

Brand equity research using online customer ratings of Spanish hotels

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Abstract

This study sought to create and test a customer-based brand equity model for Spanish hotels with TripAdvisor data. Using a sample of 1,514 hotels and structural equation modelling with an asymptotically distribution-free method, a valid basic, unified model was developed. The results confirm the viability of online data for brand equity research. These data reduce the cost of data capture, allowing the collection of a large amount of data and the creation of more dynamic models. The results also show that aspects of brand equity are now under the control of users, a finding that requires further research.

Keywords: Customer-based brand equity, structural equation modelling, customer review, TripAdvisor, Spain, online

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1. Introduction

Brand is one of the most valuable assets of hotel firms (Keller & Lehmann, 2003). Brand management, therefore, has become a powerful tool for differentiation (Clifton, 2003; Kapferer, 1997; Keller et al., 2011), allowing firms to gain competitive advantages if consumer perceptions towards their brand are favourable (Pappu et al., 2005). Brand can be a key differentiating factor for hotels, in particular (Morgan et al., 2002; Prasad & Dev, 2000).

The growing importance of social media is shifting the focus away from traditional information sources of the hospitality industry, and social media is becoming the primary source of travel information (Xiang & Gretzel, 2010). Online customer reviews can have a powerful influence on other customers who are deciding which brands to choose (Casaló et al., 2010). Gretzel and Yoo (2008) assessed the impact of online customer reviews on both accommodation decisions and travel planning, concluding that online customer-generated contents are important in accommodation decision-making and trip planning processes. Along the same lines, Filieri and McLeay (2014) found that customer reviews can influence other customers' decision more than traditional marketing communication does, especially when the information is perceived as accurate.

In the case of hotels, researchers have confirmed these reviews' impact on customer behaviour (Casaló et al., 2015), as they affect both booking intention and customer trust (Sparks & Browning, 2011). In addition, reviews have a significant impact on hotels' online sales (Ye et al., 2011). User-generated comments and reviews can thus affect brands, forcing firms to improve their communication processes and capture customer feedback in order to innovate in the ways they use effective resource allocation.

Despite this increase in the relative importance of digital media, an inexplicable lack of research still exists on the formation of brand equity in digital environments. Brand equity is defined by Aaker (1991: 15) as 'a set of brand assets and liabilities linked to a brand, its name and symbol, that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers'. In other fields of study, the use of online resources for research is more widespread (George et al., 2014; Wood et al., 2013). For example, these have been used to predict hotel demand using web traffic data (Yang et al., 2014) or measure the impact of online customer reviews on hotels'

financial performance (Torres, Singh et al., 2015; Ye et al., 2009).

Currently, however, brand equity research using online data is virtually non-existent, and the majority of such research focuses on customer-based brand equity using surveys. To refine this perspective on brand value was the main motivation for this study and, therefore, its main contribution to the literature. Consequently, the objective of this research was to create and test a customer-based brand equity model using secondary data from online customer ratings of Spanish hotels. Due to the growing importance of digital feedback in relationships between hotels and customers, this study focused on digital brand equity and used TripAdvisor ratings to measure the brand value of the Spanish hotels selected.

This paper is organised as follows. After this introduction, a review of the literature on brand equity and brand management is discussed in section two. In section three, the database and methodology are described. In section four, the empirical analyses are presented. Finally, some implications and conclusions are examined in section five.

2. Literature Review

2.1 The Power of Brands

Brands can provide a significant means of differentiation and, thus, competitive advantages for products and services (Aaker, 1991; 1996; Aaker & Joachimsthaler, 2000; Keller, 1993). According to O'Neill and Mattila (2010), brands are also able to create perceived differences between hotels with similar functional characteristics, even though the hotels are not substantially different. These differences in attitudes towards brands reflect the effects of long-term investment in brands (Yoo & Donthu, 2001). Several empirical studies have confirmed the benefits of differentiation in the hotel industry (Baum & Mezias, 1992; Garrigós-Simón & Palacios Marqués, 2004). A strong brand, thus, enables hotels to distinguish their offerings from the competition, create customer loyalty through good performance, exert greater control over the promotion and distribution of their brand and command a premium price over their competitors (Holverson & Revaz, 2006).

Differentiation can be viewed as a barrier to competitors' entry into the market or, more generally, a generic source of competitive advantage – in sharp contrast to cost leadership (Becerra et al., 2013). Some authors believe that all competitive strategies,

including cost leadership, involve a certain degree of differentiation of firms' products and services versus their competitors' offer (Mintzberg, 1988). More generally, the most common barriers to entry into new markets are economies of scale, brand equity, product differentiation, capital requirements, switching costs, access to distribution channels, cost disadvantages independent of scale and government policies (Botten & McManus, 1999). The hotel industry, in particular, has high entry barriers, such as an extremely high level of investment required for buildings and the need for national service networks (Tavitiyaman et al., 2011). However, companies or individuals who invest in hotels – even players with no experience in the industry – are a threat (Kim & Oh, 2004). As a result, customer-based brand equity is considered an extremely important issue in the hospitality industry (Kim et al., 2008).

2.2 The Power of Customers

User-generated content is one of the source of information that travellers use in their trip research processes (Cox et al., 2009). According to Papathanassis and Knolle's (2011) research, online reviews are a complementary source in customers' holiday selection. Feedback based on other customers' opinions is known as word of mouth (WOM). Technological developments have caused WOM to reach thousands of potential guests (Torres, Adler et al., 2015), providing a powerful information tool to customers (Niininen et al., 2007).

The importance of online customer reviews has grown in tourism businesses, in particular (Melián-González et al., 2013), and researchers have found evidence of these reviews' influence on hotel sales and room prices (Öğüt & Onur Taş, 2012). Therefore, hotels are seeking to adapt quickly to changes triggered by the rapid consumer adoption of social media, as hotels have become aware of the need to include online reviews in operational, marketing and branding strategies (Noone et al., 2011). Nevertheless, hotels' management of these reviews is far from homogeneous, even for hotels integrated within the same brand (Park & Allen, 2013).

Continuous progress in various forms of communication may represent an opportunity to improve customer satisfaction and loyalty, though not without taking risks (Kasavana et al., 2010). Barreda and Bilgihan (2013) suggest that quality of service is a core variable in customer satisfaction and a way to attract positive reviews. Cleanliness is another important variable, in this case attracting negative reviews if hotels are deficient

in this area. Hoteliers can thus use customer ratings to improve both service quality (Melián-González et al., 2013; Torres, Adler et al., 2015) and reinforce brand image (Barreda & Bilgihan, 2013).

Some hoteliers hesitate to enter or pay attention to these media either because these managers believe that digital media users belong to a different market segment than target customers who do not use online reviews or these hoteliers distrust the veracity of the reviews. Regarding the first case, Noone et al. (2011) suggest that digital customers may indeed be another segment and even that users of different digital media form separate sub-segments. The cited authors also report that growth trends and changes in customer behaviour are causing differences between segments to disappear quickly. Gretzel and Yoo (2008) further found differences based on gender and age with regard to the use of customer reviews and their impacts.

Regarding the second case, O'Connor (2010) concludes that the belief that content sites generated by users have been compromised by false reviews is incorrect. Torres et al. (2013) found proof for a close relationship between satisfaction levels measured by surveys and online ratings of hotels. Another study conducted by Torres et al. (2014) also concluded that different sources of hotel evaluations are complementary. This suggests a similarity exists between survey assessments and online users' reviews, as well as confirming the truthfulness of the latter. With respect to hotels' response to online feedback, only a few hotels respond to negative reviews (O'Connor, 2010). However, Wei et al. (2013) found customers give great importance to responses to both positive and negative reviews and overall response management.

2.3 Brand Equity

Huang and Cai (2015) report that the majority of research on customer-based brand equity has as its starting point the theoretical frameworks developed by Aaker (1991, 1996) and Keller (1993, 2003), whose main difference lies in how they deal with brand loyalty. However, both the definition and measurement of brand equity are still surrounded by intense debate (Lin et al., 2011; Tsang et al., 2011; Yoo & Donthu, 2001). As a result, many customer-based brand equity models have been developed (Çifci et al., 2016). For example, Aaker's model (1991) has four dimensions: perceived quality, brand awareness, brand loyalty and brand associations. Berry (2000) proposes the use of brand awareness – which is shaped by how companies present their brand and

use external brand communication – and brand meaning – which is also formed by customer experiences and external brand communication. Yoo and Donthu (2001), in turn, use perceived quality, brand loyalty and brand awareness/association to construct brand equity.

In contrast, Nam et al. (2011) argue that brand loyalty is an outcome rather than an antecedent of brand equity. Their model, which has been validated for hotels, has six brand dimension: physical quality and staff behaviour – which create service quality dimensions – as well as ideal self-congruence, brand identification and lifestyle congruence – which create symbolic aspects of brand equity. Service quality and symbolic aspects of brand equity create brand satisfaction, which, in turn, influences brand loyalty. Çifci et al.'s (2016) results suggest that Nam et al.'s (2011) model has greater validity than Yoo and Donthu's (2001) model does.

According Boo et al.'s (2009) model, brand equity has six dimension: brand awareness, brand value, brand loyalty and brand quality and brand image, which both in turn form brand experience. Overall, researchers generally accept that brand equity can be defined as the overall utility of a brand compared to its competitors (de Chernatony & McDonald, 2003; Vázquez et al., 2002). However, Keller (2003) argues that brand equity is a complex, multidimensional concept. Notably, tourism services are much more multidimensional than other sectors, including other service sectors (Pike, 2005).

In the present study, a review of the literature on customer-based brand equity revealed relatively little empirical research on both the service sector (Chang & Liu, 2009; Wang et al., 2011) and tourism sector. Some exceptions are Boo et al. (2009), who researched the destinations of Las Vegas and Atlantic City, and Konecnik and Gartner (2007), who focused on Slovenian destinations. In terms of hotels, Nam et al.'s (2011) research centred on the United Kingdom's hospitality sector, Kimpakorn and Tocquer (2010) carried out work on five-star hotels in Bangkok and Kim et al. (2008) focused on mid-priced hotels. In addition, Kim and Kim, (2005) found a positive relationship for luxury hotels between the components of customer-based brand equity and firms' performance. A further example is Lee and Back's (2008) research focused on conferences.

2.4 Conceptual Framework and Hypotheses

In this paper, Boo et al.'s (2009) model was chosen as a starting point because it treats tourist destinations as products and brand equity as a creation of customers' perceptions. Thus, the present study was based on the premise that hotels are another product purchased on the Internet. Furthermore, disparities exist in hotels' management of reviews in Internet consumer-opinion portals, even for hotels within the same brand (Park & Allen, 2013). The present research, thus, assumed that each hotel individually can develop its own brand strategy for each destination, regardless of whether hotels are independent or belong to a hotel chain.

Chain membership can, indeed, affect brand awareness due to chains' capacity to manage how their company presents its brand. This is in line with Oliver (1997) with regard to the formation of expectations and Berry's (2000) analysis of the formation of brand awareness. According to the latter author, brand awareness is also shaped by external brand communications, which are mainly conveyed by WOM and publicity. However, in Internet consumer-opinion portals, reviews are associated with particular hotels and not with chains.

In the proposed model, brand loyalty was excluded based on Keller's (2003) concept of brand equity. This meant treating brand loyalty as an outcome of the proposed customer-based brand equity model (Huang & Cai, 2015), due to the difficulty of directly measuring either of the above-mentioned loyalty dimensions. In addition, as Odin et al. (2001) report, the use of different measures of loyalty has produced inconsistent findings. Furthermore, according to Boo et al. (2009), the concept of brand loyalty is unclear, and the cited authors found that destination brand experiences do not influence destination brand loyalty directly, although brand value is the prelude to brand loyalty. Table 1 compiles the main definitions of the relevant concepts.

Table 1: Compilation of brand dimension definitions

Term	Definition	Reference
Brand Equity	A set of brand assets and liabilities linked to a brand, its name and symbol, which add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers	(Aaker, 1991: 15)
Brand Value	Customers' assessment based on perceptions of the difference between the utility of a product received and the utility of what is given for it (i.e. price)	(Zeithaml, 1988)
Brand Quality	Consumers' judgment about a product's overall excellence or	(Zeithaml,

	superiority	1988: 3)
Brand Experience	Consumption of services, when brand vision becomes brand reality	(Berry, 2000)
Brand Awareness	Customers' ability to recall and recognise a brand as reflected by their ability to identify the brand under different conditions and link the brand name, logo, symbol and so on to certain associations in memories	(Keller, 2003: 76)
Brand Reputation	Collective representation of a brand developed as users' experiences accumulate, generating ideas passed on to new users based on companies' past actions and future projections	(Fombrun & Rindova, 1996)
Brand Image	Perceptions customers attach to brands	(Keller, 2003)
Brand Loyalty	Attachments that customers have to a brand	(Aaker, 1991: 39)

Source: Authors

The baseline model in this study, therefore, conceived of hotel brand value as an intangible asset (Keller & Lehmann, 2003). The propositions of this conceptual model are shown in Figure 1. The construct's dimensions are explained further in the subsections below.

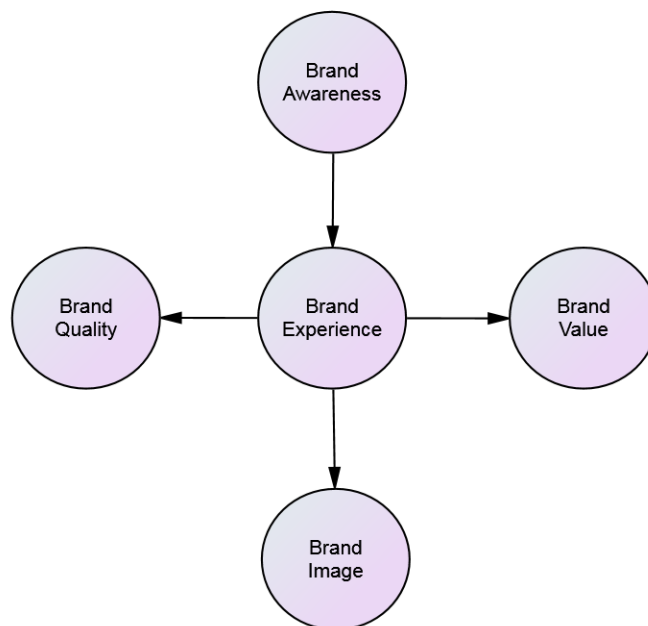


Figure 1: Proposed baseline model

Source: Authors

2.4.1 Brand Value

As is the case with brand equity, customer value does not have a generally accepted definition (Day & Crask, 2000; Flint et al., 2002; Parasuraman, 1997). The most widely used definition, however, has been a price-based definition (Sweeney et al., 1999; Tsai, 2005; Woodruff, 1997). Lassar et al. (1995) indicate that customers' choice of brands depends on a perceived balance between the price of a product and its utility. Hotel room prices are included on TripAdvisor's website, and perceived usefulness is compiled as part of customer reviews. Previous research has found a positive relationship between brand value and the future behaviour of customers (Oh, 2000), as well as their willingness to buy products based on brands (Sweeney et al., 1999; Tsai, 2005; Wang et al., 2011). In addition, a relationship exists between perceived brand value and loyalty (Kwun & Oh, 2004), making brand value an essential element in building customer loyalty (Oliver, 1997; Zeithaml, 1988).

2.4.2 Brand Quality

Brand quality is one of the key dimensions of brand equity (Aaker, 1996; Keller, 2003; Lassar et al., 1995) and a direct antecedent of perceived value (Dodds et al., 1991; Teas & Laczniak, 2004). This has been confirmed for tourist destinations (Deslandes, 2003; Murphy et al., 2000), restaurants (Oh, 2000) and hotels (Kashyap & Bojanic, 2000). These studies have highlighted the need to change quality management to value management. In addition, brand quality has a positive relationship with brand loyalty in both the industrial sector (Cretu & Brodie, 2007; Michell et al., 2001) and tourism sector (Boo et al., 2009). Brand quality has usually been related to perceived quality, with researchers using both interchangeably (Aaker, 1991; Zeithaml, 1988). The definition of perceived quality is that customers determine if a service is of good quality or not (Parasuraman et al., 1985, 1988, 1990).

Low and Lamb (2000) also identify brand quality as a core factor that adds value to customers' purchases. In general, service quality is posited to involve a comparison of consumers' expectations with product performance (Manhas & Tukamushaba, 2015). Expectations are formed through pre-consumption experiences, advertisement, WOM and product cues (Oliver, 1997), and these expectations strongly influence customer

ratings (Engler et al., 2015). In particular, hotels' quality of offer is only known when their services have been consumed (Litvin et al., 2008), creating customers' brand experiences post-purchase (Berry, 2000). Based on the relationship between their expectations and experiences, customers rate and provide information through user-generated content (Banerjee & Chua, 2016), generating feedback passed on to other potential customers. This feedback influences brand expectations and changes travel destination intentions (Arsal et al., 2008), as well as which accommodations are booked for known prices (e.g. (Mauri & Minazzi, 2013; Tsao et al., 2015). Thus, based on these theoretical discussions and other research, we proposed the following hypothesis:

H1: Brand quality has a positive impact on brand value.

2.4.3 Brand Awareness

Awareness is a central component of brands' effect on hospitality and tourism (Kim & Kim, 2005; Lee & Back, 2008) and an important antecedent of customer value (Kwun & Oh, 2004; Oh, 2000). Aaker (1991) defines brand awareness as the ability of buyers to recognise or recall that a brand is a member of a certain product category. Along a similar line, Keller (1993) postulates that awareness consists of both brand recognition and recall. Brand awareness represents the strength of brands' presence in the minds of target consumers, measured along a continuum (Aaker, 1996). Bruhn et al. (2012) proved that, while user-generated content generally does not have a significant impact on brand awareness, this content specifically affects tourism industries.

The present study used brand reputation as a proxy of brand awareness. Previous research has confirmed a close relationship between brand awareness and brand reputation (Maltz, 1991). In fact, some scholars, such as Davies and Miles (1998), see brand awareness as a key component of brand reputation. Based on Fombrun and Rindova's (1996) definition of brand reputation, users' experiences accumulate, generating ideas passed on to new users out of companies' past actions and future projections. Users' experiences provide an overview of companies' strengths and weaknesses and allow comparisons of these companies with other competitors. The present study, therefore, used TripAdvisor rankings and overall ratings as a measure of brand reputation.

Although hotel rankings are produced in a volatile environment with many choices available, rankings have an important impact on booking rates (Baka, 2016). Hotel rankings are based on customers' overall ratings, and consumers use these rankings to reduce the number of alternatives (Filiari & McLeay, 2014). Therefore, rankings and customers' overall ratings can be considered a manifestation of hotels' online reputations. Reputation gives hotels greater visibility and opportunities to improve brand awareness through customers' online comparisons and reservations. Thus, following other researches' lead (Boo et al., 2009; Kwun & Oh, 2004; Oh, 2000), we posited the following hypothesis:

H2: Brand awareness has a positive impact on brand value.

2.4.4 Brand Image

Brand image has been identified as an important source of brand equity (Keller, 2003; Lassar et al., 1995), especially in the tourism and hospitality sector (Kim & Kim, 2005; Konecnik & Gartner, 2007). Brand image measurement is essential when building brands in tourism. This has been supported by studies in different countries, such as Turkey (Tasci et al., 2007) or Yugoslavia (Hall, 2002); rural destinations (Cai, 2002); business tourism destinations (Hankinson, 2005); and even distant destinations such as Finnmark County in northern Norway (Prebensen, 2007). According to Keller (2003), brand image can be seen as perceptions customers attach to brands. Boo et al. (2009), however, report numerous definitions of brand image and its effects. Brand image in the present study is limited to social and self-image aspects of brand personality (Grace & O'Cass, 2005; Sirgy & Su, 2000). Digital information sources can provide data on relevant customers' formation of brand image (Költringer & Dickinger, 2015), which supports the approach taken in the current research.

Several studies have proven the influence of brand image on customer choices (e.g. (Andreassen & Lindestad, 1998; Bloemer et al., 1998), customer value (Maklan & Simon, 1997) and customer loyalty (Cretu & Brodie, 2007; Zeithaml, 1988; Zins, 2001). Brand image, therefore, has become a key factor in customer loyalty (Hosany et al., 2006). Based on above, the following hypothesis was proposed:

H3: Brand image has a positive impact on brand value.

3. Methods

3.1 Data

The data on hotels in different Spanish destinations were collected on TripAdvisor's website from the last week of May to the first week of June 2015. This website hosts more than 350 million users each month and contains more than 290 million reviews, making it the most important travel site in the world (TripAdvisor, 2015). Since hotels' destinations can affect their clients' satisfaction (Bulchand-Gidumal et al., 2013), the destinations selected for this study were restricted to the most popular destinations of Spain. These are Barcelona, La Oliva, Llanes, Madrid, Granada, Cordoba, Valencia, Benidorm, Marbella, Seville and Malaga.

This sampling method produced several differences from Boo et al.'s (2009) study. The first is the use of quantitative information that users provide as feedback for other users on TripAdvisor's website, as opposed to conducting an online survey based on items measured on a Likert-type scale. The second difference is that – rather than validate the model independently for two destinations of the United States (i.e. Las Vegas and Atlantic City) (Boo et al., 2009), which can be considered quite similar – the present research included well known but heterogeneous destinations in Spain and focused on their hotels. Last, this study made use of brand reputation as a proxy for brand awareness, which, as explained in the above section on brand awareness, is more closely aligned with the type of search and contact information available in online communication between customers and hotels.

In all, TripAdvisor ratings for 1,787 hotels were collected, but hotels with 20 or fewer reviews were removed from the sample, leaving 1,514 entries for analysis. This cut-off value was chosen as the point at which no single review can alter a hotel's rating. Different types of variables were collected, and some were transformed or condensed. Table 2 shows these variables and their descriptions and compiles the characteristics of the hotels selected.

Table 2: Variables and brief description

Variable	Description	Mean or Proportion	Standard Deviation
Star	Hotel category	3.132	1.0520
Location	Rating for location	4.151	0.5348

Sleep	Rating for sleep quality	3.884	0.4377
Room	Rating for room quality	3.813	0.5145
Service	Rating for service quality	3.919	0.4223
Cleanliness	Rating for cleanliness	3.995	0.4060
Value	Rating for value score	3.932	0.3451
OverallS	Rating for overall score	3.872	0.4614
BestValue	Best value tag (no tag = 0; tag = 1)	71.5%	0.4517
Boutique	Boutique tag (no tag = 0; tag = 1)	6.5%	0.2461
Budget	Budget tag (no tag = 0; tag = 1)	18.6%	0.3889
Business	Business tag (no tag = 0; tag = 1)	5.5%	0.2290
Charming	Charming tag (no tag = 0; tag = 1)	15.7%	0.3641
Classic	Classic tag (no tag = 0; tag = 1)	9.8%	0.2971
Family	Family tag (no tag = 0; tag = 1)	15.4%	0.3610
Green	Green tag (no tag = 0; tag = 1)	3.8%	0.1920
Luxury	Luxury tag (no tag = 0; tag = 1)	40.8%	0.4915
MidRange	Mid-range tag (no tag = 0; tag = 1)	32.0%	0.4668
Quaint	Quaint tag (no tag = 0; tag = 1)	4.4%	0.2057
Quiet	Quiet tag (no tag = 0; tag = 1)	69.1%	0.4623
Resort	Resort tag (no tag = 0; tag = 1)	1.2%	0.3430
Romantic	Romantic tag (no tag = 0; tag = 1)	24.6%	0.1394
Trendy	Trendy tag (no tag = 0; tag = 1)	13.6%	0.4757
Award	Travellers' Choice Winner 2015	2.0%	0.3829
Excellence	Excellence certificate (no = 0; yes = 1)	34.5%	0.4517
Chain	Member of a hotel chain (independent = 0; chain = 1)	17.8%	0.2461
PPositioning	Hotel price positioning	–	–

Notes: PPositioning is a combination of three binary variables: budget, mid-range and luxury – 0 for no positioning in price, 1 for a budget tag, 2 for a mid-range tag and 3 for a luxury tag; intermediate positions were labelled by adding 0.5.

Source: Authors

3.2 Model and Methodology

Structural equation modelling was used to analyse the data. However, to configure the latent variables, the statistical properties of the observable variables were considered. This meant that, instead of using maximum likelihood estimation and Pearson's coefficient, which suppose the continuity and normality of observed variables, asymptotic distribution properties were used. Although the asymptotically distribution-free method is considered better than maximum likelihood due to an absence of restrictions, the former cannot be used for models with many variables ($k > 10$) or

samples of moderate size ($N < 1,000$). The results of the former method in these cases tends to be unstable (Satorra, 1990), so it is only valid for simple models.

In the initial model proposed, the latent variable of brand quality was created using hotel ratings for cleanliness, rooms, services and sleep. Whilst for brand awareness, the model used hotels' overall score as a proxy for brand reputation and a homogenous measure for heterogeneous destinations (TripAdvisor, 2014). Otherwise, brand value was measured using the TripAdvisor rating of value. Finally, for the construction of the latent variable of brand image, the most relevant TripAdvisor tags – processed through correspondence analysis – were used. These tags were 'romantic', 'trendy', 'charming' and 'boutique'.

Both factorial and principal component analysis methods require a correlation matrix to estimate the covariance between elements and test construct validity (Choi et al., 2010). Pearson's correlation coefficient is the most extensively used in related studies, particularly in the case of ordinal or binary variables. However, in this study, the continuity assumption does not hold, so the correlation matrix could be distorted, according to the assumptions of interval measurement (Christoffersson, 1975; Rupp et al., 2003). According to some researchers, the correlation matrix's usefulness depends on the level of measurement of its variables (Lévy et al., 2006; Ogasawara, 2011). Therefore, in a model with ordinal and dichotomous variables, a polychoric correlation matrix needs to be used (Richaud, 2005).

Different correlation matrices require different estimation methods (Bentler, 2006). Non-parametric methods such as the asymptotically distribution-free method are the best suited for these variables. Cronbach's alpha index is also a widely used method when validating the internal consistency of constructs, even in social science studies with ordinal and categorical variables. Nonetheless, in this case, the Cronbach's alpha could be incorrect as it tends to underestimate the results by assuming continuity in variables and ordinal alphas are specifically designed for the treatment of categorical variables (Gadermann et al., 2012; Oliden & Zumbo, 2008).

4. Results

The initial model provided the following results: chi-square = 155.242; degrees of freedom = 23; p -value = 0.000; normed fit index = 0.839; goodness-of-fit index =

0.958; and root mean square error of approximation = 0.062. The model, thus, proved to be not entirely valid because, as Hair et al. (2010) suggest, the *p*-value should be higher than 0.05 and the ratio of chi-square divided by degrees of freedom should be less than five for values to be considered acceptable. Perhaps the spatial heterogeneity between destinations produced these results, but the values suggest that the model may still be a good starting point for future research. Table 3 shows the construct reliability and validity of each latent variable. Table 4 shows the regression weight values for the proposed model.

Table 3: Construct reliability and validity

Factor	Construct reliability		Validity	
	Coefficient Alpha	Composite Reliability	Discriminant Validity	Convergent Validity
Brand Quality	0.901	0.951	0.797–0.900	0.7878
Brand Image	0.783	0.884	0.094–0.236	0.5739
Brand Awareness	Fix	Fix	0.940	Fix
Brand Value	Fix	Fix	0.862	Fix

Table 4: Regression weight values for proposed model

			Estimate	S.E.	C.R.	P
Brand Experience	<---	Brand Awareness	0.688	0.036	19.136	***
Brand Quality	<---	Brand Experience	1.000			
Brand Image	<---	Brand Experience	0.329	0.027	12.069	***
Brand Value	<---	Brand Experience	1.034	0.058	17.923	***
Cleanliness	<---	Brand Quality	1.000			
Service	<---	Brand Quality	1.218	0.061	19.867	***
Rooms	<---	Brand Quality	1.427	0.075	19.040	***
Sleep	<---	Brand Quality	1.231	0.067	18.475	***
Romantic	<---	Brand Image	1.000			
Trendy	<---	Brand Image	0.346	0.040	8.656	***
Charming	<---	Brand Image	0.698	0.037	18.827	***
Boutique	<---	Brand Image	0.212	0.032	6.550	***
Overalls	<---	Brand Awareness	1.000			
Value	<---	Brand Value	1.000			

Notes: SE = standard error; CR = critical ratio; P = *p*-value

Therefore, a simpler, more parsimonious model was developed. In this model, to avoid the effects of heterogeneity of destinations, another approach to brand image was used while the rest of the model remained the same. A price positioning variable was created as a combination of the budget, mid-range and luxury tag binary variables, based on Duverger's (2013) research proving that differences exist in online rating management

among these market segments. This model is more parsimonious in terms of data collection, as compared to Yoo and Donthu's (2001) approach, so the present model may help reduce confusing results and assist both managers and researchers in tracking brand equity.

The revised model's analytical results fulfil all basic requirements: chi-square = 12.76; degrees of freedom = 8; *p*-value = 0.12; normed fit index = 0.942; goodness-of-fit index = 0.991; and root mean square error of approximation = 0.02. In this case, the ratio obtained by dividing the chi-square value by the degrees of freedom is less than three, which, according to Kline (2005), is an indication of the model's goodness of fit for sample sizes above 200. The Cronbach's alpha index for the brand quality construct is 0.901, which is within the acceptable value range. Furthermore, according to Gadermann et al. (2012), this index tends to understate results, so the ordinal alpha is probably higher. Table 5 shows the estimates of the parameters. Values of one were used to fix the scale of the construct (e.g. to assess brand quality, the cleanliness rating was used). In this case, the weightiest value in brand quality is the room quality rating. However, if standardised estimates are considered, the most influential value is the service rating. All parameters are significantly different from zero.

Table 5: Regression and standardised regression weights values for revised model

			Estimate	Standardised Estimate	SE	CR	P
Brand Experience	<---	Brand Awareness	0.708	1.000	0.035	20.425	***
Brand Quality	<---	Brand Experience	1.000	1.000			
Brand Image	<---	Brand Experience	0.716	1.000	0.095	7.532	***
Brand Value	<---	Brand Experience	0.920	1.000	0.051	17.933	***
Cleanliness	<---	Brand Quality	1.000	0.761			
Service	<---	Brand Quality	1.172	0.861	0.054	21.733	***
Room	<---	Brand Quality	1.340	0.821	0.065	20.707	***
Sleep	<---	Brand Quality	1.188	0.849	0.061	19.545	***
Positioning	<---	Brand Image	1.000	0.229			
Value	<---	Brand Value	1.000	0.830			
OverallS	<---	Brand Awareness	1.000	0.946			

Notes: SE = standard error; CR = critical ratio; P = *p*-value

Source: Authors

Table 6 shows total, direct and indirect effect values. Total effects are the sum of the direct and indirect effects. Values of one were used to fix the scale and compare other values. The influence of brand awareness on experience is 0.708. When awareness goes

up by one, experience goes up by 0.708. Likewise, if brand experience increases by one, brand value increases by 0.920. Similarly, brand awareness has a positive and indirect effect on brand value (i.e. 0.651). The coefficients could also be calculated in reverse by conducting a simple reverse operation. At the same time, coefficients were found by stringing together the relative importance of specific observable variables in brand value. Kline (1998), for example, provides a relevant discussion of direct, indirect and total effects. The results of this process also show the degree of support for any proposed hypotheses and, in the present study, indicate that all hypotheses are supported.

Table 6: Total, direct and indirect effect values

	Brand Awareness			Experience			Brand Quality		
	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect
Brand Experience	0.708	0.708	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Brand Value	0.651	0.000	0.651	0.920	0.920	0.000	0.000	0.000	0.000
Brand Image	0.507	0.000	0.507	0.716	0.716	0.000	0.000	0.000	0.000
Brand Quality	0.708	0.000	0.708	1.000	1.000	0.000	0.000	0.000	0.000
Value	0.651	0.000	0.651	0.920	0.000	0.920	0.000	0.000	0.000
OverallS	1.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PPositioning	0.507	0.000	0.507	0.716	0.000	0.716	0.000	0.000	0.000
Sleep	0.841	0.000	0.841	1.188	0.000	1.188	1.188	1.188	0.000
Room	0.949	0.000	0.949	1.340	0.000	1.340	1.340	1.340	0.000
Service	0.830	0.000	0.830	1.172	0.000	1.172	1.172	1.172	0.000
Cleanliness	0.708	0.000	0.708	1.000	0.000	1.000	1.000	1.000	0.000

Source: Authors

5. Discussion and Conclusions

5.1 Limitations

A discussion of this empirical study's results necessarily begins by recognising their limitations. First, the proposed model was formulated based on the spatial heterogeneity of different locations in order to capture the general performance of brand management in all locations. Second, this study focused on TripAdvisor ratings, but several other websites contain customer reviews and ratings, each with particular features that deserve equal attention. Third, only the quantitative dimension of online customer reviews was used. The use of binary variables also caused some issues in the model, and, in the end, many of these had to be discarded or combined. Due to semantic ambiguity, only a proxy could be created for brand price positioning.

Therefore, further research needs to include a thorough analysis of brand equity that considers the two dimension of online customer reviews found by Sridhar and Srinivasan (2012) (i.e. quantitative and qualitative information). The proposed research should collect data from multiple sources and take into account the mean value, number and dispersion of customer ratings, as suggested by Chintagunta et al. (2010). Future studies could also use other relevant methodologies, such as that applied by Költringer and Dickinger (2015).

5.2 Theoretical Implications

The present study is the first to construct a customer-based brand equity model using secondary data from online customer ratings (i.e. quantitative data), since previous models have normally been assessed based on primary research through surveys using a Likert-type scale. The proposed model was thus necessarily informed by previous studies that tested models created using surveys with similar results. In addition, due its use of brand reputation as a proxy for brand awareness, the present model is more closely aligned with digital environments. It also offers hotels a more parsimonious model than the approach developed by Nam et al. (2011), thereby making the present model easier to interpret, measure and control.

The results demonstrate that a dimension of brand equity is now under the control of users, compared to the past, when brand equity was under the control of hotel managers. The present study highlights the usefulness of data generated and collected on the Internet in brand equity research. This suggests a methodological improvement that could be useful to hotel managers and branding and tourism researchers. Data collection through the Internet is cheaper than through surveys. In addition, online sources allow researchers to collect a larger amount of data, and these sources could facilitate the development of more dynamic models in further research, as suggested Duan et al. (2008). Researchers can thus integrate the evolution of brand value and the influence of these changes on other variables. Future research with more developed models focusing on a single, homogeneous destination will be able to compare possible differences in brand equity among online users and ordinary sources or compare the overall goodwill afforded to all hotels of a single brand across locations.

As the system for generating brand equity through online reviews written by other users has expanded, this aspect of brand equity has grown too, which implies less control by

hotel managers. Consumers' ability to influence brand equity is increasing, as will the impact of websites that review and assess hotels and destinations. This implies a need for both greater control over – and more research on – how these generally privately owned websites manage their reviews' trustworthiness, reliability and durability, as well as how rankings are generated. Studies in this area are currently a growing trend (e.g. Ayeh, 2015; Ayeh et al., 2013; Dickinger, 2011; Filieri, 2015; Jeacle & Carter, 2011).

5.3 Practical Implications

The proposed model offers the possibility of using online users' reviews as a tool for measuring the success of brand management combining pricing, sales, satisfaction and opportunities to improve, as mentioned previously. While still a basic model, it has been validated for a wide selection of heterogeneous destinations, so the model could prove quite useful, after suitable adaptations for the particularities of each destination.

Given the brand equity developed through user interactions on the Internet, hotel managers need to change the way they operate in this new environment. In this context, managers find controlling communication increasingly difficult (Dijkmans et al., 2015), and the relationship between brand experience and brand expectation has become extremely important. On the one hand, according to Barnes et al. (2014), brand experiences have an important relationship with satisfaction and intentions to return and to recommend. To achieve good customer experiences, hotels need to reallocate their limited resources to give higher priority to those attributes that improve customer satisfaction (Albayrak & Caber, 2015), focusing on service quality to generate good ratings (Duverger, 2013). Banerjee and Chua (2016) conclude that the front desk, staff and cleanliness of bathrooms can be key to making a good first impression and avoiding negative reviews.

On the other hand, while extremely high expectations may favour sales, a negative relationship can exist between brand awareness and brand satisfaction, as Lee and Back (2008) found. Hotels must respond to these expectations and know how to manage performance failures. Communication with consumers is an extremely important asset (Xie & Heung, 2012), so hotels need to equip themselves with integrated marketing communication to ensure satisfied and loyal customers in this new era of social media (Šerić et al., 2014).

Online comparators provide a wealth of information to consumers, and their management by hotel managers appears to be essential for the survival of hotels, since Baka (2016) found proof that changes in rankings have an impact on booking rates. Comparator websites offer greater organic visibility to better-rated hotels, so good ratings are the key to maintaining a presence in the ranks of top-tier hotels. Hotels can position themselves using the relevant tags through patterns of customer satisfaction that improve these ratings (Banerjee & Chua, 2016). Tags can improve search figures in certain segments, and, as in other media, hotels can buy a better brand positioning on the Internet in order to improve their visibility. However, brands' positions are difficult to compare when disparate destinations are involved.

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