BRAND STRATEGY SCOPE AND ADVERTISING SPENDING: THE MORE THE BETTER?

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Abstract

Given the need to justify business management expenses, firms are very interested in measuring marketing performance. The objective of this article is to analyze mass media advertising investment from an efficient point of view in hotel chains. To accomplish the objective, this paper applies a two-stage double bootstrap data envelopment analysis to the monetary resources allocated to the different advertising media by the main companies in the Spanish hotel sector. The authors further investigate the determinants of hotel advertising efficiency in terms of the number of brands in the hotel portfolio and the combination of advertising media used (i.e. Internet advertising). The results show a certain level of waste of advertising spending by hotel chains and that both brand portfolio scope and Internet advertising positively affect efficiency.

Keywords: Advertising efficiency, brands, Internet, hotels

Introduction

The hospitality industry faces numerous challenges worldwide due to its maturity, the evolving technological environment (Porcu et al., 2019) and the increasing competition derived from the rise of sharing economy platforms like Airbnb (Zervas et al., 2017).

Within this context, one of the priorities of academics and researchers in this field is the valuation of the goodness and profitability of the strategies and actions adopted by hotels. In fact, in an economic environment characterized by high competition and the globalization of markets, the efficient use of productive resources represents a strategy that allows companies to improve their profitability, as well as guarantee their competitiveness and future survival. Thus, several studies focus on examining hotel efficiency from a productive perspective (see Assaf and Josiassen, 2016, for a recent review).

The efficient use of productive resources must contemplate all the activities developed by the company, including marketing. In fact, if marketing productivity does not grow as fast as that of other areas of the company, the share of marketing costs in the total cost will increase, which could lead to a loss of competitiveness. Also, the efficient use of productive resources can affect marketing decisions themselves via reductions in the cost structure, which can be translated into price reduction strategies. Therefore, several scholars focus on the development of different indicators to measure the results derived from marketing actions (Srinivasan and Hanssens, 2009), and productivity and efficiency represent valid measures.

The budget allocated towards communication activities and, specifically, promotional and advertising activities, represents a significant percentage of total marketing expenses. Taking into account the 4,000 million euros allocated to advertising by the Spanish market in 2015, the sector named "transport, travel and tourism" obtains an advertising investment share of 4.6%, occupying the ninth position out of a total of twenty-three sectors. Likewise, 71% of the total advertising investment made by the “transport, travel and tourism” sector corresponds to the category of “travel and tourism”. More specifically, the advertising investment made by hotels and hotel chains is just over 26 million euros in 2015, representing 14.1% of the total investment of the sector (transport, travel and tourism) and 19.7% of the category "travel and tourism”. In fact, in the tourism sector, advertising investment promotes the creation of intangible assets in companies (Hsu and Jang, 2008), providing greater future economic benefits than other assets (Qi et al., 2018). In the hotel sector, advertising constitutes one of the most useful marketing tools to attract consumers (Hilmi and Ngo, 2011), having a decisive impact on the results of the hotel (O’Neill et al., 2008). For example, Chen and Lin (2013) show that advertising has a significant positive impact on hotel room price, but not on room occupancy, although there is still a gap in the literature around the impact of each of the different communication channels on the level of prices or the degree of occupancy of a hotel (Ben Aissa and Goaied, 2016). Assaf et al. (2015) show that advertising spending has a positive impact on hotel sales performance, and that the relationship strengthens for larger hotels and hotels with higher star ratings. Assaf et al. (2017) investigate the moderating role of corporate social responsibility (CSR) on the link between advertising spending and firm performance, finding that firms with higher levels of CSR enjoy higher returns on advertising spending than firms with lower levels of CSR

By investing in marketing communications, hotel companies can also gain brand recognition (Chen and Lin, 2013). Indeed, the hotel industry recognizes the value of the brand strategy as a central component of its marketing activity (Dev et al., 2009). Well positioned brands represent a strategic advantage that allow hotels creating added value. Besides, they generate cash flows via relatively higher margins (O’Neill and Mattila, 2010). Moreover, they can increase customer loyalty (O’Neill and Xiao, 2006) and enhance marketing efficiency (Rao et al., 2004).

Among the decisions related to brand portfolio strategy, defining its scope is essential to maximize future firm value. Broadly speaking, hotel chains take different approaches that vary from the employment of a single corporate brand to the use of a segment-oriented family of multiple brands. The number of brands is one of the dimensions that define the brand portfolio scope (Wang and Chung, 2015).

In this context, the goal of this paper is to evaluate the advertising investment of hotel companies from an efficiency perspective, simultaneously analyzing the effect of hotel brand portfolio scope. To reach this goal, a sample of Spanish hotel chains between 2007 and 2015 is employed. The tourism industry in Spain represents around 10% of the Gross Domestic Product, with the hospitality industry being one of its most important pillars. The Spanish hospitality infrastructure accounts for 16,967 hotels in 2018, 16,600 million euros of revenues and 340 million overnight stays of both domestic and international tourists (Hosteltur, 2019).

The paper is organized as follows. The second section develops the research hypotheses. Section 3 presents the method and data employed in the empirical application. Section 4 shows the results of the empirical analysis. Finally, the last section summarizes the most important findings and offers some managerial insights.

Theoretical framework and hypotheses

The consideration of the marketing communication budget, and especially advertising activities, as an expense or as an investment (from which one can expect a return) is beginning to have some relevance in the academic literature. The evaluation of the outcomes of advertising expenses constitutes a critical element within the communication strategy of all firms. Thus, the advertising budget is increasingly under intense scrutiny, owing to the increasing emphasis on accountability of advertising results (Bhargava et al., 1994). This is due, among other factors, to the fact that from a budgetary perspective advertising and promotion represent the biggest expense of the marketing budget (Ambler, 2000). In addition, the increasing cost of space/time in the media and the link between advertising investment and company results has led marketing managers to focus their efforts on evaluating advertising spending (Ambler, 2000, Cheong et al., 2014).

A better understanding of the effectiveness of advertising has several benefits. First, it could help to improve advertisers' productivity allowing a more effective distribution of the budget devoted to marketing activities. Second, from the point of view of advertising agencies, it could also contribute to obtaining a more objective measurement of the efficacy and usefulness of the provided service (Bendixen, 1993). Therefore, advertising efficiency estimation arises as a strategic tool that seeks to foster better decision-making in this area.

In general terms, advertising efficiency requires estimating the relationship between the results obtained from the advertising activity (e.g. sales or clients) and the resources employed. In this sense, advertising efficiency is the relative measure between the inputs employed to obtain the outputs. Firms obtaining their maximum potential depict the efficient frontier, while firms operating underneath the production frontier are inefficient as they could increase their output level without employing additional resources with the available technology.

Pioneering authors in this field focused on the evaluation of advertising activities through the estimation of the return on advertising investment (Dhalla, 1978) and on the estimation of the ratio between sales obtained and advertising spending (Assmus et al., 1984, Smith and Park, 1992). Under this perspective, advertising efficiency is estimated by inserting numerical quantities into predetermined formulas or ratios. However, although the relationship between the outputs obtained and the input used can be employed as an index to characterize advertising efficiency, this conventional benchmark of performance does not constitute a satisfactory discriminator of "excellence", as it does not consider the performance of other firms. For this reason, some researchers have pointed out that the competition must be considered when assessing the performance of advertising, since companies do not take isolated decisions (Lohtia et al., 2007). In fact, Rust et al. (2004) state that the performance of the company is greatly affected by the activity carried out by other companies and this should be considered when evaluating the return of advertising activity. Recent research focuses on estimating the relative efficiency of advertising investment using a new approach that allows estimation of advertising performance by analyzing the advertising activity of a company compared to the best practices. Following this approach, several scholars focus on the application of efficiency models that allow them to properly estimate the efficiency of advertising (e.g., Luo and Donthu, 2001, Büschken, 2007, Pergelova et al., 2010; Cheong et al., 2014; Rahman et al., 2019). See Sellers-Rubio (2018) and Choi (2019) for a recent review.

It is very difficult to compare the results of previous studies as they employ different variables, contextual setting and time frameworks. However, it must be highlighted that most of them show low levels of advertising efficiency, suggesting the need for a better understanding of advertising efficiency drivers. Accordingly, this paper examines some aspects of the brand literature which support the idea that the value of a brand could foster firm productivity by reducing marketing expenses and increasing prices and margins (Keller and Lehman 2003; Rust et al., 2004). Particularly, the link between advertising efficiency and the hotel brand strategy in relation to brand portfolio breadth is analyzed. In addition, the effect of media strategy (related to investment in Internet digital media) on efficiency is analyzed. These are the contributions of this work to the state of the art. In line with the objectives of the paper, in the following sub-sections we develop the research hypotheses.

Brand portfolio scope and advertising efficiency

Branding is an essential component of marketing strategy in the hotel industry (Dev et al., 2009). Building strong brands represents a key to success (Jiang et al., 2002) because hotel customers rely on brand names to reduce risks associated with staying at an otherwise unknown property (O’Neill and Xiao, 2006). Moreover, hotel brands might increase consumer loyalty, which could represent a strategic advantage to generate a greater financial value (O’Neill and Mattila, 2010). Additionally, the brand literature supports the idea that clever branding management improves efficiency, reducing marketing costs and allowing greater margins and prices (Keller and Lehman 2003, 2006; Fernández-Barcala and González-Díaz 2006). Among branding strategies, brand portfolio decisions are especially important because they affect marketing and financial performance (Morgan and Rego, 2009). Broadly speaking, a brand portfolio can be defined as the collection of brands under a company’s control. While some small hotels may have only a single brand, large hotel chains may have a set of different brands. Previous works have posited the complex nature of brand portfolio strategy in dynamically changing environments across industries (Wang and Chung, 2015), and the hotel industry is no exception. Within this strategy, defining the brand portfolio scope is one of the most important components of brand strategy in the hotel industry. In fact, a well-balanced brand portfolio can be a source of synergies by improving the visibility of the brand and creating efficiency (Aaker, 2004), bearing in mind that no single portfolio is invariably effective. Although employing a brand extension strategy might be useful to better segment the market, as tourists choose different types of hotels depending on their purpose and needs, the alternative of a single corporate trusted brand might help reduce customers’ search costs.

Given its importance, this paper focuses on brand portfolio scope and, especially, on the number of brands employed by hotels. It is worth mentioning that long-established brands have all grown through brand extensions over the past years (O’Neill and Mattila, 2010). With a brand portfolio, hotel chains invest in an assortment of brands that target different market segments. The specific number of brands used can influence other marketing-related activities. The link between the number of brands in the portfolio and advertising efficiency might be interesting for hotel managers as they will be able to assess the usefulness of brands in generating added-value and, therefore, whether it is interesting to use different brands (extending the portfolio) compared to the alternative of using fewer brands and promoting a family brand.

Several authors have examined the empirical relationship between brand extensions and the efficiency of advertising activities (Smith and Park, 1992; Collins-Dodd and Louviere, 1999). The underlying idea is that brand extensions for new products can positively affect advertising efficiency since they allow firms to obtain a certain level of sales with lower levels of advertising spending compared to the situation in which a product is launched with a new brand (Aaker, 1990; Andersson, 2002). According to Morgan and Rego (2009), a broader brand portfolio allows companies to attract and retain the best brand managers, improve their market share, enjoy greater control and deter the entry of new market participants. Lane and Jacobson (1995) hold that brand extensions provide not only higher revenues but also savings in marketing expenditures.

However, an excessive number of brands in the portfolio may be inefficient, reducing economies of scale and increasing marketing costs. Moreover, greater breadth could also adversely affect brand loyalty and could increase competition via pricing, suggesting a higher potential cost for broader brand portfolios. In the hospitality industry, Jiang et al. (2002) state that when a firm has several brands in the portfolio most loyal clients could leave it, showing that the relationship between brand extension and customer loyalty is not a positive, linear one. In fact, a portfolio with numerous brands might confuse customers and obscure the distinctiveness and relative position of each brand (Aaker, 2004).

Therefore, and since there is no clear evidence, the following hypothesis is proposed without direction:

Hypothesis 1. The breadth of the brand portfolio has a significant influence on the advertising efficiency of the hotel.

Internet and advertising efficiency

The hotel industry is continuously seeking effective and efficient strategies to achieve management goals. In this sense, the Internet provides hotel managers with business opportunities and a valuable branding and management tool (Porcu et al., 2019) that might help to build and strengthen their relationships with customers. Among its possibilities, Internet advertising has acquired a special relevance in recent years, constituting an essential part of the advertising strategy for many companies (Sharma and Sheth, 2004; Pergelova et al., 2010).

One of the explanations for this growth is its greater effectiveness, compared to the conventional media, in reaching communication goals (Li and Leckenby, 2004). In addition, the possibility of directly targeting the final consumer (Briggs and Hollis, 1997) and its ability to allow an immediate response (Deighton, 1997), make Internet advertising an optimal vehicle to reach the target market. Specifically, the interactivity of Internet advertising is highlighted by different authors (e.g., Rodgers and Thorson, 2000; Roberts and Ko, 2001) as the main distinctive feature compared to conventional media. This interactivity implies a process of bidirectional communication in which companies (advertisers) can easily identify the receivers of the message and personalize it and consumers have more influence on the process by selecting the message they are interested in and choosing when and how to interact with it (Pavlou and Stewart, 2000).

In addition, its ability to transmit information quickly and economically has generated the expectation that Internet advertising might contribute to improving the efficiency and effectiveness of communication campaigns (Yoon and Kim, 2001). At an empirical level, several authors have shown a higher profitability of Internet advertising investment

(McCarthy, 2003) compared to traditional media, as well as its contribution to advertising efficiency (Pergelova et al., 2010). In this way it is proposed that:

Hypothesis 2. Internet advertising investment has a positive and significant effect on advertising efficiency.

Research design

This section describes the data and methodology used to achieve the research objectives of this paper.

Data

To test the hypotheses of this paper we focus on the Spanish hotel industry. We consider the companies included in the SABI database (Iberian Balance Analysis System - Bureau Van Dijk) between 2007 and 2015 (CNAE 2009: 5510 - Hotels and Lodgings). The time framework considered in this paper is constrained by the availability of information in the different databases. Additionally, it is required that the hotel invested at least 1,000 euros in advertising every year throughout the period. Information on advertising spending is obtained from the INFOADEX database (*Information on Advertising Expenditures*), which offers detailed information on advertising expenditures made in Spanish media (television, newspapers, magazines, supplements, radio, cinema, internet and outdoor) by daily monitoring the communication market and its prices. The final sample is comprised of 69 hotel chains with a joint turnover of more than 2.6 billion euros and an advertising investment of almost 20 million euros in 2015, having invested throughout the period over 107 million euros (which accounts for 51.2% of the total advertising investment of Spanish hotels during the period considered).

To select the variables, we consider previous literature and the availability of information. Furthermore, a prior experiment considering different combinations of inputs was carried out. Following these proposals, five inputs and one output are considered.

Regarding the inputs, the following variables are considered: i) Print advertising investment (*print*) (newspapers + magazines + supplements); ii) Broadcast advertising investment (*broadcast*) (television + cinema + radio); Outdoor advertising investment (*outdoor*); iv) Internet advertising investment (*internet*); v) Size of the company (*size*), measured by the volume of its assets. This final variable is included as a control variable due to the significant size differences between the companies included in the sample. All the variables are measured in monetary units and are obtained from the databases INFOADEX (advertising investment) and SABI (size).

Regarding the output, and given the availability of information, only one variable is included: Total sales revenue in the Spanish market (thousands of euros) and it is obtained from the SABI database.

Finally, to test the proposed hypotheses, the following advertising efficiency drivers are considered: i) Breadth of the brand portfolio (*brands*), measured by the number brands the hotel owns. This information is obtained from the TMView database and the Spanish Patent and Trademark Office (OEPM); ii) Online advertising activity (*online*), measured through a dummy variable that takes the value 1 if the company has invested in Internet advertising in the period and 0 otherwise. It must be recalled that not all companies invested in the Internet all the years. In addition, Internet advertising investment is less than the amount invested in other media; iii) Size of the company (*size*), measured through the volume of assets, which acts as a control variable.

All monetary variables are converted into constant 2015 currency units, employing the GDP deflator. Table 1 and Table 2 show the descriptive statistics and correlations among the variables.

<TAKE IN TABLE 1>

<TAKE IN TABLE 2>

Method

To estimate advertising efficiency, this paper employs the Simar and Wilson (2007, 2011) proposal, which estimates efficiency and its determining factors simultaneously via a stochastic two-stage process. This method has been recently used in the tourism industry by Pulina and Santoni (2018), among others. In the first stage, efficiency is assessed through the non-parametric technique of Data Envelopment Analysis (hereafter, DEA). This method relies on linear programming techniques and was originally proposed by Charnes et al. (1978). In the second stage, we employed a regression to estimate efficiency drivers. In this regression model, the efficiency estimates ($\widehat{\delta_i}$) are explained in terms of the efficiency drivers (Z_i) which act as regressors: $\hat{\delta}_i = f(Z_i, \beta_i) + \varepsilon_i$, where ε_i is a random variable that follows a normal distribution $N(0, \sigma_i)$.

The estimation of the $\hat{\beta}_i$ parameters allows us to identify the efficiency drivers. However, as this two-stage procedure could be biased, Simar and Wilson (2007) propose simultaneously estimating the two stages through a double bootstrap resampling procedure. Thus, the algorithm #2 proposed by Simar and Wilson (2007, page 42) has been employed.

The validity of the two-stage method employed in this research also requires verifying that the efficiency drivers do not affect the production possibilities themselves. This separability condition is tested using the Daraio et al. (2015) proposal. Finally, an intertemporal frontier (Tulkens and Vanden Eeckaut, 1995) is considered, given the dynamic nature of the data. Furthermore, year dummy variables are included in the second stage. We employ the rDEA library based on R (Simm and Besstremyannaya, 2016) to implement this procedure.

Results

As a first approximation to the levels of advertising investment, Figure 1 shows the investment made in the mass media by the entire hotel sector throughout the analyzed period. Global advertising investment reached 34.5 million euros in 2007 and 26 million euros in

2015. The print media (newspapers, magazines and supplements) stands out from the rest of the media because it receives the highest advertising investment, although it shows a clear decreasing trend. The Internet is the only medium with a growing trend in terms of advertising investment becoming, in the last year, the medium in which the hotel sector invests the most. The evolution of hotel advertising investment is similar to that reported for the whole Spanish advertising market by Del Barrio et al. (2019), who show that printed media was the most affected by the growth of the Internet as an advertising medium.

<TAKE IN FIGURE 1>

Focusing on the analysis of efficiency, advertising efficiency was estimated using two methods: the bias-corrected DEA model proposed above (from now on named DEA-BC) and the traditional output-oriented DEA model with variable returns to scale (from now on named DEA). The assumption of DEA that the input and output variables are correlated is supported by the data. Table 3 shows the average estimates of advertising efficiency with these models. It also shows the bias between the two estimations and the confidence intervals for the stochastic efficiency estimates. The results indicate that the average efficiency is 0.771 with the non-stochastic model and 0.713 with the stochastic model. In general terms, these results imply that, on average, the companies included in the sample could have reached the same level of output using 22.9% and 28.7 % fewer resources. In absolute terms, the potential savings are estimated between 24.5 and 30.8 million euros for the time period considered.

<TAKE IN TABLE 3>

Hereafter we focus only on the bias-corrected bootstrap efficiency estimates (DEA-BC) because they are more robust than the traditional DEA efficiency estimates. At a dynamic level, the average efficiency levels are shown to be quite stable over the period, experiencing a positive evolution at the end (see Table 4 and Figure 2).

<TAKE IN TABLE 4>

<TAKE IN FIGURE 2>

To link the advertising efficiency estimates to the traditional advertising cost to revenue ratio, which is frequently employed as a method to set advertising budgets, we have split the sample into two groups. The first group includes firms with a higher percentage of advertising investment than the average (high-intensity firms) and the second group includes firms with a lower percentage of advertising investment than the average (low-intensity firms). The low-intensity group shows greater advertising efficiency (0.718) than the high-intensity group (0.692), and this difference is statistically significant (F=5.909, p=0.015). This result implies that low-intensity advertising companies obtain a greater proportional return from their advertising investment.

Table 5 shows the results of the regression model that estimates the influence of brand portfolio scope (*brands*) and Internet investment (*online*) on advertising efficiency. At this point, it should be recalled that a negative sign of the parameter of the independent variable shows a positive effect on efficiency as the dependent variable is the reciprocal of the efficiency score, with the range from one to infinity.

<TAKE IN TABLE 5>

First, as regards brand strategy, results evidence a positive effect of the number of brands in the portfolio (breadth) on hotel advertising efficiency as the estimated coefficient of this variable is negative. This result supports Hypothesis 1 in the sense that brand portfolio breadth positively affects advertising efficiency, so as the breadth of the brand portfolio increases advertising efficiency increases. This result implies that companies that use a wider brand portfolio have a greater efficiency of advertising investment in their marketing communications. This finding supports the idea that a brand portfolio boosts synergy by improving efficiency (Aaker, 2004).

Second, the negative sign of the parameter associated with the variable that reflects Internet advertising shows a positive effect of this variable on efficiency. This result supports Hypothesis 2 and is consistent with the findings of Pergelova et al. (2010). At this point, it should be remembered that one of the main advantages of the Internet is its greater potential profitability in communication activities, since it allows companies to target interested consumers at a lower cost. Besides, the opportunity of focusing directly on the final consumer (Briggs and Hollis, 1997) and its ability to allow an immediate response (Deighton, 1997) make Internet advertising an optimal vehicle to reach the target market. These characteristics, along with its ability to transmit information quickly and economically support the finding that Internet advertising improves advertising efficiency.

Finally, the positive sign of the control variable evidences a negative impact on efficiency. In this sense, the size of the firm exerts a negative and significant influence on advertising efficiency. While Assaf et al. (2015) indicate that the relationship between advertising spending and performance becomes stronger for larger hotels, our findings suggest that as the size of the hotel increases, advertising efficiency decreases. A possible explanation of this result could be given by the levels of advertising saturation that could be achieved in large versus small companies. In fact, investing in advertising above the so-called saturation level has hardly any effect on sales.

Conclusions

This paper focuses on the Spanish hotel sector, which constitutes one of the fundamental pillars of the tourist sector. Although in recent years the tourism sector as a whole has benefited from favourable conditions, which in most cases have allowed firms to overcome the economic crisis of the end of the first decade of the 21st century, the hotel sector faces important challenges and transformations that deserve to be examined from an efficiency point of view. These include the dissemination of technological innovations, dependence on foreign tourism or the proliferation of sharing economy platforms (e.g. AirBnB) which increase the level of competition between alternative forms of accommodation.

In this context, the objective of this paper has been to estimate the advertising efficiency of a sample of Spanish hotel chains between 2007 and 2015, as well as to analyze the effect of the number of brands included in the hotel portfolio and Internet communication strategy on this efficiency. The results show low levels of advertising efficiency with a potential reduction in advertising investment around 25%. In addition, the results also indicate a positive effect of brand portfolio scope on advertising efficiency and that hotels that invest in Internet advertising are more efficient.

These results have important management implications in tourism. It should be remembered that hotel companies invest huge amounts of money in advertising to promote their brands and to attract new customers. Besides, recent papers demonstrate that advertising efficiency has a positive effect on a firm’s profitability (e.g. Rahman et al., 2019). Accordingly, managers are responsible of the advertising investment performance and should monitor the results of advertising activity beyond the traditional measures based on the analysis of ratios (e.g. *Gross Rating Point*). Thus, our results might be used to examine the reasons why some hotel chains invest their resources better and obtain better performances than others. This paper offers some interesting ideas. First, the results evidence a positive effect of brand portfolio scope on the efficiency of the advertising investment. This result suggests that it may be preferable to reinforce the promotion of individual brands instead of using a single family-brand strategy. If a larger brand portfolio increases advertising efficiency, hotels that follow this strategy will be able to obtain their sales objectives with a lower level of resources than would be necessary if the hotels were to market their products under a family brand. This result may be because broader portfolios allow for better segmentation of the market and more efficient targeting of the consumer. This strategy is particularly relevant in the tourism sector, characterized in recent years by the increase in competition and the consequent specialization strategy followed by numerous operators. This result is in line with Koh (2018), who evidences that brand diversification increases lodging firm value more significantly when the segment is diversified at the same time. In fact, Herstein et al. (2018) show that private label branding is a strategy that can have a positive effect on guest satisfaction and loyalty in hotels that focus on a specific target that seeks a special hotel experience. Second, the results evidence that Internet investment has a positive impact on advertising efficiency. Although the Internet is a relatively new advertising vehicle compared to other mass media, like television or print media, it is worth noting that hotel companies that rely on the Internet as an advertising medium improve the efficiency of their investments. This new communication channel allows the interaction between firms and customers and has the capability to send the information to interested consumers very quick and with a low relative cost (Pergelova et al., 2010). This allows companies that rely on this communication channel to obtain greater advertising investment performance. Besides, this result is in line with Moro and Rita (2018), who highlight the importance of social media as a brand building strategy. Thus, managers should increase their efforts to carry out effective online campaigns.

Finally, the results of this paper may be useful for hotel managers during their internationalization processes. Indeed, the high degree of internationalization of the hotel industry will allow transfer of efficiency improvements to other countries if managers have a deeper knowledge of efficiency drivers. Thus, our findings apply not only to managers in the Spanish hotel industry, but also to others outside our research context (e.g. USA or Asia) as long as they are involved in advertising investments. Managers need to acknowledge the impact of these drivers of their advertising efficiency in order to accurately evaluate their decisions. Eventually, this would allow them to transfer the best managerial actions to other countries where hotels invest in advertising campaigns.

Although the results of this work are sound and clear, this paper has several limitations that should be addressed. First, the generalization of the results to other industries should be done prudently, since only the hotel sector has been analyzed. Second, this work only considers the influence of two determinants of advertising efficiency (plus a third that acts as a control variable), and other variables might determine efficiency. However, lack of information prevents this type of analysis. Third, this work estimates the relationship between sales and investment in terms of efficiency when logic suggests that the sales of a hotel chain may not be exclusively determined by advertising investment. Other factors that could also determine sales have not been considered in this paper. In this context, variables related to the environment where hotels are located could be even more decisive to explain efficiency (Sellers-Rubio and Casado-Diaz, 2018). However, the consideration of hotel companies as a unit of analysis, which in turn has hotels located in different regions and locations, impedes the consideration of this type of analysis. Finally, the consideration of the different variables that act as inputs and output in monetary terms has led to the estimation of a concept of economic efficiency. Since disaggregated information is not available from the relative prices of inputs and outputs, it is not possible to identify the effects of separate technical and allocative efficiency.

Finally, future research should be aimed at solving the limitations of the work. Firstly, it would be interesting to consider other factors that might affect efficiency, like the level of competition faced by the company or brand strength, among others. It should be recalled that the strength and image of a brand are part of the core components of brand value. Secondly, advertising efficiency has been estimated by considering advertising spending in the different media, but it has not taken into account the content of the message nor associated factors such as creativity of the different communication campaigns. The consideration of these aspects might be interesting. Finally, future research can be developed to replicate the model in other contextual settings.

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Table 1. Descriptive statistics (2007-2015).

Variable	*Description*	*Mean*	*Standard deviation*	*Maximun*	*Minimun*	*Source*
Sales	Total sales revenue in the Spanish market *(1000 euros)*	32404.39	70174.97	566450	22	SABI
Broadcast	Television + cinema + radio advertising investment *(euros)*	26733.46	211124.13	3378083	0	INFOADEX
Print	Newspapers + magazines + supplements advertising investment *(euros)*	93049.42	317007.61	2844232	0	INFOADEX
Outdoor	Outdoor advertising investment *(euros)*	8353.21	31553.11	331626	0	INFOADEX
Internet	Internet advertising investment *(euros)*	44794.90	467845.19	10838546	0	INFOADEX
Size	Assets volume of the company *(1000 euros)*	110448.88	295505.47	2498434	998	SABI
Brands	Brands included in the hotel brand portfolio *(number)*	10.09	20.34	143	1	OEPM TMView
Online	Dummy variable (1 if the company has invested in Internet advertising in the period and 0 otherwise)	0.22	0.41	1	0	INFOADEX

Table 2. Correlation among variables (2007-2015).

	Sales	*Broadcast*	*Print*	*Outdoor*	*Internet*	*Size*	*Brands*	*Online*
Sales	1							
Broadcast	0.681**	1						
Print	0.812**	0.646**	1					
Outdoor	0.365**	0.179**	0.353**	1				
Internet	0.467**	0.167**	0.279**	0.069	1			
Size	0.874**	0.674**	0.704**	0.256**	0.460**	1		
Brands	0.464**	0.162**	0.326**	0.152**	0.097*	0.067	1	
Online	0.423**	0.222**	0.403**	0.337**	0.180**	0.023	0.286**	1

**Correlation is significant at the level 0.01.
*Correlation is significant at the level 0.05.

Table 3. Average advertising efficiency estimates (2007-2015).

	DEA	*DEA-BC*	*Bias*	*Lower bound*	*Upper bound*
Mean	0.771	0.713	0.058	0.680	0.755
Standard deviation	0.133	0.102	0.059	0.093	0.119
Maximum	1.000	0.958	0.293	0.934	1.071
Minimum	0.491	0.473	0.006	0.461	0.486

Note: DEA: Data Envelopment Analysis; DEA-BC: bias-corrected DEA.

Table 4. Evolution of advertising efficiency (stochastic) between 2007 and 2015.

	Mean	*Standard deviation*	*Maximum*	*Minimum*
2007	0.704	0.096	0.943	0.498
2008	0.703	0.102	0.935	0.499
2009	0.710	0.108	0.945	0.495
2010	0.711	0.110	0.956	0.500
2011	0.707	0.111	0.946	0.473
2012	0.712	0.103	0.945	0.527
2013	0.710	0.091	0.953	0.523
2014	0.729	0.097	0.958	0.560
2015	0.735	0.099	0.928	0.528
Average	0.713	0.102	0.958	0.473

Table 5. Determinants of advertising efficiency.

	Coefficient	*Lower bound 95%*	*Upper bound 95%*
Constant	0.54464	0.43093	0.66228
Brands	-0.00279	-0.00366	-0.00196
Online	-0.06174	-0.09958	-0.02241
Size	0.09299	0.08077	0.10477
Temporary Dummies *	Yes		
Variance	0.17745	0.16742	0.18928

(*) The model includes annual temporal dummy variables (not shown)

Figure 1. Evolution of hotel advertising investment by media

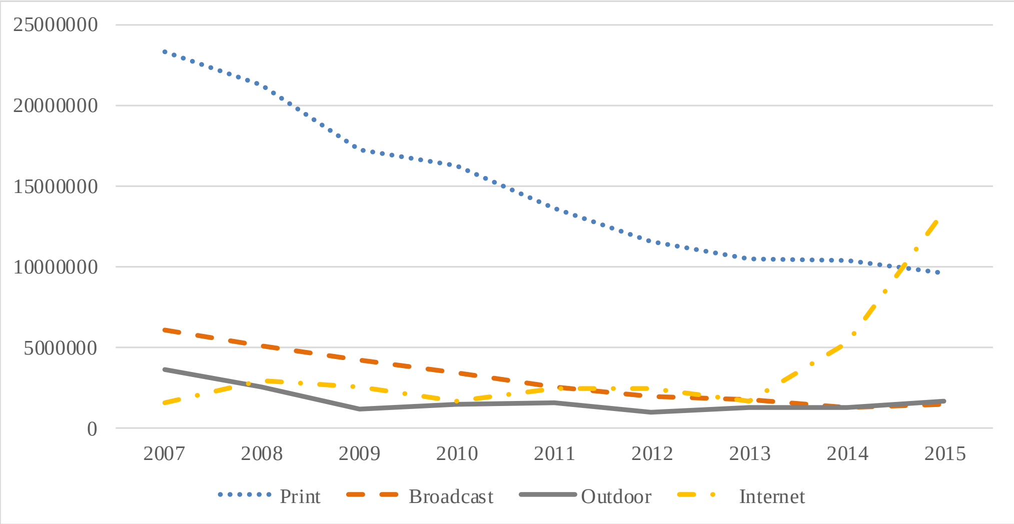

Figure 2. Evolution of advertising efficiency (DEA-BC) between 2007 and 2015.