

A Study on the Relationship between Debt Financing Structure and Income Stability of China's Tourism Listing Companies

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Abstract. Taking the financial data of 2011 to 2017 of 26 listed tourism companies as samples, this paper makes an empirical analysis of the relationship between debt financing structure and income stability. The study found that the overall debt ratio of tourism listed companies in China is low and the function of debt financing is not well utilized; the performance stability of tourism listed companies of resources and scenic spots is poor; there is a negative correlation between the asset-liability ratio, long-term debt ratio and bank loan ratio and income stability, and a positive correlation between short-term debt ratio and commercial credit ratio and corporate income stability; there is no significant correlation between financial lease ratio and income stability. Based on the conclusion of this paper, this paper also gives the methods and suggestions to optimize the debt financing structure of tourism listed companies in China in order to improve the income stability.

1. Introduction

Tourism industry is an industry with obvious characteristics in weak season and peak season, and the stability of income is poor, and different debt financing types have different financing costs and financing risks, which will also have different effects on the operation mode and performance of enterprises, it also affects the stability of enterprise income. What is the specific relationship between income stability and debt financing structure of tourism listed companies and how to enhance the income stability of tourism enterprises through different debt financing combinations, which is a problem that has not been paid attention to by tourism scholars at present. This article will carry out a corresponding study on this.

2. Literature review

2.1. Research on debt financing structure

Because of the different financing structure, enterprises bear different financing costs and risks, corporate performance will also have corresponding changes, so the structure of debt financing has always been one of the key contents of academic research. The research on debt financing structure is mostly about the relationship between corporate debt financing structure and corporate performance (value), mainly from three aspects: total debt level, debt type and debt maturity structure.



In foreign countries, Myers (1977) holds that there is a certain limit to corporate debt, and if the debt increases, it will not lead to the improvement of the dynamic role of the management, but will reduce the performance of the company [1]. Meeling (1986) analyzes the relationship between management and debt financing ratio, and finds that the increase of debt financing ratio is helpful to alleviate the disputes between managers and shareholders, and thus promote the growth of enterprise value [2]. Gullman (1999) studied the growth of enterprises, selected Japanese listed companies as the research sample, and concluded that the asset-liability ratio of enterprises is negatively related to the growth of enterprises [3].

The domestic research on debt financing structure is late, and the study also draws lessons from the relevant theories and research methods of foreign countries. Lu Changjiang, Han Huibo (2001) found that debt level was negatively correlated with profitability, current ratio and fixed assets ratio, but positively correlated with firm size and future profitability [4]. Zhou Sanshen (2009) took China's listed companies from 2003 to 2007 as an example, the study shows that the increase of short-term debt financing ratio can increase the financial performance of the company [5]. Zhu Disheng (2012) and Zhang Shunbao found that corporate performance had no relationship with bank borrowing, but corporate performance had a positive correlation with commercial credit [6].

In tourism industry, Zhang Manlin (2012) found that asset-liability ratio was negatively correlated with performance, short-term debt ratio and long-term borrowing were positively correlated with operating performance [7]. Dong Fenyi and Cheng Lili (2014) analyzed the financial data of tourism listed companies between 2007 and 2012. The study concluded that the company's financial performance was negatively correlated with the company's long-term debt ratio [8].

2.2. *Research on the Stability of Income*

There are a lot of researches on operating income (performance) of listed companies in academic circles, such as performance influencing factors, performance quality, etc., but there are few researches on corporate income stability.

Foreign studies, Goel and Thakoran (2000), found companies artificially manipulate the financial statements when necessary. If the earnings level exceeds or falls below the specified performance for the current period, then the company will lower or raise the returns in order to Reduce earnings volatility [9]. Leuz et al. (2003) found that the stabilization of income by artificial manipulation will lead to the decline of earnings quality [10].

Domestic research, Jiang Fuxiu (2006) study that diversification can increase the stability of corporate income [11]. Zhang Xiujuan (2014) studied the influence of asset structure on income stability, and found that increasing the proportion of current assets, the proportion of money and inventory, the stability of enterprise income will increase [12].

2.3. *Summary of research*

Due to the differences of research methods, research angles and research samples, there is not a clear conclusion. However, debt financing is an important approach to corporate financing, which has an important impact on the stability of corporate income. It is of great significance to clarify the relationship between debt financing structure and income stability for corporate governance and academic circles also need to further enrich the content of this area of research.

In tourism, only some scholars have studied the relationship between long-term debt ratio, asset-liability ratio and tourism enterprise performance, and have not comprehensively studied the influence of different debt financing types on corporate income stability. It is of great practical significance to study the income stability of tourism industry which with obvious characteristics of weak season and peak season.

3. Sample collection and Variable selection

3.1. Collection of samples

According to the latest industry classification of listed companies in the fourth quarter of 2017 by the China Securities Regulatory Commission, 33 tourism listed companies were queried in this paper. Based on the sustainable management of listed companies and the availability of data, excluding St Shares PT shares and incomplete data of listed companies, through Wind database and consulting the annual financial reports of each company, this paper selects 26 tourism listed companies' data. According to the difference of its main business, it is divided into three types of tourism listed companies. These three types of listed tourism companies are accommodation and catering, resources and scenic spots and integrated service category, and select their financial data from 2010 to 2017 to study. Table 1 shows 26 specific listed tourism companies:

Table 1. The name and classification of the listed companies

Classification	Stock code	Name	Classification	Stock code	Name	Classification	Stock code	Name
resources and scenic spots	000430	ZhangJiaJie	Accommodation and Catering	000428	HuaTian hotel	Integrated service category	000610	XiAn tourism
	000888	Mount Emei A		000524	LingNan KongGu		000796	KaiSa tourism
	000978	GuiLin tourism		600258	ShouLv hotel		002707	ZhongXin tourism
	002033	LiJiang tourism		600754	JinJiangshare		300178	TengBang GuoJi
	002059	YunNan tourism		601007	JinLing restaurant		600138	ZhongQin glv
	002159	SanTe cableway		000721	XiAnfood		600640	HaoBai KongGu
	300144	SongCheng YanYi		002186	QuanJuDe		601888	ZhongGuo GuoLv
	600054	HuangShan tourism					600358	GuoLv lianHe
	600593	DaLian ShengYa						
	600706	QuJiang WenLv						
	600749	XiZang tourism						

3.2. Variable selection

3.2.1. Debt financing structure indicators. According to academic experience, the debt financing institutions can be analyzed from three aspects: the total level of debt, the structure of debt maturity and the type of debt. In this paper, the asset-liability ratio is used as a measure of the overall level of debt to reflect the basic financial situation of enterprises. The debt term structure is measured by the long-term debt ratio and the short-term debt ratio to reflect the long-term and short-term repayment pressure. The debt type chooses the financing lease ratio, the bank loan ratio and the commercial credit ratio to measure. The calculation method of indicators is as shown in Table 2.

3.2.2. Income stability indicators. There are many indicators to measure corporate income, such as total return on assets, earnings per share, return on net assets, and so on. The rate of return on net assets represents the ratio of net profit (output) to net asset (input), which can summarize the final results of enterprise management activities, investment activities and other activities, and is the most comprehensive and comprehensive income evaluation index considered by scholars. On the basis of analyzing the return on net assets, we should focus on the trend and stability of income. In this paper, the trend percentage method is used to calculate the income stability of the company, and the ratio of the difference between the return on net assets in the last two accounting periods and the difference in the return on net assets in the last two accounting periods is selected to reflect the difference. Denote by the letter Y. The specific formula is:

$$Y = (ROEt - ROEt-1) / (ROEt-1 - ROEt-2)$$

ROEt represents the rate of return on net assets for the t accounting period. Because the tourism industry has the obvious characteristic of the weak season and peak season, in order to better analyze and study the stability of the tourism listed company's income, the accounting period of this article is based on the quarter.

3.2.3. Control variable. According to the academic research conclusion, there are many factors that affect the company income. In order to ensure the effectiveness of the empirical research results, this paper selects the enterprise scale, the total assets turnover rate as the control variable of multiple regression. The computational method are presented in table 2.

3.2.4. Variable list

Table 2. Debt financing structure, income Stability and indicators of Control variables

variables attribute	variables name	computational method
Debt financing structure	The asset-liability ratio(DB)	Total liabilities / total assets
	the long-term debt ratio(LTD)	Liabilities for more than one year/total assets
	the short-term debt ratio(STD)	Less than one year's liabilities/total assets
	the bank loan ratio(BD)	Long bank loan and short-term bank loan/total assets
	the commercial credit ratio(CD)	Notes payable + pre receivable + accounts payable/total assets
income Stability	the financing lease ratio(FRA)	Long term payable/total assets
	income Stability(Y)	$(ROEt - ROEt-1) / (ROEt-1 - ROEt-2)$
Control variables	the enterprise scale(ASSET)	ln(assets)
	The total assets turnover rate(TAT)	Operating income / total assets

4. Debt financing structure and income of Tourism listed companies

4.1. Analysis on debt financing structure of listed Tourism companies in China

The ratio of assets and liabilities is low, the function of debt financing is not well utilized. Table 3, table 4 and table 5 show that the asset-liability ratio of different types of tourism listed companies in

China is relatively low, and the gap between various categories of tourism listed companies is not large, nor is the gap between years. The asset-liability ratio of tourist listed companies of accommodation, catering and integrated services tends to increase with the year.

In debt maturity, long-term debt ratio is lower than short-term debt ratio, short-term debt ratio is not high. According to industry experience, its short-term debt ratio is at a relatively low level. Compared with different types, integrated service category listed companies have higher short-term debt ratio and lower long-term debt ratio. As shown in tables 3, 4 and 5.

Single debt type, debt financing channels need to be further expanded. In the type of debt, the bank loan ratio of the listed companies of resource and scenic spots and accommodations and catering companies is relatively high, and the commercial credit rate and the financing lease ratio are small. The commercial credit ratio of listed tourism companies in the comprehensive service category is mostly higher than the bank loan ratio, which shows that their debt financing channels have been effectively expanded, but the financing lease ratio is zero, with only a slight increase in 2017. Its financing lease channel still needs to be strengthened. As shown in tables 3, 4 and 5.

Table 3. Debt financing structure (annual average) of resource and scenic spots listed companies
Unit: %

	Asset-liability ratio (DB)	Long-term debt ratio (LTD)	Short-term debt ratio (STD)	Bank loan ratio(BD)	Commercial credit ratio (CD)	Financing lease ratio (FRA)
2011	41.1	9.5	31.6	20.8	3.8	0.3
2012	38.1	9.1	29.0	18.7	4.8	0.2
2013	38.1	13.4	24.7	22.3	4.0	0.3
2014	38.0	12.4	25.6	19.7	4.2	0.4
2015	37.0	11.9	25.1	15.2	4.5	0.4
2011	41.1	9.5	31.6	20.8	3.8	0.3
2012	38.1	9.1	29.0	18.7	4.8	0.2

Table 4. Debt financing structure (annual average) of accommodation and catering listed companies
Unit: %

	Asset-liability ratio (DB)	Long-term debt ratio (LTD)	Short-term debt ratio (STD)	Bank loan ratio(BD)	Commercial credit ratio (CD)	Financing lease ratio (FRA)
2011	31.6	5	26.6	8.8	7.5	1.2
2012	31.7	5.4	26.3	9.4	8.8	0.7
2013	31.8	5	26.8	11.2	10	0.4
2014	33.8	6.7	27.1	14.3	8.6	0.7
2015	47	16.5	30.5	23.8	6.9	0.8
2016	46.9	12.6	34.3	21.9	6.7	0.7
2017	48.5	15.3	33.2	18.7	8	1.5

Table 5. Debt financing structure (annual average) of integrated service category listed companies
Unit: %

	Asset-liability ratio (DB)	Long-term debt ratio (LTD)	Short-term debt ratio (STD)	Bank loan ratio(BD)	Commercial credit ratio (CD)	Financing lease ratio (FRA)
2011	32.9	0.7	29.7	7.4	12.9	0
2012	31.6	0.8	27.1	4.9	13	0
2013	38.9	2.1	28.3	6	13.2	0
2014	36.8	2.3	28.7	6.4	11.6	0
2015	39.4	0.9	30	11	12.5	0
2016	40.5	1.2	31	13.9	11.9	0
2017	43.3	2.9	34	13.4	12.8	0.4

4.2. An Analysis of the income of listed Tourism companies in China

The annual earnings of listed tourism companies in China are relatively low, as shown in Table 6. 5. The highest number is just 2.739 in 2017, and the lowest is 1.179 in 2011. The annual return of integrated service category listed companies increased with the year, while accommodation and catering listed companies were the opposite.

In terms of income stability, as shown in figure 1, the performance of tourism listed companies of resource and scenic spots is the most unstable, which is mainly caused by the weak and peak season of tourism, and the income of listed tourist companies of accommodation and catering is the most stable, which is related to the residents' fixed consumption habits of catering accommodation. The income stability of integrated service category listed companies is between the two.

Table 6. Annual income (annual mean value) of tourism listed companies in China Unit: %

Income of integrated service category listed companies	1.179	1.518	2.237	2.055	2.131	2.048	2.739
Income of resource and scenic spots listed companies	2.157	2.821	2.199	1.727	2.166	1.506	1.835
Income of accommodation and catering listed companies	2.188	2.032	1.949	1.527	1.374	1.349	1.798

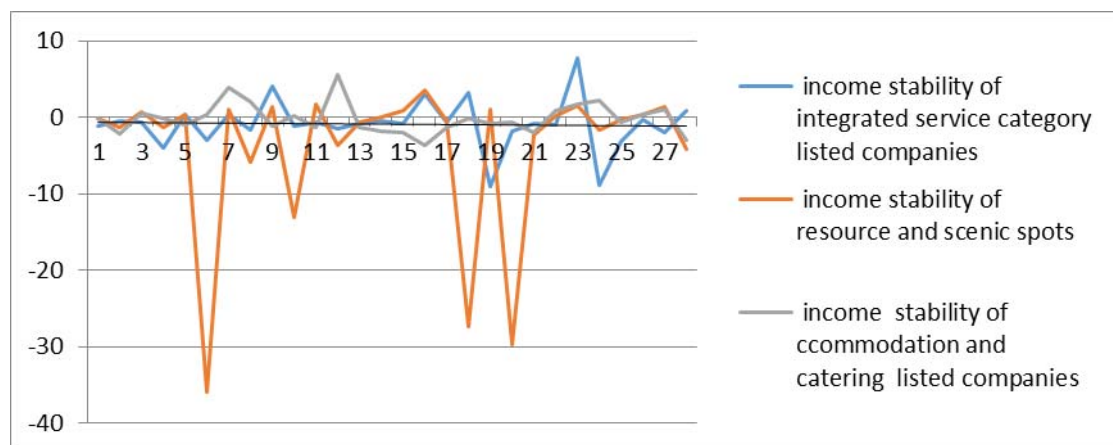


Fig. 1 income stability of different types of tourism listed companies in China (quarterly average)

5. An empirical study on debt financing structure and income Stability

In this paper, the statistical analysis software excel 2010 and STATA12 are used to process and calculate the obtained data, and an empirical analysis is carried out. According to the logical relationship between debt financing structure and income stability of tourism listed companies, this paper establishes the following multivariate linear regression model:

$$\text{Model 1: } Y_1 = \beta_0 + \beta_1 \text{DB} + \beta_2 \text{ASSET} + \beta_3 \text{TAT} + \beta_4 \text{LB} + e$$

$$\text{Model 2: } Y_2 = \beta_0 + \beta_1 \text{LTD} + \beta_2 \text{STD} + \beta_3 \text{ASSET} + \beta_4 \text{TAT} + \beta_5 \text{LB} + e$$

$$\text{Model 3: } Y_3 = \beta_0 + \beta_1 \text{BD} + \beta_2 \text{CD} + \beta_3 \text{FRA} + \beta_4 \text{ASSET} + \beta_5 \text{TAT} + \beta_6 \text{LB} + e$$

Among these variables, Y_1 , Y_2 , Y_3 are dependent variables, which indicates that the income stability of the tourism listed companies. ASSET and tat represent control variables, enterprise scale and total asset turnover, respectively. LB represents the company category, resource attractions category is 0, accommodation and catering category is 1, integrated service category is 2. Model 1

study on the influence of overall debt level on the income Stability of Tourism listed companies, DB represents asset-liability ratio; Model 2 studies the effect of term structure of debt on the income stability of tourism listed companies. LTD and STD represent long-term debt ratio and short-term debt ratio respectively; Model 3 studies the effects of debt types on the income stability of tourism listed companies, BD, CD, FRA means bank borrowing ratio, business credit ratio and financing lease ratio, respectively. The results of empirical analysis are as follows:

Table 7. Model 1: regression results of asset-liability ratio to income stability

tfp	Coef.	std.Err	t	p> t
Intercept	-0.053*	0.023	1.53	0.083
DB	0.165*	0.012	1.72	0.072
ASSET	6.98**	2.817	2.48	0.043
TAT	6.54	6.072	1.08	0.282
R2		0.325		
Adj-R2		0.319		
F-statistic		38.245		

Note: ***, **, *mean the results were significant at 0. 01, 0. 05 and 0. 10 level, respectively.

Table 8. Model 2: regression results of debt maturity and income stability

tfp	Coef.	std.Err	t	p> t
Intercept	-1.49*	0.023	2.01	0.043
LTD	-0.165*	0.073	1.82	0.068
STD	0.187*	0.104	1.8	0.072
ASSET	6.512**	2.871	2.264	0.044
TAT	3.563	4.812	0.731	0.459
R2		0.285		
Adj-R2		0.279		
F-statistic		32.351		

Note:***, **, *mean The results were significant at 0. 01 ,0. 05 and 0. 10 level, respectively.

Table 9 .Model 3: regression results of debt types for income stability

tfp	Coef.	std.Err	t	p> t
Intercept	0.351*	0.125	2.34	0.052
BD	-0.054*	0.034	1.71	0.083
CD	0.029*	0.015	1.58	0.09
FRA	3.87	6.07	1.08	0.482
ASSET	8.735**	3.712	2.358	0.019
TAT	2.412	4.937	0.485	0.223
R2		0.367		
Adj-R2		0.358		
F-statistic		42.351		

Note:***, **, *mean The results were significant at 0. 01 ,0. 05 and 0. 10 level, respectively.

According to the regression results of tables 6, 7 and 8, there is a negative correlation between corporate asset-liability ratio and corporate income stability in debt financing structure, which is significant at the confidence level of 10%.In debt maturity, there is a negative correlation between long-term debt ratio and income stability, and a positive correlation between short-term debt ratio and corporate income stability, both of which are significant at the level of 10%;the bank loan ratiois negatively correlated with the corporate income stability at the confidence level of 10%, and the

commercial credit ratio is positively correlated with the corporate stability at the confidence level of 10%. There is no significant correlation between financial lease ratio and income stability.

6. Suggestions on enhancing the stability of tourism enterprises ' income

6.1. Pay attention to debt financing and raise the level of enterprise debt

The paper concludes that the asset-liability ratio of tourism listed companies is positively correlated with the stability of earnings, which suggests that the ratio of assets and liabilities should be increased to enhance the stability of the enterprises ' returns. While increasing the company's asset-liability ratio increases the risk of corporate capital and operations, the debt financing provides the fund guarantee for the tourism listed company's operation project development, especially in the off-season, it guarantees the normal business order and the ability of project development, so it can improve the stability of the tourism listed company's earnings objectively.

6.2. Restructuring the debt maturity structure and improving the efficiency of the use of funds

In the conclusion, the short-term debt ratio and the long-term debt ratio are positively correlated and negatively correlated with the tourism listed companies respectively. Long-term debt repayment period is relatively long, regardless of the short season, it gives the tourism listed companies to create a certain amount of repayment pressure, Short-term liabilities, as mentioned above, can increase the operating capital of tourism listed companies in the short term, guarantee the operation of the company, and improve the stability of earnings. Under the condition that the overall asset-liability ratio of the listed companies is not high, China's tourism listed companies can further increase the short-term debt ratio, reduce the long-term debt ratio and improve the efficiency of capital utilization.

6.3. Expanding debt financing channels and promoting diversification of debt financing types

This paper considers that the bank loan rate is negatively correlated with the stability of earnings, and the commercial credit rate is positively correlated with the stability of earnings. Bank loan borrowing cost is higher, it also has the big repayment pressure in the finance, but the commercial credit capital cost is low, it gives the company fund to support while repayment pressure is small. Continuation of this logic, tourism listed companies should expand the debt financing channels to increase the company's operating capital, while minimizing the cost of financing. Through financing leasing, issuing corporate bonds and other means of financing, and thus promote the diversification of debt financing types.

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