
Environmental management decision-making in Greek hotels: barriers and drivers to sustainability

Eleni Sardianou*, Vaitsa Gkaragkani and
Ioannis Kostakis

Department of Economics and Sustainable Development,
Harokopio University of Athens,
El. Benizeloy 70, Moschato 176 71, Greece
Email: esardianou@hua.gr
Email: bana_gar@hotmail.com
Email: ikostakis@hua.gr
*Corresponding author

Abstract: The present paper addresses the challenges of adopting environmental business practices by hoteliers to put through sustainable entrepreneurship in the tourism sector. The purpose of this research is to study the barriers and the drivers that influence manager's understanding on the decision of adopting environmental management system standards (EMSSs) in their hotels. The importance of these factors on the intention to get an EMS certification is also examined by employing econometric models. The results suggest that a hoteliers' decision to implement corporate environmental practices is being hindered from both external and internal factors. Enhancing corporate image and financing are estimated to be critical motives towards the adoption of formal EMSSs. However, perceived barriers towards obtaining EMS certification differ between environmentally friendly and non-environmentally friendly firms. Managers who have implemented environmental practices consider economic barriers more important than organisational or human-related factors towards adoption of EMSSs.

Keywords: environmental management system standards; EMSSs; hotels; drivers; barriers.

Reference to this paper should be made as follows: Sardianou, E., Gkaragkani, V. and Kostakis, I. (2022) 'Environmental management decision-making in Greek hotels: barriers and drivers to sustainability', *Progress in Industrial Ecology – An International Journal*, Vol. 15, No. 1, pp.53–69.

Biographical notes: Eleni Sardianou is an Associate Professor of Applied Environmental Economics at the Department of Economics and Sustainable Development, Harokopio University of Athens. Her research focuses on environmental economics and consumer behaviour, energy economics, econometrics and sustainability.

Vaitsa Gkaragkani is an Economist. She received her Bachelor from the Department of Economics and Sustainable Development, Harokopio University of Athens. Her research focuses on tourism management and sustainability.

Ioannis Kostakis is a Senior Lecturer in Applied Economics (Harokopio University of Athens and Hellenic Open University). His current research fields include econometrics, micro-economic theory, sustainable consumers and sustainable entrepreneurs' behaviour, and quantitative methods in economics.

This paper is a revised and expanded version of a paper entitled 'Decision-making, barriers and drivers towards environmental management of Greek hotels' presented at 4th Panhellenic Conference, Economics of Natural Resources and the Environment, Volos, 4–5 November 2016.

1 Introduction

While the tourism sector is characterised as the back-bone of economic activity, accounting for 18.5% of Greece's GDP, the negative impacts on the environment are in many cases considered to be large due to the high pressure applied on the carrying capacity of their environment. Within this context, the target of the UNWTO for greenhouse gas emissions reductions from the tourism sector is 50% by 2035 (World Tourism Organization, 2009). Promotion of sustainable entrepreneurship in the sector is necessary not only to promote environmental and social parameters but also cultural and economic ones (see for e.g., Sardianou et al., 2015). However, sustainable tourism management is a difficult goal to achieve due to stakeholders involved, with their different interests. The research conducted by Akrivos et al. (2014) pointed out that entrepreneurs commonly disregarded tourism as being harmful to the environmental sustainability.

Enterprises are subjected to a variety of stakeholder pressures related to their environmental performance. Within this context, an environmental management system (EMS) has been launched. An EMS is defined as a management system that allows companies to better control their environmental impact. Among others, it includes the ability to better plan and control activities for achieving, reviewing and maintaining company's environmental policy. As part of a broader strategy to provide businesses with tools to manage their environmental impacts and encourage them to adopt sustainable entrepreneurship patterns, the EU developed formal schemes such as EMAS and ISO 14001 standards.

Several studies have stressed the importance of companies' environmental performance to sustainability (Skouloudis et al. 2011; Nikolaou et al. 2013, 2019; Balasubramanian, 2021). In reviewing the literature that focuses on the barriers towards adoption of environmental management standards, several empirical studies were found which were conducted for industrial sectors and SMEs in order to analyse hindering factors (see for e.g., Babarki et al., 2003; Heras and Arana, 2010; Nikolaou and Evangelinos (2010); Massoud et al., 2010; Heras et al., 2011; Murrillo-Luna et al., 2011; Massoud et al., 2015) and research drivers in implementing EMS standards (EMSSs) (see for e.g., Halkos and Evangelinos, 2002; Zhang et al., 2014; Nguyen and Hens, 2015; Singh et al., 2015 ; Zorpas, 2010; Lewis et al., 2014). However, literature focusing on the barriers and drivers to adopt EMSS in the hotel sector is limited (Bohdanowicz, 2006; Chan, 2008; Chan and Wong, 2006; Carmody and Zeppel, 2009; Kasim, 2009). Analysing barriers and drivers to the adoption of EMS certification is strongly related to firm's sustainability performance since not all firms are able to adopt the same level of commitment and participation in their environment-related obligations.

This study contributes to our knowledge of barriers and drivers in the adoption of EMSSs, providing empirical evidence from 127 Greek hotel managers. The purpose of the present research is twofold:

- 1 To investigate which of the barriers perceived by hotels managers in implementing EMSSs differ between hotels that have already developed environmental management practices and those that have not.
- 2 To recognise the factors that could affect the hotel managers' intention to get a formalised EMS certification.

According to our knowledge, the presented study differs from prior researches in the field, as it examines hoteliers' managerial perspectives towards barriers and drivers, while taking into account a sample of non-certified firms. As previous studies mentioned (Campos, 2012; Nguyen and Hens, 2015) the field of non-certified companies is interesting to compare to certified firms, since the latter have better environmental performances, which has been related to their more pro-active behaviour. In addition, examining managers' motives to seek an EMSS is important for policy makers in order to be able to more effectively involve them in the application of EMSSs.

The organisation of the paper is presented below: Section 2 presents the background of barriers and drivers in implementing EMSSs. Section 3 develops the methodological framework and presents the econometric models, while Section 4 presents the findings and discussions. The last section of the paper analyses limitations and presents suggestions for future research.

2 Literature review

2.1 Barriers to the implementation of EMSSs

The literature on the adoption of EMSSs identifies a variety of hindering factors to the implementation process. Several studies concluded that implementation barriers were perceived from both internal and external factors. Empirical analysis of certified companies recognised budgetary (Babarki et al., 2003; Chan, 2008; Carmody and Zeppel, 2009; Heras and Arana, 2010; Massoud et al., 2010; Heras-Saizarbitoria et al., 2011; Murrillo-Luna et al., 2011; Massoud et al., 2015) and human related (Murrillo-Luna et al., 2011;) barriers towards the certification process. Managers supported that lack of fund towards the adoption of environmental management actions is a major barrier to EMS certification. Biondi et al. (2000) claimed that finding money was a major problem to invest in the improvement of a company's environmental performance. Abeliotis (2006) concluded that financing the implementation of EMAS standard in Greek companies comes from the company's own assets. The major barrier presented in several researches was the demanded high cost, related not only to the investment for the technical measures to improve the environmental performance, but also for maintenance for adopting a formal EMSS (Babarki et al., 2003; Chan, 2008; Kasim, 2009; Heras and Arana, 2010; Murrillo-Luna et al., 2011). Findings supported managers' perception that investments necessary for enhancing environmental performance and obtaining environmental certifications had a positive inflated effect on the profitability of the firm (Massoud et al., 2010; Heras-Saizarbitoria et al., 2011). Accordingly, managers reported as a major barrier to the EMSS, the uncertainty on the benefits of certification derived from the companies' failure to publicise the environmentally friendly image and gain stakeholders' legitimacy based on certification (Biondi et al., 2000; Babarki et al., 2003; Chan, 2008).

Human related and organisational factors were also classified as important barriers encountered by managers in the EMS implementation process. As Massoud et al. (2015) found, in the case of Indian firms, lack of knowledge regarding the standards on the part of the top managers and the owners was the main reason of them not being able to recognise financial benefits from adopting these practices. Companies also highlighted the lack of technical qualified experts available to implement environmental improvement practises (Biondi et al, 2000; Chan, 2008; Nikolaou and Evangelinos, 2010; Cop et al, 2020). Abeliotis (2006) noticed that mainly due to lacking funds, an employee for the control of the environmental performance of a firm is almost impossible to be hired. Not surprisingly, environmental management was not a top priority for most of the companies due to the heavy daily schedule of the managers and their very limited time (Biondi et al., 2000; Abeliotis, 2006; Heras and Arana, 2010; Massoud et al., 2010; Nikolaou and Evangelinos, 2010). Organisational and human related factors were also recognised as barriers with different level of importance regardless of the firm's characteristics (such as their size) (Halkos and Evangelinos, 2002; Murrillo-Luna et al., 2011; Campos, 2012; Campos et al., 2015; Lira, et al., 2021). Finally, studies found that rigidity of environmental legislation and bureaucratic complexity of the certification process were perceived to be major barriers in implementing a corporate environmental management structure (Halkos and Evangelinos, 2002; Ann et al. 2006; Massoud et al., 2010; Nikolaou and Evangelinos, 2010; Murrillo-Luna et al., 2011).

Having in mind the above-mentioned barriers identified in the literature, the following research questions are formulated:

- RQ1 What are the perceived barriers by managers for implementing EMSSs in the hotel industry?
- RQ2 Do barriers regarding adoption of EMSSs differ between firms that have already adopted corporate environmental practices to those that have not?

2.2 *Drivers for implementing EMSSs*

The second major strand of the discussion on implementation of EMS standards, addresses its drivers. Various researchers examined if firms' pure intention to improve their corporate environmental management performance was a key motive to obtain EMS certification. Some studies focused mainly on the positive impact of EMSSs on corporate environmental performance (Heras and Arana, 2010; Bohdanowicz, 2006; Zhang et al., 2014; Nguyen and Hens, 2015; Singh et al., 2015; Johnstone and Hallberg, 2020; Nishitani and Kokubu, 2020). Heras and Arana (2010) noticed that the main source of motivation for the studied SMEs (Small and medium-sized enterprises) to implement an EMS standard was related to the improvement of their environmental performance. Similarly, Zhang et al. (2014) found that the environmental performance of the case studied firm in Shanghai improved significantly after granted an ISO14001 certificate. Singh et al. (2015) also proved that the motivation to implement EMS strategies in Indian industries was to prevent environmental incidents. Nguyen and Hens (2015) confirmed that Vietnam's ISO 14001-certified cement firms implemented better environmental practices than the non-certified ones. However, as Iraldo et al. (2009) concluded, that for a certified company to achieve higher environmental performance, environmental targets as an integral part of its operational management should be included. Finally, Oliveira et al. (2016) proved that companies seeking for an EMS certification, such as ISO14001,

had more favourable conditions to implement cleaner production strategies within their management.

Other researchers investigated the impact of the EMS certification on both environmental and economic corporate performance. Given that, as analysed previously, financial constraints were estimated to be significant barriers to the implementation of EMSs, Nikolaou and Evangelinos (2010) concluded that financial incentives such as funding, financial products and financial services could stimulate the companies overcoming the barrier of financing environmental management practices. Findings by Hui et al. (2001) and Wang and Zhao (2020) confirmed that the implementation of EMMSs had positive effects on the economic performance of the firms, whereas the results of Ann et al. (2006) lead to the conclusion that both environmental and economic performances of the firms benefit highly from the implementation of EMMSs. Ann et al. (2006) commented that improved economic performance was a driver to obtain an EMS certificate, since companies complying with its standards gained significant cost reductions from rational material and resource management. Matuszak-Flejszman (2009) found that the benefits that certified companies gained due to rational resource use outweighed the costs of its implementation. Moreover, Massoud et al. (2010) commended that the cost saving was perceived more as a driver by certified industries than non-certified industries. However, Biondi et al. (2000) pointed out that EMS implementation led to higher economic benefit, particularly by optimising the use of resources. Similarly, Fryxell and Szeto (2002) noticed that there was no evidence that firms adopted ISO 14001 had additional improvement to their system. Recent empirical studies also questioned the importance of financial motives as a driver to acquire EMSSs (Massoud et al., 2015; Singh et al., 2015; Welong et al., 2015). It was found that managers of Indian firms appeared to believe that operational cost savings from the adoption of EMS standard was not a significant driver to employ EMS practices (Massoud et al., 2015; Singh et al., 2015). This result was attributed to a lack of knowledge among managers regarding the standards (Massoud et al., 2015). Analogously, a study from Welong et al (2015), based on a sample of Chinese firms, concluded that improved financial performance was not recognised as a driver to be certified; since it was proved that the adoption of EMSs caused insignificant net effects on the company's financial performance.

The EMS schemes were mainly developed to provide companies with a guide for measuring their environmental performance. Alternatively, they were however also developed to comply firms with the corporate environmental legal framework. Within this context, several authors questioned the importance of compliance to legal requirements as an effective driver for boosting EMS certification numbers (Biondi et al., 2000; Kassolis, 2007; Heras and Arana, 2010; Nikolaou and Evangelinos, 2010; Daddi et al., 2014; Mazzi et al., 2016). Biondi et al. (2000) stated that the need to comply with legal requirements was the most effective driver towards adoption of EMS certification. Kassolis (2007) stated that the adoption of EMS schemes in Greece can be a powerful tool towards sustainability through environmental management but the establishment and execution of a legal framework is an important motive. Within this context, Nikolaou and Evangelinos (2010) concluded that in Greece the transformation of the rigid legal framework to a more flexible one was necessary to overcome bureaucracy barriers and would be helpful for the environmental requirements of a company to obtain certification. Daddi et al. (2014) research concluded that in the case of Italian firms, legislative simplifications were important incentives for the dissemination of EMSs. In a recent

empirical study, Mazzi et al. (2016) confirmed that Italian firms were EMS certificated in order to comply with legal requirements regarding their environmental performance.

Overall, according to the authors' best knowledge, the majority of the available empirical studies that have been conducted so far, conclude that businesses which comply with environmental standards, obtain competitive advantage in the marketplace (Biondi et al., 2000; Halkos and Evangelinos, 2002; Abeliotis, 2006; Ann et al., 2006; Zhang et al., 2008; Matuszak-Flejszman, 2009; Psomas et al., 2011; Prajogo et al., 2012; Singh et al., 2015; Mazzi et al., 2016; Iatridis and Kesidou, 2018; Famiyeh et al., 2020). Biondi et al. (2000) proved that the willingness of businesses to obtain competitive advantage is an important perceived benefit to acquire EMS certification. For higher competitive advantages, firms pay more attention on their appearance as eco-friendly and strain to satisfy the needs of their customers regarding eco-friendly performance (Biondi et al., 2000). Empirical analysis conducted by Halkos and Evangelinos (2002), using a sample of 259 Greek companies, confirmed that managers who valued the importance of the eco-friendly image of a business, appear to have much higher possibilities of EMS schemes implementation. This result was confirmed by Abeliotis (2006) who concluded that Greek companies aim to be certified via EMAS standard in order to improve their image as an environmentally friendly company. Psomas et al. (2011), exploring the motivations of 53 Greek companies pursuing and finally obtaining ISO 14001 certification revealed that gaining marketing advantage through improving their corporate environmental image was the most profound motivation. The survey of Ann et al. (2006) also proved that enhanced corporate reputation was perceived to be the strongest motive to obtain an EMS certification. In fact, firms stated that the benefits gained from EMS certification far outweighed the implementation cost of the environmental practices adopted. As Matuszak-Flejszman (2009) noticed, raising the attractiveness of their company through the adoption of a corporate environmental management was an opportunity for the company not only in maintaining the gained trust of previous customers and investors but also to attract new ones. Pressure from stakeholders (customers, suppliers, competitors and communities) to improve corporate environmental management performance was observed to be an important motive to obtain an ISO standard (Gonzalez et al., 2008; Zhang et al., 2008; Prajogo et al., 2012; Singh et al., 2015; Mazzi et al., 2016). Empirical evidence from Australian (Prajogo et al., 2012), Chinese (Zhang et al., 2008) and Indian firms (Singh et al., 2015) confirmed that firms were motivated to adopt environmental standards to obtain legitimacy from their stakeholders and improve their corporate image. Results showed that EMS certification was a marketing strategy that firms adopted to gain competitiveness through publicising their environmental certification (Zhang et al., 2008; Prajogo et al., 2012; Singh et al., 2015; Mazzi et al., 2016). As Lagodimos et al. (2007) noticed this type of competition can stimulate a certification culture within that sector regardless of the real needs of environmental management.

According to the presented previous researches regarding the drivers for implementing EMS standards, the following research questions have arisen:

- RQ3 What are the perceived drivers by managers for implementing EMSSs in the hotels?
- RQ4 What drivers are more effective for managers who are willing to purchase an EMS certification?

3 Methodology of the research

3.1 Description of the sample

The studied target group comprised the total number of hotels in Athens, according to the records of the Hellenic Chamber of Hotels. Thus, 445 structured questionnaires were distributed to the general manager of each hotel, using face to face interviews. A general manager is most likely the one involved in the implementation of environmental management practices in a hotel. Ultimately, 127 responses were obtained, a response rate of 27.9%. A two-section questionnaire was used in the empirical study. In particular, the first part included questions towards the economic and operational characteristics of the hotel. For example, questions examining educational level of the staff, firms' profits, number of employees, and year of establishments, as reported by the sampled managers. In the second part managers were asked to report their environmental management actions taken in their business. Particularly, the environmentally friendly actions taken, and also either the barriers preventing them from the adoption of a formal EMS or the motives for purchasing an EMS certification.

3.2 Econometric model

The empirical methodology used is the estimation of regression models. In particular, binary logistic regression are estimated to examine the probability of implementation of environmental practices. The barriers to implement an EMSs as reported in the literature review are used as independent variables. Therefore, the following binary logistic equation is estimated, in the empirical study, we employed the:

$$\text{Logit}[\text{Pr}(Y = 1)] = \beta_0 + \beta_1 \text{luckcapital} + \beta_2 \text{highcost} + \beta_3 \text{unreturn} + \beta_4 \text{noinfo} + \beta_5 \text{noperson} + \beta_6 \text{noknow} + \beta_7 \text{noknow} + \beta_8 \text{blaw} + \varepsilon_{it} \quad (1)$$

Table 1 A detailed description of barriers towards adoption of formal EMSs in hotels

<i>Proxy</i>	<i>Binary variables as barriers</i>
Luck capital	Lack of funding and financing for investments in environmental practices
High cost	Increased implementation cost of environmental practices
Unreturn	Uncertainty regarding the market benefits
No info	Lack of information regarding the adoption of environmental practices
No person	Lack of qualified staff
No know	Lack of knowhow
Noprior	Administration/top management have other priorities
Blaw	Bureaucratic problems and rigidity of environmental legislation

The dependent (indicates whether the managers answered that their hotel implemented eco-friendly management actions or not. Specifically, Y variable takes the value 1 when the hotelier has confirmed that the hotel has adopted environmental management and zero otherwise. The independent binary variables are all expressing barriers impeding hotels from adopting EMSs These hindering factors, which are dummies, are analytically presented in Table 1.

The empirical results from the estimation of equation (1) are presented in Table 2 in the next section of this study.

An EMS is defined as a management system that allows companies to better control their environmental impact. Among others, it includes planning activities for achieving, reviewing and maintaining company's environmental policy. Thus, we attempt to identify factors that reduce the barriers to adopting formal EMS and increase managers' intention for purchasing it. For this reason, the following model is specified:

$$\begin{aligned} \text{Logit}[\text{Pr}(Y = 1)] = & \beta_0 + \beta_1 \text{differ} + \beta_2 \text{profile} + \beta_3 \text{inputs} + \beta_4 \text{inenvir} \\ & + \beta_5 \text{finds} + \beta_6 \text{star} + \beta_7 \text{age} + \beta_8 \text{blaw} + \varepsilon_{it} \end{aligned} \quad (2)$$

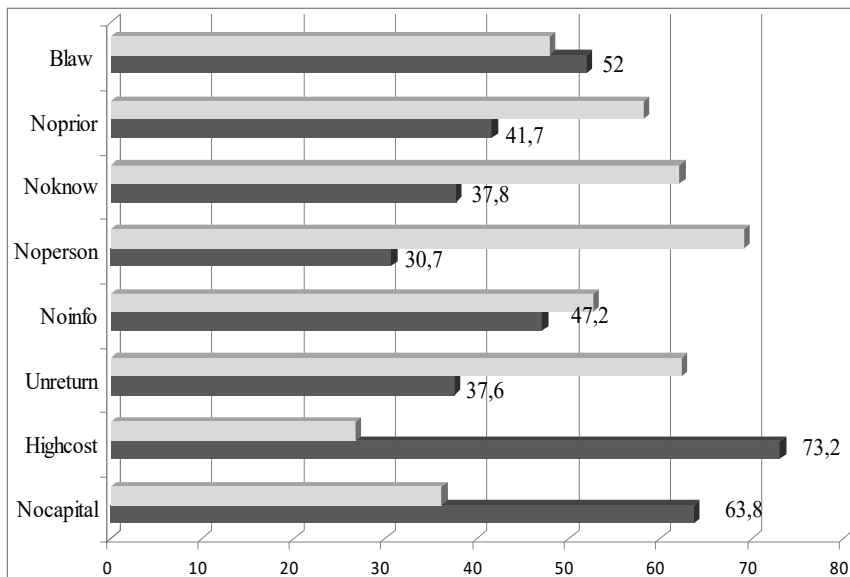
The dependent binary variable expresses the hotelier's affirmative answer that he is willing to adopt a formal EMS in his hotel (value one and zero otherwise). Dummy variable 'Differ' takes the value 1 if the manager stated that obtaining an EMS standard can contribute to the differentiation of his business as a 'climate friendly' tourism product and zero otherwise. Accordingly, 'Profile' is manager's belief that the EMS standard 'label' can be used to attract environmentally aware tourists to his company and zero otherwise. 'Inputs' is a variable express managers' opinion that implementing a formal EMSS would result to cost savings due to energy and raw materials efficiency and zero otherwise. 'Inevnr' takes the value 1 in case that the manager considers that obtaining a formal EMSS is a result of owners-manager's ecological responsibility and zero otherwise. 'Funds' is dummy variable indicating that easier access to funding is important to implement environmental management practices. 'Star' is a quantitative variable expressing hotel class in terms of stars. Age is a qualitative variable expressing the years since the hotels' establishment and ε_{it} is the disturbance term. Table 3 presents the empirical findings of equation (2).

4 Results and discussion

Next, the statistical and econometric are presented regarding parameters that influence hoteliers' environmental management decision making process. From the sample of 127 studied hoteliers, 55.9% were men and 44.1% women. Most respondents (83.5%) were university educated and 21.3% of them had a master degree. Most respondents (37.8%) run a four-star hotel, 34.6% run a three-level hotel but 14.2% were luxury hotels. In addition, 32.8% of the managers had less than ten employees in their businesses, 51.2% reported between 11 to 40 employees and the rest 16% over 45 employees. 37.8% of the hotels were built the last two decades, whereas the rest are older premises. The hoteliers' average annual profits were €36,000. The annual profits of 16.5% of businesses were between €29,000 to €36,000 while 74% of managers mentioned profits higher than €36,000. Most of the managers (61.4%) reported that they are the responsible person for the implementation of better environmental practices in their hotels; only 7% declared that their businesses have an environmental manager and the rest 22.3% mentioned the marketing department, as the managing sector of environmentally friendly actions. The majority of the managers (73.3%) consider the adoption of EMS as important for their businesses. However, the minority (39.5%) has implemented environmental management practices and only 19.7% are in process for obtaining a formal EMS certification, such as ISO14001.

As presented in Figure 1, budgetary barriers, like difficulties to fund and finance environmental strategies (63.8%) and high implementation cost of environmental practices (73%), are considered to be the most important barriers to obtain a formal EMS in their hotel. Hoteliers stated that they did not undertake environmental management investments in their businesses because this increases uncertainty of returns (37.6%). Informational limitations are also considered to significantly hinder factors for obtaining EMSs. 47.2% reported a lack of information regarding environmental management investments. In the meantime, 37.8% of the managers claimed the lack of knowhow on implementing environmental actions in their businesses. 30.7% of the sample studied, pointed out the negative influence of insufficient expertise among their personnel on the adoption of a formal EMS. Finally, 52% of the respondents mentioned bureaucracy and rigidity of environmental legislation as barriers to the implementation of EMSS in their businesses.

Figure 1 Positive answers of perceived barriers to the adoption of formal EMSS in hotels (%)



The empirical results that are obtained from the binary model (equation 1) are presented in Table 2, taking into account the barriers towards EMS certification as recognised by managers of eco-friendly and non-eco-friendly hotels. As follows from Table 2, managers who report financial constraints as a hindering factor to get a formal EMS certification, have increased odds by 2.395 times to implement environmental practices in their hotels. Thus, it is estimated that firms that have already incorporated environmental management are more probable than others to consider budgetary constraints as a barrier to adopt an EMS certification. The perceived high implementation and maintenance cost of environmental practices ('Highcost') is not a strong statistically significant barrier between hotels with performed environmental management and without (10% level of significance). This result may imply that weigh the increased implementation and

maintenance cost of environmental strategies equally as a hindering factor to the adoption of a formal EMSS; regardless their environmental management state. The importance of budgetary and financing problems has also been reported in previous studies. For instance, by Abeliotis, 2006 for Greek firms; Heras-Saizarbitoria et al. (2011) for Basque firms; Murrillo-Luna et al. (2011) for Spanish industrial firms and Massoud et al. (2015) for Indian pharmaceutical firms.

Results suggest that managers who have implemented corporate environmental practices are 1.821 times more probable to express their doubt on the benefits of EMS certification, at a 1% level of significance. This result explains why firms despite implementing environmental practices are not EMS certified yet and justifies previous studies that reported the fact that companies are failing to publicise the environmentally friendly image and gain stakeholders' legitimacy due to certification (Biondi et al., 200; Babarki et al., 2003; Chan, 2008).

The managers of hotels with no environmental practices' implementation consider that the main barriers of this implementation are the lack of information on standards and the knowhow on improvements for acquiring a certification. The relative risk of lack of knowhow is 0.217, meaning that this absence decreases the odds of implementation of environmental practices by 78.3%

Similarly, it is believed by the managers that lack of information regarding eco-friendly actions and lack of skilled personnel towards implementation of environmental management, decreases the odds of implementation by 58.7% and 68.4%, respectively. Both variables, 'Noinfo' and 'Noperson' are statistically significant at a 5% level. As previous studies pointed out, the lack of technical qualified experts available to implement environmental improvement practises (Biondi et al, 2000; Chan, 2008; Nikolaou and Evangelinos, 2010) and the lack of knowledge regarding the standards (Massoud et al., 2015) were the main reasons for not recognising financial benefits from adopting an EMSS. As mentioned earlier, only 7% of the studied hotels had an environmental manager as an employee. Similarly, in case of 'noprior' results imply that managers who reported as a hindering factor to certification the fact that their administration has other priorities than environmental management have decreased probability by almost 57.2% to implement environmental management in their hotels, *ceteris paribus*. This result is in line with previous studies that concluded that environmental management was not a top priority for most companies because managers had a lot of daily work routines regarding production and very limited time (Biondi et al., 2000; Abeliotis, 2006; Heras and Arana, 2010; Massoud et al., 2010; Nikolaou and Evangelinos, 2010).

Finally, the 'Blaw' is at a 1% level statistically significant. Specifically, the estimated coefficient of the barrier regarding the existence of bureaucratic problems when firms are seeking information to adopt EMSs and the rigidity of environmental legislation ('blaw') is 1.533 and its relative risk is 4.617 Thus, the change in the corresponding percentage is 3.687. So, managers who have implemented environmental practices are 4.617 times more probable to report that bureaucratic complexity of the certification process and rigidity of environmental legislation are perceived as major barriers in implementing corporate environmental management. This result is in line with previous studies (Halkos and Evangelinos, 2002; Ann et al. 2006; Massoud et al., 2010; Nikolaou and Evangelinos, 2010; Murrillo-Luna et al., 2011).

Table 2 Estimated binary logistic regression of implementation of environmental management practices in hotels taking into account perceived barriers of adopting EMSSs (yes: 1 no: 0)

<i>Exploratory variables</i>	β_i	<i>Odds ratio</i>	$e^{\beta_i} - 1$
Cons. term	0.105 (0.26)	–	–
Luck capital	0.805*** (2.52)	2.395	1.305
High cost	0.623* (1.78)	1.807	0.807
Unreturn	0.724*** (2.71)	1.821	0.821
No info	-0.881** (-2.39)	0.413	-0.587
No person	-1.213** (-2.28)	0.316	-0.684
No know	-1.419*** (-2.52)	0.217	-0.783
Noprior	-0.738*** (-2.72)	0.428	-0.572
Blaw	1.533*** (2.66)	4.617	3.687
Log likelihood	-264.140		
Nagelkerke R ²	0.291		
LR chi ² (10)	38.10		
Prob > chi ²	0.0001		
HL test	4.118 (0.642)		

Notes: ***, ** and * are mentioned as 1%, 5% and 10% levels of significance, respectively, parentheses present Z statistics.

The Nagelkerke R² is equal to 0.291. The -2LL statistic is quite high. This implies to reject the null hypothesis, concluding that at least one of the $\beta_i \neq 0$. As the overall significance of the model is given by $\chi^2 = 38.10$ with a significance level of $p = 0.0001$. Based on this value we can reject H₀ (where H₀: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = 0$) and conclude that at least one of the $\beta_i \neq 0$. The H and L statistic value is equal to 4.118 with significance value equal to 0.642. The non-significant χ^2 value indicates a good model fit in the correspondence of the actual and predicted values of the dependent variable.

Half of the hoteliers (55.1%) are willing to adopt a formal EMSS in their businesses. The motives towards adoption of an EMS certificate are for the EMS standard 'label' as usable to attract environmentally aware tourists to their hotel (74.8%) and the differentiation of the hotel as a 'climate friendly' tourism product (52.8%), thus motives that can enhance companies' image. Hoteliers also believed at a 70% rate that obtaining an EMS standard would result to saving money because of increased efficiency of energy and raw materials. The specific motive was also explained by Biondi et al. (2000) and Ann et al. (2006) who pointed out that rational resource management leads to reduced

costs creating economic benefits for the companies that implement an EMS standard. However, 34.6% of the managers recognise that obtaining a formal EMSS is a result of their owners-manager's ecological responsibility, while 63% of hoteliers indicate that easier access to funding is important to adopt formal environmental management standards. This result is in line with Nikolaou and Evangelinos (2010) who concluded that financial incentives could stimulate a firm to adopt EMSSs.

Several results were obtained from the empirical analysis. The estimated logistic results of the Equation 2 regarding managers' intention to obtain formal EMSs in the hotels are presented in Table 3. It can therefore be concluded that funding of the environmental practices is a statistically significant motive towards hoteliers' intention to obtain a formal EMS standard, at a 1% level. This means that managers opting funding of environmental management practices are 1.789 times more positive to seek an EMSS. This result is in line with previous studies by Abeliotis et al. (2006) and Nikolaou and Evangelinos (2010) who stressed the importance of financial incentives in obtaining an EMS certification.

Of more important is that managers who underline that the EMS standard 'label' can be used to attract environmentally aware tourists are 3.601 times more motivated on obtaining a formal EMS certification. As far as the 'profile' variable, it affects significantly the dependent at a 1% level. Accordingly, when, managers who believe that obtaining an EMS standard can contribute to the differentiation of his business as a 'climate friendly' tourism product are 0.2209 times more likely to get an EMS certification. Both results confirm that hotels are under pressure from their stakeholders to enhance their environmental performance. As previous studies explained (Prajogo et al., 2012; Zhang et al., 2008; Singh et al., 2015; Mazzi et al., 2016) firms are motivated to adopt environmental standards as a marketing strategy to improve their corporate image and gain market competitiveness.

As far as the effect of EMS on rational use of resources, the variable 'inputs' are statistically significant at 1% but with a negative sign and relative risk of 0.344. This result implies that the odds of a managers' intention to obtain EMSs decrease by 65.6% in relation to the belief that environmental management practices result in cost savings due to resources optimisations. The conclusion confirms Massoud et al. (2015) results on the fact that managers did not consider that the optimisation of the use of resources to be an important driver to get certified due to the lack of knowledge regarding the cost effectiveness of the standards. As expected, managers who have an eco-friendly management attitude are more favourable to implement EMSSs. Specifically, the variable 'inenvir' has a corresponding percentage of 1.345.

Regarding hotels characteristics, the results support that in relation to high class hotels the intention of obtaining formal EMSs is 2.647 times higher at 1% significance. Regarding the age of the hotel premises the odds of the managers' intention to get an EMS standard decrease by almost 4%. Thus, it is confirmed that managers of luxurious and newer hotels, are considered to be more probable in seeking an EMS certification. This can be considered to be reasonable, since the required measures needed to be taken in order to obtain a formal EMS are closely related to the 'quality' of the firm. Apart from that, luxury hotels are more probable to renovate their premises and, in the process, take into account corporate environmental management to improve their corporate image as a marketing strategy.

Table 3 Estimated binary logistic regression of the intention of hoteliers to get a formal EMS certification

<i>Exploratory variables</i>	β_i	<i>Odds Ratio</i>	$e^{\beta_i} - 1$
Constant	-5.139*** (-3.41)	-	-
Differ	0.793*** (1.90)	2.209	1.209
Profile	1.281*** (3.31)	3.601	2.601
inputs	-1.066*** (-2.66)	0.344	-0.656
Inenvir	0.852*** (2.21)	2.345	1.345
Funds	0.236*** (2.59)	1.789	0.789
Star	0.973*** (3.40)	2.647	1.647
Age	-0.039** (-2.11)	0.961	-0.039
Log likelihood	-259.324		
Nagelkerke R ²	0.281		
LR chi2(7)	46.47		
Prob > chi2	0.0000		
H-L statistic	3.92 (0.652)		

Notes: ***, ** represent 1% and 5% significance levels, at parentheses present Z statistics in.

The overall significance of the regression is presented by $\chi^2 = 46.47$ with a p-value equal to 0.0000 ($H_0: \beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7$). Thus, we reject H_0 and suppose that at least one of the β_i is different from zero. The H-L statistic is found equal to 3.92 and the relevant p-value equal to 0.652. Thus, it is indicated a good model of fit.

5 Conclusions

This study present results on the decision-making of managers regarding perceived barriers and motives towards obtaining an EMS standard for their business. This is achieved by employing a sample of non-certified hotels. Results, acquired from hoteliers, support that barriers in obtaining a formal EMS differ, taking into account environmental performance of businesses. In particular, managers who have already implemented environmental practices consider hindering factors to get a formal EMS certification to be the lack of capital to finance relevant investments, the uncertainty of the economic efficiency of the measures adopted due to certification and the existence of a rigid environmental legislation. Contrary, those hoteliers who have not already implemented environmental management practices consider as barriers to obtain a formal EMSs to be the human related and organisational barriers. Important motives to obtain an EMSS are:

- 1 the promotion of corporate eco-friendly image
- 2 the stakeholder' pressure for environmentally friendly products
- 3 the funding of the environmental management actions.

These results have significant implications while suggesting that adoption of environmental management standards provides hoteliers the relevant incentives to improve their environmental performance. As Biondi et al. (2000) concluded, removing barriers and reinforcing incentives contributes to a wide diffusion of EMSS. Given that the Greek touristic sector thrives the development and expansion of certified eco-friendly business practices in that sector is considered to be important in achieving not only economic but also a sustainable development of tourism.

The study has a number of limitations as well as directions for future research. In particular, the interpretation of the empirical results of this study might be affected by the sectional nature of it. In addition, data are based on hotel managers' beliefs and we were not verified their claims, on relation to hotels' environmental management. However, this is not paradox in the survey-based researches. Additionally, the research's scope is to analyse managers' intention to get a formal EMSS, without being able to examine real actions. However, studies based on intention theory, find that intention is representative of actual behaviour. In fact, persons who possess intention towards a behaviour would have a favourable attitude on that particular behaviour (Fishbein and Ajzen, 1975; Ajzen, 1991). Further study is important to empirically test the motive-adoption environmental performance, as this was outside of the scope of our research. Future researches on this topic are highly important to validate our results, based on different periods and data from different countries.

Acknowledgements

The authors would like to thank the two anonymous reviewers for their insightful and constructive comments from which the present paper greatly improved. Any remaining errors or deficiencies are solely the authors' responsibility

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