THE IMPACT OF SELECTED QUALITY MANAGEMENT ATTRIBUTES ON THE PROFITABILITY OF TOP HOTELS IN THE VISEGRAD GROUP COUNTRIES

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Abstract: The primary objective of the research was to determine the significance of satisfaction and profitability of the top hotels in the Visegrad Group countries. The following outputs were included in the analysis: Profitability Return on Assets (ROA), Return on Equity (ROE), satisfaction assessment with the quality of the features provided such as Overall Assessment, Personal, Location, Cleanliness, Comfort, Equipment and the evaluation of Price, Quality and Wi-Fi. Inference methods, context analysis (Pearson r, Spearman ρ) and multiple linear regression were used for the analysis. Data was obtained from the financial statements database (reporting period 2017) and from the booking portal (beginning of 2018). The sample was defined for the top hotels in the Visegrad Group countries, i.e. five star hotels (n = 33). One of the most interesting findings was that there is a relation between satisfaction and profitability (ROE, ROA), however it is a negative relation, which is contradictory with the research. In particular, the significant (p value <0.05) impact on ROE was confirmed in case of comfort, ROA was confirmed in the overall assessment (positive impact) as well as in the hotel location, price and quality, where it was negative. Negative impacts may reflect the organization's financial management system, which is a mirror of the state's financial cost accounting policy.

Key words: tourism, hotels, customer satisfaction, financial performance, impact, booking

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Introduction

The hospitality and tourism industry is one of the sectors currently most characterized by the tendency of consumers sharing online reviews on dedicated digital platforms (Amatulli et al., 2019; Gunasekar and Sudhakar, 2019). Štefko and Pollák (2016) emphasize the importance of online reputation in this industry. Hotel customers tend to spread information about accommodation and other tourism-related products through online reviews (Filieri and McLeay, 2014; Liu et al., 2013; Park and Allen, 2013; Arsawan et al., 2018), as well as potential tourism

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POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V., Obšatníková K.

**2019
Vol.19 No.1**

customers consider online reviews when searching for a hotel (Kim et al., 2011). Many studies have reported (Shin et al., 2019; Gavilan et al., 2018; Sparks and Browing, 2011), that a survey of online tourism assessments has become one of the most influential sources of information for potential customers in terms of perceived reliability (Casalo et al., 2015), perceived quality (Radjenovic, 2018; Popovic et al., 2018a; Lorincova et al., 2018; Melo et al., 2017; Torres et al., 2015) or willingness to pay (Nieto-García et al., 2017; Luekveerawattana, 2018). Customers' decision to buy or not to buy a product is based on positive or negative information about the product they receive from other customers (Forman et al., 2008). Also, there are supply chain management issues (Kot and Kozicka, 2018). As a result, online reviews also have an impact on financial performance. Štefko et al. (2018) on the sample of all Slovak regions draw attention to the positive changes in the development of tourism reflected in the indicators that point out its intensity. They also emphasize the possibility of further development of tourism, for this purpose it is important to focus on tourism from different perspectives, where we will also consider the examination of the present study, i.e. the relation between hotel satisfaction and profitability.

Theoretical Background

Nowadays, it is important to understand the hotel's attributes that contribute to customer satisfaction or dissatisfaction (Gunasekar and Sudhakar, 2019; Popovic et al., 2018b; Kovács and Gubán, 2017). Štefko at al. (2016) point out that marketing communication is an element determining tourism development. Customer satisfaction determinants can be identified through an analysis of online reviews. The most important factors according to Huiying et al. (2012) are the following: food and beverage management, convenience to tourist destinations and value for money. Customers also pay attention to bed, reception services, room size and decoration. Reyner at al. (2017) and Kuncová et al. (2018) point to the connection of quality of provided services and satisfaction of tourism customers. Berezina et al. (2016) note that satisfied customers willing to recommend the hotel to others refer to the intangible aspects (i.e. employees) of their accommodation more often than dissatisfied customers. On the other hand, dissatisfied customers are more likely to refer to the tangible aspects of their accommodation, such as equipment and finance. Kim et al. (2016) consider staff satisfaction and attitude to be the most critical factor, Barreda and Bilgihan (2013) point out cleanliness, location and staff. Kuhzady and Ghasemi (2019) note that satisfied customers consider location, room, staff and restaurant to be the most influential factors, on the contrary, dissatisfied customers consider Wi-Fi, restaurant and room to be the main determinants of dissatisfaction. There is a clear relation between satisfaction and online reviews, which is confirmed by many other studies (Sharifi, 2019; O'Connor, 2005).

Based on several studies (Chi and Gursoy, 2009) we can note that customer satisfaction has a positive impact on the financial performance of businesses.

2019
Vol.19 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V.,
Obšatníková K.

Profitability indicators should be used to measure corporate financial performance. In the field of food industry, Suchanek and Kralova (2016) with the help of ROE found that higher customer satisfaction in certain areas of satisfaction leads to lower business performance. The reason for this is the higher costs and low benefit ratio of poorly performing companies. Delen et al. (2013) rely on ROA and ROE profitability indicators. The results of a study in the banking sector have shown that star ratings and consumer assessment information included in online reviews have predicted a significant increase in corporate profitability as measured by ROA (Tang et al., 2016). Sun and Kim (2013) note that customer satisfaction positively affects the profitability and value of the hospitality and tourism business, with the impact of customer satisfaction reflected in the profit margin, asset return (ROA), return on equity (ROE) and business profitability indicators market value added (MVA). Many studies have been devoted to the relationship of customer satisfaction and business performance (Suchanek and Kralova, 2016; Morgan and Rego, 2006). Xie at al. (2014) in their study identified the relationship between the commercial value of online consumer reviews and management's response to the hotel's performance, showing that overall rating, attribute ratings of purchase value, location and cleanliness, variation and volume of consumer reviews and the number of management responses are significantly associated with hotel performance. According to several authors, a significant relationship between consumers' online opinions and hotel performance is evident through indicators such as room sales, room occupancy or revenue per available room (RevPAR) (De Pelsrnacker et al., 2018; Raguseo and Vitari, 2017; Viglia et al., 2016; Neirotti et al., 2016; Ye et al., 2011). Anderson (2012) notes that a 1% increase in the hotel's online reputation has led to a 0.89% increase in price, a 0.54% increase in room occupancy and a 1.42% increase in RevPAR. This effect in case of well-known hotel chains has not been confirmed. Duverger (2013) confirms that user-generated content has a positive impact on hotel market share. From the point of view of the above-mentioned indicators the problem is analysed, but the relation between online reviews and the profitability of hotels is missing. The objective of the present study is to identify the relation between profitability and satisfaction, i.e. perceived quality, expressed by online reviews of the top hotels in the Visegrad group countries. The model also can be used as an alternative model for developing country of Indonesia which usually relies on service performance of knowledge workers to satisfy hotel customers (Arsawan et al.,2018) as well as subjective norms as influencers on intention to book hotel on line (Anggraeni and Wijaya, 2019).

Methodology

The primary objective of the research is to determine the significance of the relation between satisfaction and profitability of the top hotels in the Visegrad group countries. Based on the above studies, we formulate two main hypotheses:

POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V.,
Obšatníková K.

2019
Vol.19 No.1

H1: We assume that there is a significant impact of selected elements of quality perception on ROE top hotels in the Visegrad group countries.
H2: We assume that there is a significant impact of selected elements of quality perception on ROA top hotels in the Visegrad group countries.

The study examines the impact quality (satisfaction with provided services expressed in online reviews) of provided services (Rating, Personal, Location, Cleanliness, Comfort, Equipment, Price, Quality, Wi-Fi) on Equity Return (ROE = Net Income/Shareholders' Equity) and Return on Assets (ROA = Net Income/End of Period Assets). These indicators were calculated by Net income in percentage.

Return on Assets (ROA) shows us how an enterprise can use all of its assets to generate profit, regardless of the source of funding. The higher the ROA value, the better it can manage its assets, i.e. making better use of its assets (Sedláček, 2011). Return on Equity (ROE) can be seen as a return on equity and is an indicator of profitability that measures an enterprise's ability to generate profits. The return on equity tells us how many percent of the owners' deposit was valued by the business, or the return on equity invested in the business. As a result, we can find out whether investing in a business is the right choice for capital appreciation (Kotulič et al., 2007). From the shareholders' point of view, it can be argued that return on equity is the best indicator of the company's performance as an investment (Elayan et al., 2006).

The research can be defined as intradisciplinary, from the point of view of research as fundamental and from the viewpoint of inputs as secondary. The inputs were obtained from two sources. The hotel quality evaluation outputs were obtained from the Booking website and the collection took place in the first months of 2018. Profitability indicators were obtained from the financial database of the organization for the 2017 reporting period. The conditions were set at 31 and more ratings of a particular hotel on the Booking website. We focused on hotel facilities, i.e. the data was obtained only from five-star hotels, if the business entity (natural person, legal person) owned more hotels, we considered the evaluations as average if the business entity also carried out other business activities not closely related to the provision of hotel services, it was excluded from the research. The research was geographically limited to the Visegrad group countries (Czech Republic (CZ) n = 15, 45.45%; Hungary (HU) n = 8, 24.24%, Poland (PL) n = 8, 24.24%, Slovakia (SK) n = 2, 6.06%). The following Table 1 shows the basic description of the variables.

Table 1. Research descriptive variables

	A	B	C	D	E	F	G	H	ROE	ROA
Valid	33	33	33	33	33	33	33	33	24	33
Missing	0	0	0	0	0	0	0	0	9	0
Mean	8.88	8.93	9.17	9.13	8.99	8.79	8.21	8.59	6.44	3.71
Median	9.00	9.00	9.30	9.20	9.10	8.80	8.30	8.70	6.24	2.67
Std.	0.46	0.50	0.50	0.50	0.52	0.55	0.54	0.77	13.70	7.84

2019
Vol.19 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V.,
Obšatníková K.

Deviation									
Skewness	-0.89	-0.97	-0.97	-0.91	-0.90	-0.65	-0.46	-1.53	-0.02	0.79
Kurtosis	-0.03	0.78	0.51	0.63	0.21	0.01	-0.95	3.43	-0.29	3.32
Range	1.80	2.10	2.00	2.20	2.10	2.20	2.00	3.50	54.72	45.87
First Quartile	8.60	8.65	8.90	8.75	8.73	8.50	7.60	8.15	-2.98	-1.37
Third Quartile	9.25	9.35	9.55	9.45	9.40	9.20	8.65	9.20	15.21	7.21

* A – Rating; B – Personal; C – Location; D – Cleanliness; E – Comfort; F – Equipment; G – Price_Quality; H – Wifi

The previous table provides a very specific description of all variables that entered the analysis. All online reviews (A - H) are calculated by the arithmetic mean of each ranking, which is on a scale of 1 to 10, where 10 is the best ranking for the area. Rating is a comprehensive review of the hotel, Personal rating represents satisfaction with staff services, Location is a rating of overall satisfaction with the location, Cleanliness evaluates room cleanliness, Comfort evaluates satisfaction with room comfort, Equipment represents the equipment of the hotel and provided services, and Wi-Fi represents the satisfaction with internet quality.

The analysis of connections defined in the main objective and subsequently in the hypotheses was used to analyse the context and then for analysing the dependence. The exact extent of the relation is defined by a parametric method (Pearson r) as well as by a nonparametric method (Spearman's ρ). These methods were chosen based on the conditions where multivariate normality played a key role, which was verified by Mardia's normality test. The effect was based on regression OLS models. The conditions, where the stepwise model was used to define the optimal composition of variables based on VIF, were also tested. Heteroscedasticity (Breusch-Pagan test) and normality (Shapiro-Wilk test) were also tested. For the treatment of significant heteroscedasticity, the HC0 White estimator was used.

Results

The following chapter is divided into two parts. The first part shows the context analysis. In the second part there will be causal relations between variables determining satisfaction with the quality of provided services and profitability outputs.

Table 2. Test normality

Mardia normality		A	B	C	D	E	F	G	H
ROE	Skewness	0,411	0,548	0,249	0,432	0,379	0,494	0,815	0,024
	Kurtosis	0,343	0,615	0,724	0,547	0,504	0,471	0,119	0,200
ROA	Skewness	0,011	0,016	0,037	0,009	0,007	0,041	0,157	0,009
	Kurtosis	0,081	0,024	0,090	0,024	0,042	0,090	0,393	0,002

* A – Rating; B – Personal; C – Location; D – Cleanliness; E – Comfort; F – Equipment; G – Price Quality; H – Wifi

The previous Table 2 shows the p Mardia multivariate normality test values. For pairs with a p value of less than 0.05, we accept that the difference in the distribution and the ideal normal distribution is significant, i.e. in these cases, there is no normality. To investigate the relation between variables where the multivariate normality condition is met, the parametric Pearson's correlation coefficient r is used; in case of non-fulfilment the normality Spearman's ρ is used. The following table shows the outputs of the analysis of the relation between profitability and selected elements of satisfaction with the quality of hotels.

Table 3. Relationship

Correlation r, ρ		A	B	C	D	E	F	G	H
ROE	Correlation	-0.487	-0.459	x	-0.405	-0.488	x	-0.563	x
	Sig.	0.016	0.024	0.104	0.049	0.016	0.060	0.004	0.226**
ROA	Correlation	-0.371	x	-0.448	-0.324	x	x	-0.520	x
	Sig.	0.033**	0.128**	0.009**	0.066**	0.051**	0.09**	0.002	0.071**

* A – Rating; B – Personal; C – Location; D – Cleanliness; E – Comfort; F – Equipment; G – Price Quality; H – Wifi
** sig (p value) and Sprearman ρ corellation coeficient

The previous Table 3 shows the context analysis output. The relation is shown only in cases where p (Sig.) was lower than α 0.05. In ROE, the correlation was confirmed in a number of cases where, according to de Vaus (2002), the association can be seen as negative to moderate and in the case of price-quality ratio it can be seen as a very strong association. In ROA, moderate to substantial rates occurred in Rating, Location, and Cleanliness. The satisfaction with the price/quality ratio can be seen as substantial to very strong. The negative relation means that when satisfaction with a certain quality element of a hotel increases, profitability decreases.

H1: We assume that there is a significant impact of selected elements of quality perception on ROE top hotels in the Visegrad group countries.
The greatest threat to the model and its informative capability is the collinearity that is predictable as there are a high number of independent variables in the model (8). The first step is thus VIF (variance inflation factor) analysis by stepwise model, where the optimal model was defined by independent variables like Comfort + Equipment. This model was subjected to heteroscedasticity analysis, where the Breusch-Pagan test shows that p-value 0.02738 for BP equals 7.1958 and 2 degrees of freedom, thus the model is considered heteroscedastic. The model residue normality assumption was verified by means of the Shapiro-Wilk test, which shows a p-value of 0.1681 for W = 0.94058, thus the normality condition is

2019
Vol.19 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V.,
Obšatníková K.

fulfilled. The following table visualizes the model outputs where p value was estimated based on the White (1980) Consistent Covariance Matrix - HC0 method

Table 4. Impact selected variable to ROE

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	132.641	24.073	5.1000	1.817e-05
Comfort	-50.942	16.918	-3.0112	0.006649
Equipment	37.659	18.337	2.0537	0.052661

The model at Residual standard error equal 11.28 and F-statistic equal 6.47 shows p-value 0.006467, thus we consider the model to be statistically significant. We accept the H1 hypothesis. The influence of selected elements of quality perception on ROE top hotels in the Visegrad Group countries is significant. The model shows Adjusted R-squared equal to 0.3224, which is an acceptable rate of determination coefficient. The ROE has a statistically significant impact ($\alpha = 0.05$) on the comfort of the hotel room.

H2: We assume that there is a significant impact of selected elements of quality perception on ROA top hotels in the Visegrad group countries.
In the first step, the collinearity and VIF (variance inflation factor) were analysed through the stepwise model, the optimal model defined by independent variables are presented as Rating, Location, Cleanliness, Price, Quality, Wi-Fi. The model was subjected to heteroscedasticity analysis, where the Breusch-Pagan test in BP 4.3674 and 5 degrees of freedom showed a p-value of 0.4978, thus heteroscedasticity is not significant in the model. The normality of the residues was verified by Shapiro-Wilk test, which shows a p-value of 0.8957 for the statistics W = 0.984, thus the normality condition is fulfilled. The following table visualizes multiple OLS model outputs.

Table 5. Impact selected variable to ROA

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	68.519	23.636	2.899	0.00735
Rating	30.520	13.447	2.270	0.03143
Location	-9.360	3.874	-2.416	0.02271
Cleanliness	-12.258	8.357	-1.467	0.15396
Price_Quality	-13.378	5.478	-2.442	0.02143
Wifi	-3.278	2.190	-1.497	0.14599

The model at Residual standard error equal 6.234 and F-statistic equal 4.726 shows p-value 0.00314, thus the model is considered statistically significant. We accept the H2 hypothesis. The influence of selected elements of quality perception on ROA top hotels in the Visegrad Group countries is significant. The model exhibits Adjusted R-squared equal to 0.368, which is an acceptable determination

coefficient. Variables that have a significant impact on ROA (α = 0.05) are the following: Rating, Location and Price_Quality.

Discussion

The primary objective of the research was to determine the significance between the relation of satisfaction and profitability of the top hotels in the Visegrad Group countries. The calculations in the previous analysis show that the relation is significant, but on the contrary according to several authors (Sun et al., 2013; Chi and Gursoy, 2009) it is a negative relation, which was also confirmed in a study by Suchanek and Kralova (2016) from the area of food industry. This relation may be due mainly to different conditions in the management of the analysed organizations. Several authors investigated the determinants of customer satisfaction with a hotel and its complementary services, while Kim et al. (2016), Kuhzady and Ghasemi (2019), Berezina et al. (2016) point out that staff is an important element of satisfaction, and the results of the presented study show that this element is negatively related to ROE hotels. Berezina et al. (2016) based on their study, argue that dissatisfied customers more often refer to aspects such as equipment and finances. From the point of view of the present study, satisfaction with hotel comfort affects the ROE, but this is not so obvious in case of the equipment. In the case of price/quality ratio, a negative impact on ROA has been confirmed, which means that the more customers are satisfied with this ratio, the profitability of the hotel decreases. Barreda and Bilgihan (2013), Kuhzady and Ghasemi (2019) as part of the satisfaction of hotel customers, also draw attention to the Location which, according to the results, negatively affects the hotels' ROA. From this, it can be stated that the more satisfied are the customers with the hotel and its services; the lower is the profitability of hotels. This claim can also be justified by the fact that, in order to achieve maximum satisfaction, hotels spend more money, and the return which is long-term is expected to optimize the profits. Ultimately, we can talk about a positive impact of overall customer satisfaction on ROA.

Conclusion

The first part of the analyses that are shown in the results section was the context analysis where the significant ROE correlation was confirmed in areas such as Rating, Personal, Cleanliness, where in all cases the association can be seen as substantial to very strong. In ROA, the correlation was confirmed in the areas such as Rating, Location, Cleanliness, Price/Quality, where the negative association was substantial to very strong. Two hypotheses were formulated in the research based on the theoretical background (H1: We assume that there is a significant impact of selected elements of quality perception on ROE top hotels in the Visegrad group countries; H2: We assume that there is a significant impact of selected elements of

2019
Vol.19 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V.,
Obšatníková K.

quality perception on ROA top hotels in the Visegrad group countries). Both hypotheses were confirmed. In particular, a significant impact on ROE was confirmed in case of comfort, ROA was confirmed in the overall assessment (positive impact) as well as in case of location and price/quality ratio (negative impact).

It is interesting that in several studies there is a significant impact, but the direction of this influence is different. The assumption is that the cost management setting is different. A number of European countries have a cost accounting system, thus optimizing their profits by increasing the cost element ratio, for example in the US or other countries, this system is different. Similarly, Indonesia which is on the process of convergence of the country's national accounting standards and just recently on the pathway of transition to international financial reporting standards (Maradona and Chand, 2018).

Recommendations can be seen in the view of financial management and customer relationship management. As it has been pointed out several times, there is a relation between the perception of hotel service quality and financial outcomes. The direction (positive or negative) is irrelevant in this case. TOP hotels of the Visegrad Group countries were analysed, thus it can be assumed that all processes in these hotels will have a very high level. In a more detailed analysis of the specific assessments at Booking.com (the data source), we encountered that the hotels analysed show a very high level of interaction on this portal (relatively often responding to customers, thanking for reviews, etc.). Thus, the first recommendation for hotels with lower standards would be to involve activities on online booking portals. The second recommendation is to increase efforts to hold appropriate ROE and ROA levels (average of top hotels: ROE: 6.44; ROA: 3.71).

The biggest research limitations in relation to defined outputs are mainly seen in the sample (n = 33), but basically it was the basic file. Further research in this area will be focusing on comparing and inferring lower quality hotels.

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**2019
Vol.19 No.1**

POLISH JOURNAL OF MANAGEMENT STUDIES
Bačík R., Fedorko R., Abbas E.W., Rigelský M., Ivanková V.,
Obšatníková K.

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WPŁYW WYBRANYCH CECH ZARZĄDZANIA JAKOŚCIĄ NA RENTOWNOŚĆ NAJLEPSZYCH HOTELI W KRAJACH GRUPY WYSZECHRADZKIEJ

Streszczenie: Głównym celem badań było określenie znaczenia satysfakcji i rentowności najlepszych hoteli w krajach Grupy Wyszehradzkiej. W analizie uwzględniono następujące wyniki: rentowność zwrotu z aktywów (ROA), zwrot z kapitału (ROE), ocena satysfakcji związana z jakością udostępnionych funkcji, takich jak ogólna ocena, kwestie osobiste, lokalizacja, czystość, komfort, wyposażenie i ocena ceny, jakości i Wi-Fi. Do analizy wykorzystano metody wnioskowania, analizę korelacji Pearsona i Spearmana i wielokrotną regresję liniową. Dane uzyskano z bazy danych sprawozdań finansowych (okres sprawozdawczy 2017) oraz z portalu rezerwacyjnego (początek 2018r.). Próba została zdefiniowana dla najlepszych hoteli w krajach Grupy Wyszehradzkiej, tj. hoteli pięciogwiazdkowych (n = 33). Jednym z najciekawszych wniosków było to, że istnieje zależność między satysfakcją a rentownością (ROE, ROA), jednak jest to relacja negatywna, co jest sprzeczne z badaniami. W szczególności znaczący (p <0,05) wpływ na

ROE potwierdzono w przypadku komfortu, ROA potwierdzono w ogólnej ocenie (pozytywny wpływ), a także w lokalizacji hotelu, cenie i jakości, gdzie był ujemny. Negatywne skutki mogą odzwierciedlać system zarządzania finansami organizacji, który ukazuje politykę księgowania kosztów finansowych państwa.

Słowa kluczowe: turystyka, hotele, zadowolenie klienta, wyniki finansowe, wpływ, rezerwacja

维谢格拉德集团国家

摘要: 维谢格拉德集团国家。以下内容反映在分析中：净资产收益率，生活质量，净资产收益率，价格，质量和Wi-
Fi。推理方法，背景分析（Pearson，Spearmanρ）和多元线性回归用于分析。财务报告数据库（2017年报告期）和预订门户（2018年初）的数据。维谢格拉德集团国家，即五星级酒店（n   =   33）。（ROE，ROA）然而，这是一种与研究相矛盾的消极关系。特别是，在舒适的情况下确认了对ROE的显着（p值<0.05）影响，在总体评估中确认了ROA（正面影响）。负面影响可能反映了组织的财务管理系统，这是国家财务成本会计政策的一面镜子。

关键词: 旅游，酒店，顾客满意度，财务绩效，影响，预订