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Comparison with cost control in "Internet +" tourism company

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ABSTRACT: With the rapid development of Internet in China, the Online Travel Agent (OTA) represented by Ctrip, Qunar, Tuniu and eLong has an increasingly intense competition with the traditional travel agency. In the industries with full competition, small and medium-sized enterprises mainly rely on the operation cost control to enhance profits. In this paper, based on the empirical research on the listed online tourism companies and offline tourism companies in China, it is found that there is no significant correlation between the transaction cost rate and the time and scale of the offline tourism company; there is a negative correlation between the transaction cost rate and the operating revenue and enterprise scale of the Internet tourism company; if the enterprise achieves economies of scale, its cost advantage will be greater than that of the traditional tourism enterprises.

Keywords: cluster technology; load balancing; periodic choice

1 INTRODUCTION

For the enterprise cost and control, domestic and foreign experts and scholars have conducted more in-depth and scientific research. Stoll and Whaley[1] (1983) have used the method of price difference plus commission for the transaction costs of the stock exchange. The conclusion is that, in general, the transaction costs of large stock exchanges are much lower than that of small exchanges, because large stock exchanges have a large amount of transactions, and dilute transaction costs (the transaction costs of New York Stock Exchange account for 2%; while the transaction costs of small exchanges account for 9%). Lu Xianxiang and Li Xiaoping[2] (2008) show that, in the provinces with lower average transaction costs, the growth rate of transaction costs is relatively high, while the growth rate in the provinces with higher average transaction costs is on the contrary. Visibly, the transaction costs have obvious "economies of scale". Chen Yun and Wang Huanchen[3] research the price competition behavior of online retailers and traditional retailers, and put forward that the pricing of online retailers and traditional retailers would be gradually reduced with the increasing popularity of e-commerce. When the economies of scale and e-commerce popularization reach at a certain extent, online retailers will gain more profits than traditional retailers. However, most of these researches are based on the transaction costs of retail industries and financial industries, but rarely specific to the cost control of tourism enterprises, and there is no in-depth research on the comparison with the cost control of online tourism and offline tourism companies and analysis of empirical data through establishment of models. This paper theoretically analyzes the advantages and disadvantages of transaction costs in OTA and offline tourism companies, and concludes through demonstration that, there is a negative correlation between the transaction costs of OTA and its operating revenue. That is, with the expansion of transaction scale, the advantage of transaction costs will be reflected.

2 RECOGNITION AND MEASUREMENT OF ACCOUNTING COST OF "INTERNET+" TOURSIM COMPAN

2.1 *Business model and business characteristics*

The Premier, Li Keqiang put forward "Internet +" guiding ideas at the opening ceremony of the third meeting of the Twelfth Session of the National People's Congress. Under the "Internet +" environment, how to change and upgrade the business model of the offline tourism company is the main purpose of this

research. The main business of the online tourism company is to be an agent of single tourism product via the network channel. For example, for Ctrip, the revenue of hotel and transportation ticket agent accounts for more than 80% of the company's total revenue; for eLong, it mainly relies on the hotel booking commission, and its revenue accounts for more than 80%. The agent business model allows the online tourism company to be more focused on user experience and product aftermarket. Meanwhile, the business model of Qunar provides a vertical search engine for the Internet users, and its technical means uses toll collection manner of "pay-for-performance service" (P4P), that is, "cost per click (CPC) or "cost per sale" (CPS) for measurement. The efficiency of sales revenue is measured through the change values of revenue per thousand queried by the background system. 90% of the operating revenue of Qunar is from P4P search of the hotel and ticket. Today's online tourism company is the product of offline tourism company developing towards "Internet +". Users acquire information related to tourism products, online payment and online comment after experience on the Internet, combined with the offline tourism experience, contributing to information transparency and product quality optimization in the tourism industry. The business model of tuniu is slightly different from that of the above companies, and tuniu's revenue of package tour accounts for more than 95% of the company's total revenue. tuniu is a typical example for the Internet sales platform of offline tourism products, with significant economies of scale and network economy. When the supplier's transaction cost rate decreases with the increase of consumers, the customer's efficiency will increase with the increase of consumers. The operation cost can be better controlled, which is in line with the goals of enterprise maximizing profits.

2.2 *Cost accounting definition*

Coase first proposed the concept of "transaction cost", and believed that the transaction cost is the cost of operating mechanism of the enterprise instead of the market. Huang Peng and Chen Gang (2000) believed that, the transaction cost accounting system is very important to the cost control of enterprises. Modern enterprises should establish a suitable transaction cost system based on the actual situation of enterprises, in order to further control and manage the transaction costs. This paper tends to definition of Zhang Wuchang[4] on the transaction costs, that is, the transaction costs are all the other costs other than material production, thus obtaining a core formula of cost in this paper:

$$\textit{Transaction costs of enterprise} = \textit{Gains and losses of enterprise except for the production costs of products} \quad (1)$$

This paper refers to the division of market transactions by John R. Commons[5], and believes the necessary cost incurred in the operation and divides the transaction costs into three parts: the first part is the market transaction costs produced in the transaction by the enterprise in the market; the second part is managerial transaction costs produced by the internal management department and internal transactions by the enterprise in the process of operation; the third part is political transaction costs produced by inevitable transactions between the enterprise and government due to commercial behavior. To sum up, the composition of transaction costs in this paper is as follows:

$$\begin{aligned}&\textit{Transaction costs of enterprise} = \textit{sales expenses} \\ &+ \textit{management expenses} + \textit{financial costs} \\ &+ \textit{business tax and surcharges}\end{aligned} \quad (2)$$

3 RESEARCH ON COST CONTROL FROM THE PERSPECTIVE OF TRANSACTION COSTS

3.1 *Selection of transaction cost comparison methods*

Based on the definition and composition of transaction costs mentioned above, the measurement of transaction costs can be divided into direct measurement and indirect measurement. Direct measurement is the measurement of absolute value of transaction costs, and calculation of transaction costs by adding; indirect measurement is rank ordering of the transaction costs based on the size. In terms of scale and operating revenue of different enterprises, the transaction costs do not possess separate contrastive comparability, so this paper chooses the transaction cost rate to measure the comparison with the size of transaction costs in a certain unit.

In this paper, as a standard unit, the prime operating revenue and the transaction cost rate are selected to measure the standard of transaction efficiency, and it is called as the transaction cost rate. If the transaction cost rate is low, it indicates that the transaction cost occupies a low rate of prime operating revenue, transaction efficiency is high, and cost control level of the enterprise is high. There is a need to adopt the prime operating revenue as a measurement index, because the prime operating revenue can not only directly measure the volume of business of the enterprise, but also discard data distortion generated by other abnormal business.

3.2 *Data sources and construction of empirical model*

3.2.1 *Data sources*

According to the three-phase principle of the development of e-commerce, the current tourism e-commerce belongs to the primary stage, and there is less such type of listed companies, and the time to market is shorter than that of other industries. This

paper intends to choose four listed tourism companies on the American stock market - Ctrip, eLong, Qunar and tuniu. Calculated by the volume of business, for the online accommodation booking market share in China in 2015, Ctrip, Qunar and eLong rank the top three, occupying 76.3% of the market share; for the online holiday travel market share, Ctrip and tuniu occupy 47.4%. The existence of e-commerce network effect increases the marginal revenue, inevitably leading to the phenomenon of oligopoly, so this paper believes that selection of data of four companies is still representative enough.

Except for Zhongxin Tourism that has successfully transformed to the online and offline operations, and occupied a large proportion in the online sales volume, the data of 38 traditional tourism enterprises in Shanghai and Shenzhen are selected as the initial research samples to research financial data from 2011 to 2015. Data includes the total operating revenue, sales expenses, management fees, financial expenses, business tax and surcharges, which shall be subject to the annual reports of the listed companies published on Sina Finance Website and foot-notes to financial statements issued by the enterprises.

3.2.2 *Calculation of sample data*

After collection of various financial data of the listed companies, combined with the previous definition of the transaction cost rate, thus:

$$TCR = TC / POR \quad (3)$$

Where, TCR refers to Transaction Cost Rate, TC refers to Transaction Cost, and POR refers to Prime Operating Revenue. In the latter part, in accordance with the formula 1.3, the transaction costs of the traditional tourism enterprises and Internet tourism enterprises are compared.

3.2.3 *Construction of empirical model*

This paper mainly researches the future development trend of "Internet +" tourism company through the relationship between the transaction cost rate and operating revenue of "Internet +" tourism company. This paper selects the following control variables (See Table 1).

Combined with the research questions, the multiple linear regression model is constructed:

$$TCR_{it} = \beta_0 + \beta_1 POR_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \varepsilon$$

The relationship between the transaction cost rate and operating revenue is researched through the multiple linear regression. Among them, TCR represents the explained variable - transaction cost rate, which uses the transaction cost / operating revenue of the enterprise in the current year as a proxy variable; POR represents the annual operating revenue of the enterprise, which uses the natural logarithm of total assets of the enterprise at the end of the year to measure the enterprise size, and uses the asset - liability ratio of the enterprise at the end of the year (LEV) to represent the financial leverage of the enterprise; ROA represents the profitability of the enterprise in the current year. In the model, i represents the corresponding enterprise; t represents the financial data of the enterprise corresponding to the period of t. First, descriptive statistics is given to all the variables, obtaining the overall operating conditions of the four companies - Ctrip, tuniu, Qunar, and eLong (See Table 2).

Table 2. Descriptive statistics

	N	Minimum value	Maximum value	Average value	Standard deviation
POR	27	250.27	10897.57	2443.0770	2665.35
TCR	27	0.1122	2.7596	0.7873	0.6226
SIZE	27	5.7713	11.6856	8.0451	1.3467
LEV	27	0.0926	0.9300	0.4217	0.2497
ROA	27	-0.7574	0.18745	-0.0872	0.2347

As can be seen from Table 2, the average value of the sample transaction cost rate of the four companies - Ctrip, tuniu, Qunar, and eLong is relatively high, reaching 78.73%, while the gap of the operating revenue level is large, and the average value is 2,443,080,000. The asset-liability ratio is 42.17%, and the liability level is relatively modest; meanwhile, the return on assets has a poor performance in the sample, with the average value of -8.72%, so there is a general situation of loss.

Empirical analysis includes correlation analysis and regression analysis. Pearson correlation analysis test is conducted for all variables to determine the degree of collinearity to ensure the accuracy of the regression model. See Table 3.

As can be seen from Table 3, there is a positive correlation between the enterprise size and operating revenue, and the significance level reaches 1%, indicating that there is a significant size effect in the "Internet +" tourism companies; there is a positive correlation between the transaction cost rate and the return on total assets, indicating that the higher the profita-

Table 1. Definition of variables and measurement methods

Variable category	Variable name	Variable symbol	Variable definition
Explained variable	Transaction cost rate	TCR	Transaction cost / operating revenue in the current year
Explanatory variable	Operating revenue	POR	Operating revenue in the current year
Control variable	Enterprise size	SIZE	Natural logarithm of total assets of the enterprise at the end of the year
	Financial Leverage	LEV	Asset - liability ratio of the enterprise at the end of the year
	Net margin of total assets	ROA	Net profit / total assets at the end of the year

bility of the enterprise is, the lower the transaction cost rate is; there is a negative correlation between the asset-liability ratio and the net margin of total assets at 1% of significance level, indicating that excessive liabilities will inhibit daily operation of the "Internet +" tourism company, without playing a role of lever; there is a negative correlation between the transaction cost rate and operating revenue, but not significant. The relationship between the specific variables and transaction cost rate needs for further regression analysis.

Table 3. Pearson correlation analysis

		OPR	TCR	SIZE	LEV	ROA
	Pearson correlation	1				
	Significance (both sides)					
TCR	Pearson correlation	-.200	1			
	Significance (both sides)	.318				
	Pearson correlation	.862**	-.015	1		
	Significance (both sides)	.000	.942			
	Pearson correlation	.282	.387*	.068	1	
	Significance (both sides)	.155	.046	.737		
	Pearson correlation	.062	-.724**	.143	-.695**	1
	Significance (both sides)	.760	.000	.477	.000	

Notes: ** Significant correlation at the level of .01 (both sides); * Significant correlation at the level of 0.05 (both sides).

3.3 *Analysis of empirical results*

Table 4 Regression analysis of the relationship between the variables and transaction cost rate

Explanatory variables	Standard coefficient	Value of t	Sig.	Collinearity statistics	
				Tolerance	VIF
(Constant)		-2.961	.007		
POR	-.979	-3.966	.001	.188	5.316
LEV	.090	.506	.618	.362	2.759
SIZE	.928	4.061	.001	.220	4.553
ROA	-.734	-4.524	.000	.436	2.293
Adjustment of R2			0.702		
Value of F			16.295***		
Durbin-Watson			1.047		
a. Predicting variables: (constant), OPR , LEV, SIZE, ROA.					
b. Dependent variable: transaction cost rate –TCR.					

As can be seen from Table 4, based on the research of multiple linear regression, the degree of fitting of the model is 70.2%, with a quite good explanation; the value of DW is 1.047, and expansion factor – VIF is between 1 and 10, indicating that there is no collinearity between variables. The regression coefficients show that, there is a negative correlation between the transaction cost rate and operating revenue, with the significance level of 1%, indicating that the transaction costs are constantly diluted with the growth of operating revenue, leading to constant decrease in the transaction costs. There is a positive correlation between the enterprise size and the transaction cost rate at 1% of significance level, further indicating the existence of size effect; there is a negative correlation between the net margin of total assets and the transaction cost rate at 1% of significance level. With constant increase in the net profits of the enterprise, the transaction cost rate gradually decreases. The relationship between the asset-liability ratio and transaction cost rate is not significant, and the liability level basically does not have an impact on the change of the transaction costs of the enterprise.

3.4 *Comparison with transaction costs of the offline tourism company and "Internet +" tourism company*

3.4.1 *Calculation of transaction cost rate of the offline tourism company*

The transaction cost rate of 37 offline tourism companies listed in China over the years is calculated according to the formula 1.3, and the descriptive statistics is given to all the data, obtaining the general cost conditions of the offline tourism company (See Table 5).

Table 5. Descriptive statistics of transaction cost rate of the offline tourism company

	2011	2012	2013	2014	2015
Average value	0.378204	0.374820	0.379062	0.379321	0.370133
Median	0.297308	0.315763	0.311104	0.235849	0.246857
Maximum value	0.980623	0.847610	0.988070	0.775452	1.063927
Minimum value	0.108662	0.105830	0.094652	0.079875	0.097626
Standard deviation	0.061268	0.044073	0.063256	0.068145	0.261551

As can be seen from Table 5, the transaction cost rate of the offline tourism company is not very different, which is relatively stable from 2011 to 2015, and the transaction cost rate remains between 37.0% and 37.9%; the standard deviation of each company is relatively low, and the transaction cost rate is not very different. Overall, the average transaction cost rate of the offline tourism company in these five years is 37.5%.

3.5 *Conclusion and prospects*

3.5.1 *Research conclusions*

According to the above empirical analysis of the transaction cost rate, operating revenue and related variables of "Internet +" tourism company, the following conclusions can be obtained:

(1) The average value of the transaction cost rate of "Internet +" tourism company is high, and the return on equity is negative, with a general loss.

(2) There is a positive correlation between the operating revenue and enterprise size of "Internet +" tourism company; a negative correlation between the operating revenue and the transaction cost rate.

(3) Restricted by the economies of scale, the current transaction cost rate of the "Internet +" tourism company is generally higher than that of the offline tourism company. However, after realizing economies of scale, the transaction cost rate will be lower than that of the offline tourism company.

3.5.2 *Prospects*

(1) The equity concentration of the "Internet +" tourism company will continue to rise. The average value of the transaction cost rate of various enterprises over the years is high, and the return on equity is negative, showing a fierce competition in seizing the market share by various enterprises, but the acquisitions can avoid the vicious competition in the market. Through merger and acquisition actions of Ctrip in the past few years, in May 2015, Ctrip invested 400 million US dollars to hold 37.6% of eLong's equity, who is now the largest shareholder of eLong. In the same year, Ctrip converted equity with Baidu to hold about 45% of Qunar's equity. Thus, the future trend of the company's equity concentration will be significantly increased.

(2) The vertical labor division of "Internet +" tourism company will become the future direction of development. There is a positive correlation between the operating revenue and enterprise size, and a negative correlation between the operating revenue and the transaction cost rate, showing that the enterprise size can be expanded and the operating revenue can be increased to reduce the transaction cost rate of the enterprise. Due to the typical network economy of the online platform, the operating revenue increases with the expansion of the enterprise size, while the transaction cost rate decreases. Therefore, the online tourism enterprises have a greater endogenous power. Ctrip and eLong as tourism product agents, Qunar as a vertical search engine, and tuniu closely combined with offline have a rapid growth with the rise of the Internet, and the Internet is a product to promote a future system of vertical labor division.

(3) Vertical integration is the future direction of the development of tourism companies. The use of network widely reduces the transaction costs of offline tourism companies, and the network platform construction and investment makes the tourism providers no longer confined to the traditional sales channels. When the company reaches at a certain level, vertical integration can expand the enterprise size and industrial chain to a maximum extent, in order to be more in line with the development goals of maximizing its cost control and profits. A typical case is Zhongxin, who strides forward vertical integration through listing and the strategic investment in uu-club. The traditional travel agencies, such as CITS and CYTS directly construct its online websites - CITS online and AoYou network to sell tourism products, in order to achieve online and offline integration, and complete the integrated management in the Internet era.

4 CONCLUSION

The arrival of the Internet era has accelerated the changes in the industrial structure of China's tourism industry and the formation of a new business model. Under the environment of complete competition in the tourism industry, the enterprises must pay more attention to the control of transaction costs, reasonably reduce the cost investment, and promote the profitability to a maximum extent, in order to achieve the sustainable development of enterprises.

REFERENCES

[1] Stoll hans,Robert Whaley. 1983. Transaction cost and small firm effect. *Journal of Financial Economic*, (12): 57-59.

[2] Lu Xianxiang, Li Xiaoping. 2008. Institutional transformation, economic growth and transaction cost - empirical analysis from provinces and cities in China. *Economists*, pp: 56-64.

[3] Chen Yun, Wang Huanchen, et al. 2008. Research on dual-channel retailer pricing strategy under Internet environment. *Journal of Management Engineering*, 22(1): 34-39.

[4] Zhang Wuchang. 1984. Contract nature of enterprise. *Journal of Law and Economics*, pp: 26-32.

[5] John R. Commons. 1934. *Institutional Economics: Its position in political economics*.