Operating Performance of Tourism Listed Companies in China: The Perspective of Economic Value Added

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Abstract
This article uses economic value added (EVA) to analyze the sustainability of performance of tourism listed companies from 2013 to 2015. The Malmquist index is used for the analysis of different operating performance across various types of tourism listed companies. It is found that the operating performance of tourism listed companies in China is not satisfactory, as merely less than half of them have a positive EVA. This study also finds that for different types of tourism listed companies, a variety of strategies for improvement should be adopted. For example, commercial companies should pay attention to the new customer needs, and scenic area companies need to increase investment in technology.

Keywords
economic value added, tourism listed companies, operating performance, Malmquist index

Introduction
The total market value of domestic listed tourism enterprises has increased 10 times over the past 10 years, according to the China National Tourism Bureau and Shenwan Hongyuan Securities (2016). With the increasing number of domestic tourists, domestic tourism listed companies expand rapidly not only in China but also overseas. As the traditional accounting indicators of profit and return on net assets may lead to managers’ manipulation of earnings and other short-term behavior, the traditional accounting index evaluation system has been questioned, which creates an urgent need to establish a more reliable performance evaluation system to measure the sustainability and performance of the listed tourism companies. The expansion of a company should be compatible with its management capabilities so that the company’s performance can be enhanced. How to evaluate the business performance more accurately has long been a focus of academic research in operating performance.

Most of the current research findings are based on the traditional financial index system represented by net profit and return on net assets. The major research methods include financial ratio analysis, factor analysis, DEA model (data envelopment analysis), and deformation model. For example, W. Wang and Xie (2013) use financial ratio indicators such as solvency, operational capability, and profitability to analyze the operating performance of 11 publishing companies. Peng and Gao (2014) select four financial ratio indexes of solvency, operating ability, profitability, and development ability to analyze and evaluate the operating performance of 67 agricultural listed companies combining with factor analysis. S. Guo et al. (2014) choose two indexes of main business cost and total assets, main business income and net profit as input and output indicators, respectively, and use super-efficiency DEA and Malmquist index to evaluate the performance of 30 listed cultural industry companies. Wu and Lai (2015) select a number of input indicators such as fixed assets multiple output indicators (such as operating income and return on net assets), using DEA to compare and analyze the operating performance of 12 rare earth listed companies. Traditional financial indicators are obtained directly from financial statements. Therefore, these indicators are easily manipulated by enterprises. Furthermore, traditional financial indicators are obtained directly by accounting methods, which has the defect of not taking capital cost into account. In 1982, the concept of economic value...
Economic Value Added (EVA) was proposed by consulting firm Stern Steward based on residual income. In comparison with the traditional accounting profit index, EVA not only considers the compensation for the cost of equity capital but also corrects the distortion of accounting rules by accounting adjustment (Chi & Zou, 2015). Novyarni and Ningsih (2020) indicate that EVA reflected more realistic company value and attracted investors compared with financial ratio analysis. What’s more, EVA, an incentive system, could maximize shareholder value by presenting the increase in the economic value of the company’s existing assets in comparison with factor analysis (L. Liu et al., 2007). L. Guo et al. (2008) reflected the disadvantages of DEA evaluation. In contrast to EVA, DEA models are heavily affected by no available explicit input variables (Lahouel et al., 2020). As EVA has more advantages than traditional profit index (Haque & Islam, 2013), the State-owned Assets Supervision and Administration Commission of the State Council (SASAC) began to implement EVA performance evaluation system for more than 120 central enterprises in 2010 (Yang & Dai, 2015).

As an evaluation method of company performance, EVA has attracted the attention of scholars. For example, Cai and Zhu (2013) use the deformations of EVA index and traditional financial index to construct three dimensions of value creation, operation ability, and potential development ability. The results show that the main driving force for the development of small and medium-sized enterprises is traditional industry. Liu et al. use EVA theory to analyze the performance of 36 General Effectiveness Model listed companies in 2009, which found that 25% of the companies realized profits, and more than half of the companies are in the growth period (F. Liu et al., 2013). Wang and Yang select a single company as an example to analyze the application of EVA in the petroleum industry and conclude that EVA has the defect of not giving attention to nonfinancial factors (Y. Wang & Yang, 2014). Li and Wang (2015) investigate the financial performance of 67 listed companies in the mining industry from 2010 to 2013 by calculating EVA, EVA return rate, and EVA growth rate. They conclude that the types of mining industry have no significant effect on the returns of EVA. Reddy et al. (2015) use net profit, EVA, and other indicators to analyze the performance of 50 listed companies in India from 2009 to 2013. The results suggest that EVA is more comprehensive than other indicators to reflect the performance of enterprises. L. Lu et al. (2016) use EVA method to evaluate the performance of 12 listed commercial banks from 2008 to 2014. The results show that EVA performance of commercial banks increased significantly, but returns to economic value added (REVA) did not show a significant growth trend (Reddy et al., 2015).

Existing studies demonstrate that EVA is relatively mature for the performance evaluation of listed companies. However, in the most existing literature, the calculation of enterprise EVA is based on the EVA assessment rules of SASAC, which is not necessarily suitable for enterprises in each different industry. Due to the significant differences between tourism enterprises and enterprises in other industries, this article readjusts the calculation of EVA to enhance its suitability for tourism enterprises. There were few studies about using EVA models to measure the performance of tourism listed companies in China. Therefore, this article wants to explore whether the improvement of EVA model is suitable in tourism industry and the purpose is to discover a better method for listed tourism companies to evaluate their performance and attract more stakeholders.

**Materials and Method**

**Definition and Calculation of EVA**

**Economic Value Added**

\[
\text{Economic Value Added} = \text{Net operating profit after tax} \times \text{Average owner equity} - \text{Capital cost} \times \text{Average liabilities}
\]

\[
\text{EVA} = \frac{\text{Net operating profit after tax} - \text{Total capital}}{\text{Total capital}}
\]

Adjustments

Adjustment of EVA can effectively reduce the whitewash of accounting statements of listed companies and prevent short-term tendencies of management L. Lu et al. (2016). Berzakova et al. (2015) find that the adjusted accounting items would improve the degree of interpretation of the enterprise’s value creation ability in the calculation of the company’s EVA indicators. Currently, when calculating enterprises’ EVA, researchers tend to make adjustments according to the detailed EVA rules issued by SASAC. However, due to the substantial difference between tourism and other industries, some adjustments (such as R&D fee) may not be suitable for tourism listed companies. In consideration of the characteristics of tourism, this article makes the following adjustments of EVA.

**Adjustment of net operating profit after tax and total capital.**

The adjustment of EVA is mainly via the adjustment of net operating profit after tax and total capital. In the adjustment, it involves financial expenses, impairment provisions and...
changes in fair value, deferred income tax, construction in process, and noninterest cash liabilities (Chen & Li, 2015; Fang & Gao, 2015; Hah et al., 2015; G. Lu, 2012; Zhou et al., 2011).

Financial expenses are mainly the various expenses generated by the enterprise loan. The net operating profit after tax is adjusted according to the net profit of accounting, which results in the deduction of financial expenses from the operating profit and capital cost after tax. To avoid the repeated deduction of financial expenses, after-tax financial expenses should be refunded when adjusting the net operating profit after tax.

Impairment provision is a type of loss that occurs in the books, which has not actually happened. To avoid white-washing the financial statements and to highlight the main business through the impairment provision, the impairment provision and the increase of the fair value after-tax should be added back when adjusting the net operating profit after tax and the total assets.

Nonrecurring items occur occasionally in the course of business operation, and it will not bring long-term inflow or outflow to the enterprise. But this kind of profit and loss will have a certain impact on the normal profitability of the enterprise. Therefore, to highlight the main business of enterprises and reduce the impact of nonrecurring items on EVA, the posttax part should be re-added when adjusting the after-tax net operating profit and total assets.

Deferred income tax is the difference between accounting standards and tax laws, resulting in a discrepancy in some payment time of income tax. This part of the income tax is not included in the actual income tax to be paid in the current period. The posttax part should be re-added when adjusting the net operating profit after-tax and the total assets.

Construction in process are projects under construction and not in use. In the construction period, it will occupy a large amount of capital and therefore become opportunity cost. If the cost of the project under construction is not deducted, it will make enterprises to pay overt attention to short-term interests, which will have a negative impact on the long-term development and long-term returns. Considering that the construction period will not produce profits and to encourage enterprises to focus on long-term returns, in adjusting the total capital, the construction projects under construction should be deducted.

Noninterest cash liabilities are naturally generated in the normal business activities of enterprises rather than active external financing for enterprises (Hao & Yang, 2010). This kind of debt does not need to pay the cost. It can be regarded as a free occupation of external assets by enterprises. Therefore, it should be deducted from the total capital.

Weighted average cost of capital. The weighted average cost rate is obtained by weighting the cost rates of equity and debt according to their proportions. The Capital Asset Pricing Model is used in the cost rate of equity capital and the cost rate of equity capital. The calculation formula is as follows:

\[ R = R_f + \beta \times (R_m - R_f) \]

Among them, \( R \) is the cost ratio of equity capital, \( R_f \) is the market risk–free return rate, \( \beta \) reflects the stock risk coefficient, \( (R_m - R_f) \) refers to the market risk premium, and \( R_m \) is the market comprehensive return rate.

In this article, we use the market risk–free return rate referring to F. Liu et al. (2013). Specifically, we use a 5-year savings interest rate of the national debt of 4.41%, \( \beta \) is the stock risk coefficient from the daily annual \( \beta \) value of the Reiss database. The market composite return rate used the Shanghai Composite Index annual comprehensive yield of 9.41%.

It is widely understood that the debt cost of tourism listed companies is low. Through simple analysis of the debt data of financial statements, it is found that long-term borrowing accounts for a large proportion of noncurrent assets. Therefore, this article adopts 3 to 5 years’ benchmark interest rate of 6.40% to medium- and long-term bank loans issued by the People’s Bank of China.

Results

Sample Selection

The total selection criteria are business scopes and tourism revenue accounts. According to the classification system of listed companies by China Securities Regulatory Commission (2012), tourism listed companies are mainly divided into four categories: H61 accommodation, H62 catering, L72 commercial services, and N78 public facilities management. In the above four categories, an enterprise will be excluded if its main businesses belong to nontourism or tourism revenue accounts for less than 50% of business income. In contrast, if an enterprise is not in the above four categories, but its main business is within the tourism industry and accounts for more than 50% of the operating income, it will still be considered as a tourism listed company. To facilitate data collection, the article selected the period from 2013 to 2015 when business adjustments of listed tourism companies took place. To ensure the consistency of the sample in the traditional performance evaluation, the tourism listed companies with a negative net profit from 2013 to 2015 are excluded, and finally, 17 companies remain in the sample. Therefore, the size of the sample taken is 17 and the time period is 2 years. This article will use the DEAP2.1 to process the data. According to the industry type of tourism listed companies’ main businesses in the “Guidelines for the Classification of Listed Companies” in 2015, tourism listed companies are divided into three categories: hotel tourism listed companies, commercial services
tourism listed companies, and scenic spot tourism listed companies, as shown in Table 1.

Table 1. Economic Value Added (EVA) and Economic Value Added Increment (ΔEVA) of Tourism Listed Companies From 2013 to 2015.

| Company types               | Company code | Corporate name     | Unit       | 2013         | 2014         | 2015         | ΔEVA1          | ΔEVA2          |
|-----------------------------|--------------|--------------------|------------|--------------|--------------|--------------|----------------|----------------|
| Hotel tourism listed companies | C600524     | Lingnan Holdings  | Yuan       | 22,907,816.57 | 12,679,642.72 | 18,019,984.07 | 4,550,684.43 | 5,340,341.35 |
|                            | C600258     | Beijing Tourism Hotels | Yuan   | 47,572,462.50 | 56,304,430.65 | 209,448,751.92 | 8,731,968.15 | 153,144,321.27 |
|                            | C600754     | Shanghai Jinqiang Group | Yuan   | 117,409,944.84 | 284,181,611.43 | 568,579,474.25 | 166,771,666.60 | 284,397,862.81 |
| Average value of hotel enterprise | C601007     | Nanjing Jining Hotel | Yuan       | 6,063,408.51 | 104,245,910.87 | -201,051,369.10 | -98,182,502.35 | -96,805,458.24 |
| Commercial services tourism listed companies | C600796     | Carissa touristic | Yuan       | 4,002,795.56 | 56,208,955.90 | 140,043,873.75 | 22,206,160.34 | 83,834,917.84 |
|                            | C002707     | UTourGroup         | Yuan       | 97,165,714.52 | 47,175,317.00 | 74,302,503.15 | -9,990,397.52 | 27,127,186.15 |
|                            | C300178     | Tempus International | Yuan     | -22,270,902.43 | -58,862,355.03 | -20,066,058.38 | -36,591,452.59 | 38,796,296.65 |
| Commercial service enterprises | C60138      | CYTS               | Yuan       | -14,295,337.44 | 139,242,703.35 | -162,669,863.44 | -57,885,879.77 | -357,885,879.77 |
|                            | C601888     | CITS               | Yuan       | 606,616,143.71 | 794,260,670.40 | 436,374,790.63 | 187,644,526.68 | 357,885,879.77 |
| Average value of scenic spot tourism listed companies | C600054     | Mount Huang Tourism | Yuan      | 57,165,714.52 | 74,302,503.15 | 74,302,503.15 | -9,990,397.52 | 27,127,186.15 |
|                            | C600593     | Dalian Shengya Tourism Holding | Yuan | 22,270,902.43 | -58,862,355.03 | -20,066,058.38 | -36,591,452.59 | 38,796,296.65 |
|                            | C601007     | Qujiang Culture Tourism | Yuan | 18,563,642.43 | -55,432,902.80 | -55,879,450.83 | -73,996,545.23 | -446,548.02 |
| Average value of scenic spot enterprises | C600754     | Nanjing Jining Hotel | Yuan       | 6,063,408.51 | 104,245,910.87 | -201,051,369.10 | -98,182,502.35 | -96,805,458.24 |

Empirical Results

EVA results. According to the calculation formula of EVA and adjustment items of tourism listed companies, the financial statements of the 17 tourism listed companies in 2013 to 2015 are adjusted and calculated. The EVA and economic added value increment (ΔEVA) of these tourism listed companies in 2013 to 2015 are obtained, as shown in Table 1.

Table 1 shows that there is a significant difference in the EVA of tourism listed companies. For three consecutive years, there are eight enterprises with positive EVA. Among them, the economic added value of Beijing Tourism Hotels is the most significant. There is no significant trend of increase in ΔEVA of the eight enterprises, which in contrast shows high instability. Other four enterprises, Lingnan Holdings, Nanjing Jinqiang Hotel, Tempus International, and Yunnan Tourism, had negative EVA for three consecutive years, but with small year-to-year fluctuations. There are both positive and negative economic value-added values in the five enterprises: CYTS, Mountain Emei A, Huangshan Tourism, Dalian Shengya Tourism Holding, and Qujiang Culture Tourism. The average EVA value that is different from the three categories of tourism companies is significant to clarify the features of various tourism segments and the development patterns of different enterprises. In 2013 and 2014, EVA of commercial service enterprises was higher than that of hotel enterprises, whereas the scenic enterprises were the lowest. In 2015, EVA of commercial service enterprises was lower than that of hotel enterprises, but still higher than that of scenic spots. The EVA of hotel and scenic enterprises showed a trend of the increasing year by year.

In more detail, the EVA of hotel enterprises shows certain sustainability. The average EVA is positive for 3 years and demonstrates a trend of sustained growth. In addition, the budgetary hotel enterprises include Beijing Tourism Hotels and Shanghai Jinjiang Group. The star-rated hotel enterprise is the enterprise which mainly operates star-rated hotel, including Lingnan Holdings and Nanjing Jinqiang Hotel. The EVAs of budgetary hotel enterprises such as Beijing Tourism Hotels and Shanghai Jinjiang Group are positive and increase annually. On the contrary, the EVAs of star-rated hotel enterprises are negative and have lower stability.

The EVA of business service enterprises is quite different from hotel enterprises. The average value added of commercial service enterprises is positive in 3 years, and there is a big
fluctuation. Similarly, the EVA of scenic spot enterprises differs greatly from each other, and the average EVA is positive for 3 years, showing a good trend of sustained growth. For example, the EVA of Zhangjiajie, Lijiang Tourism, and Songcheng Performance has been positive for 3 years. The EVA of Yunnan Tourism has been negative for three consecutive years.

**REVA.** Owing to the different sizes of tourism listed companies, it is difficult to use EVA for lateral correlation between enterprises. The rate of revised economic value added (REVA) is, therefore, a good solution to this problem. REVA is the ratio between the EVA of enterprises and the total assets of enterprises. At present, the REVA has been widely used in the comparison of EVA among enterprises of different sizes. The REVA is based on the EVA with the revised input capital (Xin’e et al., 2012).

Table 2 suggests that the REVA of tourism listed companies varies sharply. The highest return is 8.45% (UTour Group), the lowest is 6.21% (Nanjing Jinjiang Hotel). The average REVA of different types of enterprises is different from the average of EVA as well. The return REVA of hotel enterprises is lower than that of scenic spot enterprises, which is contrary to the situation of EVA. Among the three types of enterprises, the average REVA of commercial service enterprises is the highest, but it declines year by year. The average REVA of scenic spot enterprises is higher than that of hotel enterprises, but it fluctuates sharply.

**Malmquist analysis.** To further understand the dynamics of operating performance of tourism listed companies, this article uses Malmquist index to analyze the data from 2013 to 2015 with DEA. Assaf and Barros (2011) used the Malmquist index to analyze the performance of the Gulf hotel industry because it can clarify efficiency and technological changes. With a study of 54 international tourist hotels in Taiwan, Yu and Chen (2016) measured their performance by using the metafrontier Malmquist productivity index. These examples supported the applicability of Malmquist index in tourism companies. The total assets, management costs, and the main business income are important indicators of performance. In Malmquist’s index, the total assets, the number of employees, sales costs, and management costs are selected as input indicators, and the main business income and EVA as output indicators. When calculating the solution, the DEA model requires the input data to be non-negative. Considering that there are different units and negative values between the indexes selected in this article, the original data are processed to eliminate different dimensions and transform the negative values. The formula for data processing is as follows:

$$
\max_{1 \leq i \leq 51} Z_i = a_j \quad (a_j \text{ is the maximum value of item } j), \quad \min_{1 \leq i \leq 51} Z_i = b_j \quad (b_j \text{ is the maximum value of item } j), \quad \text{so that} \quad Z'_j = 0.1 \times \frac{Z_j - b_j}{a_j - b_j} \times 0.9, \quad Z'_j \in [0,1].
$$

Data Entry Activity Protocol Version 2.1 is used to process the data of tourism listed companies from 2013 to 2015, and Malmquist total factor productivity index (TFPI) is used to calculate the dynamic change value and its decomposition value characteristics of the operating performance of tourism listed companies. The results are shown in Tables 3 to 6.

### Table 2. Economic Returns of Tourism Listed Companies From 2013 to 2015 (REVA).

| Company code | Corporate name                      | 2013     | 2014     | 2015     |
|--------------|-------------------------------------|----------|----------|----------|
| C000524      | Lingnan Holdings                    | -0.0283  | -0.0146  | -0.0199  |
| C600258      | Beijing Tourism Hotels              | 0.0219   | 0.0253   | 0.0529   |
| C600754      | Shanghai Jinjiang Group             | 0.0166   | 0.0250   | 0.0210   |
| C601007      | Nanjing Jinjiang Hotel              | -0.0020  | -0.0323  | -0.0621  |
| Average value of hotel enterprise |                      | 0.0020   | 0.0008   | -0.0020  |
| C600796      | Cassia Touristic                    | 0.0134   | 0.0396   | 0.0178   |
| C602707      | UTour Group                         | 0.0845   | 0.0440   | 0.0231   |
| C300178      | Tempus International                 | -0.0159  | -0.0277  | -0.0061  |
| C600138      | CYTS                                | -0.0017  | 0.0157   | -0.0170  |
| C601888      | CITS                                | 0.0468   | 0.0540   | 0.0277   |
| Average value of commercial service enterprises |              | 0.0254   | 0.0251   | 0.0091   |
| C000430      | Zhangjiajie                          | 0.0379   | 0.0363   | 0.0705   |
| C000888      | Mountain Emei                       | 0.0036   | 0.0367   | -0.0098  |
| C002033      | Lijiang Tourism                     | 0.0546   | 0.0296   | 0.0111   |
| C002059      | Yunnan Tourism                      | -0.0195  | -0.0251  | -0.0209  |
| C300144      | Songcheng Performance               | 0.0066   | 0.0091   | 0.0288   |
| C600054      | Mount Huang Tourism                 | -0.0170  | 0.0090   | 0.0022   |
| C600593      | Dalian Shengya Tourism Holding      | -0.0067  | 0.0074   | 0.0109   |
| C60076       | Qujiang Culture Tourism             | 0.0095   | -0.0318  | -0.0323  |
| Average value of scenic spot enterprises |              | 0.0086   | 0.0089   | 0.0076   |

*Note. REVA = returns to economic value added.*
From Table 3, we can observe that the overall average total factor productivity (TFP) of tourism listed companies in 2013–2015 was 0.961, and the average growth rate was 3.9%, not reaching the forefront of efficiency. Average technical efficiency, average technical progress, average pure technical efficiency, and average scale efficiency did not achieve growth, which had 3.6%, 0.3%, 0.7%, and 2.9% negative growth, respectively, but the overall change was relatively small. In general, the years 2013–2014 were slightly better than the years 2014–2015. TFP was 0.2% higher than that of the years 2014–2015. However, negative growth occurred in both years. Scale efficiency and technical efficiency were the main factors affecting the 2 years, respectively. The technological progress and scale efficiency in 2014–2015 were higher than those in 2013–2014, and the former was lower than the latter in terms of technical efficiency and pure technical efficiency. This reflected that the tourism listed companies have made effective improvements in technological progress and scale efficiency, but the technical efficiency and pure technical efficiency have declined. The reason is that hotel companies have technical inputs, especially operating costs and labor inputs, but they have insufficient output.

According to the results in Table 4, there were seven companies whose TFP exceeds 1 in 2013–2014, accounting for 41% of the sample and all of them come from the hotel and commercial service enterprises. Hotel enterprises perform best in total factor production efficiency, mainly because the hotel industry is higher in technical efficiency and pure technical efficiency than other industries and has achieved growth and reached the forefront of efficiency. Among the TFP less than 1, Tempus International, Lijiang Tourism, and Songcheng Performance have not reached the forefront of efficiency in the decomposition index of TFP, among which Tempus International lags far behind other enterprises in technical efficiency and pure technical efficiency, reflecting that enterprises may give adequate attention to technology in the course of operation.

According to the results in Table 5, from the perspective of TFP of tourism listed companies in 2014–2015, 35% of the

### Table 3. Annual Changes in Operating Performance of Tourism Listed Companies From 2013 to 2015.

| Year      | Technical efficiency | Technical progress | Pure technical efficiency | Scale efficiency | Total factor productivity |
|-----------|----------------------|--------------------|--------------------------|-----------------|---------------------------|
| 2013–2014 | 0.982                | 0.980              | 1.031                    | 0.953           | 0.962                     |
| 2014–2015 | 0.946                | 1.015              | 0.957                    | 0.989           | 0.960                     |
| Average   | 0.964                | 0.997              | 0.993                    | 0.971           | 0.961                     |

### Table 4. Total Factor Productivity and Efficiency of Tourism Listed Companies in 2013–2014.

| Company code | Corporate name             | Technical efficiency | Technical progress | Pure technical efficiency | Scale efficiency | Total factor productivity |
|--------------|----------------------------|----------------------|--------------------|--------------------------|-----------------|---------------------------|
| C000524      | Lingnan Holdings           | 1.218                | 0.930              | 1.220                    | 0.998           | 1.133                     |
| C600258      | Beijing Tourism Hotels     | 1.323                | 0.819              | 1.184                    | 1.118           | 1.083                     |
| C600754      | Shanghai Jinjiang Group    | 1.598                | 0.866              | 1.527                    | 1.046           | 1.383                     |
| C601007      | Nanjing Jinjiang Hotel     | 1.031                | 0.843              | 1.210                    | 0.852           | 0.869                     |
| Average value of hotel enterprise | 1.293 | 0.865 | 1.285 | 0.949 | 1.117 |
| C000796      | Cassia Touristic           | 1.116                | 1.002              | 1.177                    | 0.949           | 1.119                     |
| C002707      | UTourGroup                 | 1.000                | 1.163              | 1.000                    | 1.000           | 1.163                     |
| C300178      | Tempus International       | 0.680                | 0.982              | 0.756                    | 0.900           | 0.668                     |
| C600138      | CYTS                       | 1.076                | 1.136              | 1.025                    | 1.050           | 1.222                     |
| C601888      | CITS                       | 0.921                | 1.201              | 1.000                    | 0.921           | 1.106                     |
| Average value of commercial service | 0.959 | 1.097 | 0.992 | 0.964 | 1.056 |
| C000430      | Zhangjiajie                | 1.000                | 0.928              | 1.000                    | 1.000           | 0.928                     |
| C000888      | Mountain Emei              | 1.042                | 0.958              | 1.126                    | 0.925           | 0.998                     |
| C002033      | Lijiang Tourism           | 0.910                | 0.922              | 0.991                    | 0.918           | 0.839                     |
| C002059      | Yunnan Tourism             | 0.760                | 1.094              | 0.763                    | 0.996           | 0.832                     |
| C300144      | Songcheng Performance      | 0.828                | 0.949              | 0.961                    | 0.862           | 0.785                     |
| C600054      | Mount Huang Tourism        | 0.600                | 1.050              | 0.800                    | 0.751           | 0.630                     |
| C600593      | Dalian Shengya Tourism Holding | 1.000 | 0.990 | 1.000 | 0.990 |
| C600706      | Quijang Culture Tourism    | 1.022                | 0.926              | 1.049                    | 0.974           | 0.946                     |
| Average value of scenic spot enterprises | 0.895 | 0.977 | 0.961 | 0.928 | 0.869 |
companies have achieved growth, the overall performance of hotel enterprises is better than that of commercial services and scenic spot enterprises, and the overall performance of business services enterprises is better than that of scenic spot enterprises. Hotel enterprises perform better in pure technical efficiency, which shows that hotel investment technology has certain advantages compared with other types of enterprises under the condition of variable return on the scale. The economy hotels in the hotel category performed well in the TFP and achieved a growth of more than 14%, and it also showed a small increase in its decomposition index. The Songcheng Performance is the best among the scenic spot enterprises. Its TFP has increased by 24.5%. Through the decomposition of this index, we can find that the technical efficiency has increased by 20.8% and the scale efficiency has increased by 16%.

Table 6 shows that in the tourism listed companies from 2013 to 2015, the TFPI of Shanghai Jinjiang Group, Beijing Tourism Hotels, CYTS, UTour Tourism, Ling Nan Holdings, and CITS were all greater than 1, reaching the forefront of efficiency and achieving growth. The TFPI of 11 companies was less than 1, which is not at the forefront of efficiency and shows negative growth. The enterprises that achieve the growth of TFP were mainly hotel and commercial service listed companies, while all scenic spot listed companies showed negative growth.

In more detail, the average TFP of hotel enterprises in 2013–2015 was 1.068, which was above 1 and higher than the average of tourism listed companies (0.961) and reached the forefront of efficiency. The TFP and its decomposition index of budgetary hotels were obviously better than star-rated hotels. The value of pure technical efficiency of these enterprises was greater than 1, indicating that investment in technology under variable returns to scale can improve operating performance. In terms of technological progress, enterprises have shown obvious improvement, and the difference between enterprises is relatively small. In terms of scale efficiency, there are obvious differences among enterprises. The budgetary hotel enterprises perform better than the star-rated hotels and achieve positive growth. In terms of technical efficiency, the performance of hotel enterprises in 2013–2015 was better than that in 2014–2015. All hotel enterprises showed a downward trend, in which star-rated hotels have a larger decline from the perspective of hotel market segmentation. The reason is that hotels do not balance the input and output at short period and the payback period of starred hotels is longer.

The average TFP of commercial service enterprises in 2013–2015 was 1.015, which was also above 1 and higher than the average 0.961 of tourism listed companies, reaching the forefront of efficiency. There is a significant difference across enterprises in TFP and decomposition index values. Among them, the performance of UTour Group in the past 3 years is relatively stable; its TFP and its decomposition indicators have increased, but the TFP value in 2014–2015 showed a significant decline, mainly due to the impact of technological progress decline. Tempus International’s TFP achieved a small increase in 2014–2015, compared with a substantial increase in 2013–2014.

Table 5. Total Factor Productivity and Its Decomposition Efficiency of Tourism Listed Companies in 2014–2015.

| Company code | Corporate name                  | Technical efficiency | Technical progress | Pure technical efficiency | Scale efficiency | Total factor productivity |
|--------------|---------------------------------|----------------------|--------------------|---------------------------|-----------------|--------------------------|
| C000524      | Lingnan Holdings                 | 0.992                | 0.979              | 1.000                     | 0.992           | 0.971                    |
| C600258      | Beijing Tourism Hotels           | 1.140                | 1.080              | 1.024                     | 1.113           | 1.232                    |
| C600754      | Shanghai Jinjiang Group          | 1.064                | 1.079              | 1.000                     | 1.064           | 1.148                    |
| C601007      | Nanjing Jinjiang Hotel           | 0.689                | 1.086              | 1.000                     | 0.689           | 0.748                    |
|              | Average value of hotel enterprise| 0.971                | 1.056              | 1.006                     | 0.965           | 1.025                    |
| C000796      | Cassia Touristic                 | 0.907                | 0.947              | 0.863                     | 1.051           | 0.859                    |
| C002707      | UTourGroup                       | 1.000                | 1.021              | 1.000                     | 1.000           | 1.021                    |
| C300178      | Tempus International             | 1.062                | 0.948              | 1.040                     | 1.021           | 1.007                    |
| C600138      | CYTS                             | 0.891                | 1.211              | 1.000                     | 0.891           | 1.079                    |
| C601888      | CITS                             | 0.997                | 0.970              | 1.000                     | 0.997           | 0.967                    |
|              | Average value of commercial service| 0.971              | 1.019              | 0.981                     | 0.992           | 0.987                    |
| C000430      | Zhangjiajie                      | 1.000                | 0.998              | 1.000                     | 1.000           | 0.998                    |
| C000888      | Mountain Emei                   | 0.716                | 0.964              | 0.700                     | 1.023           | 0.690                    |
| C002033      | Lijiang Tourism                 | 0.868                | 1.010              | 0.813                     | 1.067           | 0.877                    |
| C002059      | Yunnan Tourism                  | 0.989                | 0.973              | 1.007                     | 0.982           | 0.962                    |
| C300144      | Songcheng Performance           | 1.208                | 1.031              | 1.041                     | 1.160           | 1.245                    |
| C600054      | Mount Huang Tourism             | 0.861                | 0.950              | 0.857                     | 1.005           | 0.818                    |
| C600593      | Dalian Shengya Tourism Holding  | 1.000                | 0.984              | 1.000                     | 1.000           | 0.984                    |
| C600706      | Qujiang Culture Tourism          | 0.858                | 1.057              | 1.000                     | 0.858           | 0.907                    |
|              | Average value of scenic spot enterprises| 0.938              | 0.996              | 0.927                     | 1.012           | 0.935                    |
From 2013 to 2015, the average TFP of scenic spot enterprises was 0.896, which was less than 1 and lower than 0.961 of the average of tourism listed companies and failed to reach the forefront of efficiency. There were observable differences in the annual TFP and decomposition index of each enterprise. The technical efficiency and scale efficiency of the enterprise increased by 20.6% and 16%, respectively, which led to an increase of TFP by 24.5%. The TFP of other enterprises in the past 3 years and year-to-year was less than 1. The TFP of Zhangjiajie and Dalian Shengya Tourism Holding is close to 1 in the past 3 years. Through the decomposition of the index, it is found that technological progress is the main reason that affects the TFP of enterprises.

**Discussion and Conclusion**

The literatures reflected that EVA model can be applied to measure the performance of tourism companies (Altaf, 2016; Lee & Kim, 2009; Zinkin, 2006). Martinelli et al. (2020) indicated that EVA can improve the environmental and economic performance of products or services in listed tourism companies. The paper focuses on a better method of measuring the performance of tourism listed companies and analyzes the data of tourism listed companies from 2013 to 2015 with EVA and Malmquist index. It draws the following conclusions.

First, the overall operating performance of tourism listed companies is not satisfactory. The results show that only 47% of the listed companies have positive EVA and the total factor production efficiency of 35% of these companies is higher than 1. This shows that more than half of the listed tourism companies get lower returns than the average social returns. Second, the operating performance of tourism listed companies in China fluctuates sharply in different years, which demonstrates relatively low sustainability. Third, the EVA and TFP of tourism listed companies are inconsistent, which suggests that when evaluating the performance of tourism listed companies, it is essential to make a comprehensive evaluation from multiple indicators.

In recent years, the frequent mergers and acquisitions in the capital market of economic hotel enterprises have promoted the EVA of these enterprises (Chen & Li, 2015). Hotel enterprises have the lowest rate of REV A due to the low economic returns of star-rated hotels. Hotel enterprises perform better in TFP, especially in budgetary hotels. Star-rated hotels have a big gap in scale efficiency with economic hotels and show negative growth. Therefore, star-rated hotels may further increase investment in the main business, enhance the scale efficiency of enterprises, and achieve economies of scale. In addition, hotel enterprises should steadily promote investment in new technology, especially in the case of constant returns on scale, excessive investment will lead to a decline in technical efficiency, resulting in inefficient investment in technology.

The average EVA of commercial service enterprises dropped significantly in 2015, mainly due to the EVA of China Youth Travel Service and China International Travel Service, both declined sharply. The TFP and its decomposition index indirectly demonstrate the varieties in operating performance across these enterprises. It is suggested that such enterprises

| Company code | Corporate name | Technical efficiency | Technical progress | Pure technical efficiency | Scale efficiency | Total factor productivity |
|--------------|----------------|----------------------|--------------------|--------------------------|-----------------|--------------------------|
| C000524      | Ling Nan Holdings | 1.099                | 0.954              | 1.105                    | 0.995           | 1.049                    |
| C600258      | Beijing Tourism Hotels | 1.228                | 0.940              | 1.101                    | 1.115           | 1.155                    |
| C600754      | Shanghai Jinjiang Group | 1.304                | 0.966              | 1.236                    | 1.055           | 1.260                    |
| C601007      | Nanjing Jinjiang Hotel | 0.843                | 0.956              | 1.100                    | 0.766           | 0.806                    |
| Average value of hotel enterprise | 1.119                | 0.954              | 1.136              | 0.983                    | 1.086           |
| C000796      | Cassia Touristic | 1.006                | 0.974              | 1.008                    | 0.998           | 0.980                    |
| C002707      | UTourGroup       | 1.000                | 1.090              | 1.000                    | 1.000           | 1.090                    |
| C300178      | Tempus International | 0.850                | 0.965              | 0.887                    | 0.959           | 0.820                    |
| C600138      | CYTS            | 0.979                | 1.173              | 1.012                    | 0.967           | 1.149                    |
| C601888      | CITS            | 0.958                | 1.079              | 1.000                    | 0.958           | 1.034                    |
| Average value of commercial service | 0.959                | 1.056              | 0.981              | 0.976                    | 1.015           |
| C000430      | Zhangjiajie     | 1.000                | 0.962              | 1.000                    | 1.000           | 0.962                    |
| C000888      | Mountain Emei  | 0.864                | 0.961              | 0.888                    | 0.973           | 0.830                    |
| C002033      | Lijiang Tourism | 0.889                | 0.965              | 0.898                    | 0.990           | 0.858                    |
| C002059      | Yunnan Tourism | 0.867                | 1.032              | 0.877                    | 0.989           | 0.895                    |
| C300144      | Songcheng Performance | 1.000                | 0.989              | 1.000                    | 1.000           | 0.989                    |
| C600054      | Mount Huang Tourism | 0.719                | 0.999              | 0.828                    | 0.869           | 0.718                    |
| C600593      | Dalian Shengya Tourism Holding | 1.000                | 0.987              | 1.000                    | 1.000           | 0.987                    |
| C600706      | Qujiang Culture Tourism | 0.937                | 0.989              | 1.024                    | 0.914           | 0.926                    |
| Average value of scenic spot enterprises | 0.910                | 0.986              | 0.939              | 0.967                    | 0.896           |
should pay attention to tapping the potential needs of customers to obtain stable operating income to ensure the sustainability of business performance.

The average EVA of scenic enterprises was the lowest but showed a growing trend year by year. The TFP was far lower than the other two types of enterprises. It is suggested that these enterprises should increase their investment in technology, use information technology to reduce management costs to improve their operational efficiency, and apply information technology to create “smart scenic spots” to meet the needs of tourists to increase operating income.

This article is the first attempt to use EVA to measure the performance of tourism listed companies, which is different from the previous studies. But the limitation of the study is that the income will make huge impact on the final results of EVA, which are inaccurate to make the strategic decisions. The clarification and confirmation in this study is still important to analyze the performance of tourism companies today, because EVA emphasizes the added economic value and sustainable strategies of listed tourism companies, which is beneficial for their further development.

Authors’ Note

The views and contents in this paper do not reflect the official stances of any of these mentioned affiliations.

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