584	5654	5724
Shiseido	368	314	540	147	-142	170
P&G	15370	12553	9940	11419	12289	14360
Coty	370	381	337	4	226	-318
Shanghai Jahwa	63	-18	108	108	109	64
HuaXi Biological	0	39	55	49	-15	37
IMeIK	6	1	7	15	44	62
Lancy	21	14	8	-6	83	39
PROYA	17	12	40	44	11	23
SYoungGroup	-3	-14	16	-22	-36	-13
Yatsen Holding	0	0	0	-2	-3	-33
Marubi	39	33	55	79	72	-61
Lushang Property	-285	-392	244	324	-529	675
Green Pine	12	10	-3	7	92	74
Lafang China	16	27	6	2	19	3



**Figure 2** Free Cash Flow from 2015 to 2020 (Unit: million dollars)

By comparing Table 2 and Figure 2 of R&D expense, the amount of R&D expense is generally positively correlated with the amount of FCF, that is, the higher FCF is, the more R&D expense is. But P&G is an exception because it is not just a cosmetics company. P&G differs from the other cosmetics companies in the sample because its main business is consumer goods.

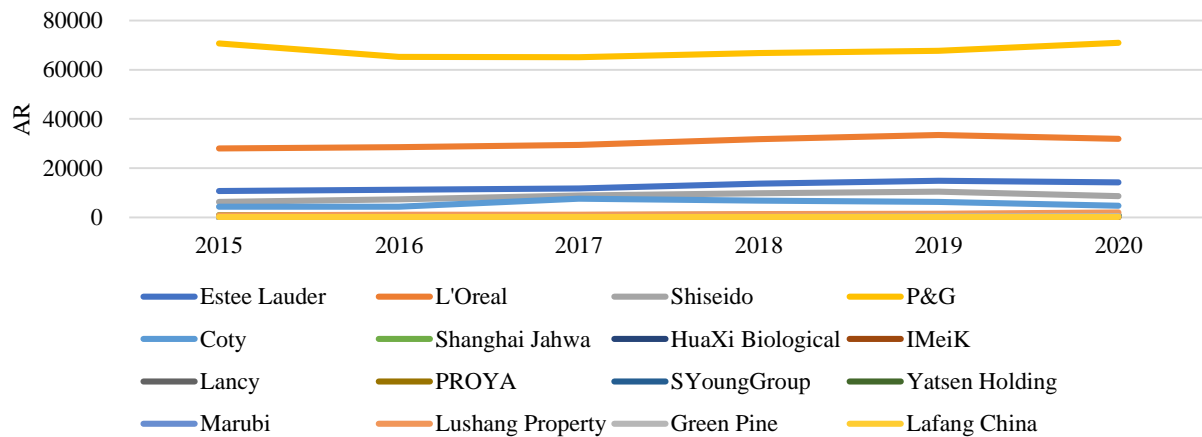
### 3.3 Annual Revenue

For international companies, annual revenue data are all from Macrotrends [20]. For Chinese companies, the data of annual revenue all come from annual reports.

**Table 3.** Annual revenue from 2015 to 2020 (unit: million dollars)

Year	2015	2016	2017	2018	2019	2020
Estee Lauder	10780	11262	11824	13683	14863	14294
L'Oreal	28047	28591	29415	31813	33458	31975
Shiseido	6330	7297	8890	9871	10410	8656

P&G	70749	65299	65058	66832	67684	70950
Coty	4395	4349	7650	6842	6288	4718
Shanghai Jahwa	911	828	1011	1114	1186	1097
HuaXi Biological	0	113	126	194	292	409
IMeiK	17	22	34	50	88	112
Lancy	179	213	367	415	470	450
PROYA	255	252	277	367	487	585
SYoungGroup	120	183	256	351	377	581
Yatsen Holding	0	0	0	100	477	823
Marubi	185	187	210	244	280	271
Lushang Property	837	1114	1121	1315	1516	2023
Green Pine	92	87	127	222	455	605
Lafang China	153	163	152	150	150	153



**Figure 3** Annual revenue from 2015 to 2020 (unit: million dollars)

The Figure 3 of annual operating expenses can directly reflect the change of an enterprise's earning capacity. By comparing Figure 2, it can be found that the tendency of Figure 3 coincides with the change of free cash flow. FCF and AR are highly correlated.

### 3.4 Comparing the R&D fee and Annual Revenue

From the perspective of the timeline, the operating revenue of the two companies increased significantly in 2018 and 2019. Compared with 2015 to 2018, the curve of annual revenue tilted at a larger Angle, so the operating revenue grew faster in these two years. At the same time, the two companies in 2019 to 2020, operating revenue has seen a certain range of decline.

This is mainly due to the impact of the global epidemic. Due to the high synchronization of these two companies, and by comparing the ratio of operating revenue and R&D expenses of the remaining three multinational cosmetics companies, it can be found that the operating revenue trend of the five companies is the same. Therefore, the revenue is less affected by R&D and more affected by other macro factors.

By comparing the ratio of R&D expense to operating revenue of the two companies, it can be concluded that the R&D expense of Estee Lauder is about 1.32%-1.70%, and that of L 'Oreal is about 2.83%-3.01%. L 'Oreal's R & D costs are higher than Estee Lauder, and the absolute R & D costs are far greater than Estee Lauder.

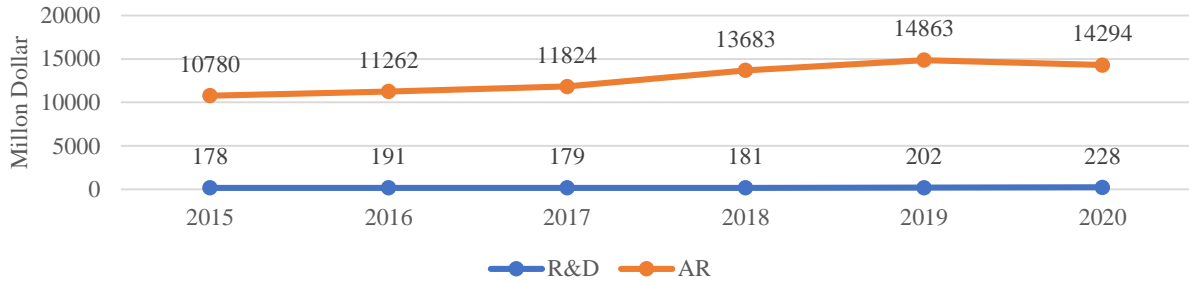


Figure 4 Estee Lauder R&D cost and annual revenue (unit: million dollars).

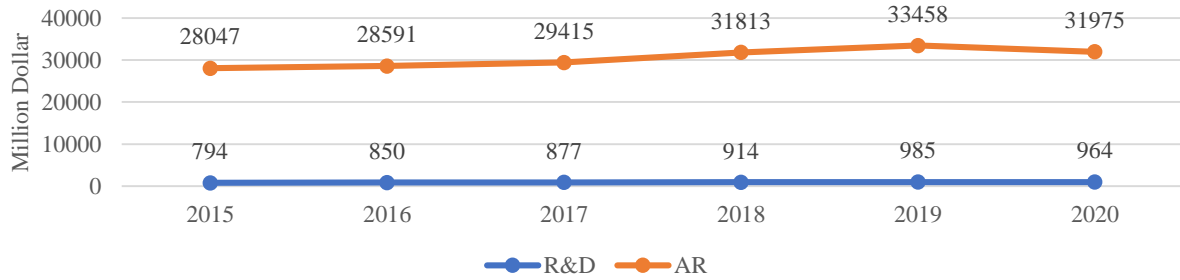


Figure 5 L'Oreal R&D cost and annual revenue (unit: million dollars).

For Chinese cosmetics companies, take Shanghai Jahwa and Huaxi Biological as examples. The reason for choosing the two companies as examples for comparison is that only Shanghai Jahwa and Lancy have data on R&D expenditure since 2015. As shown in Figure 4 and Figure 5, Shanghai Jahwa's R&D expenses accounted for only about 0.5% of its operating revenue before 2017, but this figure rose to 2.38% in 2017. Meanwhile, its annual revenue in 2017

increased by 22.10% compared with 2016. From 2018 to 2020, the annual revenue growth of Shanghai Jahwa is 10.19%, 6.46%, and -7.50% respectively, while the growth of R&D expenses from 2018 to 2020 is -0.5%, 15.25%, and -16.91 respectively. From 2018 to 2020, Lancy's R&D expenses increased by 3.43%, 24.58% and -9.58%, respectively, while annual revenue grew by 13.10%, 13.09% and -4.27%, respectively.

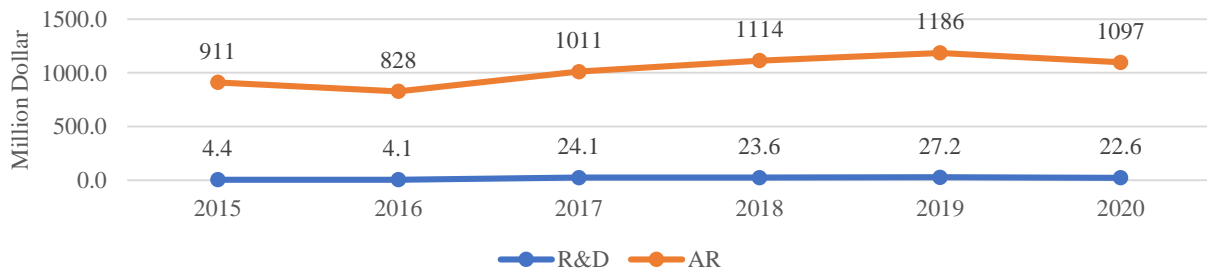


Figure 6 Shanghai Jahwa R&D cost and annual revenue (unit: million dollars).

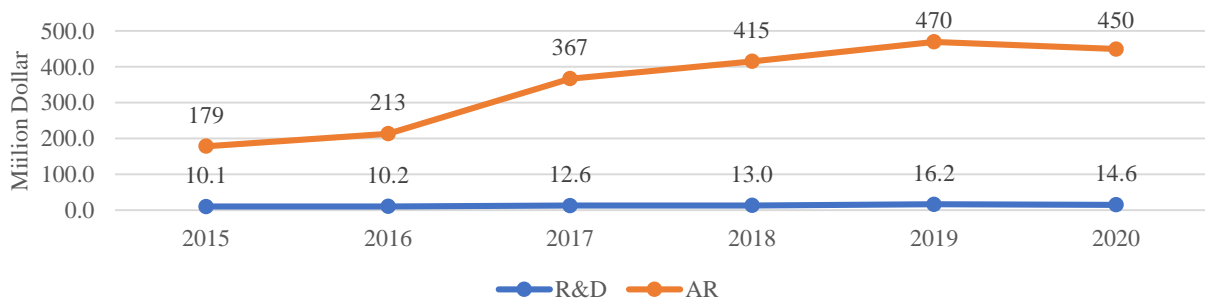


Figure 7 Lancy R&D cost and annual revenue (unit: million dollars).



As can be seen from the comparison of Figure 6 and Figure 7, R&D expenses of Chinese cosmetics enterprises are basically in positive correlation with their annual revenue. Technology or asset-heavy industries tend to have a lag in R&D costs and revenues, but cosmetics have very little lag. The possible reason is that the cosmetics industry itself

belongs to the asset-light industry, and the cycle of product research and development is not as long as that of the asset-heavy industry or the technology industry. The investment of research and development costs can often be reflected in the current year's operating income.

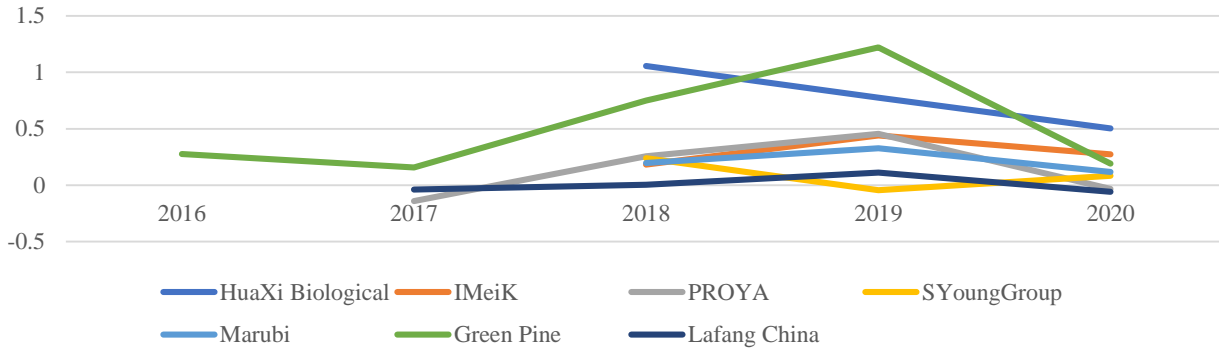


Figure 8 R&D increasing rate (unit: million dollars)

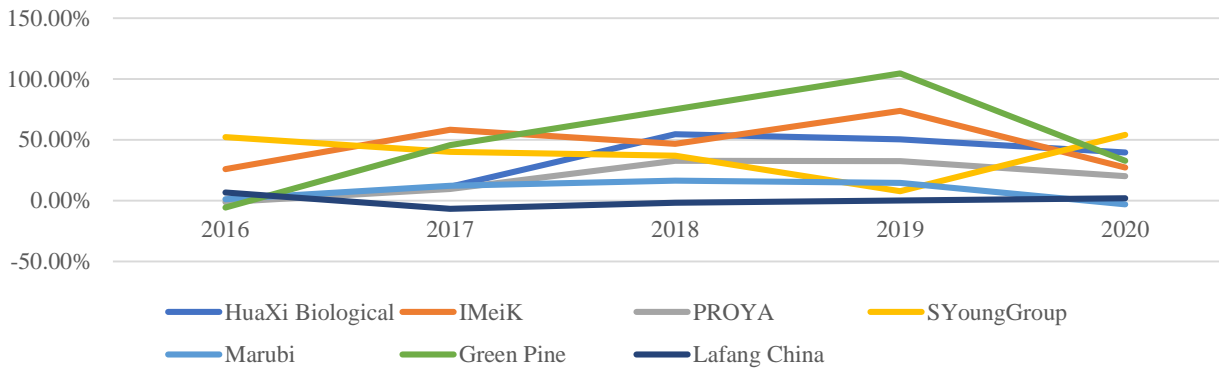


Figure 9 Annual revenue increasing rate (unit: million dollars)

### 3.5 Sustainability model valuation of the second stage

According to the calculation, in the second stage of perpetuity, the market value of each sample company is shown in the table.

Because the free cash flow of SYoungGroup has grown negative in recent years and the main business of Lushang Property includes real estate, the DCF model cannot be used.

Green Pine includes chemical business and cosmetic processing business, so use the price-earnings ratio R&valuation method. In 21 years, the average PE value of a-share chemical business of the company was 24 times, and the PEG value was 0.16-2.36. There are no a-shares of cosmetic processing enterprises yet, and the related shares are Cosmetics sunscreen manufacturer

Nanjing Cosmos Chemical (secondary new shares, listed on July 22, 2020). In 21 years, Nanjing Cosmos Chemical's PE was 24 times, and PEG was 1.20. The company has two main businesses and adopts the division valuation method. The chemical business of the company is recommended to be valued at 15 times according to the peer valuation level. The cosmetics processing business is valued at 30 times by referring to the leading valuation experience of the A-share market and overseas mature markets, and considering the growth of the company's cosmetics processing business and the leading position of the company. All told, the target price is \$4.23 / share.

As can be seen from the chart below, the market value of international cosmetics companies in the mature stage is roughly in line with their valuation. However, due to the low or negative free cash flow data of developing Chinese cosmetics companies, their valuations are relatively low.

**Table 4.** Market value (unit: billion dollars)

Company	Estee Lauder	L'Oreal	Shiseido	P&G	Coty	Shanghai Jahwa	HuaXi Biological	IMeik
Current market value	113	233	21	387	7	4	9	15
Fair market value	101	237	14	444	12	2	3	9

Company	Lancy	PROYA	SYoungGroup	Yatsen Holding	Marubi	Lushang Property	Green Pine	Lafang China
Current market value	2	5	1	13	2	4	1	1
Fair market value	2	2	/	0	3	/	2	2

#### 4. CONCLUSIONS

After the analysis of 15 cosmetics companies (5 multinational companies, 10 Chinese cosmetics companies), the conclusions are as follows. First, for mature multinational companies, R&D expenses and the proportion of R&D expenses to revenues are relatively stable. The increase of operating income is usually relatively shallow with the relationship between RESEARCH and development costs, and the influence of other external environmental factors is relatively large. Second, for Chinese companies in the development stage, R&D costs are positively correlated with annual revenues in the current year. As cosmetics is an asset-light industry, it is more sensitive to increased R&D costs and has a shorter reaction cycle. For Chinese cosmetics companies, the significance of increasing R&D investment is more significant than that of mature companies. This article can be used as a reference for Chinese start-up cosmetics companies to decide whether to increase R&D investment.

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