Quality certification, performance and size in hotel chains

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This paper examines the relationship between quality certification and performance, and quality certification and size in hotel chains operating in Spain. In an initial phase, a quantitative study is made with secondary and objective data to analyse these relationships. In a second phase, a qualitative analysis is applied to reach a better understanding of the quantitative results. The findings show that chains with certified hotels achieve better performance levels; that better performance levels increase with the percentage of certified hotels within the chain; and that quality certification has positive effects on some performance variables. In addition, size is not a key factor for certification, although it could be an enabler.

Keywords: quality certification; ICTE Q certificate; performance; size; hotel chains

The relationship between quality certification and performance is a topic that has been extensively examined; arguably without producing any conclusive results. Although some studies have not found a connection between quality certification and performance (Singels *et al*, 2001; Lo *et al*, 2011), others have shown a positive relationship in manufacturing and service organizations (Naveh and Marcus, 2005; Terziovski and Power, 2007) and in hotels (Nield and Kozak, 1999; Alonso-Almeida *et al*, 2012). Among these studies, some also point out that larger firms are more likely to implement and certify these quality systems (Bayo-Moriones *et al*, 2010). Nevertheless, the studies on quality systems and size have also found inconclusive results.

The mixed results on the link between quality certification and performance, and between quality certification and size, the limited number of studies on such issues in hotel chains and the fact that quality issues are important for the hotel industry to improve performance and competitiveness (Fernández-Barcala *et al*, 2010; Alonso-Almeida *et al*, 2012; Ropero García, 2013) provide the motivation for this study.

The geographical area examined in this paper is Spain. In Spain hotels may choose mainly between two quality certificates, the ISO 9001 certificate or the Q certificate from the Spanish Institute for Quality in Tourism (ICTE). In the case of the Q certificate, few scholars have examined the effects of this certificate in Spain (for example, Nicolau and Sellers, 2010a) and there are no studies

analysing the association between this certification and size in hotel chains located in Spain. Studies about quality certification in the hotel industry have traditionally focused on individual hotels. In this paper, the level of analysis is the chain.

This paper has two purposes: to examine the association between Q certification and performance; and to analyse the association between Q certification and size in hotel chains. To accomplish these aims, an initial quantitative study is made with secondary data, followed by a qualitative study in order to explain the quantitative results.

From a theoretical perspective, this study contributes to the literature on quality in hotel chains. Few studies analyse quality concepts in hotel chains (Antony *et al*, 2004), and this study is different from previous ones because it includes the Q certificate and examines the association between this certificate and size from the point of view of chains. From a managerial perspective, given the previous studies about quality issues in hotels, the present study will help chain managers to understand better how to use quality systems to improve performance. In addition, this study contributes to the understanding of hotel management, not only for Spanish hotel chains but also for international chains located in Spain, because the results of this research paper can help chain managers to understand the relationship of Q certification with performance and size. The paper is also relevant because Spain ranks second in the world in terms of revenue generated by international tourism (after the USA) and fourth by number of international travellers (after France, the USA and China) (UNWTO, 2012) and Q certification in the Spanish context could be a referent for similar destinations.

The paper first provides some ideas about the differences between the ISO 9001 and Q certification and a literature review on the relationships between certification, performance and size. Then, the research methods are described, followed by the empirical results. Finally, conclusions, implications and future research are discussed.

Literature review

Quality certifications in Spanish hotels

The Q certificate is compatible with, and similar to, the ISO 9001 standard but with some specifications that are appropriate for the tourism industry. For example, among the eight requirements to achieve the Q certification is one on management, including the general issues suggested by the ISO 9001 standard (quality policy, objectives, quality manual, procedures, measures, people management, customer feedback, audits, or review of the management system), and the other seven requirements relate to the specific processes in a hotel. These seven requirements are:

- accommodation (reservations process, arrival process, continuous attention process, billing and check-out);
- food service (planning menus, handling and processing, how the service is provided);

- events (booking/tracking/hiring, coordination and information, preparation and assembly, control, monitoring and care during the event, and billing);
- maintenance (maintenance of the buildings, equipment and facilities);
- cleaning (cleaning process of the establishments);
- provisioning (purchasing, finding and selecting suppliers);
- animation (planning activities).

There are some differences between the Q certificate and the ISO 9001 certificate:

- The ISO 9001 system does not set service criteria or standards; rather, each firm must define such standards, and the ISO 9001 does not specify what such standards should be and the degree to which they should be implemented. In contrast, the Q certificate includes all the service quality specifications in the standard itself. For example, regarding the accommodation process, the standard sets the minimum size of beds, minimum furniture in the room, the equipment in the bathroom and the minimum set of towels in rooms according to the hotel stars.
- The ISO 9001 system applies to any organization in any industry, whereas the Q certificate applies only to the tourist industry in Spain.

In this way, the Q certificate seeks to reach a number of minimum quality standards, which depend on the hotel category, the type of service and the type of establishment, although each establishment may set requirements/standards higher than those set in the Q certificate (Casadesús *et al*, 2010).

Quality certification, performance and size

Empirical studies seeking to analyse the relationship between the ISO 9001 standard and performance, resort to secondary or objective data (Häversjö, 2000; Tsekouras *et al*, 2002; Sharma, 2005), subjective data (Rahman, 2001; Singels *et al*, 2001; Renuka and Venkateshwara, 2006) or both (Terziovski *et al*, 1997; Chow-Chua *et al*, 2003). These three types of studies have also produced three types of results. A first perspective holds that certification improves efficiency, customer and employee satisfaction, service quality and profitability (Häversjö, 2000; Lee *et al*, 2009; Mak, 2011). These studies indicate clear operational benefits. The second perspective states that certified firms have improved their financial performance (Heras *et al*, 2002; Chow-Chua *et al*, 2003; Mokhtar and Muda, 2012). The third considers that certification does not have an influence on a firm's performance (Rahman, 2001; Singels *et al*, 2001; Martínez-Costa, *et al*, 2009; Lo *et al*, 2011).

These results show that some ISO 9001 certified firms have improved their performance, whereas others have not. Therefore, although these benefits are not automatically connected with receiving a quality certification (Boiral, 2011), a proper application of quality certification has positive effects on performance (Naveh and Marcus, 2005; Prajogo, 2011). In addition, some scholars have questioned whether high performance firms are those that seek certification (Dick *et al*, 2008; Heras-Saizarbitoria and Boiral, 2013).

These studies on quality certification and performance have also been carried

out in the hotel industry. Findings have shown that quality in hotels may reduce staff turnover and waste, and may improve enthusiasm, cooperation and communication, image, and financial performance (Callan, 1992; Walker and Salameh, 1996; Birdir and Pearson, 1998; Wang *et al*, 2012; Talib *et al*, 2013). This evidence indicates that quality can actually influence both internal performance (increase in productivity, improvement in efficiency, and cost and waste reduction) and external performance (increasing sales and market share, keeping tourism relationships, finding new tourists, achieving higher tourist satisfaction levels and improving the corporate image). In addition, a company could have several business units which could be certified or not. Consequently, based on these ideas, a positive relationship could be expected between a higher propensity to certify the different business units of the same company and the performance levels. For example, in the hotel industry, where a chain has several hotels, it would be interesting to analyse whether chains with a higher percentage of certified hotels (that is, a higher propensity to certify) achieve better performance levels.

Although ISO 9001 certification has benefits, the literature (Nield and Kozak, 1999) also identifies a number of disadvantages in the tourism industry. These disadvantages include the cost, the time involved, and the difficulty in finding consultants with experience in the tourism industry. As a consequence of complaints from tourism managers in Spain about the costs of certification for most small- and medium-sized enterprises engaged in tourism (Camisón and Yepes, 1994) and the fact that the international ISO 9001 standard does not fit the specific needs of the industry, the ICTE developed the Q Standard for 20 tourism subsectors. Many Spanish hotels are certified through one of the two standards (Q certificate or ISO 9001), and some even possess both.

In this context, there are very few studies analysing the Q certificate (Padrón Robaina and Espino Rodríguez, 2007; Casadesús *et al*, 2010; Rubio-Andrada *et al*, 2011). Recently, Nicolau and Sellers (2010b), Rubio-Andrada *et al* (2011) and Alonso-Almeida *et al* (2012) analysed the relationship between certification and performance taking into account ISO 9001- or Q-certified hotels, and found that certified hotels have better financial performance than non-certified ones. We have not found any studies relating size to the Q certificate, or studies analysing these issues in hotel chains.

On the basis of this review, the following hypotheses are formulated:

Hypothesis 1.1: Chains with at least one Q-certified hotel obtain higher performance levels than those which do not have any Q-certified hotel.
Hypothesis 1.2: The higher the propensity to certify hotels within the chain, the better the performance.

Some studies in the literature have also shown that size may play a role in the certification process. For example, some studies indicate that larger firms have more resources for innovation and improvement activities, such as quality management practices (Martinez-Lorente *et al*, 1998; Sun and Cheng, 2002; Diaz de Cerio, 2003; Bayo-Moriones *et al*, 2010). Other studies point out that size is not an important variable for quality systems (Ahire and Golhar, 1996; Taylor and Wright, 2003; Sila, 2007). This evidence suggests that, although the results are not conclusive, the availability of more resources might make

it easier for larger firms to implement quality systems to a greater extent than smaller ones. Accordingly, the following hypotheses are proposed:

Hypothesis 2.1: Chains with at least one Q-certified hotel are larger than those which do not have any Q-certified hotel.
Hypothesis 2.2: The larger the chain, the greater the propensity to certify its hotels with the Q certificate.

Methodology

This study uses two approaches to test the hypotheses. In an initial phase, a quantitative study is made with secondary and objective data using pair-wise analysis and regressions. In a second phase, a qualitative analysis is performed to reach a better understanding of the quantitative results.

Phase I: quantitative analysis

The population studied consists of the 219 hotel chains with establishments located in Spain, according to Turespaña's 2009 Official Hotel Guide. From these 219 chains, 57 (26.03%) have at least one Q-certified hotel possessing the Q certificate. Out of the 219 chains, performance data were obtained from 179 (which amounts to 81.74% of the population; that is, 3,139 hotels and 573,846 rooms). Thus, the sample contains 179 chains (it represents 78% of all the rooms available in Spain), 48 of which (1,387 hotels and 268,250 rooms) have at least one Q-certified hotel. Chains were omitted when it was impossible to gain access to the chain's accounting information or such information was outdated.

The variables analysed are measured on the basis of three secondary data sources, namely Turespaña's 2009 Official Hotel Guide and the databases Hostelmarket 2009 and SABI (*Sistema de Análisis de Balances Ibéricos* – Iberian Accounts Analysis System). More specifically, the following variables are measured.

- *Number of hotels and rooms in the chain in 2008.* This variable provides information about chain size, and is obtained from Hostelmarket 2009.
- *Number of Q-certified hotels in the chain in 2008*. This information is drawn from Turespaña's 2009 Official Hotel Guide.
- *Number of Q-certified hotels in the chain 2008 / Number of hotels in the chain in 2008*. This variable is used in order to measure the chain's propensity to certification. This ratio ranges from 0 to 1, in such a way that, the closer to 1, the greater the proportion of certified hotels in the chain.
- *Total sales of the chain for the financial years 2005, 2006, 2007 and 2008*. These data are obtained from Hostelmarket. Also, on the basis of this variable, RevRoom (revenues per room) and RevHotel (revenues per hotel) are calculated for the same years.
- *GOP (gross operative profits) for the financial years 2005, 2006, 2007 and 2008*. This variable is obtained from the SABI database. On the basis of the GOP, GOPRoom and GOPHotel are calculated for the same financial years. These

variables, together with RevRoom and RevHotel, are standard performance measures in the hotel industry, and make it possible to eliminate the size effect (Chung and Kalnins, 2001; Hwang and Chang, 2003), because performance of larger chains should be greater.

It should be clarified that the level of analysis in this study is the hotel chain, not individual establishments. Consequently, variables like category, location and the year of achieving the Q certificate by the individual establishment are not suitable for the present research work because different hotels of the same chain may have different categories or may be located in different destinations.

Phase 2: qualitative analysis

On the basis of the results of the first part of the study, a report was prepared summarizing the main results and putting forward a number of open questions for debate with interviewees (see Appendix). The aim of these interviews was to obtain detailed data that reflect the informant's language, experience and perspective 'in depth'. Each respondent answered the questions in the Appendix and sent a report by e-mail. Later, the respondents were contacted by telephone with the purpose of expanding and clarifying their answers. The quotations that appear below are from the reports received with their answers. Based on these answers, we identified emergent ideas and a range of associations between the Q certificate, performance and size.

A total of seven respondents took part in this second phase of the study. Interviewees were chosen to represent various types of actors in the hotel industry, who would have an adequate knowledge of quality certification in this industry. Specifically, four chain managers, two representatives of hotel associations and one representative of the ICTE were interviewed. Concerning chains, four chains were selected according to size and number of certificates. One chain was selected because it is the largest hotel chain in Spain in terms of the number of rooms; the second because it is the one with most certified hotels in absolute and relative terms (100% of its establishments are certified); the third because it is the second chain in terms of Q-certified hotels as a proportion of the total (33% in 2008) and the last because it was the second chain in terms of certified hotels in absolute numbers (14 hotels in 2008).

Results

Q Certificate and performance

Table 1 shows that total sales, RevRoom and RevHotel are significantly higher for chains with Q-certified hotels from 2005 to 2008. With regard to the variables GOP, GOPRoom and GOPHotel, in all cases such variables are always higher for chains with Q-certified hotels (with the exception of GOPHotel for 2008), although the differences are significant only in 2005 for the three variables, and in 2007 for GOP. Thus, the results indicate that chains with Q-certified hotels obtain significantly higher sales levels.

To expand this analysis, Table 2 shows that the Q certificate has positive

Table 1. Analysis of differences in performance variables.

Variables	Averages		Mann–Whitney's U
	Chains without Q-certified hotels	Chains with Q-certified hotels	
Sales in million € 2008	51.137	97.732	1,962.00***
Sales in million € 2007	50.047	101.394	1,967.50***
Sales in million € 2006	44.054	87.347	1,640.50***
Sales in million € 2005	39.270	77.223	1,695.50***
Average sales in million €	46.127	90.924	2,180.00**
RevRoom 2008	19,404.640	25,498.092	2,174.00**
RevRoom 2007	19,245.009	25,862.222	2,143.00**
RevRoom 2006	17,798.417	24,984.745	1,744.00***
RevRoom 2005	15,760.594	22,423.162	1,999.00**
Average RevRoom	18,067.267	25,047.269	2,471.00**
RevHotel 2008	2,857,100	4,224,900	1,919.00***
RevHotel 2007	2,899,600	4,295,900	1,919.00***
RevHotel 2006	2,678,100	4,041,500	1,590.50***
RevHotel 2005	2,423,400	3,640,400	1,756.50**
Average RevHotel	2,702,000	4,050,700	2,230.00**
GOP 2008	584,078.75	1,939,950.66	1,685.00
GOP 2007	1,316,586.63	5,882,863.29	1,789.00*
GOP 2006	512,511.47	3,595,670.23	2,321.00
GOP 2005	569,408.45	3,568,271.00	2,091.00**
Average GOP	745,646.32	3,746,700.00	2,507.00
GOPRoom 2008	373.219	452.314	1,979.00
GOPRoom 2007	783.454	2,242.155	1,953.00
GOPRoom 2006	492.081	1,246.186	2,430.00
GOPRoom 2005	737.030	1,476.219	2,223.00*
Average GOPRoom	596.446	1,354.2184	2,701.00
GOPHotel 2008	78,803.927	46,795.155	1,901.00
GOPHotel 2007	118,098.567	325,636.685	1,910.00
GOPHotel 2006	80,055.726	174,592.208	2,399.00
GOPHotel 2005	112,368.977	241,385.389	2,171.00*
Average GOPHotel	97,331.799	197,102.359	2,658.00

Note: ***$p \leq 0.001$; **$p \leq 0.05$; *$p \leq 0.10$.

Table 2. Relationships between certification, size and performance.

Dependent variables	Q ICTE		Number of hotels		Number of rooms		R^2	F
	β	t	β	t	β	t		
Sales	−0.033	−1.303	0.118	1.854*	0.810	13.142***	0.891	485.502***
RevRoom	0.201	2.673**	na	na	−0.083	−1.111	0.041	3.778**
RevHotel	0.200	2.660**	0.006	0.075	na	na	0.040	3.694**
GOP	0.043	0.695	−0.495	−3.116**	1.037	6.522***	0.371	34.097***
GOPRoom	0.098	1.245	na	na	−0.048	−0.617	0.010	0.853
GOPHotel	−0.058	−0.682	−0.019	0.828	na	na	0.004	0.291

Notes: ***$p \leq 0.001$; **$0.001 < p \leq 0.05$; *$0.05 < p \leq 0.10$. na = not applicable.

effects on RevRoom and RevHotel. Consequently, based on both analyses H1.1 is partially supported.

When this finding was discussed with the seven experts in the qualitative phase, all of them indicated that it was logical that RevRoom and RevHotel of chains with Q-certified hotels should be higher. This is the case because, as a manager from one of the chains points out:

> 'The quality system is geared towards continuous improvement and customer satisfaction, which leads to customers being satisfied with the products/services offered by chain hotels. The system makes it possible to improve and adapt to the changing needs of customers, with leads to loyal customers, more likely to return to the hotel, which increases the hotel's revenues. … Besides, the management system also makes it possible to improve and optimize some cost categories, such as maintenance costs (by making more and better preventive maintenance, thus minimizing the cost of corrective maintenance and increasing the life of equipment and facilities), reducing consumption costs (water, electricity, fuel), reducing general and raw materials by eliminating problems due to expiry dates and optimizing stocks at warehouse, etc. … We believe that through increased income and reduced and optimized costs, better results are obtained.'

This idea of greater customer loyalty and repeat customers is also mentioned by another chain manager and the person responsible for an association. As a chain manager also put it:

> 'If the customer's expectations are finally fulfilled, this will lead to greater recommendation and customer loyalty, which will increase occupancy levels.'

These respondents explain their answers by stating that the certificate ensures minimum quality standards and the implementation of a quality system – that is, of a quality system geared towards continuous improvement and customer satisfaction. In this context, an association manager points out:

> 'Those who view the quality system as a management system aimed at improvement, analyse many more variables (both financial and non-financial ones), such as sales and customer satisfaction, and can monitor all their processes much better. This shows a greater maturity of the quality management system.'

These opinions emphasize the importance of the quality system for improved performance levels. One of the respondents even points out that those who have a certificate, but one that is not connected to the management system, will obtain worse performance levels. This idea indicates that certification by itself does not lead to success, and that a genuine concern for quality is a key issue for the chain. In this respect, as an association manager and a chain manager remark:

> 'Sales will be higher when the chain's strategic goals include a concern for quality (quality management system). Thus, one of its strategies is the

implementation of a quality management system aimed at reducing costs and improving performance levels. When this is the case, there is a greater quality culture in the chain, and therefore tools are developed in order to reduce costs and improve performance levels.'

'If the management "feel" and "believe in" the quality culture, and involve all their human resources, they change the customer focus through the goals related to process and procedure compliance ... because those who decide to improve their quality management usually improve the way they manage the company, which leads directly to greater profits.'

Thus, a quality system focusing on customer satisfaction and continuous improvement makes it possible to increase sales. In this case, the system has a positive impact on management, and therefore, on performance. The quality system is more important than the certificate. As a chain manager says:

'I do not think that sales are higher merely because a hotel is certified; rather, those with the Q certificate ... have a "general" view of quality management and more know-how on this issue, based mainly on 'procedures and processes.'

In this context, one chain manager suggested:

'The financial power in larger chains is significantly higher than that of smaller chains,'

and added:

'Certification costs are high for small chains and that the good financial performance makes it relatively easy for them to obtain certification for at least one hotel.'

This idea indicated that good performance might facilitate the decision to seek certification. Therefore, the Q certificate may lead to better performance if the quality system is a tool to satisfy customers and improve continuously. Similarly, good performance may also lead to Q certification because managers may invest resources in it. Table 3 shows the relationship between higher and lower performing chains and certification. The table demonstrates that chains that perform above average on sales, RevRoom, RevHotel and GOP, are significantly more likely to certify at least one of their hotels.

Propensity to certification and results

Table 4 examines the connection between propensity to certification in chains with Q-certified hotels (measured through the percentage of certified hotels compared to the total numbers in the chain) and the chains' performance variables. Regarding sales, the results in Table 4 show a negative correlation between sales and propensity to certification. This surprising result may be due to the fact that smaller chains are those with a greater propensity to certification, and therefore they would be the ones with lower sales due to their smaller size (see subsection 'Propensity to certification and size').

Table 3. Relationship between high and low performing chains and certification.

Performance groups	Chains without Q-certified hotels	Chains with Q-certified hotels	Pearson's chi-square
Sales in million €			4.411**
Below average	15.068	19.021	
Above average	211.033	280.993	
RevRoom			4.865**
Below average	11,981.974	12,099.443	
Above average	29,674.528	33,360.285	
RevHotel			8.095**
Below average	1,538,164.121	1,757,598.241	
Above average	5,349,607.706	5,669,737.164	
GOP			4.039**
Below average	−99,716.355	−265,504.901	
Above average	4,886,458.610	8,603,527.875	
GOPRoom			1.179
Below average	−304.660	−233.067	
Above average	2,235.386	2,752.093	
GOPHotel			1.825
Below average	−14,351.705	−24,061.679	
Above average	352,122.054	423,526.713	

Note: **$0.001 < p ≤ 0.05$.

With regard to the remaining variables, although the analysis could be performed yearly, it is more interesting to concentrate on the last column in Table 4, showing the average for the period studied. In this way, RevRoom, RevHotel, GOPRoom and GOPHotel are positively and significantly related to propensity to certification. Therefore, a chain's propensity to certify its hotels is significantly related to better performance levels. Therefore, H1.2 is partially supported.

In order to explain these findings, the qualitative analysis indicates that the result may be correct, although some issues must be taken into account. According to a chain manager:

'Certification implies process standardization, and therefore it might be logical to expect improvements in the performance variables. Also, the chains would find in this way an almost effortless way to certify hotels, because the system should be integrated in all common management areas.'

A person responsible for a chain supplements this idea:

'Probably the ability to develop and implement a chain's own management system, complying with the standard's requirements, might be faster in a larger chain, since it possesses more resources than a smaller one. However, once the concept and the documentation of the management system have been developed, implementation in hotels may be simpler and faster in smaller chains, and the same would apply to the required monitoring of the system at a corporate level.'

Table 4. Relationship between propensity to certification and performance.

Q-certified hotels in chain/hotels in chain

	Spearman's rho				
	Sales 2008 −0.363**	*Sales 2007* −0.367**	*Sales 2006* −0.398**	*Sales 2005* −0.279*	*Average Sales* −0.254*
	RevRoom 2008 0.331**	*RevRoom 2007* 0.266*	*RevRoom 2006* 0.248	*RevRoom 2005* 0.401**	*Average RevRoom* 0.392**
	RevHotel 2008 0.345**	*RevHotel 2007* 0.280*	*RevHotel 2006* 0.272*	*RevHotel 2005* 0.366**	*Average RevHotel* 0.374**
	GOP 2008 0.070	*GOP 2007* 0.194	*GOP 2006* 0.211	*GOP 2005* 0.208	*Average GOP* 0.223
	GOPRoom 2008 0.262	*GOPRoom 2007* 0.497***	*GOPRoom 2006* 0.416**	*GOPRoom 2005* 0.477***	*Average GOPRoom* 0.524***
	GOPHotel 2008 0.234	*GOPHotel 2007* 0.487***	*GOPHotel 2006* 0.405**	*GOPHotel 2005* 0.464**	*Average GOPHotel* 0.532***

Note: ***$p \leq 0.001$; **$0.001 < p \leq 0.05$; *$0.05 < p \leq 0.10$.

Table 5. Size differences between chains with at least one Q-certified hotel and non-certified chains.

Variable	Averages		Mann–Whitney's U
	Chains without Q-certified hotels	Chains with Q-certified hotels	
Number of hotels in chain in 2008	13.37	28.90	2,520.00**
Number of rooms in chain in 2008	2,332.79	5,588.54	2,358.50**

Note: **$0.001 < p \leq 0.05$.

These opinions show that chains with a greater propensity to certification may obtain better performance levels. Although this result is a logical one, it seems, as one respondent says, that it makes sense for small chains, and that it might or might not apply to larger chains.

In this context, who should be faster with regard to certification? A chain manager suggested that it should be those chains without standardized quality management processes. In this way, as other respondents also point out, the propensity to certification in a chain's establishments depends on the starting situation; that is, on their degree of maturity regarding quality management.

Certification and size

Concerning chain size, measured in terms of number of hotels and rooms, from Table 5 it may be inferred that chains with at least one certified hotel are significantly larger. Similarly, Table 2 shows that size may have an influence on different performance variables. In addition, when a logistic regression is applied considering the Q certificate as the dependent variable and size (measured by number of hotels) as the independent variable, their relationship is significant ($p = 0.05$), but size explains only 1% ($\beta = 0.01$). Therefore, H2.1 is supported.

Nevertheless, the qualitative analysis indicates that this connection is not always easy to establish. Also, in the subsection on 'Certification and performance', it may be observed that there are differences in the results in the variables after eliminating the size effect. In this respect, one respondent suggests that larger chains have more certifications because:

'They usually have their own quality system, adapted to the Q certificate or, failing this, to ISO 9001. This, together with their financial power, makes it relatively easy for them to obtain certification for at least one hotel ... Its managers are more sensitive to quality management issues, and feel a greater need to standardize their products, services, processes and methodologies.'

This greater ease does not mean that there is a direct connection between size and certification. As other respondents point out:

'I do not find a direct relationship between chain size and having certified hotels.'

'We cannot point at a specific explanation for this; it depends on the strategic quality policies of each chain.'
'Those chains with no certified hotels are those with a "family" management, which believe certification in an excessive investment, or see it as an "expense". Also, they believe that, if only one hotel is certified, the others lose "credibility and value"'.

Therefore, on the basis of these opinions, although chain size makes investment easier because the cost is relatively low within the total costs of the chain, it seems that size is not a key factor for certification, it could be an enabler.

Propensity to certification and size

Regarding the relationship between size and propensity to Q certification in hotel chains, it may be inferred that chains with at least one certified hotel certify on average 33.37% of their establishments. Also, it may be observed that these proportions are significantly and negatively related to chain size (Spearman's rho = -0.691; $p = 0.000$). This means that, as long as the chain has at least one certified hotel, the larger the chain, the less likely it is to certify its hotels in a significant way. This is remarkable, because it seems that the effort made in order to certify each hotel reduces more rapidly for the remaining hotels as the size of the chain increases. This result does not support H2.2.
   The qualitative study shows possible reasons for this finding:

'Larger chains already have their own quality programme, which complies with, and even exceeds, the minimum standards of official certifications.' (Chain manager)
'There is no need for certification; the larger the chain, the more it needs to develop a quality system that may apply to all its hotels, in order to maintain and extend its quality standards to all its establishments.' (Chain manager)

Therefore, what really matters for a chain is its quality management system (which sometimes exceeds the current standards in the market) and not the certificate, as a chain manager points out. In addition, certification also depends, as a respondent remarks, on the chain's policy and on other variables (for instance, type of customer and destination).

Discussion and conclusion

The findings from this study show, first, that chains with Q-certified hotels have better RevRoom and RevHotel, confirming the results of previous studies regarding the ISO 9001 standard for manufacturing and service firms (Heras *et al*, 2002; Sharma, 2005) and for hotels (Nicolau and Sellers, 2010b; Rubio-Andrada *et al*, 2011). Although Q-certified chains achieve better performance levels, certification is only one reason explaining such results. The question remains whether the Q certificate truly influences performance, or whether it is granted to chains that perform well. On the one hand, the qualitative analysis

supports the idea that those chains usually possess a more advanced quality system, which means that they have a greater concern for quality, leading them to improve their management and, in turn, their performance levels. This idea, which is mentioned by our respondents, supports the results offered by various studies on the ISO 9001 standard regarding the internalization level of the standard's requirements in order to improve performance (Nair and Prajogo, 2009; Heras-Saizarbitoria, 2011). The more mature the quality practices, the greater the performance levels. That is, there is a relationship between Q certification and performance when the chain has a quality system to satisfy customers (then, the hotel's revenues can be increased) and to improve and optimize some cost categories (then, cost can be reduced). This leads to better performance. Therefore, according to the qualitative comments of managers, the Q certificate is important but the relevant issue is the quality system. Different aspects may influence performance in chains (such as scale and scope economies in larger chains) and one of these aspects is the quality system supporting the Q certificate. On the other hand, the findings also support the conclusion that good performance facilitates Q certification. Consequently, both aspects can help us to understand the relationship between the Q certification and performance.

Second, chains with a higher propensity to certification obtain significantly better results in RevRoom, RevHotel, GOPRoom and GOPHotel, and it is in smaller chains that a greater propensity can be detected. This result supplements the previous one, and makes more sense mainly in smaller chains, because in the case of larger chains such propensity also depends on other variables (geographical dispersion, type of customer, etc).

Third, those chains with certified hotels are larger than those without certified hotels, which might suggest that larger chains seek certification to a greater extent. However, in the variables analysed, after eliminating the size effect (in the quantitative analysis), significant differences may be observed between chains with and without certified hotels, which agrees with the idea advanced by some authors who believe that size is not an important variable for certification (Taylor and Wright, 2003; Sila, 2007). Also, some respondents in the qualitative analysis support this idea; that is, it is true that certification is easier for larger chains (for instance, because they have more resources, or because there is a greater commitment to quality), but this does not always entail a direct relationship between size and certification. Consequently, although in some cases larger chains have more Q certificates, and this may mean an association between the Q certificate and size, which may be due to the fact that these chains have more resources and implement more advanced quality systems. Both issues facilitate the certification process.

Fourth, the larger the chain, the less prone it is to certify the rest of its establishments. One might expect that, for the larger the chain, it will have more resources and, therefore, greater potential for certifying its hotels. However, once the chain has had some of its hotels certified, it might not wish to extend this certification to the rest of its establishments. The reason for this, as the qualitative analysis shows, is that what matters is not the certificate, but the quality management level. On the basis of the degree of quality management maturity and other variables, as has been seen earlier, the decision is made on whether certification is sought for an establishment. In this case, as a respondent indicates in the qualitative analysis, the fact of being a large chain

usually entails having a more advanced management system, which includes higher compliance with and implementation of quality practices.

These results supplement the relationships between the ISO 9001 standard and performance by extending it to the case of the Q certificate and hotel chains.

Managerial implications

First, considering the existence of multiple standards in the market (Q certificate, ISO 9001, ISO 14001, etc), and the similarities between the Q certificate and the ISO 9001 certificate which might lead to confusion and saturation in the industry, the ICTE should focus part of its activity on promotion in order to avoid such confusion. Also, the ICTE should provide training in quality issues for industry employees and managers to increase the implementation of quality practices, at least in those chains with a lower level of quality management.

Second, managers should understand that, in general terms, although better performance levels facilitate investment in the Q certification, it is also true that the higher performance of those chains with more certified hotels is due to the maturity of their quality management system, rather than to the certificate itself. Therefore, for certification to be useful for quality management at chain level, managers should implement their own management system within the chain, in order to comply with the quality standard requirements.

This system would enable them to have a higher level of quality management, allowing them to manage the chain better and, consequently, to improve their performance levels. In this respect, it is true that in the hotel industry certification is often seen as a marketing tool. However, if certification for marketing purposes is not supported by a real commitment to quality (a quality system focuses on customer satisfaction and continuous improvement), the results will be less likely to improve. Thus, managers must understand that, although the size and a good performance of a chain might make certification easier, the degree of maturity of the quality management system supporting the Q certificate is crucial in increasing the potential to achieve higher performance levels.

Future research

Finally, for the future, it would be interesting to perform other quantitative analyses through questionnaires including Likert scales sent to both small and large chain managers. Such research would supplement this study and would enable a comparison of quantitative data with opinions in the qualitative interviews. In addition, it would be interesting to identify when the Q-certificate was obtained by individual hotels, and to replicate this study in other tourism subsectors in Spain and in other tourist destinations with similar standards to the Q certificate. Such future research could analyse, among other things, internalization as this could be a variable that will help managers understand better the effects of quality certification. Internalization is a more rigorous or more active fulfilment of the requirements of a quality standard and, therefore, it is key to quality management system success. Therefore, future studies on internalization could help to clarify the differences found in previous studies of the benefits of quality certification.

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Appendix

Result 1: Chains with Q-certified hotels obtain significantly better results in terms of total sales, RevRoom and RevHotel.

Questions
Do you think this result makes sense? In your opinion, what is the reason for this result?
Do you think that the sales of a Q-certified hotel could be higher than those of a non-certified hotel? Why?
Do you think that the operating results of a Q-certified hotel could be higher than those of a non-certified hotel? Why?

Result 2: Chains with a greater propensity to certification obtain significantly better results in all result variables.

Questions
In your opinion, what is the reason for this result? Do you think that the rate at which a chain certifies its hotels is related to the chain's size? Proportionally, which should be quicker at certifying their hotels: small chains or large chains?

Result 3: Chains with at least one certified hotel are larger than those without a certified hotel.

Question
In your opinion, what is the reason for this result?

Result 4: The larger the chain, the less likely it is to certify the rest of its establishments.

Question
In your opinion, what is the reason for this result?