Are customers’ reviews creating value in the hospitality industry? Exploring the moderating effects of market positioning

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A B S T R A C T

Although user-generated reviews on social media are greatly influencing competition and customer purchase patterns in the hospitality industry, empirical research has so far marginally investigated whether hotels are able to appropriate the economic value that the use of social media features can bring. In order to fill this gap, this article uses panel data from 2004 to 2012 on a sample of 240 small and medium-sized hotels for which we have collected data on profitability and 50,115 user-generated reviews on TripAdvisor, one of the most popular and largest online communities for travellers. The results from fixed effects regression models show that online ratings from user-generated reviews on TripAdvisor have a positive effect on hotel revenue growth that is outweighed by a negative effect on gross profit margins. Thus, the increasing importance of user-generated reviews in online communities for travellers is shifting hotel competition from unit profit margin to volumes and to higher room occupancy rates, with online retailers capturing most of the value created in online transactions through social media features and with a limited effect brought on net profitability. However, hotels with higher star-ratings, with a lower degree of local competition and localized outside popular destinations were found to obtain more benefits from online visibility on their gross and net profitability. Based on these results, managerial implications discuss how hotels should use social media features according to a strategic view based on pursuing the horizontal and vertical differentiation of their services in an attempt to create more economic value from their online visibility and to protect profit margins from the intermediation in their customer relationships.

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1. Introduction

Online social media are becoming a salient distribution channel that influences customers’ behaviours and marketing strategies, even among established firms in traditional industries (Aral, Dellarocas, & Godes, 2013). In the hospitality industry, the importance of social media technologies has increased in shaping competition because online retailers such as Expedia, Trivago, and Booking.com have progressively added features typical of social media and online communities to their intermediation platforms, where travellers can compare prices and customer reviews for hotels and destinations. Online reviews provide additional information for travellers to mitigate the uncertainty about the quality of a hotel and about its fit to their needs and preferences on accommodations and destinations. The use of social media features and a presence on the main social media platforms (i.e., Facebook, Foursquare) are thus becoming critical success factors for competition in the hospitality service industry (Phillips, Zigan, Silva, & Schegg, 2015). These are just the last factors of change brought by Internet diffusion in the industry’s structure and in the distribution channels of hospitality services (Leung, Law, Van Hoof, & Buhalís, 2013). In the Internet scenario of the hospitality industry, online retailers have thus been gaining increasing market power in influencing customers’ purchases (i.e., Inversini & Masiero, 2014; Silva, 2015; Yen & Tang, 2015) and have improved market transparency and uncertainty for travellers (Toh, Raven, & DeKay, 2011). For this reason, their role is now considered an infomediary (Chen, Yang, & Wang, 2015) because their capability to add value in transactions depends primarily on collecting and processing information about prices, destinations and travellers’ reviews.

In the tier of infomediaries in tourism and hospitality, TripAdvisor is an online travel infomediary that has become the world’s
most popular community about travel, with more than five million registered users who visit the platform 30 million times per month on average (Banerjee & Chua, 2016). In order to help travellers share their experiences, in the last few years, TripAdvisor has progressively introduced many features typical of social media networks (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011).

Despite the increasing role played by online infomediaries in reshaping the structure of the hospitality industry, it is not yet completely clear whether and how hotels can capture the economic value brought by their greater visibility on online infomediaries. In highly fragmented sectors, such as the hospitality industry, the Internet can be a value-destroying mechanism for small businesses and can deter hotels' capacity to defend profit margins (Porter, 1998). This occurs because Internet changes industry attractiveness by affecting the vertical and the horizontal forces of competition in an industry. Specifically, value destruction refers to the reduction of profitability that incumbents may experience because of the re-intermediation played by infomedia platforms (inter- 

mediation on marketplaces, search engines and platforms for recommendations). In many industries, infomedia tends to reduce incumbents' market power to empower buyers (by giving them more information and reducing their information asymmetry) and to increase the degree of rivalry among firms that sell and distribute their products/services. Accordingly, the Internet has contributed to disintermediating traditional travel agencies from the market relationship between hotels and customers and has favoured the rise of a more concentrated tier of infomediaries with great market power. Specifically, in the Internet scenario, tourists have a stronger bargaining power with hotels thanks to the greater transparency about price and quality levels of hotels and to the greater availability of substitute products. An example of a firm that provides substitute services is Airbnb, which allows customers to rent rooms from private owners for short periods. From a resource-based perspective (Barney, 1991), online presence is a strategic necessity for hotels and is no longer a rare resource that these firms can leverage to increase prices. Furthermore, the usage of social media network features can shake up long-lasting reputations through reviews posted by unmonitored influential opinion makers (Liu, Hu, & Cheng, 2005) or can even damage the brand image of hotels, given the viral power of the web (Telofski, 2010), leading to an undesired effect. Thus, if not managed effectively, the usage of social media features on online infomediaries may represent a threat more than a missed opportunity for hotels.

However, greater Internet visibility that hotels can develop on social media platform or through social media features on online retailers’ infomedia platforms might provide smaller hotels with opportunities for market growth in segments in which they have a limited market presence (Treem & Leonard, 2012). This can be particularly important in an industry such as hospitality, where the supply is highly fragmented and revenues are based greatly on the attraction of foreign tourists.

Recent literature has not shed light on the ambivalent role of online retailers as a threat or an opportunity for small hotels’ profitability because the great portion of empirical works on this theme have taken into account the relationship between online visibility and sales, overlooking the effects that online visibility can have on profitability (e.g., Öğüt and Onur Taş, 2012; Ye, Law, & Gu, 2009; Ye, Law, Gu, & Chen, 2011). This focus is consonant with the great concerns that hotels have recently expressed against infomedia and the high intermediation fees that online retailers apply to sales made over the Internet. For example, in May 2014, the Italian Antitrust launched probes into the agreements made among Expedia, Booking.com and some hotels, questioning whether some clauses might prevent hotels from getting better deals through other booking websites (Financial Times, 2014). Consequently, recent literature has not been fully able to provide evidence-based managerial recommendations about what hotels should do in order to turn online visibility into higher profitability.

In this article, we offer a first contribution to bridge this gap by exploring the relationship between online visibility and the creation of economic value in terms of increase of sales and profitability for a panel of 240 Italian small and medium hotels. We also conducted this analysis with the goal of assessing the moderating effect of hotels' market positioning between their online visibility and profitability. In evaluating the moderating effects we consider only the profitability (the value appropriation achieved through online visibility) and not the increase in sales (the value generation achieved through online visibility) because hotels' market positioning affects a hotel's capability to appropriate the economic value brought by online visibility and influences hotels' ability to negotiate the infomedia fees, which in turn impact hotels' profitability. Specifically, market positioning refers to the hotels' competitive positioning in terms of geographical localization and the quality of customer service. Thus, we do not take the direct visibility that hotels have on social media platforms such as Facebook directly into account, but rather their visibility on retailers’ infomedia platforms, which are increasingly powered through the integration with social media or by the use of social media features. The focus on small and medium hotels is consistent with the limited market power that they have in Internet sales without social media online retailers. Moreover, the analysis of Italian hotels offers some unique advantages in regard to our research goal, given the size that this industry has (it counts for approximately 8.6% of Italian GDP (WTTC, 2012)), the high fragmentation of its supply and its capacity to attract high touristic flows from abroad as a result of the country's unique historical and architectural heritage.

2. Theoretical background

2.1. TripAdvisor and socially enhanced infomedia

TripAdvisor is an online infomedia platform on which travellers can compare prices and costumer reviews on hotels, restaurants and other touristic attractions. The value created essentially lies in the reduction of search costs for customers and in the enhancement of market transparency. Through TripAdvisor, travellers can book their rooms on several online travel agencies (OTA). The intermediation fees applied by TripAdvisor and online travel agencies can amount up to 25% of a room price (HSMAI,
Infomediation can thus add economic value in the transaction between a customer and a hotel. This value is shared among the parts involved in the transaction: the customer and the hotel, first, and then all the distributors (OTA and TripAdvisor).

Part of TripAdvisor’s ability to increase market transparency is founded on the use of some social media functionalities (Kietzmann et al., 2011), such as social networking (i.e., the opportunity that users have to connect with people with similar travel interests, needs or experience) and knowledge sharing. The way through which TripAdvisor allows users to share travel experiences is based on the principle that travellers can post reviews, comments and ratings on a destination, a hotel, or an attraction and can add photos, videos, travel maps of their previous trips or take part in discussion forums (Miguéns, Baggio, & Costa, 2008). Users providing reviews or any other content need to be registered, or they may directly log into the platform through their identities on the most diffused social networks, such as Facebook.

The social networking features provided by TripAdvisor are based on the Traveller Network, a platform that allows users to see where their friends have been and obtain touristic advice on itineraries and destinations from friends. Travellers can thus connect with other members of their social networks and share travel stories, search travel destinations and find information on places that friends and acquaintances have already visited. Users on the platform can also connect with persons outside their social networks who have visited or are visiting the same destination. In this way, travellers can more easily find persons who share similar travel preferences and needs. In a similar way, a user consulting travellers’ reviews can see if the reviewer is a member of his/her friends’ social networks on other platforms, such as Facebook. This puts users in the situation of giving a greater weight to reviews made by friends or by people with whom users have a low degree of separation in their social networks.

This set of functionalities reflects another typical facet of social media: users may disclose elements of their social identity (like name, age, gender, job, location, etc.), and they also consciously or unconsciously “self-disclose” subjective information, such as “likes” and “dislikes” about travel destinations, hotels, and restaurants (Kaplan & Haenlein, 2010). Knowing the profile and the preferences of the user who has expressed a review on a hotel helps other users to understand whether the information contained in that review is relevant to the planning of their travels. Thus, users may give more importance to reviews and opinions expressed by friends on other social media entities such as Facebook or by persons who exhibit similar attitudes in travelling. Regarding hospitality services, this is particularly important because hospitality services can be differentiated horizontally (Candelà & Figini, 2012). Travellers have idiosyncratic preferences, and there are many attributes of hospitality services for which costumers disagree about their desirability (Becerra, Santaló, & Silva, 2013; Silva, 2015). For example, travellers with different needs and interests differently weight attributes of hotel services, such as the offering of continental breakfast, the distance of the hotel from downtown or from a particular attraction, and the availability of complimentary services, such as free Wi-Fi, laundry, a gym, a swimming pool, baby-sitting services and amenities for kids. Travellers’ reviews available on TripAdvisor may thus reinforce the hotels’ capability to horizontally differentiate their services.

### 2.2. Foundations for the economic value brought by online visibility

Online recommendation systems based on user-generated reviews have received increasing interest by recent studies, which have taken into consideration their role in driving sales, especially in industries such as hospitality (e.g., Silva, 2015), consumer electronics (e.g., Kostyra, Reiner, Natter, & Klapper, 2015), books (e.g., Sun, 2012), music (e.g., Dhar & Chang, 2009), and movie rentals (e.g., Gong, Smith, & Telang, 2015). The general conclusion arising from these studies is that user-generated reviews on social media can contribute to a concentration of sales affecting some “blockbuster” products (Brynjolfsson, Hu, & Smith, 2010), while also having a role in creating a balkanization of sales across a multitude of competing products, each of which is selected by communities of consumers sharing specialized preferences and interests (Dellarocas, Gao, & Narayan, 2010; Van Alstyne and Brynjolfsson, 2005).

In this regard, we expect that the advantages stemming from the use of social media network features as recommendation tools for sales are more limited in the hospitality industry than in other sectors where firms do not operate under capacity constraints or face demand with strong seasonality. This is the case for products such as digital books, music and movies, where user-generated reviews and recommendation tools can favour a concentration of sales towards a few blockbuster products. Compared to firms in these industries, hotels can only partly face the greater market demand brought by social media and their recommendation tools because they cannot dynamically adapt their supply of rooms according to the size of the available market demand. Thus, the sales advantages that hotels can obtain from a greater visibility on the Internet and on social media have a natural limit in the volume of services sold, given the capacity constraints in their number of rooms. However, beyond allowing hotels to improve their room occupancy rates, online visibility may allow hotels to apply price premiums. More precisely, hotels can respond strategically to online reviews (Kwark, Chen, & Raghunathan, 2014) by increasing or reducing price in the case of positive or negative reviews, respectively. We believe that the opportunity for benefits on sales and profitability stemming from the application of price premiums greatly depends on characteristics of competition, on how much hotels compete in service quality (i.e., vertical differentiation), and on the level of specialization and horizontal differentiation they are able to provide to customers.
These considerations suggest that hotels’ market positioning may moderate the relationship between their online visibility and profitability (see Fig. 1). In other words, market positioning may affect a hotel’s capability to appropriate the economic value brought by online visibility. In this study, we focus on quality of the customer service and geographical localization because they are the main dimensions through which hotels can differentiate their services. We also assess the impact that online reviews have on revenue growth (i.e., value generation) and on gross and net profit margins (i.e., value appropriation).

3. Hypotheses

3.1. First-order effect of online visibility on revenue growth and profitability

A great number of recent studies have found a positive relationship between online visibility and sales (Dhar & Chang, 2009; Gong et al., 2015; Kostyra et al., 2015; Silva, 2015; Sun, 2012). Online retailing platforms’ visibility can take three different forms. The first is the rating assigned by users, who can express their evaluations on a quantitative scale. Vermeulen & Seegers (2009) showed that exposure to online reviews increases both hotel awareness and hotel consideration, highlighting a significant positive relationship between online product ratings and the successive sale of the product.

A second element is how the rates given by users are distributed over the scale. For example, a hotel with a low dispersion of rates around the average rate could signal a greater quality to users than a hotel with a similar average grade but for which travellers exhibit a higher disagreement in their rating (Ye et al., 2011). The third element is the number of reviews that users give to hotels. This variable is apparently less informative in driving users’ purchase decisions because it may not necessarily be associated with greater quality and satisfaction experienced by former users of the product or service. In this regard, earlier studies (Öğüt and Onur Taş, 2012) show that, on social media, users tend to share their customer experiences when they are particularly compelling or when they are particularly disappointing (Dellarocas et al., 2010). Another reason why the number of reviews received by hotels may be less informative in driving travellers’ purchase decisions than the contents and the opinions expressed in the reviews is related to the possibility that hotels have to differentiate their accommodation services horizontally. In their reviews, travellers with different preferences may thus express disagreement about some attributes of the lodging services they have purchased.

Despite the arguments on the low informative content embedded in the number of reviews, Ye et al. (2009) demonstrated that positive online reviews significantly increase the number of reservations in a hotel. This effect could be due to a viral effect that shapes costumers’ behaviour online, for which hotels with more reviews attract more customers and, in turn, further increases the number of reviews and influences the rating given to a hotel. In this regard, Adomavicius, Bockstedt, Curley, & Zhang (2013) demonstrate that preference ratings about hotels can be affected by the previous reviews that travellers have read because of an anchoring effect that leads travellers to formulate biased judgements.

Based on these considerations, we may expect that online visibility on social media can allow hotels to apply a price premium thanks to greater economic value generated by market transparency, the reduction of the search costs for both parties involved in the transaction (Toh et al., 2011), and an enhanced capability to use information contained in user-generated reviews to vertically and/or horizontally differentiate their hospitality services. Based on these considerations, we expect the following.

H1. Hotels’ online visibility has a positive effect on their revenue growth.

There are multiple reasons to expect that the benefit of growth in sales revenue given by a greater online visibility may not turn into a greater profitability. From a resource-based perspective (Barney, 1991), hotels with a greater online visibility may not appropriate the value of positive online visibility, which can be appropriated in large part by online retailers and other distributors through their intermediation. Specifically, when a user decides to book a hotel room through the online retailer’s information platform, the hotel is usually subject to an intermediation fee that ranges from 20% to 30%. This might be more frequent for hotels in large cities and important touristic destinations and less diffused for small hotels in less-known destinations because these enterprises usually collect reservations on their own or through traditional travel agencies.

Another argument in favour of hotels’ limited ability to appropriate the returns of online visibility may lie in the fact that the rise of social media features on online retail platforms is a competence-destroying innovation for small and mediums-sized hotels and requires them to develop new marketing capabilities for appropriating the value brought by internet visibility. Industry surveys (e.g., Federalerghi, 2009) seem to provide a confirmation in this direction, as they highlight that the number of hotels that have developed routines to manage and control their online visibility or to change prices depending on reviews had been very low until the early years of the 2010s. This suggests that just a limited number of hotels could have been able to create and appropriate the economic value created by visibility on social media.

Kwark et al. (2014) demonstrate that the information in the quality dimension embedded in online product reviews can hurt the manufacturers and can benefit the retailer because information on quality reduces the heterogeneity of consumers’ perceived quality differences and thus increases price competition between manufacturers. Retailers can thus appropriate a greater part of the added value that comes from increased market transparency. Based on these considerations, we expect the following.

H2. Online visibility has a negative effect on the gross profit margin of a hotel.

The negative effect on the gross profit margin could be outweighed by higher room occupancy rates brought by intermediation. A priori, it is difficult to establish which of the two effects (that on volumes and that on the gross profit margin) generated by online visibility may prevail. We thus have no expectation about the effect that visibility on social media may have on hotels’ net profit margins.

3.2. Moderation effects in the relationship between online visibility and profitability

The official star-rating is the main variable through which hotels can vertically differentiate their customer services (e.g., Silva, 2015). Star-rating plays an important role in customers’ decisions because customers consider star-rating the most important attribute of their selection process (Callan, 1998). By signalling that higher-star hotels provide better quality service, a star-rating system helps prospective customers assess what to expect from a hotel with a certain star level and provides guidelines for them to make
Table 2
Fixed effect model results of the direct effects (standard error in parentheses).

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Revenue growth</th>
<th>Revenue growth</th>
<th>Gross Profit Margin difference</th>
<th>Gross Profit Margin difference</th>
<th>Net Profit Margin difference</th>
<th>Net Profit Margin difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>M1</td>
<td>M2</td>
<td>M3</td>
<td>M4</td>
<td>M5</td>
<td>M6</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>H1</td>
<td>H1</td>
<td>H2</td>
<td>H2</td>
<td>No a priori hypothesis</td>
<td>No a priori hypothesis</td>
</tr>
</tbody>
</table>

Independent variables

<table>
<thead>
<tr>
<th>Dependent variable (t-1)</th>
<th>Log Revenues (t-1)</th>
<th>Online rating (t-1)</th>
<th>Log number of reviews (t-1)</th>
<th>Log number of replies (t-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>−0.538***</td>
<td>0.037†</td>
<td>−0.001</td>
<td>−0.001</td>
</tr>
<tr>
<td>(t-1)</td>
<td>(0.052)</td>
<td>(0.011)</td>
<td>(0.010)</td>
<td>(0.001)</td>
</tr>
</tbody>
</table>

Control variables

| Number of replies (t-1) | 0.001            | 0.001            | 0.001                       | 0.001                       |
| (t-1)                   | (0.001)          | (0.001)          | (0.001)                     | (0.001)                     |

Fit indexes

| Constant               | 4.119            | 4.181            | 0.007                       | 0.085                       |
| (t-1)                  | (0.384)          | (0.387)          | (0.270)                     | (0.266)                     |
| R-square within        | 40.99%           | 41.66%           | 46.10%                      | 46.10%                      |
| R-square between       | 65.8%            | 67.4%            | 13.13%                      | 13.14%                      |
| R-square overall       | 7.97%            | 8.08%            | 23.71%                      | 23.72%                      |
| F                      | 34.51**          | 32.28**          | 10.78**                     | 12.64**                     |
| Number of observations | 1211             | 1211             | 1173                        | 1173                        |

Note: In Table are omitted the seven dummy control variables related to the years (from 2006 to 2012).

*** p-value < 0.1%; ** p < 1%; * p < 5%; † p <10%.

less risky hotel reservations. Consequently, high star-rating hotels apply price premiums for their superior quality and attract less price sensitive customers, who have a higher willingness to pay for quality (Baker & Crompton, 2000). For this reason, we expect that less price sensitive customers are willing to pay more for hotels with higher customer ratings on infomediaion platforms because they perceive these hotels to be more valuable (Ye, Li, Wang, & Law, 2014). Consequently, the economic value of the socially enhanced recommendations may be higher for hotels with a high official star-rating because infomediaion reduces the risk of paying a higher price for what customers perceive as an experience good (a good for which the quality can be assessed only after its consumption). Based on these considerations, we expect that despite the high intermediation fees applied by infomediaion platforms, high-star hotels can extract more value from greater online visibility than hotels with a lower star-ranking. Based on these considerations, we expect the following.

**H3.** The relation between online visibility and sales profitability is stronger for hotels with high star-ranking.

The previous effect may occur because high-star hotels position their services in a way that protects them from strong price competition. By contrast, hotels can experience greater price competition in cities that attract many visitors (for example, large business centres and well-known tourist destinations) and that have an abundant supply of hotels. In these settings, hotels have less bargaining power against social media, and therefore, they may extract less value from social media than hotels that operate in smaller cities and therefore face less local price competition. This could happen because, in local markets with a high competitive rivalry, the market transparency effect brought by online infomediaion is even more evident (Kaplan & Haenlein, 2010), thereby allowing users to select hotels with more favourable prices. Based on these considerations, we expect the following.

**H4.** The relations between online visibility and sales profitability are stronger in cities with fewer hotels than in cities with more hotels.

The importance of local competition implies that hotels outside cities and popular destinations or those with historical interest may obtain more economic value from visibility on social media (niche tourism characterized by memorable experiences). This may occur not only because of the low level of local competition that these hotels enjoy thanks to their oligopolistic rents but also because of the inherent traits of their value proposition. Novelli (2005) noted that niche tourism appears to offer a more meaningful set of experiences, given the knowledge that tourists’ needs and wants are being met. Past researchers have shown that providing visitors with memorable tourism experiences is a critical success factor that becomes more important when the Internet enhances price competition (Kim, Shin, & Kwon, 2012). For example, Ritchie & Crouch (2003), in defining destination competitiveness, suggested that “what makes a tourism destination truly competitive is its ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way” (p. 2).

More specifically, when travellers search for hospitality services outside popular destinations characterized by memorable tourism experiences higher search costs characterize the sales transactions between them and the hotel. Furthermore, the risk of reserving the wrong hotel and selecting the wrong destination is high. Thus, there are greater “emotional costs” in this situation than when travellers reserve online a room for a hotel in a city downtown. Higher emotional costs imply that travellers need to access and process a great amount of information to select hotels outside popular destinations and therefore may obtain more value from socially enhanced recommendations, especially when these opinions come from a community of persons with similar attitudes and preferences. With
this regard, Simonson (1992) showed that consumers feel more regret if they choose a lesser-known brand that turns out to be inferior than if they choose a well-known brand that turns out not to be better than the lesser-known option. In anticipation of such regrets, consumers interested in a less popular product are likely to search and access more word-of-mouth information to shield them from possible regrets (Dellarocas et al., 2010). However, a number of studies have reported that online user-generated reviews are perceived as more credible than traditional word-of-mouth when they come from persons with similar attitudes and preferences (Dellarocas, 2003; Smith, Menon, & Sivakumar, 2005). Therefore, consumers with specialized interests towards valuable locations outside popular destinations will attribute a higher economic value to social media features in their process of searching and selecting an accommodation. The social functionalities of sharing emotions and disclosing identities that TripAdvisor has developed may thus reinforce this mechanism. In regard, Zhu and Zhang (2010) have shown that users’ propensity to review a product online post consumption is higher for products that are perceived to be less available on the market. Hotels in niche destinations are thus better positioned to extract more economic value from online visibility. Further, consumers may have a higher need to consult online reviews and ratings for less popular products because, in such cases, they need high-quality information to reduce the risks associated with their purchase (Bolton, Katok, & Ockenfels, 2004).

Overall, these considerations may suggest that the information value of online reviews is expected to be higher for hotels in less popular destinations. Based on these considerations, we expect the following.

**H5.** The relations between online visibility and sales profitability are stronger for hotels localized in less popular destinations than for those in more popular destinations.

### 4. Research methodology

#### 4.1. Sample and data collection

Our data collection involved a random selection of 240 Italian small and medium hotels, choosing for statistical power a confidence level of 95% and a confidence interval of 6%. These hotels were extracted from a population of 2,862 small and medium Italian hotels. Specifically, hotels had fewer than 250 employees, in line with the European Union’s definition of small and medium enterprises and other research studies (Neirotti & Raguso, 2016). The hotels selected were listed on the AIDA public database (distributed by Bureau Van Dijk), which is the main compendium of financial information of firms in Italy.

Beginning with the population of small and medium-sized hotels listed on AIDA, we randomized the extraction of 240 hotels. Then, we verified whether each of these hotels was present on TripAdvisor. If it was on TripAdvisor, we included the hotel in the final sample. Otherwise, we excluded the hotel from the sample and we proceeded by randomly extracting another hotel from the population, again verifying its presence on TripAdvisor. The random extraction ended when we came up with 240 hotels for which we had both financial data available on AIDA and data on user-generated reviews on TripAdvisor.

Beginning with the financial information available for the 240 hotels selected, we built a panel dataset that spanned the period between 2004 and 2012. The dataset also included gathered data about user-generated reviews (number and rates assigned by users on a 5-level scale) from TripAdvisor on an overall amount of 50,115 reviews. By complementing data from TripAdvisor and data from the AIDA database, the final dataset contained 2,160 observations.

#### 4.2. Measures

##### 4.2.1. Independent variables

**4.2.1.1. Online visibility.** This variable was operationalized by following the three elements discussed in Section 3.1 and considered in recent studies on the topic (e.g., Ye et al., 2011). Specifically, we took into consideration the following factors for each year and each hotel:

- The number of reviews: we counted for each year for each hotel the number of reviews given by travels, and then computed the logarithmic value.
- The online rating: we computed for each year for each hotel the average online rating assigned by travelers. Travelers rate is given on a 1–5 scale, whose value anchors are “terrible”, “poor”, “average”, “very good” and “excellent”, respectively.
- The dispersion of the online ratings: we computed for each year for each hotel the standard deviation of the rates assigned by travellers on the 1–5 scale used by TripAdvisor.

**4.2.2. Dependent variables**

The dependent variables represent the value creation opportunities (performance impacts) of hotels’ online visibility, including value generation measured through revenue growth and value appropriation measured through gross and net profit margins.

**4.2.2.1. Revenue growth.** The relationships between online visibility and sales revenue were considered by taking into account the annual logarithmic growth in sales revenue as a dependent variable, computed for each hotel (i) in every year (t) by the following equation: Revenue growthi\((t) = \log \left[\frac{Rev_i(t)}{Rev_i(t-1)}\right]\).

**4.2.2.2. Gross profit margin difference.** We measured the gross profit margin as the difference between sales revenue and external costs (costs of materials and services) and given as a percentage of sales revenue. Specifically, material costs are negligible for hotels, whereas service costs are usually an important cost item, which also includes intermediation fees applied by travel agencies and intermediaries. The impact of online visibility on gross profitability was computed as the difference between the value recorded in the t-th year and the value registered in the former year for each hotel (i): Gross Profit Margin difference \((t) = \text{Gross Profit Margin } (t) – \text{Gross Profit Margin } (t-1)\).

**4.2.2.3. Net profit margin difference.** We measured hotel net profitability of sales in terms of Returns on Sales (ROS), i.e., Operating Income on sales revenue. The impact on online visibility on this profitability ratio was considered by taking into account the difference between the value recorded in the t-th year and the value registered in the former year: ROS difference \((t) = \text{ROS } (t) – \text{ROS } (t-1)\).

**4.2.3. Market positioning**

The market positioning is measured by the quality of customer service (star-rating) and by the geographical localization (the level of local competition and the localization outside popular destinations).

**4.2.3.1. Quality of customer service (star-rating).** Hotels’ official star-rating, a measure of vertical differentiation through customer service, was examined by looking at the number of stars (from 1 to 5) (Silva, 2015) assigned to the hotel by the local touristic offices and by Federalberghi, the national association of hotels in Italy.
4.2.3.2. Geographical localization. The geographical localization was operationalized with two variables: local competition and localization outside popular destinations.

4.2.3.3. Local competition. The degree of local competition was operationalized by considering the number of hotels located in the same area of the focal hotel considered (Becerra et al., 2013) and listed on TripAdvisor.

4.2.3.4. Localization outside popular destinations. Hotel location in places outside popular destinations (see Ref. Kim, 2014) was operationalized based on the following criteria:

- Hotels should be located outside cities or small towns well known in touristic guides and touristic websites.
- They should not be the top choices recommended by TripAdvisor and by the main touristic guides (e.g., Lonely Planet).
- They should be in areas with two characteristics: (i) availability of touristic attractions such as food, vineyards, wellness facilities (e.g., thermal baths), particularly beautiful landscapes or architectural heritage; (ii) touristic attractions were dispersed in points of interest. The fact that hotels and touristic spots could be spread out across a wide area makes hotel selection a task requiring more attention and information processing.
- They should be on lakeshores or sea costs, but outside popular destinations attracting high volumes of international tourists. These spots were identified relying on specialized web sites and magazines on niche tourism as well as the knowledge of this study's authors, who were all Italians.

Hotels falling in one of these categories were operationalized through a dummy variable assuming a value equal to 1.

4.2.4. Control variables

We included the number of replies from hotel managers to user-generated reviews as a control variable. This variable can be a proxy of the hotel's unobservable capabilities to manage and control their visibility on TripAdvisor. According to published industry surveys (Federalberghi, 2009), especially in the hotel's first years of diffusion of TripAdvisor, the practice of replying to users' reviews was rather uncommon among hotel managers and could thus capture hotels with rare capabilities to manage digital marketing and online visibility appropriately. We also included as control variables the one-year-lagged value of the logarithmic form of sales revenue, years as dummy variables, and the one-year-lagged value of the ROS and of the Gross Profit Margin in the models where the dependent variable is the ROS difference and the Gross Profit Margin difference, respectively.

5. Findings

5.1. Descriptive statistics

Table 1 reports descriptive statistics and correlations for our sample. Six main results can be highlighted. First, the online rating and the number of reviews are positively and significantly correlated (correlation coefficient equal to 0.203, p-value < 0.05). This result shows that hotels with higher online ratings tend to attract more customers, which, in turn, by writing opinions about their experience, reinforce the growth of reviews. Second, time is correlated with the number of reviews (the correlation coefficient between the number of reviews and time is equal to 0.632, with a p-value < 0.05), but not with the average online rating hotels had. The magnitude of the correlation coefficients highlights that, over the years, the number of user-generated reviews has been increasing disproportionally, but this effect did not contribute to significantly
altering the average rating expressed by travellers. Third, a higher official star-rating is reflected in a higher online rating (correlation coefficient equal to 0.108, p-value < 0.05). This is not surprising because star-rating reflects the quality of services provided by each hotel. Fourth, hotels located in less popular destinations are smaller because the correlation coefficient between revenues and location outside popular destinations is negative and significant (correlation coefficient equal to −0.103, p-value < 0.05). Fifth, the results show that hotels in less popular destinations with a touristic interest receive higher online ratings. This result provides evidence that customers of these hotels are more satisfied by services that fit well with their specific needs (correlation coefficient equal to 0.094, p-value < 0.05). Finally, we found that both the ROS difference and Gross Profit Margin difference were negatively correlated with the “Year” variable, thereby showing that, over time, the gross and net profitability of sales exhibited a decreasing trend. This result is explained partly by the economic recession that began in Italy in 2008, but it may also be considered preliminary support for our hypothesis that the diffusion of user-generated reviews on infomediaries was detrimental to hotel profitability and, in particular, to their gross margin as a consequence of the high intermediation fee and the strong market power of infomediaries.

5.2. Regression models

To estimate the relationship between online visibility and performance, we ran 18 fixed effects regression models with robust standard errors controlling for year fixed effects. In the model specifications, the variables measuring online visibility were lagged for one year in order to assess whether online visibility in a certain year (year t−1) leads to improved performance in the subsequent year (year t).

The reason for using a fixed effects regression was aimed at controlling for unobservable time-invariant individual characteristics of hotels and, thus, at avoiding any bias due to the omission of relevant variables. Specifically, unobservable characteristics of hotels that were likely to be time invariant between 2004 and 2012 may include hotels’ capability to act as an early adopter in the use of TripAdvisor as a new “channel” for managing customer relationships. Indeed, TripAdvisor went online in 2004 and, in this period, it began the diffusion of user-generated reviews in online platforms. In other words, fixed regression models allowed controlling for time-invariant differences between hotels’ capabilities to master social media as a distribution channel.

For each model, a Hausman specification test established the appropriateness of a fixed effects model over a random effects model, as it showed that estimates from the random effects model were not consistent.

Table 2 presents the model specifications estimated to validate hypotheses H1 and H2 on the first-order effects of online visibility. Specifically, hypothesis H1 asserts that there might be positive relationships between the forms of online visibility and revenue growth. To assess which elements of online visibility (among the three discussed in Section 4.2) had more influence on revenue growth, we estimated alternative specification models that included online ratings of user-generated reviews, their dispersion over the 1–5 scale of evaluation, and the number of reviews.1

In general, we found that the standard deviation in users’ ratings had no significant effect on revenue growth, whereas the average online rating had a significant effect, and the number of reviews had effects only when interacting with the average online rating. Specifically, the results in Model 1 show that online visibility, in terms of the average online rating given by users, positively impacts the growth rate of sales revenue, thereby confirming Hypothesis H1. This finding is reinforced by the results shown in Model 2, where we estimated the interaction effect between the online rating and the number of user-generated reviews. The contribution of this interaction is positive and statistically significant.

In Hypothesis H2, we postulated a negative relationship between online visibility and a hotel’s Gross Profit Margin difference. Model 3 confirms this hypothesis, showing that the average online rating assigned by users has a negative effect on the Gross Profit Margin difference. We also run Model 4 to evaluate the interaction effect between the online rating and the number of user-generated reviews on the Gross Profit Margin difference. We did not find any significant relationship.

With regard to the effect of online visibility on the net profitability of sales, we did not formulate any a priori hypothesis but nevertheless estimated this relationship. Model 5 shows that the average online rating given by travellers had no effect on the growth in the net profitability of sales (ROS difference). Nevertheless, Model 6 shows that there is positive and significant effect on the net profitability of sales due to the interaction between the number of reviews and the online rating. Thus, we may conclude that only for hotels capable of attracting a great number of positive user-generated reviews, there may be a net positive effect on profitability due to online visibility. Thus, these hotels, the magnitude of the positive effect on revenue growth out-weights the negative effect on the Gross Profit Margin difference.

Table 3 reports the model specifications used to assess whether the official star-rating, the degree of local competition and the localization outside popular destinations exert a significant moderation effect. To assess the moderation effect of star-ratings and the degree of local competition, we split the sample into two groups using the median as a cut-off point. The median value for the star-rating is equal to 3, while the median number of local competitors is equal to 60 hotels. For each pair of sample groups, we ran a Wald test to assess the difference in the magnitude of the coefficients related to the online rating.

In Hypothesis H3, we contended that the relationship between online visibility and profitability is positively moderated by hotels’ official star-rating, with the negative effect on gross margin being attenuated for hotels with a higher star-rating (higher than 3 stars). Models 7 and 8, which had Gross Profit Margin difference as the dependent variable, show a more negative coefficient related to online ratings for hotels with no more than 3 stars in their official ratings, with the coefficient being significantly lower than 0 for hotels with lower star-rating. Similarly, Models 9 and 10 show a significant difference in the coefficients related to the effect of online ratings on the ROS difference among hotels with high and low official star-rating. Specifically, the impact of online ratings on the ROS difference is higher for hotels with more than 3 stars. Based on these results, we can conclude that Hypothesis H3 is confirmed.

In Hypothesis H4, we asserted that the negative effect of online ratings on profitability is higher in magnitude for hotels facing a higher degree of local competition. Models 11 and 12, which had the Gross Profit Margin difference as a dependent variable, show a more negative coefficient related to online ratings for hotels where local competition is higher. Further, Models 13 and 14 show a difference in the magnitude and the sign of the online rating on ROS difference. Specifically, the effect of online ratings is positive for hotels with a lower number of local competitors. Accordingly, these results support Hypothesis H4.

In Hypothesis H5, we postulated that profitability of hotels outside popular destinations benefited from their visibility. Models 15 and 16, as well as models 17 and 18, show a greater value of the coefficient on online ratings for the sample group related to hotels.

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1 For the sake of space and to ensure the readability of the paper, we did not include the regression models considering the standard deviation of users’ quantitative evaluations. However, these results are available upon request.
in less popular destinations with a high touristic interest. This difference is particularly evident when the effects of online ratings on the net profit margin are taken into account (models 17 and 18). In other words, Model 18 shows that hotels located in places having high touristic interest and outside the most popular destinations experienced a positive effect of their visibility on TripAdvisor. The same effect is not visible for hotels in popular destinations. Accordingly, Hypothesis H5 is supported.

Finally, it is important to remark that the effect of the number of replies given by the hotel staff to user reviews is not significant in any of the 18 model specifications tested. Therefore, hotels’ capability to manage their online presence goes beyond the practice of monitoring and answering user-generated comments and may include a more articulated set of techniques than replying to customers’ reviews.

Table 4 shows the summary of our results and the hypotheses validation.

6. Discussions and conclusions

In this study, we have analysed panel data on the value generation and appropriation mechanisms related to 240 Italian small and medium-sized hotels’ online visibility on infomedia platforms, such as TripAdvisor. In doing so, our lens has focused on the characteristics of customer reviews and on how hotels’ market positioning can moderate the relationship between such forms of online visibility and value appropriation.

We decided to investigate this topic for two main reasons. First, recent literature has not shed light on the ambivalent role of social media as a threat or an opportunity for small hotels’ profitability because the great part of empirical works on this theme have taken the relationship between online visibility and sales into account, overlooking the effects that online visibility can have on profitability (e.g., Ye et al., 2009, 2011). Second, up to now, few studies have attempted to investigate the practices followed by small hotels to manage their online visibility (e.g., Rupert Hills and Cairncross, 2011), and consequently, there is no evidence on which are the most important value drivers related to customers’ reviews and recommendations on social media. In this vein, this article illustrates that the economic value that the use of social media can bring is related to different drivers: (i) increasing price and customers’ willingness to pay by reducing their information asymmetry over quality, locations and other dimensions of customer service, etc., and by increasing his/her willingness to pay; (ii) increasing the available capacity by increasing the occupancy rate of rooms. In the paper, we are not able to disentangle which of these mechanisms is most prominent; however, we are able to show that greater visibility online has a positive impact on revenue. The dimension of visibility on social media that matters the most is customers’ online rating instead of the number of reviews generated. However, the main novel aspect of the paper is not how visibility on social media creates economic value, but how this value generated is shared among hotels and social media platforms. Specifically, our empirical evidence shows that better visibility does not turn into a higher profitability margin because part of the revenue generated is appropriated by infomedia platforms and other distributors (i.e., OTA) in the form of an intermediation fee. However, our evidence suggests that the appropriability of the economic value brought by online visibility is higher for hotels that face lower price competition pressures, which occurs when hotels are located outside popular destinations, simply located in areas with a lower number of hotels or have a higher star-rating (which increases customers’ willingness to pay and reduce their price sensitivity). These results raise important managerial implications because they show that the economic value brought by online visibility can more easily be appropriated when firms play a competitive game based on horizontal differentiation and focalization.

The general implication arising from this evidence is that the increasing importance of user-generated reviews in online communities of travellers is shifting hotel competition from unit profit margin to volumes and to higher room occupancy rates, with online retailers capturing most of the value created from online transactions, which implies that hotels with lower room capacity are less likely to experience a positive effect of online visibility on their net profitability.

Our results also suggest that to avoid this competitive logic, hotels, particularly smaller ones, should exploit the online visibility stemming from socially enhanced recommendations for applying horizontal differentiation strategies more effectively. In other words, through TripAdvisor, hotels with a higher number of stars in cities where local competition is lower, as well as in outside popular destinations, can create greater economic value by selling their hospitality services online, seizing the value created by the use of social media features. This may occur because socially enhanced recommendations posted by peers can positively influence travellers in choosing hotels and destinations that are consistent with their idiosyncratic preferences and attitudes. In so doing, online visibility given to hotels on infomedia platforms can reduce the risk and the “emotional costs” that travellers bear when they search for hotels outside popular destinations and that could match...
their idiosyncratic preferences. Under these conditions, hotels can find opportunities to create more value online and prevent the erosion of their profit margins arising from the high intermediation fees that apply thanks to their market power. However, exploiting infomediary platforms and their social media features to apply horizontal differentiation means that hotels should develop new competencies in digital marketing that are more complex than simply increasing online visibility. In this vein, our study suggests that better online visibility is more important than greater visibility: i.e., the number of reviews – taken into isolation – does not impact hotel performance. In a similar way, the dispersion of users’ ratings on the evaluation scale does not affect sales. What matters the most is the rating given by customers on infomediation platforms. An interpretation of these results goes in the direction of the value that customer reviews may have for allowing travellers to minimize their search costs according to their idiosyncratic preferences. Specifically, facing reviews with a strong disagreement among users about the quality and the functionalities supplied by the hotel, travellers may not ignore these reviews, but rather are likely to complement the quantitative information with a more qualitative eventuation related to the contents of the reviews and to the similarity of the sources providing certain reviews.

7. Managerial implications

Taken together, these points imply that managers in this industry should reinforce the economic value that the online community might create for a hotel by enriching the information extracted by the community itself. Specifically, the analysis of reviewers’ demographic and personal traits (age, lifestyle, job, gender, hobbies, etc.) is a good way for customers to weight and analyse existing online reviews because they can focus on reviews that best fit with their own preferences. This analysis, when made by hotels’ managers, can deliver important information about hotel positioning, trends in competition, and the effects of investments aimed at increasing differentiation. Therefore, the integration of information from social media with data from online social networking services that necessitate the creation of a personal profile could be a starting point to allow hotels to achieve this goal. Thus, hotels may develop IT-based tools and algorithms that can fact to fact the integration of information from different social media. Hotel managers should also be aware that the economic value brought by online visibility can be more easily appropriated when firms play a competitive game based on horizontal differentiation and focalization.

8. Future research

Future studies should investigate how hotels can reinforce the economic value that the online community might create by enriching the information gathered by the community itself. Further studies should also focus on investigating the impact of the multi-channel presence of hotels (on TripAdvisor, Trivago, Booking.com, etc.) on costs sustained and profitability indexes. Specifically, the presence of hotels on one or on a multiple number of Internet infomediaries may differently impact their profitability because hotels that are able to manage their visibility on different infomediary platforms can be stronger in bargaining more convenient intermediation fees with each of these counterparts. From the perspective of customer behaviour, future studies should take into account which attributes of a review are most influential in driving customers’ purchasing patterns online. In the hotel industry, this type of research focus assumes great importance, given the characteristics of lodging services as a good that can be differentiated horizontally. This raises a further managerial recommendation about what can make online visibility better. By using social media features, hotels should help their prospective customers to identify reviews and feedback from customers that share similar behaviours, preferences and needs. In this regard, social media platforms such as Facebook own data about customers’ preferences, habits and socio-demographic characteristics that would be valuable for infomediaries and for the hotels to better segment their supply and their online visibility. Future studies should also analyse the relationships investigated in this paper in other country settings in order to verify whether results are influenced by the geographical context.

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