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DO HOTEL FINANCIAL FACTORS INFLUENCE SATISFACTION?

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Highlights:
- Financial measures are related to hotel guest satisfaction
- Investment in guest amenities is particularly important for satisfaction
- Long-term is preferred to short-term investment

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1 INTRODUCTION

A significant recent body of literature has investigated 'electronic word of mouth' for hotels, particularly *TripAdvisor* ratings of experiences. Our study adds a new dimension by examining the impact of hotel financial measures on the generation of positive word-of-mouth. We investigate whether long-term investment by hotels as well as day-to-day expenditure influences the extent to which guests rate their experiences highly on online reviewing platforms. We utilise a Greek hotel dataset, where *TripAdvisor* ratings are particularly important due to the international popularity of Greece as a tourist destination, and also because of the strategic importance of tourism to the Greek economy (De Vita and Kyaw, 2016).

Two branches of research on electronic word of mouth are particularly over-arching. The first focuses on the impact of ratings: how online ratings influence decisions of customers who observe these ratings (Filieri, 2016; Liang et al., 2020). The second branch seeks to explain the process by which hotel guests generate their ratings. Our study is situated in this latter area. Prior studies have primarily collected hotel features available through an online platform such as *TripAdvisor* and used these factors to explain ratings on that platform (Banerjee and Chua, 2016; Mellinas and Nicolau, 2020; Radojevic et al., 2017). Missing from prior studies, and where our study particularly contributes, is a link between 'offline' information and online ratings. We concentrate on the offline information of hotel financial measures, which have not previously been investigated, as a driver of guest ratings.

Our motivation is that the financial accounts of a hotel are a snapshot of the long-term (assets) and short-term (expenses) investment of a hotel in service

quality. Hotel service quality has been linked to guest satisfaction by Choi and Chu (2000, 2001), but their survey approach is both costly and time-consuming to implement, meaning alternative proxies for service quality are beneficial for arriving at generalised findings. It is not also clear how guests relatively value short- and long-term investment, as well as different aspects of service investment, in terms of judging service quality. Our choice of financial variables allows us to explore this, including the quality of amenities and experiences (fixed assets and sales expenses) and service efficiency (cost of goods sold and administration expenses). Thus, while prior research by Chang and Sokol (2020) shows that financial investment is used by hotels to improve service quality, we are able to show which form of service investment is particularly important. We now proceed to describe the empirical approach and present the findings.

2 EMPIRICAL APPROACH

Our dataset covers 516 Greek hotels at the 3-star, 4-star, and 5-star level for the period 2011 to 2016, sourced from the Greek Tourism Confederation. For each hotel, we have balance sheet information on assets, and income statement information on revenue and expenses. We also know the number of beds per hotel. Our specific choice of financial variables follows Pnevmatikoudi et al. (2016) who, in a systematic review, note 10 categories of financial variables previously applied in hotel studies. As our study focus is on hotel investment, both long- and short-term, as a driver of satisfaction, we particularly draw on variables in the three categories that they label: *sales*, *cost*, and *growth*. A *sales* variable, *revenue /*

beds, is first included as one of the most popular measures of hotel performance (Pnevmatikoudi et al., 2016). We then add four short- and long-term investment (*cost*) variables scaled by revenue. We include fixed assets to proxy for long-term investment, and cost of goods sold, and administration, and selling expenses to proxy for short-term investment in guest experience. Lastly, among the primary independent variables, we add measures of change (*growth*) in these four investment variables from one year to the next.

We further collect information on whether the hotel has a pool through *TripAdvisor*, and through the Greek Tourism Confederation we are also provided with national-level survey estimates of average spending by international tourists per night and per holiday. We use this data, in addition to yearly dummies, to control for the general hotel market in Greece over the time period.

Customer ratings of their hotel stay are obtained through scraping TripAdvisor, the leading international platform of reviewing hotels. We use the package *Scrapy* in *Python* to obtain individual guest ratings, and then aggregate the individual ratings into annual hotel ratings. The average number of ratings is 33 ratings per hotel per year for a total of 180,837 ratings.

Table 1: Descriptive statistics

	All hotels		5-star hotels		4-star hotels		3-star hotels	
	Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev
Rating	4.088	0.724	4.290	0.494	4.096	0.707	3.989	0.808
Number of reviews	32.642	61.076	66.476	96.285	33.064	58.378	17.112	30.494
Total assets (millions)	15.399	49.181	52.693	102.890	11.854	28.133	3.544	11.080
Fixed assets (millions)	13.034	44.896	46.669	95.132	9.523	24.813	2.731	8.845
Number of beds	222.649	244.103	433.507	347.996	223.647	234.518	127.669	96.050
Revenue / Beds	13,249	28,668	24,476	33,607	14,260	33,840	6,998	13,675
Revenue / Fixed assets	0.473	0.557	0.454	0.632	0.466	0.492	0.488	0.596
Cost of goods / Revenue	0.656	0.769	0.739	0.458	0.661	0.534	0.611	1.067

Admin expenses / Revenue	0.193	0.228	0.152	0.185	0.192	0.223	0.215	0.249
Sales expenses / Revenue	0.176	0.235	0.108	0.132	0.169	0.241	0.227	0.263
Pool dummy	0.223	0.417	0.094	0.292	0.276	0.447	0.215	0.411
Average spend / Night	70.580	2.282	.	.	.	.	.	.
Average spend / Holiday	607.662	47.506	.	.	.	.	.	.

Table presents key descriptive statistics for the variables used in the analysis. Monetary variables are expressed in Euros. Note that average spend per night and per holiday are Greek national level measures and not measured per hotel.

For the estimation we first limit the influence of outliers in the financial variables through windsorizing the 1st and 99th percentile. Our testing approach is similar in design to (Papatheodorou et al., 2012). The dependent variable is average ratings per hotel per year and the model is estimated with a panel random effects[1] regression model using Huber-White robust standard errors:

$$Y_{it} = \alpha + \beta X_{it} + \gamma M_t + \mu_i + \varepsilon_{it}.$$

Where i and t index the hotel category and years respectively; Y_{it} denotes the year-average hotel rating; X_{it} is a vector of hotel-level explanatory variables; M_t is a vector of industry-level explanatory variables; μ_i denotes the random effects; and ε_{it} is the stochastic error term. For all variables, the logarithmic transformation is used. Inspection of the (unreported) correlation matrix confirms there is no issue with multicolinearity in our specification. We use lagged values for the financial variables to reduce endogeneity concerns on the relationship between financial values and satisfaction.

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[1] A Breusch-Pagan LM test confirms specification benefits of random effects compared to pooled OLS. A fixed effects estimator is not appropriate as we have some variables which do not change over time.

3 FINDINGS

The descriptive statistics in Table 1 show that the hotels in each star category have different financial profiles and attract different customer satisfaction ratings. 5-star hotels attract the highest customer satisfaction score and also have greater asset investment, more beds, and higher revenue. In terms of expenses, the 5-star hotels have higher cost of goods sold, and lower administration and sales expenses as a proportion of revenue. Lastly, there is a lower prevalence of swimming pools in 5-star hotels, perhaps partially reflecting the business focus as opposed to tourism focus of these hotels.

Table 2: Results: Hotel financials and guest ratings

	All hotels	5-star hotels	4-star hotels	3-star hotels
Revenue / Beds	0.069***	0.071***	0.093***	-0.015
	(0.021)	(0.021)	(0.027)	(0.049)
Fixed Assets / Beds	-0.010	0.005	-0.035***	0.009
	(0.008)	(0.008)	(0.011)	(0.022)
Cost of Goods Sold / Revenue	-0.206***	-0.291***	-0.168**	-0.329***
	(0.057)	(0.058)	(0.078)	(0.115)
Admin Expenses / Revenue	-0.028	0.080	0.002	-0.139
	(0.109)	(0.086)	(0.143)	(0.204)
Selling Expenses / Revenue	0.011	-0.160	0.020	-0.020
	(0.094)	(0.114)	(0.103)	(0.214)
Δ Fixed Assets	0.082**	0.069**	0.047	0.159
	(0.037)	(0.030)	(0.050)	(0.169)
Δ Cost of Goods Sold	-0.053	-0.018	-0.084	-0.035
	(0.035)	(0.028)	(0.072)	(0.050)
Δ Admin Expenses	-0.047*	-0.070	-0.044	-0.033
	(0.028)	(0.054)	(0.043)	(0.051)
Δ Selling Expenses	0.004	0.011	-0.012	0.035
	(0.023)	(0.049)	(0.034)	(0.035)
Has Pool	-0.151***	-0.132**	-0.121***	-0.184**
	(0.040)	(0.054)	(0.041)	(0.090)
Count of Ratings	0.057***	0.043***	0.034***	0.073***
	(0.011)	(0.015)	(0.012)	(0.024)
Lagged Ratings	0.271***	0.410***	0.388***	0.193***
	(0.030)	(0.055)	(0.047)	(0.046)
Average Spend / Night	0.007	0.008	0.005	0.007
	(0.005)	(0.006)	(0.007)	(0.011)
Average Spend / Holiday	-0.000	0.000	-0.001	0.000
	(0.000)	(0.001)	(0.001)	(0.001)
Constant	2.302***	1.246***	2.648***	2.509***
	(0.346)	(0.465)	(0.572)	(0.733)
Year-Hotel Observations	2,493	549	1,162	782
Hotels	516	95	241	180

The findings are reported in Table 2. Looking first at the fixed assets, we see that there is no overall relationship between the absolute level of fixed assets and guest satisfaction. What matters instead is the change in fixed assets over the year; an increase in fixed assets over the year is related to higher satisfaction. This shows the benefit of renewing the quality of fixed assets - of having improved guest amenities through new fixed asset investment. This relationship is particularly evident in 5-star hotels, where guests will naturally have higher expectations of amenity quality.

We see a positive relationship between revenue per bed and satisfaction. Thus, hotels that charge more tend to have higher satisfaction, suggesting that hotel ratings are more driven by experience than the cost of the experience. This is most evident for the 4-star category perhaps reflecting that guests are particularly willing to pay for quality in this category.

For expenses, only cost of goods sold is related to satisfaction. The finding for cost of goods sold is interesting in that it is negatively related to satisfaction. Intuitively we might expect that higher cost of goods sold reflects greater spending by the hotel on the quality of the stay of guests, which in turn would boost satisfaction. Instead it seems that guests actually prefer more efficient hotels (with associated lower cost of sales). We suggest that this is related to a new / old hotel divide, with guests preferring newer hotels that co-incidentally have lower cost of sales

through designing efficient guest management experiences. We also see this reflected in the hotel star category findings, particularly for 3-star hotels. For 3-stars, as they are on average smaller hotels, this finding might be influenced by less professional management (the hotels are usually family operated) and lower economies of scale leading to inefficiencies.

Other findings include that having a pool is related to lower satisfaction. We expect this is reflective of the general experience of guests in business-orientated compared to tourist-orientated hotels, but it is worth further investigation. It might also be related to the quality of pool maintenance rather than the presence of the pool itself. The past rating of a hotel is highly predictive of current rating, showing persistence of quality of experience, as is the number of ratings; supporting the idea that guests tend to be predominantly motivated to leave ratings when they have high quality experiences.

4   CONCLUSIONS

We show that financial measures are important determinants of positive online ratings. Of particular importance in terms of costs is new investment rather than past investment in fixed assets, and guests prefer more efficient hotel service delivery. Guests appear to have different service expectations per star level, but they also do not seem to be sensitive to price charged at the time of evaluating experience. We recommend these findings for consideration in the design of hotel guest experience.

Comment on the COVID-19 context

We are also conscious that this study has been completed during the COVID-19 virus outbreak that is likely to, in the short-to-medium term, severely impact the Greek tourism industry. While our dataset ends in 2016, we suggest there are learning points from this study for supporting the tourist hotel industry. At this stage, what we can reasonably extrapolate about the impact of COVID-19 is that there will be rising costs due to the impact of health precautions at the same time as falling revenue due to reduced tourism numbers. This cost-revenue imbalance will either lead to hotel closures or require state funding support, with the current European Union approach favouring funding support. Based on our findings we suggest that government support schemes could fruitfully consider grants for fixed asset investment in addition to the currently implemented employment supports. We show that new fixed asset expenditure significantly improves guest satisfaction, so this should increase the long-term viability of the industry. The move would also have the short-term benefit of directing support towards employment-intensive spending.

References

Banerjee, S. and Chua, A. Y. (2016). In search of patterns among travellers' hotel ratings in TripAdvisor. Tourism Management, 53:125–131.

Chang, H.-H. and Sokol, D. D. (2020). How incumbents respond to competition from innovative disruptors in the sharing economy - The impact of Airbnb on hotel performance. Strategic Management Journal, (forthcoming).

Choi, T. Y. and Chu, R. (2000). Levels of satisfaction among Asian and Western travellers. International Journal of Quality & Reliability Management.

Choi, T. Y. and Chu, R. (2001). Determinants of hotel guests' satisfaction and repeat patronage in the Hong Kong hotel industry. International Journal of Hospitality Management, 20(3):277–297.

De Vita, G. and Kyaw, K. S. (2016). Tourism development and growth. Annals of Tourism Research, 60:23–26.

Filieri, R. (2016). What makes an online consumer review trustworthy? Annals of Tourism Research, 58:46–64.

Liang, S., Li, C., Zhang, X., and Li, H. (2020). The snowball effect in online travel platforms: How does peer influence affect review posting decisions? Annals of Tourism Research, page 102876.

Mellinas, J. P. and Nicolau, J. L. (2020). Let's hook up fast! Hotel reviews and Wi-Fi flaws. Annals of Tourism Research, 80:102842.

Papatheodorou, A., Lei, Z., and Apostolakis, A. (2012). Hedonic price analysis. In Handbook of Research Methods in Tourism. Edward Elgar Publishing: Cheltenham, UK.

Pnevmatikoudi, K., Stavrinoudis, T., et al. (2016). Classification of hotel performance measurement indicators presented in international scientific research. European Journal of Tourism Research, 12:82–98.

Radojevic, T., Stanisic, N., and Stanic, N. (2017). Inside the rating scores: A multilevel analysis of the factors influencing customer satisfaction in the hotel industry. Cornell Hospitality Quarterly, 58(2):134–164.