

Renewing environmental certification in times of crisis

Iñaki Heras-Saizarbitoria, Department of Management, Faculty of Economics and Business Studies, University of the Basque Country UPV-EHU, San Sebastian, Spain

Olivier Boiral, Département de management, Faculté des sciences de l'administration, Université Laval, Québec, Canada

German Arana, Department of Management, E.U. Politécnica, University of the Basque Country UPV-EHU, San Sebastian, Spain

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Abstract

The certification of environmental management systems based on international meta-standards such as ISO 14001 and the Eco Management and Audit Scheme has become one of the most common environmental practices. Nevertheless, the financial and economic difficulties faced by many organizations raise the issue of certification renewal and may have an impact on the trends toward decertification recently observed, notably in the case of the later standard. Surprisingly, this issue remains almost unexplored in the literature. The objective of this paper is to analyze the intention to renew environmental certifications in time of crisis in light of the motivations, obstacles and benefits of this standard. For that purpose, correlation and regression analyses were used with data obtained from 361 Spanish certified firms. The novelty of the study lies in analyzing for the first time in the literature how the intention to renew environmental certifications is shaped by several factors within a context of deep economic crisis. The article contains practical implications for the stakeholders of third party environmental certification, notably managers and policy-makers.

Keywords: Environmental management systems; Environmental certification; EMAS; ISO 14001; Economic crisis

1. Introduction

Third party certifiable Environmental Management Systems (EMSs) based on international standards - also referred to as meta-standards - have become a widespread tool for organizations within the environmental management and Corporate Social Responsibility (CSR) field. At the international level there are two main frameworks disseminated for this purpose: the ISO 14001 and the Eco-Management and Audit Scheme (EMAS) standards. Although these standards are supposed to encourage regulatory compliance and continuous improvement of environmental practices and performance, their real impact on corporate greening have been questioned in the literature (see, for a recent review, Heras-Saizarbitoria and Boiral, 2013). Despite this questioning, the ISO14001 and EMAS standards have been widely adopted by various organizations across all industries (Guoyou et al., 2012) and the number of certifications has significantly increased over the last two decades. For example, ISO 14001 was launched in 1996 and, in 2012, more than 285, 000 organizations across the world were certified (ISO, 2013).

EMAS was launched in 1993 and came into force in 1995. In 2013, nearly 4200 European organizations, notably in Germany, Spain and Italy, were EMAS certified (European Commission, 2013). Despite the general growth of EMSs certifications, a recent tendency to saturation and/or decline has been evidenced in certain countries, notably those where environmental certifications were traditionally more widespread (Franceschini et al., 2011).

The decline in the growth of the number of certified companies is known as decertification in the literature on quality and environmental certifications (e.g. Sampaio et al., 2011; Bernardo et al., 2015). This phenomenon of decertification is related to the decision that companies make not to renew their certificate and to the fact that fewer new certificates are issued to organizations that are certified for the first time. In the case of ISO 14001, it can be ascertained that the growth rates of certificates issued on an international level have fallen. Thus, by early 2007, 128,211 certificates had been issued worldwide, and three years later, this figure had reached 222,794 - in other words, mean percentage growth during that period was 14%. However, the mean growth rate over the following three years fell to 7%, with 285,844 certificates having been issued by early 2013 (ISO, 2013). This decline in the growth rates of certificates issued is even more apparent in the case of the EMAS standard. Specifically, there were 4583 EMAS certified organizations in 2010, whereas the total number had fallen to 3679 by the end of 2013, i.e. a 20% drop (European Commission, 2014). This tendency has been particularly pronounced in countries where the EMAS certification was traditionally well established, such as Germany and Spain. Nevertheless, as underlined by Franceschini et al. (2010), a similar tendency could occur in others European countries where EMSs certifications have increased over the last few years.

Surprisingly, although the growth in EMSs certificates has been largely commented in the literature (e.g. Delmas and Montes-Sancho, 2011; Heras-Saizarbitoria et al., 2011; Boiral, 2011), the recent tendency of decertification remains almost unexplored.

The objective of this paper is to shed light on the main variable related to the intention to renew or not the EMAS certification, notably the motivations, obstacles and benefits ensuing from the implementation of the standard. In order to evaluate the research hypotheses, a survey was carried out in Spain, one of the European Union regions where both ISO 14001 and EMAS has been most widely disseminated in absolute and relative terms. Likewise, this country was selected due to the deep economic crisis in which its economy has been involved from 2008, including a strong economic downturn and a high increase in unemployment rates, and bankruptcies of companies (Eurostat, 2014), which might also have deep influences for CSR and environmental management activities.

The remainder of this paper is structured as follows. First, the adoption of certifiable EMSs is analyzed from a theoretical perspective, involving a review of the academic literature published thus far on this issue. From this review, the working hypotheses are derived which will be used to structure this article. Second, the methodology of the study is exposed. Third, the results of a survey directed to Spanish EMAS certified companies are described. Lastly, the conclusions are presented, and the original contributions made by this research are identified.

2. Literature review and hypotheses development

Although the issue of environmental decertification has apparently not been analyzed from an organizational perspective, few recent studies have addressed the impact of the economic and financial crisis facing the world economy on the CSR and environmental management initiatives (e.g. Ducassy, 2013; Barnett et al., 2014). Some of these works (e.g. Gallego-Álvarez et al., 2014) underline that, in times of crisis, companies continue to invest in sustainable projects to enhance relations with their stakeholders that might result in greater economic benefits. As underlined by Barnett et al. (in press) during times of economic constraint firms tend to shift their configurations of CSR and sustainability investments without undertaking significant cutbacks. Bansal et al. (in press) evidenced empirically that firms reduced their CSR during the 2008-2009 global recession but they showed that firms with greater slack resources are more likely to continue their strategic CSR during times of economic constraint. Similarly, García-Benau et al. (2013) evidenced that the number of CSR reports increased significantly with the crisis in Spain. Conversely, others studies argue that environmental and CSR initiatives tend to fall at times of crisis. For example, Cheney and McMillan (1990) underlined decades ago that, in times of crisis, organizational behavior becomes more conservative and defensive, which translates into a decrease in investments for sustainability. Karaibrahimoğlu (2010) also evidenced that there was a significant decrease in the CSR projects of Fortune 500 companies with the economic crisis. Likewise, in their survey based on Milan-based organizations, Evans and Tzavara (2012) showed that CSR engagements were considered as a costly engagement and tend to decrease due to the financial crisis. Generally speaking, the literature on the effects of financial crisis on corporate sustainability remains limited.

Moreover, this literature has been essentially focused on whether CSR-related action grows or falls due to economic difficulties, without analyzing its impact on how organizations decide or not to proceed with a specific initiative such as environmental certification. Furthermore, the reasons underlying the recent decline in some environmental certifications, notably the EMAS certificate, remains underexplored. According to certain studies, the dissemination of environmental certification has reached a certain level of saturation in some countries and sectors (e.g. Marimon et al., 2011; Sampaio et al., 2011). In this perspective, the relative decline of certification in regions such as UK and France is explained by their extensive diffusion rather than economic turmoil. Nevertheless, this phenomenon, which can be observed with the diffusion of ISO 14001, tends to be compensated by the significant increase of certification rate in developing countries (ISO, 2013). Moreover, the diffusion of the EMAS standard is much less extensive than ISO 14001, including in Europe, and its decline can therefore hardly be related to the level saturation of certain countries. Another reason to explain the decertification phenomenon is the influence of the economic crisis, which was recently been pointed out (Heras-Saizarbitoria and Boiral, 2013). Because the adoption of certifiable EMSs or the renewal of certification can be costly and lead to uncertain outcomes (Kehbila et al., 2009; Boiral, 2007), it may not be perceived as a priority in companies facing severe difficulties.

Nevertheless, although certain countries such as Spain and Italy were particularly affected by this crisis, its' influence on EMSs certification has not been explored in depth in the literature. Moreover, irrespective of its cause, the decertification phenomenon has not been analyzed from an organizational and empirical standpoint in order to shed more light on the factors underlying the decision to renew or not environmental certification. These factors are notably related to the

motives that have led firms to adopt certifiable EMSs, obstacles detected and benefits obtained from the process. Although these factors have been largely covered in the literature on the adoption of EMSs (Heras-Saizarbitoria and Boiral, 2013), the impacts of the economic crisis on the motivations, obstacles and benefits of environmental certification needs to be further investigated. These impacts can be described by few hypotheses.

2.1. Motivation for environmental certification

According to the study of Bansal and Roth (2000), three types of motive can lead companies to implement an EMS based on an international standard of reference: ethical, competitive and relational. Ethical motives are a response to environmental concerns. Competitive motives arise from the search for competitive advantage. Relational motives emerge from the desire on the part of companies to become legitimized and to improve the relationship existing between the different stakeholders. Similarly, Neumayer and Perkins (2004) underlined two main sources of motivation that lead companies to implement certifiable EMSs: on the one hand, internal motives related to efficiency (efficiency motives) - that is, an improvement in performance, productivity and profitability - and, on the other hand, external or institutional motives related to the social pressure exerted by different agents to persuade company managers to adopt certain practices. In the same vein, González-Benito and González-Benito (2005) differentiated the following four drivers for the adoption of EMSs: operational competitive motivations (costs, productivity), commercial competitive motivations (market, image, customers), ethical motivations, and relational motivations (regulators, local organizations). Broadly speaking, the adoption of certifiable EMSs can be driven by two main reasons, one external (e.g. pressures from the market and governmental agencies and markets) and the other internal (e.g. conscious managers, operational aspects of their products, cost-minimizing).

These reasons are not mutually exclusive and can reinforce each other (Takahashi and Nakamura, 2010). Nevertheless, the impact of internal or external sources of motivations to adopt the environmental certification may be different and various studies have concluded that internal motivations have a relatively stronger influence on performance than external motivations (Heras-Saizarbitoria and Boiral, 2013; Heras-Saizarbitoria et al., 2011; Boiral, 2007). First, higher internal motivations to adopt the environmental certification means that organizations perceive the relevance of the EMS adoption to improve environmental practices and performance. As a result, the perceived benefits are higher because, from the outset, the EMS is designed to meet internal needs, which encourage the internalization of the standard on a day-to-day basis (Perez et al., 2009; Yin and Schmeidler, 2009; Boiral, 2007, 2011). For example, Guoyou et al. (2012) concluded that the internal motivation was the main driving force of internalizing ISO 14001. Similarly, in a recent survey on EMAS registered organizations, Heras-Saizarbitoria et al. (2015a) evidenced that the internal drivers have a significantly higher influence on the perceived benefits of the adoption, irrespective of the size, the sector of activity and the environmental pressures of the company. Conversely, external motivations to adopt EMSs, such as market demand, are not necessarily in line with the internal needs related to environmental management practices (Christmann and Taylor, 2006; Heras-Saizarbitoria et al., 2011; Boiral, 2007, 2011). Second, external pressures can lead to a superficial adoption of an EMS mostly intended to improve organizational image rather than its environmental performance (Christmann and Taylor, 2006; Heras-Saizarbitoria et al., 2011).

Generally speaking, the greater is the influence of internal motives, the greater is the internalization of environmental certification and its related benefits. As a result, decertification, i.e. the decision not to renew the certificate, is unlikely. This relationship should not be affected by the economic crisis, because of the perceived internal relevance and effectiveness associated with the EMSs certification. Thus, the following hypothesis is proposed:

Hypothesis 1. Internal motives behind adopting an environmental certificate are negatively related to the likelihood of not renewing it.

2.2. Costs and grants for environmental certification

As far as obstacles are concerned in adopting environmental certificates, the empirical literature has pointed out two main factors: the initial investment associated with implementing and certifying the EMAS and the annual cost of maintaining and renewing the certificate (Kehbila et al., 2009; Crotty and Rodgers, 2012; Iraldo et al., 2010). The empirical literature on this subject indicates that the costs of implementing an EMS system are quite similar, regardless of whether it is based on ISO 14001 or EMAS (Schylander and Martinuzzi, 2007; Takahashi and Nakamura, 2010). According to a EU study, the average cost of implementing EMAS was €48,000 the first year and €26,000 each year thereafter (Vernon et al., 2003). Costs constraints emerged as one of the key barriers to the adoption of EMSs within the South African automotive industry (Kehbila et al., 2009). The focus on high certification costs and limited financial resources have equally been observed in various other studies particularly with SMEs (e.g. Curkovic and Sroufe, 2011; Albuquerque et al., 2007; Psomas et al., 2011; Boiral, 2011). Although some studies have shown relatively short payback periods (e.g. Hamschmidt and Dyllick, 2006), in many organizations, the issue of costs tends to question the decision to adopt or renew environmental certification (Nawrocka and Parker, 2009; Crotty and Rodgers, 2012).

Nevertheless, environmental certification can also be perceived as an investment which can be profitable in the long term (Roy et al., 2001; Meade and Pringle, 2001). In this perspective, the greater is the initial investment (for instance, per employee) that organizations had to pay out in order to adopt the environmental certificate, the greater is the likelihood of its renewal, which is necessary to recover the investment made. Similarly, in time of crisis, the annual cost of maintaining the certificate (i.e. the cost of internal audits, the cost of external certification) may be perceived as too costly, which tends to question the renewal of certification. As a result, the annual cost of maintaining and certifying the EMS is expected to be positively linked to the likelihood of not renewing certification.

Therefore, the following two hypotheses are posited:

Hypotheses 2. Initial investment made per employee in order to obtain an environmental certificate is negatively related to the likelihood of not renewing it.

Hypotheses 3. The annual cost per employee made in order to maintain an environmental certificate is positively related to the likelihood of not renewing it.

Another aspect that needs to be taken into account regarding the costs of implementing and certifying an EMS, is the grants and other public aid received by organizations. With few exceptions (Steger et al., 2002; Glachant et al., 2002), this aspect has been largely overlooked in the literature on the dissemination of environmental certification (e.g. Perkins and Neumayer, 2004; Heras-Saizarbitoria and Boiral, 2013). Nevertheless, public grants can have a significant effect on the adoption of certifiable EMSs, notably in the case of the EMAS standard, which is encouraged by simplification measures and fiscal incentives in certain European countries (Steger et al., 2002; Glachant et al., 2002; Iraldo et al., 2013; Heras-Saizarbitoria and Boiral, 2013). For the aforementioned reasons, it would be insightful to analyze the role played by public grants in the likelihood or not of renewing these certificates at times of crisis. According to recent studies on the role of different grants and other aid awarded to organizations to implement certifiable EMSs (Iraldo et al., 2013), the main grants are provided with a view to reducing the initial investment required to obtain certification. Although this type of grant, which can cover up to 100% of the initial investment, encourage the decision to adopt standards such as ISO 14001 and EMAS, it could have a negative effect on the decision to renew certification, except if the financial support provided to organizations also covers this renewal, which is usually not the case. Public grant may therefore provide a short-term stimulus for certification, notably for managers who are not fully convinced by the internal relevance of certifiable EMSs. Overall, the lack of conviction and support from managers with regard to the implementation of certifiable EMSs has been evidenced as one of the main obstacle to their successful implementation (e.g. Paillé et al., 2013; Boiral, 2011; Studer et al., 2006). Unconvinced managers may therefore adopt EMSs such as the EMAS standard symbolically in response to external stimulus and the search for social legitimacy. This attitude has been highlighted by the neo-institutional approaches of environmental management (Christmann and Taylor, 2006; Yin and Schmeidler, 2009; Boiral, 2007, 2012). According to these approaches, the adoption of EMSs such as ISO 14001 and EMAS is motivated by their social legitimacy and associated resources, rather than their internal efficiency. Nevertheless, the EMSs certifications such as ISO 14001 and EMAS are only valid for a three years period. As a result, in the absence of new financial support, its renewal may appear as unnecessary and too costly, notably for unconvinced managers. The economic crisis tends to reinforce both the impacts of incentives provided by public grant for certification and the subsequent perception that the renewal of this certification would be too costly. Thus, the following hypothesis is proposed:

Hypothesis 4. Covering costs by means of grants initially obtained by firms to enable them to adopt the environmental certificate is positively related to the likelihood of not renewing it.

2.3. Benefits of environmental certification

Finally, the benefits of EMSs certifications have been widely studied (e.g. Bansal and Hunter, 2003; Delmas, 2001; González-Benito and González-Benito, 2005; Yin and Schmeidler, 2009), although their pitfalls and drawbacks have also been highlighted in the literature (Jiang and Bansal, 2003; Christmann and Taylor, 2006; Boiral, 2007, 2011). Empirical studies have highlighted the positive impacts of EMSs certification on various issues such as business productivity and effectiveness (Pan, 2003; Poksinska et al., 2003; Delmas, 2001), minimization of environmental problems (Bansal and Bogner, 2002; Melnyk et al., 2002), image improvement

(Chin and Pun, 1999; Zeng et al., 2005), compliance with laws and regulations (Yiridoe et al., 2003; Heras-Saizarbitoria et al., 2011), competitiveness (Kollman and Prakash, 2001; Corbett and Russo, 2001; Montabon et al., 2000; Florida and Davison, 2001), environmental performance (Rondinelli and Vastag, 2000; Russo and Harrison, 2001; King and Lenox, 2001; Tan, 2005; Link and Naveh, 2006), and employee motivation (Rondinelli and Vastag, 2000).

Although the vast majority of studies assumes that the adoption and benefits of EMSs certifications are homogeneous, more and more studies have questioned this quite monolithic view and have underlined the context-dependency and heterogeneity of certification outcomes (Yin and Schmeidler, 2009; Heras-Saizarbitoria and Boiral, 2013; Boiral, 2007, 2011). In their study on 356 certified companies in the USA, Yin and Schmeidler (2009) evidenced that, even under isomorphic pressures, the implementation and outcomes of ISO 14001 was very heterogeneous. Similarly, in their survey among 214 Spanish certified companies, Heras-Saizarbitoria et al. (2011) have shown the heterogeneous level of perceived benefits resulting from the ISO 14001 certification according to managers' opinion. The same remark applies to the studies of Aravind and Christmann (2011) and Curkovic and Sroufe (2011). Given these heterogeneous outcomes, one can assume that the decision to renew EMSs certification largely depends on its perceived benefits and on the general satisfaction with the process of adoption by managers. This relationship is certainly reinforced in time of crisis given the importance of economic constraints and search for better effectiveness for company survival. As a result, the following hypotheses are proposed:

Hypothesis 5. The perceived benefits obtained from the adoption of the environmental certificate are negatively related to the likelihood of not renewing it.

Hypothesis 6. The perceived satisfaction obtained from the adoption of the environmental certificate is negatively related to the likelihood of not renewing it.

3. Research methodologies

3.1. Sampling and data collection

The objective of the paper is to shed light on the intention to renew the EMAS certification in time of crisis by Spanish organizations. The EMAS standard was selected because it is generally considered as more demanding than ISO 14001 in terms of managerial requirements (e.g. objectives, performance indicators, regulatory compliance) (e.g. Neugebauer, 2012; Morrow and Rondinelli, 2002). As a result, the renewal of the EMAS certification can be challenging, notably in times of crisis. Moreover, Spain is one of the first countries in terms of EMAS certification, with around 29% of all certificates in 2012, which facilitated the data collection in this country. The survey was sent, with an introductory letter, to the attention of the EMAS coordinator of the 1217 Spanish companies registered with the EMAS certificate. The data pertaining to firms registered with EMAS were provided on the date of closure in November 2011 by the EU EMAS Helpdesk service of the European Commission (EC, 2014). After following up by telephone, the survey was concluded at the end of May 2012, a period when the effects of the financial crisis was particularly severe in Spain. Thus, in 2012, Spain faced, among other things, a record high

unemployment rate (more than 24%), a significant decrease of retail sales, a downgrade of long-term credit rating, an unprecedented wave of company disclosure and downsizing, and a deep cut of public grants and subsidies for both citizens and companies due to public expenditure restrictions. For the specific case of environmental management grants it has to be underlined that public grants and subsidies to adopt environmental certificates were substantively restricted (Allur et al., 2013). Information for firm size, sector of operation and registration was obtained from the data provided by the EU EMAS Helpdesk.

The survey was based on a sample of 361 valid responses from Spanish EMAS companies, which represented a response rate of 29.66%, a high rate of response for this country (Del Brío et al., 2002; Heras-Saizarbitoria et al., 2011).

In a first step, we have analyzed whether the companies that responded are different from those that are certified on any particular characteristics (see Table 1). With this aim, we have confirmed that there are no differences between the sample and the population, in terms of either the proportion of companies belonging to the industrial, construction and service sectors, or in the proportion of small, medium and large companies.

3.2. Measurements

We developed two studies for the purpose of analyzing the hypotheses. In a first phase, we conducted a correlation analysis using the variables as shown in Table 2, and, subsequently, the main study employed a linear regression analysis that is summarized in Table 3. In both cases, we divided the variables into independent variables, which refer to the initial hypotheses, and control variables.

Table 1. Characteristics of the sample compared with the overall population (all EMAS registered organizations).

	Sample %	Total %	Significance level (a)
Industry	40.45	37.96	0.3822
Construction	1.67	2.71	0.2348
Services	57.9	59.33	0.6281
Large	13.58	17.42	0.0676
Medium	29.36	27.94	0.6722
Small	57.06	54.64	0.4538
Total	361	1217	

Source: Prepared by the authors.

(a) A chi-square bilateral independent test is used to evaluate the significance of the difference in proportions between the sample and the global population.

Items were measured using the managers' perception of several aspects related to the adoption and renewal of EMAS. Perceptual measures are often used in the empirical management literature and are considered to satisfy reliability and validity requirements (Ketokivi and Schroeder, 2004). In our survey, the motivations and the benefits of EMAS were initially addressed with open questions, and later through closed questions. Responses were given on a 5

point Likert scale (with values 1 to 5 being from least to greatest importance). Regarding the motivational issue, the main responses to the open question were relatively homogeneous, since nearly 85% of them could be reduced to the six sources of generic motivations that were similar to those identified in the closed questions. This characteristic is an indicator of the internal consistency of the questionnaire (Taylor et al., 2007). Based on the academic literature analyzed (Christmann and Taylor, 2006; Boiral, 2007, 2011), the motivational factors for EMAS were grouped together into sources of motivation of internal and external nature (items in rows 6 and 7 of Table 2). Similarly, the responses given regarding the benefits of adopting EMAS were homogeneous, with over 90% of responses matching the five factors regarding the main benefits of the adoption of EMSs that had been referred to in the academic literature. Subsequently respondents gave their ratings in closed questions on a 5 point Likert scale (items in rows 12 to 16 and with the average benefits for respondent in row 17 in Table 2). Additionally, together with these benefits, the assessment of the general satisfaction with EMAS adoption by the organizations consulted was included (item in row 18 of Table 2).

Firms were asked in the survey about the initial investment made and the annual maintenance cost with a view to ascertaining the costs incurred in the EMS adoption, registration and maintenance process. Likewise, they were requested to provide the percentage of these costs that had been covered by grants. Finally, firms were also questioned about their intention regarding the renewal of the environmental certification; more specifically, they were asked to specify the percentage of probability to not renew the certification (item in row 19 of Table 2).

In addition to the independent and dependent variables included in the analysis shown below, the following control variables were also included, based on the previous evidence from the literature: the size of the certified companies (measured by the number of employees), the sector in which the certified companies operate and the registration date.

Internal consistency was measured by a reliability test using Cronbach's alpha as the criterion. In the literature, a value greater than 0.6 is usually considered satisfactory, while a value of over 0.7 is considered advisable (Robinson, 1991). In our study, the construct of internal sources of motivation has a value of 0.706 for this statistic, while for the construct of external sources of motivation the value was 0.652, and for benefits it was 0.813. These values indicate that the questionnaire has an acceptable internal consistency.

3.3. Tests

To complement the above and to test construct validity, a factor analysis was carried out in which it was shown that, in the case of the constructs, the percentage variance associated with the first component was 83.06% for the internal motivations, 70.13% for the external motivations and 57.7% for the benefits, with the variance values of the rest of the components being low in the three cases, meaning that both constructs can be considered to be unifactorial (Fornell and Lacker, 1981). The Barlett's sphericity test was significant ($p = 0.00$) for the three constructs. The KMO test value was 0.691 for external motivations and 0.730 for benefits (above the recommended value of 0.60). The determinant of the correlation matrix was not null for any construct, being 0.709 for external motivations, 0.748 for internal motivations and 0.311 for benefits (Cureton and D'Agostino, 1983; Hair et al., 2006).

Likewise, as is now customary in empirical work carried out in literature on the subject (e.g. Yin and Schmeidler, 2009), the common method bias was also analyzed, given that the variables were grouped together in the same measuring instrument. Such possible distortion was tested using Harman's post-hoc single factor test. This showed that the factor with the greatest weight accounted for 29.91% of total variance - lower than the 50% recommended value referred to in the literature (Podsakoff and Organ, 1986).

The results of the linear regressions are presented in Table 3 t. Except for the case of the annual costs and subsidies, the regression analyses are significant and the values of R² are acceptable (between 0.135 and 0.182) considering the complexity of the study, the number of independent variables in each regression (one or two), the significance of the significance of the β coefficients in the relevant regressions and the number of cases used in the analysis (Faul et al., 2009).

4. Empirical results

Among the firms that took part in the study, 43.1% confirmed that they were going to maintain their certificate, whereas 11.9% answered that they were not going to renew it and the remaining 45% expressed serious doubts about continuing. In total, the mean probability of not renewing the certificate of the firms that responded to the questionnaire was of 26.85%.

With regards to the control variables, generally speaking the correlation coefficients and the regression coefficients are not very high, and are not significant, with the exception of a few cases. For example, in the regression analysis there is an interesting significant relation between the organizations sectors and the probability of not renewing certification, which is positive for the industrial and negative for the services organizations.

As for the dependent variables, it was firstly ascertained that internal motives are positively related to the likelihood of maintaining the certificate, whereby hypothesis 1 would be accepted for a 0.05 significance level via correlation and regression analyses. Likewise, it can be observed in both studies that external motives would seem to be positively related, even if this might be deemed weak and insignificant.

Furthermore, although an inverse relation between the initial investment per employee and the likelihood of not renewing would seem to be ascertained in both analyses, these are very weak and insignificant. For these reasons, hypothesis 2 cannot be confirmed. When analyzing hypothesis 3, we checked that the indicators turn out to show the opposite, albeit not significantly, i.e. without any clear sense. Moreover, coefficient F that introduces this variable in the regression (0.381) is not significant, whereby this working hypothesis could not be neither accepted nor rejected, as the model is not significant to test this relation. With regards to the variables analyzed in this two hypotheses, it has to be underlined the very high deviation of the data for both the initial investment per employee and the annual cost of maintenance per employee stated by the respondent organizations.

Table 2
Descriptive statistics and correlation analysis.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 Industry	0.579	0.496	1																		
2 Construction	0.017	0.125	-0.147	1																	
3 Services	0.414	0.494	-0.952**	-0.106	1																
4 Firm size	91	149	-0.050	0.024	0.011	1															
5 Registration date	2004	2.7	0.027	0.084	-0.061	0.112	1														
6 Internal Motivations	3.91	1.03	0.071	0.102	-0.099	0.136	-0.022	1													
7 External Motivations	3.17	0.81	-0.053	0.032	0.079	-0.196*	0.133	0.159	1												
8 Initial Invest per employee	616	1837	0.141	-0.038	-0.132	-0.163	-0.057	0.090	0.201*	1											
9 Initial subsidy %	33.17	33.36	0.068	-0.080	-0.057	-0.080	-0.047	-0.066	-0.045	-0.045	1										
10 Annual cost per employee	236	415	0.188*	-0.067	-0.179*	-0.271**	-0.153	0.096	0.194*	0.676**	-0.043	1									
11 Annual subsidy %	6.17	18.43	0.097	0.308**	-0.181*	-0.112	-0.065	0.044	0.030	-0.008	0.275**	0.090	1								
12 Image improvement	3.92	1.09	0.055	0.125	-0.086	-0.085	0.059	0.112	0.323**	0.100	0.045	0.164	0.140	1							
13 Fulfill laws and regulations	4.13	1.03	-0.089	-0.016	0.091	0.021	-0.108	0.439**	0.179*	0.039	0.050	0.080	0.077	0.364**	1						
14 Environmental effect. improv.	4.04	1.09	0.176*	-0.005	-0.176*	0.040	-0.040	0.574**	0.110	0.067	0.029	0.013	0.053	0.320**	0.587**	1					
15 Minimize environ. problems	3.56	1.24	0.107	-0.057	-0.113	0.035	-0.090	0.633**	0.071	0.114	-0.020	0.106	0.073	0.294**	0.565**	0.706**	1				
16 Competitiveness improvement	3.16	1.29	-0.014	0.130	0.004	-0.024	0.033	0.359**	0.445**	0.124	-0.102	0.053	0.079	0.516**	0.341**	0.452**	0.520**	1			
17 Benefits	3.76	0.87	0.063	0.049	-0.075	-0.004	-0.037	0.562**	0.303**	0.120	-0.005	0.109	0.111	0.653**	0.737**	0.804**	0.822**	0.767**	1		
18 Satisfaction	3.76	1.14	0.097	0.084	-0.131	0.125	-0.008	0.567**	0.162	-0.078	0.024	-0.076	0.127	0.326**	0.489**	0.652**	0.568**	0.392**	0.639**	1	
19 Not renew probability %	26.85	37.94	0.162	-0.090	-0.172	-0.070	-0.084	-0.195*	0.030	-0.067	0.272**	-0.073	0.024	-0.146	-0.180*	-0.145	-0.192*	-0.033	-0.180*	-0.214*	1

Source: prepared by the authors. Cell entries are standardized coefficients; *P < 0.05; **P < 0.01 in two-tailed tests.

Prior to studying hypothesis 4, we checked that 29% of firms covered at least 50% of initial costs incurred in obtaining environmental certification. It was ascertained from the analysis that grants have a positive influence on the likelihood of not renewing the certificate, whereby the hypothesis is confirmed for a 0.01 significance level. The correlation (0.272) and regression (0.260) coefficient referring to the influence of initial grants on the likelihood of not renewing are worthy of note. Therefore, it can be clearly confirmed that subsidizing the environmental certificate affects the likelihood pointed out by interviewees of maintaining the certificate.

When analyzing hypothesis 5, we initially noted that there is a strong correlation between the results or benefits declared by interviewees in adopting EMAS. This creates a problem for us, as the influence of such benefits on the likelihood of not renewing is compensated for a great deal when carrying out the regression analysis. Thus, when doing so, we introduced only the mean value of the benefits for each respondent - as stated, item number 17 in Table 2 - which is a construct that has been previously analyzed. One aspect to which attention should be drawn in this section is that, although in all cases, the increase in each benefit has a negative correlation with an increase in the likelihood of not renewing, these correlations are significant for two of the five items: comply with laws and regulations and minimize environmental problems. In terms of the construct, the greater the perceived benefit, the greater the likelihood of renewing proves significant in the case of both the regression and correlation analyses. R2 is not high, but the coefficient (-0.190) and F (3.372) introduced by the indicator in the regression are significant. Therefore, hypothesis 5 is confirmed with a 0.05 significance level. Lastly, attention should be drawn to the fact that the indicator corresponding to satisfaction also has a negative and significant correlation with regard to the likelihood of not renewing. Furthermore, the correlation (-0.217) and regression (-0.214) coefficients and the F introduced by the indicator in the regression (5.764) are better. For these reasons, hypothesis 6 is accepted for a 0.05 significance level.

5. Discussion and conclusions

The objective of this study was to analyze the intention to renew or not the EMAS certification in Spanish organizations during a period of economic crisis. The findings underline that the renewing of the EMAS certificate is related to the motivations behind the adoption of the certificate. More specifically, it's evidenced that the higher the internal reasons to implement and certificate an EMS such as the objective to improve the environmental effectiveness of the company, the lower is the likelihood of not renewing the certification. Additionally, it's also evidenced that both the initial investment made by the adopting organizations in order to obtain the EMAS certificate and the annual cost of its maintenance are not related to the likelihood of not renewing it. Furthermore, in the light of the results that have been evidenced with regards to this issue - with a very high variance regarding the initial investment per employee and the annual cost of maintenance per employee - it could seem that the certified organizations do have some difficulties to internalize the real costs related to the implementation and certification processes. With regards to the influence of the public grants and other subsidies to adopt EMAS, it has been evidenced that the covering costs by means of grants initially obtained by firms to enable them to adopt the environmental certificate are positively related to the likelihood of not renewing it. This finding seems to confirm that the EMAS certification is essentially driven by public incentives and/or constraints (Iraldo et al., 2013; Glachant et al., 2002; Heras-Saizarbitoria et al., 2015b). The role of the public incentives for the adoption of environmental certifications as well as other initiatives for CSR and environmental management should therefore receive more attention. Finally, it has been also confirmed that the perceived benefits obtained from the adoption of the environmental certificate and the perceived satisfaction are two important variables that influence the companies to maintain the certification.

Table 3. Results of the regression analysis.

	Control Variables	Not renew probability				
		Motivations	Initial costs and subsidies	Annual costs and subsidies	Benefits	Satisfaction
Sector (Dummy-coded)						
Industry	0.183*	0.197*	0.205*	0.189*	0.153	0.205*
Construction	-0.104	-0.080	-0.083	-0.097	-0.086	-0.097
Services	-0.219*	-0.242**	-0.242**	-0.201*	-0.163	-0.144
Firm size	-0.121	-0.060	-0.063	-0.117	-0.047	-0.037
Registration date	-0.100	-0.149	-0.137	-0.102	-0.068	-0.045
Independent variables						
Internal motivation		-0.218*				
External motivation		0.077				
Initial invest per employee			-0.091			
Initial subsidy			0.260**			
Annual cost per employee				-0.145		
Annual subsidy				0.031		
Benefits					-0.190*	
Satisfaction						-0.217*
Model information						
R ²	0.105	0.149	0.182	0.124	0.135	0.142
F for the regression	2.757*	2.163*	3.045**	1.587	2.534*	2.650*
F for the step	2.757*	2.732*	5.054**	0.381	3.372*	5.764*

Source: prepared by the authors. Cell entries are standardized coefficients; *P < 0.05; **P < 0.01 in two-tailed tests.

The paper contributes to the literature on certifiable EMSs in several ways. First, the certification renewal and decertification phenomena have largely been overlooked in the literature, which has essentially been focused on the implementation and certification of EMSs. As a result, the reasons underlying the non-renewal of the certification process by an increasing number of organizations has remained almost ignored. Moreover, few empirical studies have specifically focused on the EMAS certification, although this standard is rather widespread in some European countries, including Spain, Germany and Italy (Steger et al., 2002; Glachant et al., 2002;

Wätzold et al., 2001). Moreover, with few exception (Testa et al., 2014; Martín-Peña et al., in press) these studies are not recent and, in our knowledge, none of them have delve deeper into the reasons of the decertification process. This paper contributes to the literature by shedding more light on these reasons, notably the role of internal motivations, costs internalization, perceived positive outcomes and public incentives for certification.

Second, the paper contributes to the understanding of the possible impacts of the economic crisis on environmental certification. Generally speaking, the economic impacts of certifiable EMSs have been largely debated in the literature. Whereas some studies have highlighted the positive economic impacts of environmental certification (e.g. Kollman and Prakash, 2001; Corbett and Russo, 2001; Montabon et al., 2000; Florida and Davison, 2001; Pan, 2003; Poksinska et al., 2003), others have emphasized their costs and possible negative outcomes (Jiang and Bansal, 2003; Christmann and Taylor, 2006; Boiral, 2007, 2011). Although this literature has raised important issues with regard to the economic issues of certification (motivations, benefits and impacts), these issues are essentially apprehended as a consequence of EMSs implementation. As a result, the adoption of certifiable EMSs seems independent from the economic context and unaffected by the financial crisis hitting certain regions. As stated in the literature review, only very recent studies have addressed the possible consequences of the economic and financial crisis on CSR and environmental management initiatives (Ducassy, 2013; Gallego-Álvarez et al., 2014; Evans and Tzavara, 2012). Nevertheless, these studies have not specifically focused on environmental certification, notably the case of EMAS certification in Spain. The results of the study show that the majority (57%) of Spanish organizations surveyed are either not going to renew the EMAS certification, or else have serious doubt about this possibility. Although the specific impacts of the economic crisis on these results are difficult to measure precisely, it is reasonable to assume that the financial turmoil has made Spanish organizations more reluctant to renew the certification of a standard which is perceived as costly and not necessarily effective by many managers.

Third, the paper contributes to explore the impact of the public incentives for the adoption EMSs. With few exceptions (Steger et al., 2002; Glachant et al., 2002; Iraldo et al., 2013), this impact has been overlooked in the literature. In the case of the EMAS certificate, public incentives are all the more important than the standard has been created and promoted by the EU. Although the standard is based on the voluntary participation by organizations, it has been the object of a regulation (EC No 1221/2009) which states that “the Commission and the Member States should consider how registration under EMAS may be taken into account in the development of legislation or used as a tool in the enforcement of legislation” (Official Journal of the European Union, 2009, p. 1). This EU regulation also states that EMAS organizations may “may gain added value in terms of regulatory control, cost savings and public image” (p. 2). The results of the study tend to show that, although the internal motivations and perceived benefits of the standard are correlated with the intention of renewal, the latest also largely depends on the initial public incentives for certification. In this perspective, the EMAS certification tends to appear as an institutional tool to obtain external resources rather than a mere environmental management system. This perspective is in line with the neo-institutional theory which argues that the adoption of new practices tends to be motivated by the search for external legitimacy and resources rather internal efficiency (Meyer and Rowan, 1977; Yin and Schmeidler, 2009 Christmann and Taylor, 2006; Boiral, 2007, 2012). Because the budget cuts of Spanish

governmental agencies have significantly reduced the public incentives for environmental certification (Allur et al., 2013), certified organizations are less motivated to pursue the certification. Moreover, these incentives were essentially focused on the initial adoption of the standard, and not its maintenance. As a result, paradoxically, the grants initially obtained by organizations to cover the costs of certification tend to have a subsequent negative impact on the likelihood of certification renewal.

The findings of this research have important implications for organizations and stakeholders alike. The prominent role of internal motivation suggests that managers should first and above all clarify their motivations for adopting an environmental certification. If the certification process is mostly driven by external motivations, in particular the incentives provided by governmental agencies, the standard implementation is more likely to be short-lived and the renewal of certification more uncertain, notably in time of economic crisis and major budget cuts. Conversely, if the certification is seen as the final stage of a long journey of continuous improvement that could add real value to both organizations and the environment, the EMS implementation is expected to be more substantial and organizations are likely to renew certification. In this perspective, an environmental certification should not be considered as an end in itself but rather as a tool for continual improvement. Similarly, it has been evidenced that the perceived benefits and the overall satisfaction of certified organizations are a good predictor of their loyalty to maintain the environmental certification regardless of the motivation that drove them to adopt it. These findings should encourage organizations to adopt certifiable EMSs substantively rather than symbolically.

Finally, public decision-makers and other interest groups involved in the promotion of environmental certifications, such as certification and accreditation bodies and sectoral associations or clusters, should remain cautious of the final impact of some public incentives. The Public Administrations have pushed organizations towards the adoption of EMSs such as EMAS by four different ways: reducing the technical barriers to EMS adoption (e.g., public programs aimed at improving the knowledge on these tools for SMEs); enhancing direct benefits derived from EMS (e.g., incentives in public contracts and bids); rewarding certified organizations with reduced enforcement (e.g., regulatory relief); and, finally, providing public subsidies and grants (e.g., grants to subsidize the implementation and/or the certification costs). Our study calls into question the effectiveness of these later public measures to encourage a long-range and substantial implementation of EMSs. Although these public measures contribute to the initial adoption of the EMAS certificate, it does not provide the sustained implementation necessary to fully taking advantage of the standard.

The limitations of this study provide opportunities for future research. The information used in this paper is based on the perceptions of managers who are supposed to have taken part in the EMS introduction process. Therefore, the results may be influenced by the self-reporting bias related to the personal interests of the respondents in the success of the EMAS system (Nawrocka and Parker, 2009; Heras-Saizarbitoria and Boiral, 2013). Although interesting results have been obtained, more nuanced answers are still waiting to be found with regards to the environmental decertification from an organizational perspective. Future research could explore the decertification process of others certifiable EMSs, notably the ISO 14001 standard which is more widespread across the world. Because the adoption of the ISO 14001 standard seems to be

less dependent on public policies, the reasons behind the decision not to renew certification may be different from those observed in the case of the EMAS certificate. In order to extend the geographical coverage of the data, future research could also try to adopt a cross-country empirical perspective to analyze the process of decertification of environmental certificates in various regions. Spain is not the only country where the renewal of environmental certification is increasingly questioned by organizations. Cross-country comparisons could therefore shed more light on the various reasons underlying this tendency. Such studies could also delve deeper into the relationships between the decertification tendency and other variables on environmental management (e.g. environmental performance, leadership, EMS internalization).

Although this study tends to indicate that the symbolic and externally driven adoption of the EMAS system encourages decertification, this is not necessarily the case for all organizations. For example, the symbolic adoption of EMS standards such as EMAS and ISO 14001 could be perceived by certain managers as a less costly and less time-consuming approach than a more substantial implementation of the system. Such symbolic adoption could therefore increase the willingness of certain managers to renew certification at low cost. Moreover, decertification does not necessarily mean that the corporate environmental performance is decreasing. For example, some organizations may be reluctant to renew certification because of the cost of auditing fees and absence of public incentives, but they may choose to keep their EMS fully functional and effective.

Generally speaking, as suggested in this paper, decertified organizations have not necessarily implemented their EMS in view of substantially improving environmental performance. In this perspective, the decertification process observed in certain countries should not necessarily be interpreted as a decline of environmental concerns inside organizations. Future research could explore these possibilities from quantitative and qualitative studies. The triangulation of quantitative and qualitative data would certainly contribute to delve deeper into the process of not-renewing environmental certifications, notably in times of general economic downturn. As stated, the role of the public incentives for the adoption and the maintenance of environmental certifications as well as other initiatives for CSR and environmental management should receive also more attention, in times of economic crisis where many of the public programs of subsidies and grants are scrutinized.

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