Applied Mathematics and Nonlinear Sciences

<https://www.sciendo.com>

Value Creation of Real Estate Company Spin-off Property Service Company Listing

Zhang Yang, Zhu Yumeng, Zhiruo Wang, Sun Jie, Wu Chengliang [†]

School of Economics and Management Beijing Forestry University, Beijing 100083, China

Submission Info

Communicated by Juan Luis García Guirao

Received March 10th 2021

Accepted March 25th 2021

Available online May 26th 2021

Abstract

The paper took 12 groups of parent companies and subsidiaries as the samples, in which the property service companies, spun from the real estate companies, have successfully on the capital market. The research showed that the average abnormal return (AAR) of real estate companies' stocks was positive on the first announcement date of possible spin-off listing, while the cumulative average abnormal return (CAAR) remained positive for 21 days during the (−11, 9) days around the first announcement of possible spin-off and listing. Further, the changes in operating performance of real estate companies and property service companies were analysed after the successful spin-off for 3 consecutive years, compared with the year before the spin-off and listing. The results showed that after the spin-off and listing, real estate companies and property service companies have greatly improved their performance. Therefore, the fact that real estate companies spun off property service companies created positive values for shareholders.

Keywords: real estate companies; property service companies; spin-off and listing; value creation

1 Introduction

As global capital markets become more closely connected and domestic companies become more familiar with asset restructuring and spin-off listing, China's listed companies have attempted to apply the spin-off listing model to restructure their assets [17, 19, 20]. Although the merger of companies can produce synergies [6], the spin-off leads to a reduction in the scale of the parent companies and can also bring new wealth growth points for shareholders. Mergers create value by active synergy, while spin-offs create value by effectively managing the resources of entity-specific units to achieve sustainability [1]. Dasilas and Leventis [7] prove that the spin-off listing has brought significant positive returns to the shareholders of the parent companies by asymmetric information hypothesis and asset-stripping hypothesis, but 2 years later, the market value of the parent companies declined. However, some scholars revealed that spin-off and listing can effectively improve the operating performance of parent companies and subsidiaries [2, 11, 14, 15]. To improve the long-term stock benefits, the companies are likely to use the announcement effect of spin-off and listing [5].

[†]Email address: wubjfu@163.com

Nowadays, China's real estate market has increasingly diversified, and various real estate companies rely on their existing businesses and resources to develop many new business growth points. Among them, property service has become a core business that measures the product quality of real estate companies and enhances their brand premium. Traditional property service companies mostly rely on real estate companies to survive and develop. Why have property service companies pursued landing in the capital market in recent years? In 2014, Fantasia Holding Group successfully spun off its subsidiary Color Life Services, which successfully landed on the Hong Kong stock capital market. In just 3 days, the market value of the subsidiary company Color Life Services, exceeded that of its parent company. In 2015, China Overseas Land & Investment was split to list China Overseas Property Management in Hong Kong, and the profit growth rate of subsidiary China Overseas Property Management exceeded 20% in the same year. In 2016, Greentown China split Greentown Property Services in Hong Kong, and the profit growth rate of subsidiary Greentown Property Services exceeded 45% in the same year. These successful cases have caused many real estate companies to change their strategies one after another, and start the procedure of spin-off and listing of property subsidiaries or sectors to enter the promising area. Therefore, it is of great practical significance to explore the market value of parent and subsidiary companies before and after real estate companies successfully spun off property service companies, and land on the capital market. However, can spin-off and listing create value for real estate companies? Are the operating performance of real estate companies and property service companies consistent after the spin-off and listing?

To address these problems, this paper made an in-depth analysis of 12 groups of parent and subsidiary companies, among which China's real estate companies have successfully spun off property service companies. On the one hand, this paper explores the changes in AAR of real estate companies around the first announcement date of the real estate companies' possible spin-off of property service companies, thus analysing whether the spin-off and listing of property service companies has created positive value for real estate companies. The AAR of real estate companies is one of the important criteria for measuring the successful spin-off and listing of property service companies. Only when the AAR of real estate companies make a positive market response can the shareholders of real estate companies create value from the spin-off and listing of property service companies. Therefore, this paper will focus on the changes in AAR of real estate companies. On the other hand, this paper analyses the changes in business performance of real estate companies and property service companies after the successful spin-off and listing, compared with the year before the spin-off and listing for three consecutive years, exploring whether spin-off and listing can effectively improve the operating performance of parent and subsidiary companies. The change in operating performance before and after the spin-off is an important aspect for studying whether the real estate companies' spin-off of property service companies can create value when they are listed. Therefore, this paper will focus on such questions as, for example, how the operating performance of real estate companies and property service companies fluctuates before and after the spin-off, and whether the change in operating performance is directly caused by the spin-off and listing.

Based on the research on spin-off and listing, scholars mostly focus on the impact of spin-off and listing on the stock price of the parent companies or the operating performance of the parent companies and their subsidiaries, but they rarely combine the two sides. This paper takes the real estate companies that have been successfully spun off and listed as a whole to explore the impact of spin-off and listing of property service companies on their value, and the results will be more convincing. Therefore, by comparison with the existing relevant researches, the research on the economic conditions of the spin-off of real estate companies and the listing of property service companies will be more comprehensive.

2 Introduction to the relationship between China's real estate companies and property service companies

Property service, as a product of the market economy in the early 1980s, was introduced from Hong Kong to Shenzhen, Guangdong, along with reform and opening up of the economy. So far, property service companies have been booming all the way, and the property service industry has begun to transform into a modern service

industry as a stock market.

The property service industry derives from the real estate industry, and in the early days most property service businesses, such as cost accounting, belonged to the internal business of real estate companies. As the constituents of the property service industry have become increasingly significant, some property service companies were separated from the original real estate companies and became independent subsidiaries, and even split their businesses to complete their independent listings.

However, the property service companies still have a close relationship with the original real estate companies. For most property service companies, their parent companies' projects are an important source of property service projects. With the development of the urban real estate industry, the property service enterprise market has gradually formed due to the management needs of the built houses. However, since the property service companies provide excellent after-sales service after the completion of the house, it has effectively promoted the economic development of the real estate market. In the process of property management and real estate development, the two must cooperate and assist each other. China's real estate companies are the cause of property service companies, while property service companies are the fruits of China's real estate companies.

3 Changes on the AAR of real estate companies' stocks around the spin-off and listing announcement date

At the end of the 20th century, spin-off and listing as an important means of asset restructuring was very popular in Europe and the United States. The spin-off market in these countries was equally developed when compared with the MA market. Based on this fact, Mulherin and Boone [12] conducted a research on asset sale activities of US listed companies from 1990 to 1999, which showed that the sale of assets creates positive value for shareholders of the listed spin-off companies. However, based on the analysis of the capital market reactions to the stock prices of the parent companies and their subsidiaries after the spin-off in China, some scholars have arrived at different conclusions [10, 21], which showed that the capital market responses differ before and after the spin-off announcement in China. To further study the market value of real estate companies whose listed property service companies have spun off from, the second part of this paper analysed the changes on the AAR of the stocks of real estate companies that have successfully spun off the property service companies into the capital market on and around the first announcement date by performing the event study method.

3.1 Sample selection

At present, a small number of real estate companies in China have listed spin-off property service companies, and most of them are listed in Hong Kong. As of the end of 2019, 15 property service companies have landed in the capital market, as shown in Table 1. At present, the property management industry mainly includes two types of property service companies: one relies on the development of real estate companies and the other is operated by an independent third party. The following are the examples of type one: Shenzhen Color Life Services Group Co., Ltd. (Fantasia Holdings Group Co., Ltd.), S-Enjoy Services Group Co., Ltd. (Season Holdings Co., Ltd.), Greentown Property Service Group Co., Ltd. (Greentown China Holdings Limited), A-Living Services Group Co., Ltd. (Agile Group Holdings Limited), China Overseas Property Management Co., Ltd. (China Overseas Land and Investment LED.), Kaisa Prosperity Holdings Limited (Kaisa Group Holdings LTD), Country Garden Services Holdings Co., Ltd. (Country Garden Holdings Co., Ltd.), Ever Sunshine Lifestyle Services Group Limited (CIFI Holdings (Group) Co. Ltd), Hangzhou Binjiang Property Management Co., Ltd. (Binjiang Service Group (Hong Kong) Co., Ltd.), Aoyuan Healthy Life Group Co., Ltd. (China Aoyuan Group Limited), Languang Justbon Property Services Co., Ltd. (Sichuan Languang Development Co., Ltd.) and Yincheng Life Services Co., Ltd. (Yincheng International Holdings Co., Ltd.). Therefore, this paper selected 12 groups of parent companies of various real estate companies and subsidiaries of property service companies as samples for in-depth analysis.

Table 1 Brief Introduction of Listed Property Service Companies.

	Real estate companies	Property service companies	Announcement date	Listing date	Listing location of properties service companies
1	Fantasia Holding Group	Color Life Services	2013.6.14	2014.6.30	Hong Kong
2	China Overseas Land & Investment	China Overseas Property Management	2015.5.18	2015.10.23	Hong Kong
3	Greentown China	Greentown Property Services	2015.5.18	2016.7.12	Hong Kong
4	Clifford Group	Clifford Modern Living		2016.11.8	Hong Kong
5	Agile Group	A-Living Services	2017.9.14	2018.2.9	Hong Kong
6	Country Garden Holding	Country Garden Services	2018.3.19	2018.6.19	Hong Kong
7	Season Holdings	S-Enjoy Services	2018.4.24	2018.11.6	Hong Kong
8	Kaisa Group	Kaisa Prosperity	2018.6.22	2018.12.6	Hong Kong
9	CIFI Holding Group	Ever Sunshine Lifestyle Services	2018.8.9	2018.12.17	Hong Kong
10	Binjiang Service Group	Binjiang Property Management	2018.11.26	2019.3.15	Hong Kong
11	China Aoyuan Group	Aoyuan Healthy Life	2018.8.31	2019.3.18	Hong Kong
12	Hevol Group	Hevol Services		2019.7.12	Hong Kong
13	Xinyuan Group	Xinyuan property management		2019.10.11	Hong Kong
14	Languang Development	Languang Justbon Property Services	2019.9.5	2019.10.18	Hong Kong
15	Yincheng International Holdings	Yincheng Life Services	2019.7.2	2019.11.16	Hong Kong

Source: NKEX news

3.2 Research methods

The second part of this paper analysed the changes in the AAR of the stocks of the real estate companies that have successfully spun off the property service companies into the capital market before and after the announcement date by performing the event study method. A small number of scholars have applied the event research method to study real estate-related issues. Scholars such as Hite et al. [9] studied the division of the real estate market by the event study. Glascock et al. [8] conducted an empirical analysis of asset acquisitions between real estate companies and non-real estate companies by the event study and the results showed that it is the real estate that determines that acquisitions fail to create additional revenue. Rutherford [16] empirically analysed the impact of the leaseback real estate company's operating situation on the company's stock price by the event study. Wang et al. [18] led an empirical analysis by the event study and proposed that different dividend policies of real estate investment trusts have differential announcement effects on the stock market. Brounen and Eichholtz [3] made an empirical analysis of the influencing factors of real estate ownership and the results proved that there is a significant negative correlation between real estate ownership and corporate system risk. The event study method is often used to explore the impact of an event occurred in the capital market or the information distribution on relevant parameters. The second part of this study explored the influence of the spin-off announcement event on the changes of the AAR of the real estate companies' stocks. The event study

method was divided into three steps: first, to clarify the research content and relevant hypotheses, second, to determine the event date, that is, the potential timing of the event that the capital market was informed rather than the actual timing of the event and third, to analyse the degree of influence of an event on the research goal.

The second part of the study was mainly divided into five stages: (1) the determination of the event date of the listed property service company spun off from the real estate company and the identification of the event window centred on the event date; (2) the determination of the estimation period, that is, an event range during which the normal return of the stocks can be measured and that does not include the event window; (3) the establishment of a market model of the real estate companies' stock returns; (4) the calculation of the expected return of stocks of real estate companies in the event window; and (5) the calculation of the AAR and CAAR of the real estate companies' stocks in the event window.

3.2.1 Market model

The market model assumes that there is a linear relationship between the stock returns of real estate companies and the market returns. The relationship can be formulated as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, E(\varepsilon_{it}) = 0, \text{Var}(\varepsilon_{it}) = \sigma_i^2$$

Among the above, R_{it} represents the real return of the real estate company i on day t and R_{mt} is the real return of the capital market m on day t .

The real return of the stocks of the real estate company i on day t can be formulated as follows:

$$R_{it} = \frac{P_{it}}{P_{it-1}} - 1 = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

Among the above, t is time and P_{it} and P_{it-1} represent the closing prices of the stocks of the real estate company i on the day t and day $t - 1$ respectively.

This paper adopted the Shanghai Composite Index, Shenzhen Composite Index and Hang Seng Index to calculate the actual return R_{mt} of the capital market on day t :

$$R_{mt} = \frac{D_{mt} - D_{mt-1}}{D_{mt-1}}$$

Among them, D_{mt} and D_{mt-1} represent the closing indexes of the Shanghai Composite Index, Shenzhen Composite Index or Hang Seng Index on day t and day $t - 1$, respectively.

For each real estate company, the actual return of the stocks in the estimation period on the actual return rate of the capital market was regressed by using the market model to obtain the estimated parameters of α_i and β_i . They are $\hat{\alpha}_i$ and $\hat{\beta}_i$, respectively. Therefore, the expected return of the stocks of the real estate company i on day t during the event window represents $\hat{R}_{it}$, and the formulation can be expressed as follows:

$$\hat{R}_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt}$$

In the event window (t_1, t_2) , the AAR AR_{it} (the abnormal return) of the real estate company i stock on day t can be formulated as follows:

$$AR_{it} = R_{it} - \hat{R}_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt}, \quad t_1 < t < t_2$$

During the event window (t_1, t_2) , the CAAR of real estate company i in the event (γ_1, γ_2) interval is $CAR_i(\gamma_1, \gamma_2)$

$$CAR_i(\gamma_1, \gamma_2) = \sum_{\gamma_1}^{\gamma_2} AR_{it}, \quad \gamma_1, \gamma_2 \in (t_1, t_2)$$

The AAR_t on day t of all real estate companies' stocks and the CAAR (γ_1, γ_2) within the event (γ_1, γ_2) can be formulated as follows:

$$AAR_t = \frac{1}{n} \sum_{i=1}^n AR_{it}$$

$$CAAR(\gamma_1, \gamma_2) = \frac{1}{n} \sum_{i=1}^n CAR_i(\gamma_1, \gamma_2)$$

3.2.2 Definition of the event and determination of the estimation period and event window

According to the signalling theory, the announcement of the listing of spin-off property service companies by the real estate companies can be seen as a typical market transmission signal, and the capital market, in return, reacts to the event. However, the entire spin-off process of the listing of the spin-off property service company from the real estate companies lasts a long period. Therefore, this paper took the first public disclosure of the possible listing of the spin-off property service company from the real estate companies as the event's announcement date. This paper made the period of 61 trading days from the 30th day before to the 30th day after the announcement day as the event window and the period of 150 trading days from the 180th day to the 30th day before as the estimation period. Among above companies, the interval between the listing date of Yincheng International Holdings (6 March 2019) and the spin-off and listing announcement date of Yincheng Life Services (2 July 2019) was short; so, the estimation period was from the 77th day to the 30th day before the spin-off and listing announcement day. In this paper, the spin-off announcement date was marked as 0; before the announcement as '−'; after the announcement as '+', the $(-180, -30)$ was the estimation period, and the $(-30, +30)$ was the event window.

3.3 The empirical test of the AAR of the real estate companies' stocks before and after the spin-off and listing announcement

The second part studied the regression of the actual return of the stocks of the 12 real estate companies in the estimation period on the actual return rate of the capital market using SPSS software and calculated the AAR and CAAR of real estate companies on each day. The salient detection of AAR was mainly used to judge whether the AAR was caused by the random fluctuation of stock prices. In this paper, the t -test was used and the salience level was set at 0.05.

Table 2 showed the AAR and CAAR on each day of the 61 days from the 30th day before to the 30th day after the spin-off and listing announcement day. As shown in Table 2, the AAR of the real estate company on the spin-off and listing announcement date was 0.0046, and the AAR of the stocks was positive. The t -value of AAR for real estate companies on the spin-off and listing announcement date was 2.86, which was salience at the 5% level. Before and after the spin-off and listing announcement, the real estate company's stocks showed a significantly positive AAR. There was a positive AAR for 15 days from the 30th day before to the 31st day after the spin-off and listing announcement day, and the positive AAR was maintained on the announcement date to the second day after the announcement with the rate about 0.63%; there was a positive AAR of the stocks of the real estate companies for 8 days from the spin-off and listing announcement day to the 13th day after the announcement. Therefore, the listing of the spin-off real estate companies from the property service companies conveyed positive information about the company's market value to the capital market and the market reacted positively to the event. The real estate company's stocks had a positive AAR before and after the spin-off and listing announcement.

To clearly show the changes on the AAR of real estate companies' stocks before and after the spin-off and listing announcement, a further analysis was conducted concerning the CAAR on each day before and after the announcement, which provided a more intuitive understanding of the spin-off and listing.

As shown in Figure 1, the CAAR was positive during the $(-11, 9)$ days before and after the spin-off and listing announcement and kept rising during the $(-1, 2)$ days. Consequent to the continuous increase, it reached 2.65% on the 5th day and peaked at 2.99%, which showed that the AAR of real estate companies' stocks was positive before and after announcement date and that the announcement can increase the shareholder value of real estate companies, thus verifying the signalling theory of spin-off proposed by Nanda [13]. During the $(5, 30)$ days after the spin-off and listing announcement, the CAAR sometimes increased and sometimes decreased, and was unstable. This phenomenon might be related to the overreaction of China's capital market to the expected

Table 2 AAR and CAAR for 60 Days from the 30th day before to the 30th day after the Spin-off and Listing Announcement.

Day	AAR_t	$CAAR(\gamma_1, \gamma_2)$	t	p -values	Day	AAR_t	$CAAR(\gamma_1, \gamma_2)$	t	p -values
-30	-0.014364	-0.014364	-2.601000	0.025000	1	0.006150	0.018463	0.819000	0.430000
-29	-0.005780	-0.020144	-0.483000	0.638000	2	0.008067	0.026530	1.775000	0.104000
-28	-0.000064	-0.020208	-0.019000	0.985000	3	-0.004282	0.022248	-0.643000	0.533000
-27	-0.002446	-0.022654	-0.334000	0.745000	4	-0.007594	0.014654	-1.106000	0.292000
-26	0.004739	-0.017916	0.814000	0.433000	5	0.015214	0.029868	2.175000	0.052000
-25	-0.000058	-0.017974	-0.012000	0.991000	6	-0.010746	0.019122	-1.770000	0.104000
-24	-0.006119	-0.024093	-0.678000	0.512000	7	-0.018029	0.001093	-1.713000	0.115000
-23	0.001499	-0.022594	0.195000	0.849000	8	0.004856	0.005949	0.656000	0.526000
-22	0.005748	-0.016846	0.784000	0.449000	9	-0.000758	0.005191	-0.080000	0.938000
-21	-0.005914	-0.022760	-0.702000	0.497000	10	-0.005627	-0.000436	-1.268000	0.231000
-20	-0.000592	-0.023352	-0.093000	0.928000	11	0.002062	0.001626	0.229000	0.823000
-19	-0.003818	-0.027171	-0.771000	0.457000	12	0.004971	0.006596	0.972000	0.352000
-18	-0.007565	-0.034736	-1.177000	0.264000	13	0.009536	0.016132	1.165000	0.269000
-17	0.003794	-0.030941	0.571000	0.579000	14	-0.000936	0.015196	-0.398000	0.698000
-16	0.007752	-0.023189	1.214000	0.250000	15	-0.009960	0.005236	-1.159000	0.271000
-15	0.007235	-0.015954	1.221000	0.248000	16	-0.010216	-0.004980	-1.691000	0.119000
-14	-0.002138	-0.018093	-0.342000	0.739000	17	-0.022083	-0.027063	-2.057000	0.064000
-13	0.003503	-0.014589	0.575000	0.577000	18	0.004559	-0.022504	0.612000	0.553000
-12	0.004701	-0.009889	1.415000	0.185000	19	0.000432	-0.022072	0.130000	0.899000
-11	0.017875	0.007987	1.508000	0.160000	20	-0.000609	-0.022680	-0.091000	0.929000
-10	0.010113	0.018100	1.119000	0.287000	21	0.004959	-0.017721	0.922000	0.377000
-9	-0.004370	0.013729	-0.708000	0.494000	22	0.005511	-0.012210	1.024000	0.328000
-8	0.002590	0.016319	0.220000	0.830000	23	-0.003534	-0.015744	-0.372000	0.717000
-7	-0.001642	0.014678	-0.292000	0.776000	24	0.002426	-0.013319	0.382000	0.710000
-6	0.003541	0.018218	0.393000	0.702000	25	-0.012021	-0.025340	-2.560000	0.027000
-5	0.002815	0.021033	0.345000	0.737000	26	-0.008011	-0.033351	-1.344000	0.206000
-4	-0.010377	0.010656	-1.253000	0.236000	27	0.000694	-0.032657	0.154000	0.881000
-3	-0.005140	0.005517	-0.712000	0.491000	28	-0.001621	-0.034278	-0.496000	0.630000
-2	0.005395	0.010911	1.430000	0.180000	29	-0.001598	-0.035876	-0.203000	0.842000
-1	-0.003237	0.007675	-0.546000	0.596000	30	0.008988	-0.026888	1.118000	0.287000
0	0.004639	0.012314	2.868000	0.040400					

good news, but this still showed that there was a reaction of the stocks of real estate companies to the listing announcement of the spin-off property service companies.

Therefore, we found that the listing announcement of the spin-off property service companies from the real estate companies had positive information content. The AAR of real estate companies' stocks was positive, indicating that spin-off and listing activities can create value.

4 Changes on the operating performance of real estate companies before and after the listing of the spin-off property service companies

Although the AAR of real estate companies' stocks before and after the listing announcement of the spin-off of property service companies was positive, can this return reflect the true information about the market value of the companies, and can the performance of both the parent and subsidiary companies be improved after the spin-off and listing? Therefore, to provide answers to these questions, the third part of this paper further analysed the changes on operating performance of real estate companies before and after the listing of the spin-off property service companies based on the annual financial statements published by the HiThink Royal Flush Information

Fig. 1 30 days before and after the spin-off announcement.

Network Co., Ltd.

4.1 Analytical method

Since the changes on the operating performance of listed companies are mainly manifested in profitability, operating capacity, growth-ability, etc., the third part of this paper selected the following financial indicators: total asset growth rate, growth rate of shareholders' equity, revenue growth rate, earnings per share growth and net profit growth rate. The base period was the year before the spin-off listing; further, the financial indicators of the first, second and third after the spin-off and listing year were, respectively, compared with the financial indicators of the previous year of the spin-off and listing. Therefore, the growth rates of each indicator were obtained with the average of the same index as the analysis basis. Since some property service companies were spun off and listed in the past 2 years, this paper analysed the data during the last 1 or 2 years.

4.2 Changes on the operating performance of real estate companies and property service companies

The parent companies' daily business can be further concentrated after the spin-off and listing; so, it can obtain excess returns on assets after the spin-off and listing; in addition, the subsidiary's operating performance is significantly improved after the spin-off and listing due to the increased liquidity to support its daily operations (Chahine and Zeidan, 2014). Therefore, in this paper, the financial report data of 12 groups of real estate companies and the samples of property service companies were processed and the results of the changes on the operating performance of real estate companies after spin-off and listing are shown in Tables 3 and 4.

Table 3 Changes on the Operating Performance of Real Estate Companies after Spin-off and Listing.

	Revenue growth rate	Net profit growth rate	Earnings per share growth	Total asset growth rate	Growth rate of shareholders' equity
The first year after the spin-off and the year before the spin-off	0.3176	0.3629	0.3259	0.4228	0.4095
The second year after the spin-off and the year before the spin-off	0.5696	0.7586	0.5488	0.7360	0.7546
The third year after the spin-off and the year before the spin-off	0.6891	0.3492	-0.1844	0.7124	0.7632

Table 3 reflected the changes on the operating performance of real estate companies after the spin-off and listing. It can be found that in the 3 consecutive years after the spin-off and listing of the property service companies, both the shareholders' equity and total assets of the real estate companies were increased when compared with those of the year before the spin-off and listing. The shareholders' equity and the total assets increased by 75.46% and 73.60%, respectively, in the second year after the spin-off and listing, and by 76.32% and 71.24%, respectively, in the third year after the spin-off and listing, indicating that the capital of the real estate companies after the spin-off has been improved and the scale of the companies has gradually expanded. Revenue income and net profit, two indicators of profitability, have exceeded the growth rate of more than 30% for the 3 consecutive years compared with the year before the spin-off, and the ability of capital appreciation has gradually improved. This may be because the spin-off and listing has made the business of real estate companies more concentrated and the real estate companies obtained premium income from assets in the process of the listing of the property service companies. In addition, by studying the changes on the operating performance of individual real estate companies, it can be found that the earnings per share growth of Fantasia Holdings Group was negative for 3 consecutive years, decreased by 4.35% in the first year after spin-off, by 8.70% in the second year and by the 39.13% in the third year, and the net profit in the third year after the spin-off decreased by 33.66% compared with the year before the spin-off. Possibly, these decreases were because the spin-off and listing separated the high-quality assets from the Fantasia Holding Group. It can be seen from Table 3 that in the 3 consecutive years after the spin-off, the average growth rates of various indicators of real estate companies were positive and improved year by year, and the operating performances were significantly improved.

Table 4 Changes on the Operating Performance of Spin-off Property Service Companies after Listing.

	Revenue growth rate	Net profit growth rate	Earnings per share growth	Total asset growth rate	Growth rate of shareholders' equity
The first year after the spin-off and the year before the spin-off	0.4558	0.7966	0.5120	1.1077	3.2656
The second year after the spin-off and the year before the spin-off	1.4567	2.2070	1.4756	2.0316	4.3108
The third year after the spin-off and the year before the spin-off	2.2036	2.2774	1.6222	3.4105	7.7011

Table 4 reflected the changes on the operating performance of the spin-off property service companies after listing. It can be found that after the listing of the spin-off property service companies, the shareholder's equity and asset size have greatly improved, of which the total assets in the third year after the spin-off were 3.4 times the year before the spin-off, and the shareholders' equity in the third year after the spin-off was 7.7 times the year before the spin-off, indicating that the listing facilitated the spin-off property service companies' access to more capital and enhanced their operating efficiency significantly. The earnings per share growth, revenue and the net profit all increased steadily at the same time, mainly because the management scale gradually increased. In addition, by studying the operating performance level of the individual property service company, we found that the net profit and EPAG of Kaisa Prosperity in the first spin-off year were negative with a decrease of 24.33% in net profit and a decrease of 27.54% in earnings per share growth. In the short term, the spin-off Kaisa Prosperity from the Kaisa Group failed to cause improvement in the operating performance of the property service company. However, the net profit in the second year after the spin-off increased significantly, 1.2 times of that in the first year, and the earnings per share growth in the second year after the spin-off increased by 69.57%. It was because it has gradually expanded its scale through internal growth, external mergers and acquisitions, and cooperation,

thus gradually being recognised by the capital market. Generally speaking, in the 3 consecutive years after the spin-off, the profitability and the growth-ability of property service companies have improved significantly. The spin-off and listing has greatly increased the value of the property service sector. With the help of capital, the Chinese property industry has ushered in a better era.

4.3 An Analysis of the Changes on the Operating Performance of Real Estate Enterprises and Property Service Enterprises

Table 5 Changes on the Operating Performance of Real Estate Companies and Property Service Companies.

Name	Comparison in different years	Revenue growth rate	Net profit growth rate	Earnings per share growth	Total assets growth rate	Growth rate of share-holders' equity
Fantasia Holding Group	The first year after the spin-off and the year before the spin-off	0.0036	0.0329	-0.0435	0.3498	0.4573
	The second year after the spin-off and the year before the spin-off	0.1214	-0.0033	-0.0870	0.4577	0.5630
	The third year after the spin-off and the year before the spin-off	0.5001	-0.3366	-0.3913	0.6279	0.6755
Color Life Services	The first year after the spin-off and the year before the spin-off	0.6695	2.2907	1.8333	2.2389	4.9076
	The second year after the spin-off and the year before the spin-off	2.5536	2.7865	1.8333	4.5040	6.0707
	The third year after the spin-off and the year before the spin-off	4.7597	3.2373	2.1667	7.1437	7.3261
China Overseas & Investment	The first year after the spin-off and the year before the spin-off	0.2244	0.2736	0.1279	0.4196	0.5559
	The second year after the spin-off and the year before the spin-off	0.2120	0.3611	0.0951	0.3928	0.6414
	The third year after the spin-off and the year before the spin-off	0.2521	0.4988	0.1180	0.5735	0.9742
China Overseas Property Management	The first year after the spin-off and the year before the spin-off	0.1760	0.2059	0.0000	0.1156	0.1975
	The second year after the spin-off and the year before the spin-off	0.5240	1.4456	1.3333	0.6421	0.5613

	The third year after the spin-off and the year before the spin-off	0.5524	2.1557	2.0000	0.8331	0.6362
Greentown China	The first year after the spin-off and the year before the spin-off	0.1125	1.8440	1.8000	0.1750	0.0727
	The second year after the spin-off and the year before the spin-off	0.6107	3.1165	2.0800	0.6319	0.2764
	The third year after the spin-off and the year before the spin-off	1.3152	0.8853	-0.2800	0.9359	0.6399
Greentown Property Services	The first year after the spin-off and the year before the spin-off	0.2751	0.4444	0.2000	1.0238	10.7181
	The second year after the spin-off and the year before the spin-off	0.7609	0.9545	0.4000	1.5213	12.3691
	The third year after the spin-off and the year before the spin-off	1.2987	1.4394	0.7000	2.2546	15.1409
Agile Group	The first year after the spin-off and the year before the spin-off	0.0879	0.1826	0.1871	0.4107	0.2446
	The second year after the spin-off and the year before the spin-off	0.1673	0.2468	0.2516	0.6726	0.4790
A-Living Services	The first year after the spin-off and the year before the spin-off	0.9177	1.7621	0.7714	1.9060	2.7381
	The second year after the spin-off and the year before the spin-off	1.9114	3.2448	1.6286	2.7387	3.4138
Country Garden Holding	The first year after the spin-off and the year before the spin-off	0.6707	0.3282	0.3089	0.5524	0.4871
	The second year after the spin-off and the year before the spin-off	1.1415	0.5174	0.5041	0.8190	0.8747
Country Garden Services	The first year after the spin-off and the year before the spin-off	0.4974	1.2960	1.3125	0.5882	0.5110
	The second year after the spin-off and the year before the spin-off	2.0894	3.1567	2.9375	2.5286	2.6835
Season Holdings	The first year after the spin-off and the year before the spin-off	0.3358	0.7401	0.7306	0.7998	0.9612

	The second year after the spin-off and the year before the spin-off	1.1183	1.0989	1.0738	1.5179	1.3838
S-Enjoy Services	The first year after the spin-off and the year before the spin-off	0.3545	1.0707	1.0000	0.9312	3.6455
	The second year after the spin-off and the year before the spin-off	1.3372	2.8416	1.8333	1.7027	4.1164
Kaisa Group	The first year after the spin-off and the year before the spin-off	0.1808	-0.1629	-0.2500	0.0733	0.2114
	The second year after the spin-off and the year before the spin-off	0.4650	0.3985	0.2667	0.2695	0.8570
Kaisa Prosperity	The first year after the spin-off and the year before the spin-off	0.3393	-0.2433	-0.2754	-0.1158	0.6590
	The second year after the spin-off and the year before the spin-off	0.8864	1.2956	0.6957	0.0856	1.2590
CIFI Group	The first year after the spin-off and the year before the spin-off	0.3313	0.1203	0.0294	0.5885	0.4428
	The second year after the spin-off and the year before the spin-off	0.7209	0.3333	0.2059	1.1264	0.9614
Ever Sunshine Lifestyle Service	The first year after the spin-off and the year before the spin-off	0.4841	0.3213	0.2857	1.1268	2.6857
	The second year after the spin-off and the year before the spin-off	1.5903	1.9303	1.1428	2.5299	4.0122
Binjiang Group	The first year after the spin-off and the year before the spin-off	0.1857	0.3459	0.3590	0.4805	0.1604
Binjiang Property Management	The first year after the spin-off and the year before the spin-off	0.3792	0.6387	0.2571	1.1851	2.9297
China Aoyuan Group	The first year after the spin-off and the year before the spin-off	0.6297	0.7439	0.7333	0.5349	0.2038

Aoyuan Healthy Life	The first year after the spin-off and the year before the spin-off	0.4556	1.0731	0.4118	1.7555	5.7143
Languang Development	The first year after the spin-off and the year before the spin-off	0.2717	0.5553	0.6935	0.3381	0.4440
Languang Justbon Property Services	The first year after the spin-off and the year before the spin-off	0.4344	0.4879	0.3478	1.7417	3.8137
Yincheng International Holdings	The first year after the spin-off and the year before the spin-off	0.7777	-0.6493	-0.7660	0.3516	0.6730
Yincheng Life Services	The first year after the spin-off and the year before the spin-off	0.4872	0.2118	0.0000	0.7959	0.6674

Table 5 showed the changes on operating performance of real estate companies and property service companies. Fantasia Holdings' spin-off subsidiary Color Life Services went public, which made Color Life's performance greatly improved, while performance of the parent company declined to a certain extent. Most property service companies relied on subsidies from real estate companies, but Color Life Services continued to achieve higher profits. On the one hand, it benefitted from its unique business model 'commission system' to collect property fees; on the other hand, it benefitted from the rapid growth of the revenues from value-added services brought by the expansion of the scale of the property management and services. The listing of the spin-off company Color Life Service from the Fantasia Holding Group has spun off the high-quality assets of the parent company, thereby weakening Fantasia Holding's ability for sustainable development. In addition, the spin-off had led to the gradual loss of the scale economy of the Fantasia Holding Group, thereby increasing the unit cost of real estate companies and compressing the parent company's own profitability and development space. The listing of the spin-off company China Overseas Property Management from the China Overseas & Investment greatly promoted the performance of both the parent and subsidiary companies. After the spin-off and listing, China Overseas Property Management has designed differentiated products in response to the different needs of diverse customers and exploited new service domain, which have greatly increased revenues. Further, China Overseas Property Management has promoted online and offline services and applied information technology to improve service quality, reduce manual dependence, control management costs and increase revenues, thereby releasing its own value. The listing of the spin-off company Greentown Property Services from the Greentown China has gradually shown improvement in the profitability and growth capacity of both the parent company and its subsidiary. After the successful spin-off and landing in the capital market, Greentown Property Services has become one of the few companies that have quickly shaken themselves out of the dependence on affiliated real estate companies, and its market value has even surpassed that of the affiliated real estate company Greentown China. In general, real estate companies and property service companies have significantly improved their operating performance after the spin-off and listing. The average performance of property service companies was better than that of real estate companies. The spin-off of property service companies from the real estate companies was conducive to improving the operating conditions of both the parent and subsidiary companies.

5 Conclusion

This paper took 12 groups of parent companies and subsidiaries as the samples among which the property service companies that were spun off from the real estate companies have successfully landed on the capital market. The research results showed that the AAR of real estate companies' stocks was positive on the first announcement date of possible spin-off listing and CAAR was keeping positive for 21 days during the $(-11, 9)$ days around the first announcement of possible spin-off listing. Since the capital market possesses the function of value discovery, the realisation of the listing of the property service companies spun off from the real estate companies can contribute to the financial position of real estate companies by enabling them to obtain a positive rate of return, thereby increasing the market value of the real estate companies.

In addition, to further analyse the impact of the spin-off and listing on real estate companies and property service companies, this paper analysed the changes on operating performance of real estate companies and spin-off property service companies after successful listing for 3 consecutive years compared with the performance in the year before the spin-off and listing. The analysis showed that the successful spin-off and listing has greatly improved the operating performance of real estate companies and property service companies, and the spin-off of the property services companies from the real estate companies has created positive value for shareholders and the listing of spin-off property service companies has been conducive to improve the operating conditions of parent and subsidiary companies.

It is estimated that the development of the property service market will stimulate more large-scale real estate companies to take the actions of putting the spin-off property service companies on the market. It is foreseeable that, with the continuation of the gradual spin-off and listing process of property service companies from the parent real estate companies, the brand effect and resource advantages will become the internal impetus for the sustainable development of spin-off property service companies.

References

- [1] Basak, R. . (2007). Corporate restructuring through demerger: a case study on Hindustan Unilever Limited. *International Journal of Business Ethics in Developing Economies*, 5(2), 22-28.
- [2] Bendre, M. , & Apte, N. . (2017). Study of impact of spin-offs on shareholders wealth in India. *International Research Journal Of Multidisciplinary Studies*, 3(10), 1-7.
- [3] Brounen, D. , & Eichholtz, P. M. A. . (2005). Corporate Real Estate Ownership Implications: International Performance Evidence. *The Journal of Real Estate Finance and Economics*, 30(4), 429-445.
- [4] Chahine, S. , & Zeidan, M. J. . (2014). Corporate governance and market performance of parent firms following equity carve-out announcements. *Journal of Management & Governance*, 18(2), 471-503.
- [5] Chai, D. , & Lin, Z. Y. , & Veld, C. . (2018). Value creation through spin-offs: Australian evidence. *Australian Journal of Management*, 43(3), 116-126.
- [6] Cigola, M. , & Modesti, P. . (2008). A note on mergers and acquisitions. *Managerial Finance*, 34(4), 221-238.
- [7] Dasilas, A. , & Leventis, S. . (2018). The performance of European equity carve-outs. *Journal of Financial Stability*, 34(2), 121-135.
- [8] Glascock, J. L. , & Davidson, W. N. , & Sirmans, C. F. . (1989). An Analysis of the Acquisition and Disposition of Real Estate Assets. *The Journal of Real Estate Research*, 4(3), 131-140.
- [9] Hite, G. L. , & Owers, J. E. , & Rogers, R. C. . (1984). The Separation of Real Estate Operations By Spin-off. *Real Estate Economics*, 12(3), 318-332.
- [10] Li, Q. Y. , & Wang, Y. H. , & Han, H. . (2004). Spin-off listing and shareholder value creation: reanalysis of the case of "Tongrentang". *Economic Management*, 8(2), 51-59.
- [11] Mashwani, A. I. , & Dereeper, S. , & Dowling, M. , & Aziz, S. . (2019). Learning the wealth effects from equity carve-outs. *Finance Research Letters*, 33(3), 118-126.
- [12] Mulherin, J. H. , & Boone, A. L. . (2000). Comparing acquisitions and divestitures. *Elsevier B.V*, 6(2), 117-139.
- [13] Nanda, V. . (1991). On the Good News of Equity Carveouts. *Journal of Finance*, 38(3), 371-387.
- [14] Otsubo, M. . (2013). Value creation from financing in equity carve-outs: Evidence from Japan. *Journal of Economics and Business*, 68(2), 52-69.
- [15] Powell, B. C. . (2010). Equity Carve-Outs as a Technology Commercialization Strategy: An Exploratory Case Study of Thermo Electron's Strategy. *Technovation*, 30(1), 37-47.

- [16] Rutherford, R. C. . (1990). Empirical Evidence on Shareholder Value and the Sale-Leaseback of Corporate Real Estate. *Real Estate Economics*, 18(4), 522-529.
- [17] Shi, J. J. . (2018). Analysis on the value creation of Sina spin-off Weibo listing. *Accounting Friends*, 21(1), 119-125.
- [18] Wang, K. , & Erickson, J. , & Gau, G. W. . (1993). Dividend policies and dividend announcement effects for real estate investment trusts. *Real Estate Economics*, 21(2), 185-201.
- [19] Wang, X. H. , & Xue, H. X. . (2014). Spin-off GEM listed companies Performance Evaluation. *Accounting communications*, 9(3), 29-31.
- [20] Xiao, D. Y. , & Luo, X. , & Deng, S. Y. , & Dong, X. . (2013). Motivation of enterprise spin-off and listing: market value management or expansion of financing channels and case study of one-party share spin-off and listing. *Shanghai Management Science*, 35(6), 72-78.
- [21] Zhang, S. H. . (2013). Research on the economic consequences of the spin-off of listed companies. *Accounting and Communications*, 9(3), 23-26.