Environmental audits and third party certification of management practices: firms' motives, audit orientations, and satisfaction with certification

Abstract

In this study, we investigate the interplay between motives for certification, audit orientations, and firms' benefits and satisfaction with ISO 14001 certification. We demonstrate that firms' motive for certification is an important determinant in firms' satisfaction. Firms which are motivated by internal motives (such as improvements in their environmental performance) require audits that foster continuous improvement and tend to report greater benefits and satisfaction with the third party certification compared to those that are driven by external motives (such as to match competitors' action). Our findings show that only an improvement orientation towards auditing would lead to clients' satisfaction with ISO 14001. In contrast, external motives for pursuing ISO 14001 certification make firms less focused on environmental improvement through the standard, and, thus, less satisfied with the certification. Our research demonstrates how different motives of seeking certification lead to different satisfaction levels with voluntary standards in an environmental management context.

Keywords: *ISO 14001 certification, auditing, motives for certification, satisfaction with certification, Environmental Management System (EMS)*

1 Introduction

Over two decades ago, voluntary environmental standards, such as ISO 14001, emerged as global instruments to address environmental degradation and to provide firms with a framework to manage their environmental systems (Büthe and Mattli, 2011, Castka and Balzarova, 2008). Their emergence was a response to difficulties in harmonizing and enforcing national and international law, which often showed to be ineffective in addressing global issues. At the same, environmental management has moved to the forefront of boards and managers (Buzzelli, 1991, Greeno, 1992, Porter and van der Linde, 1995). ISO 14001 is a response to these forces. It is a voluntary standard and involves a complex set of steps such as an evaluation of environmental aspects and impacts, establishment of environmental management objective and policy, training, implementation and operation, monitoring and corrective actions, documentation and, importantly, environmental audit by a third party certification body (Delmas, 2002, Gomez and Rodriguez, 2011).

The scholarly literature provides mixed opinions about the effectiveness of ISO 14001 (Castka and Corbett, 2015); however, argue that on balance the academic studies point to a positive impact of ISO 14001 on environmental performance. The academic literature also shows a remarkable convergence in agreeing that the variation amongst certified firms impacts significantly the effectiveness of ISO 14001. In general, the institutional literature attributes the variation to the 'decoupling effect'; e.g., the difference between stated practices and the actual daily operational routines of firms (Meyer and Rowan, 1977). In terms of voluntary standards, the variation has been attributed to various forces such as different firms' motives for certification (Prajogo, 2011); company culture (Balzarova et al., 2006, Sandholtz, 2012); institutional nature of various industries or variations of the quality of consulting services during the implementation phase (Ivanova et al., 2014). However, the research thus far has paid comparatively less attention to environmental audits and their role in the ISO 14001 certification (Dogui et al., 2014)

Environmental audits have a critical role in the ISO 14001 certification. The audit is conducted by accredited certification bodies and firms have wide choices of certification bodies for their selection (for instance, in Australia and New Zealand, over 20 certification bodies are accredited for ISO 14001 audits). The environmental audit determines whether a firm meets the requirements of the standard, and, if so, it can publicly claim a compliance with ISO 14001. Even though ISO 14001 certification is a pass/fail type of certification (Busch, 2011), the standard also requires firms to continuously improve their environmental management efforts. (Barthelemy and Zairi, 1994, Poksinska, 2003). However, the practice

shows that many firms in fact try to gain the certification at the minimal level and are not necessarily interested (or in fact resist) 'continuous improvement' (Lal, 2004). Consequently, firms seem to be seeking certification bodies that match their preference for an environmental audit (Castka et al., 2015), yet this aspects of research on environmental certification has not been adequately addressed in the literature (Heras-Saizarbitoria and Boiral, 2012) .

Our study aims to fulfil the aforementioned gaps in the literature. We build on the literature on voluntary standards and adopt the constructs that have been developed and fine-tuned by numerous studies. Central to our research is a construct of 'motivation for certification' (defined in our study as an approach that an individual firm takes to implement and maintain ISO 14001 certification) and "auditing orientation" (defined in our study as an approach that an individual firm takes in choosing their preferred style of environmental audit). We recognize that the past research has linked motivation for certification to firms' performance (Naveh and Marcus, 2005) as well as firms' satisfaction with the certification (Prajogo, 2011). We also recognize that past research has determined that firms indeed demand different approaches to auditing (Power et al., 2001). However, no prior research has focused on linking these two constructs, despite its importance to the effectiveness of ISO 14001. In this study we show that firms' motivation impact their auditing orientation and consequently firms satisfaction with the certification. Given the increasingly significant impact of self-regulatory environmental standards such as ISO 14001 (Short and Toffel, 2010), our research has important implications to academics and practitioners in this area.

2 Literature Review

2.1 ISO 14001 certification and its auditing process

ISO 14001 certification for environmental management systems is a complex system that involves multiple parties. There are five groups of players: the standard setter (the International Organization for Standardization (ISO)), accreditation bodies (such as JAS-ANZ, UKAS), certification bodies and their auditors (e.g., Lloyds, SAI Global), and participating firms. ISO (the standard setter) is responsible for the development of ISO 14001 (the development is handled by the Technical Committee TC 207 Environmental Management). ISO 14001 specifies a set of requirements and practices for an Environmental Management System (EMS) including the development of a corporate environmental policy, planning, implementation and operations, monitoring and possible corrective actions, top management review and continual improvement (Delmas, 2002, Glover Ritzert, 2000). At the same time, the International Organization for Standardization (ISO) also develops standards

that govern the accreditation, certification, and auditing. Most important standards include ISO 19011 (the Guidelines for auditing management systems) and ISO 17021 (Conformity assessment – requirements for certification bodies providing audit and certification of management systems). ISO is however not involved in accreditation, certification, and auditing. Accreditation and certification is a two tier governance system: accreditation bodies who accredit certification bodies, and the certification bodies who audit participating firms and issue a certificate of compliance.

From a firm perspective, the certification against ISO 14001 proceeds through several stages (Ivanova et al., 2014): firms firstly adopt the requirements of ISO 14001 (this stage typically takes 12 months (Singh et al., 2006), and subsequently, firms seek certification from an accredited certification body. The certification body conducts an external independent audit to determine if the firm complies with the requirements of ISO 14001 and if so, issues a certificate of compliance.

The certificate is valid for three years and during this period, firms are also responsible for maintaining and improving the environmental management system (Balzarova and Castka, 2008). Within these three years, the firm is also subject to annual surveillance audits (some firms are subject to more frequent surveillance audits and the frequency is determined by the certification body). After the three year period, the firm needs to renew its certification. In general, firms have a wide choice of certification bodies to select from. For instance, there are over twenty accredited certification bodies that provide ISO 14001 certification services in Australia and New Zealand; a mix of large and global firms such as Lloyds or SAI Global, but also local (and smaller) certification bodies).

2.2 Auditing orientations

The external audit is the critical part of the ISO 14001 certification process. The literature classifies ISO 14001 audits as non-financial audits (Power and Simon, 2004) or environmental audits (Darnall et al., 2009)[1]. It is generally defined as a "management tool that systematically documents and periodically evaluates how well an organization's management practices and equipment are safeguarding the environment" (Darnall et al., 2009, p. 172). The audit is performed by external auditors, who are employed by a certification body. External auditors must be trained and certified to perform external audits

[1] We used the term "environmental audits" in the paper.

and the training and accreditation of external auditors ensures that each auditor is able to consistently assess the compliance of a firm against the standard.

Power and Terziovski (2007) assert that non-financial audits (such as environmental audits in ISO 14001 certification) provide the client with an independent assessment of conformance and the effectiveness of the organization's operating systems. Whereas the former aspect is quite straight forward, the assessment of the effectiveness of an organization's operating systems can be challenging. ISO 14001 specifies a set of generic requirements for an environmental management system that are applicable to "all" organizations (Uzumeri, 1997). The standard is not specific in determining the detailed aspects of, for instance, environmental performance; however, the standard requires firms to continuously improve over time – a requirement that is described systematically rather than in specific terms. Therefore, even though the standard might appear on the surface as a simple check list, it in fact requires more than checking against the list and the auditors need to make judgment in determining the effectiveness of an organization's operating systems (Power and Terziovski, 2008). This problem is further amplified by the audit orientations of participating firms (Castka, 2013). The audit orientations were described as *improvement - oriented (focused) auditing* (where the role of the auditor is to help firms to improve their people, processes, products and services) and *compliance-oriented auditing* (where the role of audit is to solely assess a compliance against the standard (Power and Terziovski, 2007). The research demonstrated that firms approach certification with a certain audit orientation and require their auditors to audit in line with a firm's preferred audit orientation (Castka et al., 2015). In the case of *improvement oriented auditing*, it puts auditors under pressure and constraint the audits. On the one hand, the auditors have to remain impartial, yet on the other hand, the firms expect them to act as consultants (Castka, 2013). Yet at the same, the research also indicates that firms' motives play a significant role in how they approach certification, including auditing. Next, we discuss the motives of firms in seeking certification and return to audit orientations in the hypotheses section of the paper.

2.3 Motives for pursuing certification

Similar to the adoption of other international standards, firms adopt ISO 14001 based on various reasons. In this study, we categorize the reasons or motives into internal motives and external motives. Many studies have examined these two sets of motives with respect to the adoption of ISO 9001 certification (Huarng et al., 1999, Castka and Balzarova, 2010, Jeh-Nan, 2003). Several studies have also focused on examining the motives for pursuing ISO 14001

certification (Wiengarten et al., 2013, Fryxell et al., 2004, González-Benito and González-Benito, 2005). In general, the results of ISO 14001 studies echoed the studies of ISO 9001 and conclude that firms which adopt the standard based on internal motives have a better chance to see the benefits of the certification. This is because these firms do not simply focus on attaining the certification, but, more importantly, aim for building solid environmental management system in their organizations. For instance, Cronin, Gleim, Ramirez and Martinez (2011) found that organizations which had adopted environmental management practice can gain greater confidence from the stakeholders and develop a positive image in the society, and therefore, they achieve a sustainable business with better financial growth and higher market value. In this regard, ISO 14001 standard is recognized internationally to provide a framework for implementing and continually improving the Environmental Management System (EMS), firms can comply with the standard as its foundation for moving in new directions to achieve competitive advantage (Tan, 2005). Other firms, however, pursue ISO 14001 certification in response to external pressure, for example, to match their competitors who have adopted EMS (Clarke, 1999). This group of firms tend to be more focused on obtaining a kind of legitimacy of their organizations as "being environmental" rather than desiring improvement in their EMS as well as environmental performance (Prajogo et al., 2012).

3 Hypotheses

3.1 The effect of motives for certification on auditing orientation

The concepts of sustainable business have had effects on managements' decision to widen their responsibility to reduce damages caused to the natural environment, the society as well as economic factors. Toward this end, firms are more likely to change attitudes to take care of environmental and social issues in their daily practices (Grant, 1991, Sharma and Vredenburg, 1998, Wu and Pagell, 2011). Given the increased awareness of corporate sustainability, some firms have begun to look for potentials in cost savings, efficiency, quality improvement, persistent profitability, and enhancement of market share and brand value from their environmental management practices by adopting the ISO 14001 standard (Davies and Webber, 1998, Hart, 1995, Raiborn and Joyner, 1999, Wiengarten et al., 2013). It is believed that firms which are motivated by internal reasons have a strong ambition to excel in competitiveness and internal efficiency (Vloeberghs and Bellens, 1996, Zobel, 2013). Thus, it seems that firms can intensify their implementation of ISO 14001 by taking the actual practices beyond merely conforming to the base line requirements of the standard,

and by internalization process and making actual improvements and modifications in their current practices. This approach also leads to a creation of unique organizational capabilities and competencies in firms (Hart, 1995, Zobel, 2013).

In today's world, the government and the public have been demanding improved environmental management performance. It leads to additional regulations, international agreements on controlling negative impacts on the environment, preserving resources, and reducing waste. To mitigate the external pressures, firms tend to implement Environmental Management System (EMS) for this purpose. Promoting environmental care can enhance firms' ethical image, avoid legal liabilities, satisfy the safety concerns of workers, and respond to government regulators and stakeholders (Fineman and Clarke, 1996, Newton and Harte, 1997, Castka and Prajogo, 2013). Such improved environmental management performance can aid firms in productivity and building better relationship with the government and the community (Sambasivan and Fei, 2008). Securing more external legitimacy, firms have better chance to acquire strategic resources and support from stakeholders (Elsbach and Sutton, 1992, Sine et al., 2007, Suchman, 1995). However, heavy resources such as time and costs need to be invested and there is high uncertainty involved in the intra-system integration. In response to the external pressures, firms prefer to pay minimum efforts to fulfil the audit compliance and obtain the ISO 14001 certification. While the minimum adoption of ISO 14001 may result in some improvements of firms in the efficiency of management systems and the social reputation, they cannot extend beyond paperwork, and, the level of improvement is limited if the proactive attitude to pursue ongoing improvement of environment management practices is lacking (Yin and Schmeidler, 2009). Taken together the above arguments, we build a proposition that internal motives to seek ISO 14001 certification will drive firms to be more improvement-orientated rather than compliance-oriented during the auditing process. On the other hand, external motives will drive firms to be more compliance-orientated rather than improvement-oriented during the auditing process. Accordingly, we posit the following hypotheses:

H1: The effect of internal motives on improvement-oriented auditing process is stronger than on compliance-oriented auditing process.

H2: The effect of external motives on compliance-oriented auditing process is stronger than on improvement-oriented auditing process.

3.2 The effect of auditing orientation on satisfaction with certification

Both auditing orientations, i.e., improvement and compliance lead to firms' satisfaction with the ISO 14001 certification by seeing the benefits of implementing an Environmental Management System (EMS). Firms seeking the ISO 14001 certification with improvement orientation are more likely to enjoy more internal benefits from certification (Jones et al., 1997, Qi et al., 2012). The management of these firms considers the certification as an opportunity to improve internal processes and systems, rather than simply getting passed the standard to achieve the certificate (Boiral, 2012). Brown et al. (1998) argued that the benefits include high quality, competitive costs and a chance of market entry for new business when firms are certified based on improvement orientation (Lai and Wong, 2012, Triebswetter and Wackerbauer, 2008). On the other hand, when firms adopt ISO 14001 primarily on the basis of compliance orientation, the benefits obtained are then confined to an external nature in terms of building a better public corporate image and investor confidence in firms (Kirkpatrick and Pouliot, 1996), and there is an improvement in their production by controlling resources and reducing waste but the improvement is limited (Yin and Schmeidler, 2009). As a result, we argue that the benefits realized from the auditing improvement orientation would be more sustainable and tangible than just a symbolic benefit from the certificate. As such, we build the following propositions,

H3: There is a positive relationship between improvement-oriented auditing process and the satisfaction with ISO 14001 certification.

H4: There is a positive relationship between compliance-oriented auditing process and the satisfaction with ISO 14001 certification.

H5: The effect of improvement-oriented auditing process on the satisfaction with ISO 14001 certification is stronger than that of compliance-oriented auditing process.

4 Methods

4.1 Sample and procedures

Companies were selected for participation in this study from a database of Joint Accreditation System of Australia and New Zealand (JAS-ANZ), which lists all enterprises in Australia and New Zealand that are certified to ISO 14001. We randomly selected 1,000 (out of 1,573) Australian companies and included all the 219 New Zealand companies that were certified to ISO 14001 at the time of the survey. The sample selection for the Australian firms was based on the completeness of the name and the postal address of the companies as well as the representative of the companies in charge of managing ISO 14001-based EMS. A mail

survey was sent to the named contact person in charge of ISO 14001-based EMS in the firm (a reminder was sent three weeks after the initial posting). We received 328 usable responses (286 Australian firms and 42 New Zealand firms) which constituted a 27% response rate. This response rate is comparable to similar studies (Baruch, 1999).

In terms of organizational size (following the categorization set by the Australian Bureau of Statistics), 8.7% of the sample was made up of small companies with less than 20 employees, 50.5% belonged to medium sized companies with 20 to less than 200 employees, and the rest (40.8%) were large firms with more than 200 employees. With regards to the positions of these survey respondents, a large portion was dominated by middle to senior level managers with 41% being environmental managers, indicating that Environmental Management System (EMS) has received strong attention in organizations. With regards to the year of obtaining ISO certification, our sample has an average of 5.55 years with the earliest certification obtained in 1996.

4.2 Non-response bias

To test for non-response bias, we compared the responses of early and late waves of returned surveys based on the assumption that the opinions of late respondents (especially those who responded after the reminder letter being sent) are representative of the opinions of the theoretical non-respondents (Armstrong and Overton, 1977). Student's t-tests yielded no statistically significant differences between early-wave and late-wave groups in terms of organizational size and the year of ISO 14001 certification; suggesting that non-response bias was not a problem.

4.3 Measures

All measures used in this study were adapted from previous studies on the topic of international standards implementation, including ISO 9001 and ISO 14001. Both the scales for external and internal motives were taken from Prajogo et al. (2012). The external motives scale reflects the driving forces of firms in adopting ISO 14001, namely customer, government, and competitors. The measure for internal motives reflects the strategic goal of firms in improving efficiency and control in their operations by building synergies among key management systems adopted in the organisations which aim for improving environmental performance.

The measures for both auditing orientations (improvement and compliance) were adapted from the study by Power and Terziovski (2007). The improvement-oriented auditing scale

reflects the focus of auditing on facilitating continuous improvement in the environmental systems; thus, more proactive than reactive. The compliance-oriented auditing scale reflects firms' preference that the auditing process should be focused on checking the compliance of the operating system against the standard.

The scale for satisfaction with ISO 14001 certification is adapted from the study by Magd *et al*. (2003), and reflects firms' perceptions on the benefits of ISO 14001 certification against the cost and time spent during the implementation process. The questionnaire items used to operationalize the theoretical constructs and the results of the confirmatory factor analysis (CFA) are summarized in Table 1.

[Insert Table 1 about here]

Formatte
Deleted:
Deleted:
Formatte

5 Results

5.1 Scale validity and reliability

We carried out a confirmatory factor analysis (CFA) to simultaneously validate the measures of organizational motives and benefits of adopting ISO 14001 as an Environmental Management System (EMS). The items loaded significantly on their respective theoretical constructs. The item loadings and the overall model fit results suggest acceptable unidimensionality and convergent validity for the construct measures (Bollen, 1989).

The reliability analysis was conducted by calculating the Cronbach's alpha for each measurement scale. The result shows that the Cronbach's alpha measures for the five theoretical constructs surpassed the threshold point of 0.6; thus, supporting their reliability.

5.2 Common method variance

Since the data set was drawn from a single respondent in the organization, common method variance needs to be checked to ensure that the data had no major problem with self-reported bias. The test for checking common method variance used in this study was Harmann's single-factor test suggested by Podsakoff et al. (1986). This test was run by loading all 15 items into one common latent variable. This test produced a very poor fit, and the key fit indices (NFI, CFI, and GFI) fell significantly. These results suggest that common method variance was not a serious problem in the data set.

5.3 Structural Equation Modelling

The SEM model is presented in Figure 1 to test the five hypotheses simultaneously. We included two control variables on this structural model: organizational size and years of certification. The model shows a good fit as reflected by the fit indices and measurement errors.

[Insert Figure 1 about here]

As the results show, internal motives have a positive relationship with improvement orientation (0.51 at $p<0.01$), but not with compliance orientation (-0.03 at $p>0.05$). Taken together these two results (based on the significance level), it can be concluded that internal motives have a stronger effect on improvement orientation than compliance orientation of auditing; hence, supporting H1. External motives, on the other hand, show a positive relationship with compliance orientation (0.22 at $p<0.01$), but not with improvement orientations (-0.17 at $p<0.05$). These two results (based on the significance level) lead to a conclusion that external motives have a stronger effect on compliance orientation than improvement orientation of auditing; hence, supporting H2. As for the firms' satisfaction with ISO 14001 certification, the results show that improvement-oriented auditing has a positive relationship with satisfaction with certification (0.34 at $p<0.01$), thus, supporting H3. On the other hand, compliance-oriented auditing does not show a positive effect on satisfaction with certification (0.09 at $p>0.05$); therefore, H4 is not supported. Coupling these two results (H3 and H4) based on the difference on the significance level, we conclude that improvement-oriented auditing has a stronger effect on firms' satisfaction with certification than compliance-oriented; thus, supporting H5.

As a post-hoc analysis, we tested the direct link between both (internal and external) motives for certification and the degree of satisfaction with certification. The results show that internal motives have a positive direct effect on satisfaction (0.67 at $p<0.05$), while external motives do not (-0.01 at $p>0.05$). These results suggest that there could be other variables which mediate the relationship between internal motives and satisfaction other than auditing orientations which is the focus of this study. These variables could be specific approaches taken by the firms in realising their internal motives to adopt ISO 14001 which in turn produce better outcomes, hence, enhancing the firms' satisfaction with the certification.

6 Discussion of the findings

A number of insights are drawn from this empirical study. First, the findings clearly show that firm's motives have a significant effect on their auditing orientation. Specifically,

the findings show the unique and exclusive effect of internal and external motives to improvement-oriented and compliance-oriented auditing process. Internal motives only show a positive effect on improvement-oriented auditing, while external motives only show a positive relationship with compliance-oriented auditing. These findings once again demonstrate the impact of firms' motives on their "behaviour" during the implementation of Environmental Management System (EMS), including auditing process. The minimalist mindset inherent in the external motives has a strong influence on the auditing process where firms prefer that auditors will focus more on compliance of the firms' EMS against the minimum requirement of the standard. While we cannot simply extrapolate our findings, we could suggest here that such compliance-orientation would affect the way firms select the certification bodies (and perhaps the criteria for the auditors as well) which would serve their preference of auditing. While we might question whether externally-motivated firms would demonstrate the real and solid environmental management system and practices, the reality is that they have been certified to ISO 14001 as they are considered (i.e., audited) as meeting the minimum requirement of the standard. Therefore, these firms, to a certain degree, might still obtain legitimacy of being "environmental". On the other hand, internal motives drive firm's to develop improvement-orientation in auditing process, which is well aligned with the true "spirit" of the standard. This can be related back to their primary aim of adopting ISO 14001 for improvement of firms' environmental performance. As a result, they use the environmental standard as a foundation to build a solid environmental system; hence, committed to go beyond just compliance to the minimum requirements of the standard. This is reflected in the auditing process where they would expect that the auditors assess the improvement that firms have implemented (or could implement) instead of simply "ticking the box" of compliance. In this regard, we put a similar implication that improvement-oriented auditing will influence firms' criteria in selecting the certification bodies, and, in turn, the auditors. While these firms still appreciate and desire legitimacy from the certification, they treat the certification as the by-product of the implementation of the ISO 14001 standard instead of the main goal.

Secondly, the findings show that improvement-auditing orientation has a positive effect on firms' satisfaction with ISO 14001 certification. Furthermore, its effect is stronger than compliance-oriented auditing. It should not be difficult to consider the effect of internal motives as they will drive firms to implement and internalize the standard properly with the improvement spirit. As a result, they will capitalize on auditing process as a vehicle for driving improvement in their environmental management practices which will in turn

improve the environmental performance. As a result, firms can see the real benefits from adopting the standard which brings them a greater satisfaction with the standard. This finding is consistent with other studies which demonstrate the positive link between auditor quality and clients' satisfaction (Butcher et al., 2013, Caneghem et al., 2013). On the other hand, it is less clear why compliance-oriented auditing does not have a positive effect on satisfaction with the standard. Clearly, external motives which are behind compliance-oriented auditing may not focus on improving environmental management practices and performance rather than simply conforming to the pressures from external parties, such as customers and competitors. Therefore, while they do not see real improvement in environmental management and performance in their organizations, they might still be satisfied with the fact they obtain the certification; yet this is not the case. In this regard, we argue that at the end firms will always evaluate the overall cost and benefits of attaining ISO 14001 certification (Hartlieb and Jones, 2009). For externally motivated firms, they might find that the benefit of obtaining the certification does not outweigh the overall cost (including time and resources) in implementing the standard although they have attempted to keep the implementation process (including the auditing process) at the minimum level (i.e., compliance). On top of this, they do not see the real benefits of having the certification while, at the same time, they still have to maintain the certification by deploying resources for their environmental management system. As a result, they consider ISO 14001 certification more "as a burden rather than a resource", which understandably diminishes their level of satisfaction on the certification.

Summarizing the above findings, we can see the contrast between the two auditing orientations (improvement and compliance) with respect to the motives for seeking certification (as the antecedents) as well as the satisfaction with the certification (as the outcome). Such a distinction between the two auditing orientations would suggest that they are mutually exclusive to each other where one should be pursued at the expense of the other, as implied by Power and Terziovski (2007) in their study.

In recent years, international environmental standards have been considered as an important means to improve corporate environmental performance, in additional to legal requirements in individual countries (Short and Toffel, 2010). One of the major differences between legal environmental requirements and self-regulatory environmental standards is that the former imposes a minimal standard to be enforced lawfully, while the latter prescribes a system for continuous environmental improvements. As a result, an orientation towards continuous improvement based on the system, rather than meeting the minimal requirements

of the standard, is the central spirit of international environmental management standards such as ISO 14001. Our research supports this view.

7 Conclusions and limitations of the study

Overall, this study shows the chain reaction between firms' motives for adopting ISO 14001 standard, their auditing orientation, and their satisfaction with certification. Our findings demonstrate the exclusive path from internal motives to improvement-oriented auditing, and finally to firms' satisfaction. This study contributes to the literature on environmental management in several ways. First, it complements other studies on the adoption of ISO 14001 which have not included auditing elements. Second, it broadens the understanding on the effect of firms' motives on the implementation process of ISO 14001 (which could be applicable to other standards as well; e.g., ISO 9001). While previous studies have shown that firms' motives have effects on their commitment in providing resources for implementing the standard, this study shows that the effect is also extended to the external parties (i.e., auditors). Third, this study shows that different auditing orientations have different impact on firms' satisfaction which could be resulted from the benefits perceived by the firms.

From the managerial perspective, our findings provide important message for managers who consider adopting ISO 14001 (as well as those who have already adopted the standard). Specifically, the study demonstrates that a base line orientation to mere conformance with the standard does not have an effect on firms' satisfaction with the certification. This means that managers who pursue this strategy will find it increasingly difficult to build organizational support in their firms. This could be a particularly severe problem in firms that depend on the certification and managers should work towards embedding the certification in their daily routines – rather than continuing their compliance oriented strategy.

A number of limitations of the current study are acknowledged here. First, our study is a cross sectional study. Further studies should provide a temporal outlook on the interplay of motivation towards certification and firms' audit orientation. In particular, it would be beneficial to determine whether a change in any of these attributes changes firms' perception about the certification. Second, further research should continue the research developed in our paper and study the impact of motivation and audit orientation on firms performance, preferably by collecting objective data on firms environmental or financial performance. At the same time, future studies could explore other variables which theoretically could mediate

the relationship between internal motives and satisfaction other than auditing orientations which is the focus of this study.

8 References

Ammeberg, J., Wik, G. & Hjelm, O. (2001). Auditing External Environmental Auditors - Investigating how ISO 14001 is Interpreted and Applied in Reality. *Eco-Management & Auditing*, Vol. 8, No. 4**,** pp. 183-192.

Aravind, D. & Christmann, P. (2011). Decoupling of Standard Implementation from Certification: Does Quality of ISO 14001 Implementation Affect Facilities' Environmental Performance? *Business Ethics Quarterly*, Vol. 21, No. 1**,** pp. 73-102.

Armstrong, J.S. & Overton, T.S. (1977). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research*, Vol. 14, No. 3**,** pp. 396-402.

Balzarova, M.A. & Castka, P. (2008). Underlying mechanisms in the maintenance of ISO 14001 environmental management system. *Journal of Cleaner Production*, Vol. 16, No. 18**,** pp. 1949-1957.

Balzarova, M.A., Castka, P., Bamber, C.J. & Sharp, J.M. (2006). How organisational culture impacts on the implementation of ISO 14001:1996 - a UK multiple-case view. *Journal of Manufacturing Technology Management*, Vol. 17, No. 1**,** pp. 89-103.

Barthelemy, J.L. & Zairi, M. (1994). Making ISO 9000 Work The Role of Auditing. *The TQM Magazine*, Vol. 6, No. 3**,** pp. 44-47.

Baruch, Y. (1999). Response Rate in Academic Studies - A Comparative Analysis. *Human Relations*, Vol. 52, No. 4**,** pp. 421-438.

Berliner, D. & Prakash, A. (2013). Signaling Environmental Stewardship in the Shadow of Weak Governance: The Global Diffusion of ISO 14001. *Law and Society Review*, Vol. 47, No. 2**,** pp. 345-373.

Boiral, O. (2012). ISO Certificates as Organizational Degrees? Beyond the Rational Myths of the Certification Process. *Organization Studies*, Vol. 33, No. 5-6**,** pp. 633-654.

Boiral, O. & Gendron, Y. (2011). Sustainable Development and Certification Practices: Lessons Learned and Prospects. *Business Strategy and the Environment*, Vol. 20, No. 5**,** pp. 331-347.

Bollen, K.A. (1989). *Structural equations with latent variables*, New York: Wiley.

Brown, A., Van der Wiele, T. & Loughton, K. (1998). Smaller Enterprises' Experiences with ISO 9000. *International Journal of Quality & Reliability Management*, Vol. 15, No. 3**,** pp. 273-285.

Burdick, D. (2001). American and European ISO 14001 accreditation requirements and their influences on registrar practice and environmental performance. *Corporate Environmental Strategy*, Vol. 8, No. 1**,** pp. 65-74.

Busch, L. (2011). *Standards. Recipes for Reality.*, Boston: The MIT Press.

Butcher, K., Harrison, G. & Ross, P. (2013). Perceptions of Audit Service Quality and Auditor Retention. *International Journal of Auditing*, Vol. 17, No. 1**,** pp. 54-74.

Büthe, T. & Mattli, W. (2011). *The New Global Rulers: The Privatization of Regulation in the World Economy*: Princeton University Press.

Buzzelli, D.T. (1991). Time to structure an environmental policy strategy. *Journal of Business Strategy*, Vol. 12, No. 2**,** pp. 17-20.

Caneghem, T.V., Verbruggen, S. & Reheul, A.-M. (2013). Auditor performance, client satisfaction and client loyalty: evidence from Belgian non-profits. *International journal of auditing*, Vol. 17, No. 1**,** pp. 19-37.

Castka, P. (2013). Audit and Certification: what do users expect? : Joint Accreditation System of Australia and New Zealand.

Castka, P. & Balzarova, M. (2010). Geographies, motivations and benefits from ISO 9000 standard: a comparison of manufacturing and service organisations. *International Journal of Productivity and Quality Management,* Vol. 5, No. 4**,** pp. 370-383.

Castka, P. & Balzarova, M.A. (2008). Social responsibility standardization: Guidance or reinforcement through certification? *Human Systems Management,* Vol. 27, No. 3**,** pp. 231-242.

Castka, P. & Corbett, C.J. (2015). *Management Systems Standards. Diffusion, Impact and Governance of ISO 9000, ISO 14000, and Other Management Systems Standards.*, p. 223.

Castka, P. & Prajogo, D. (2013). The effect of pressure from secondary stakeholders on the internalization of ISO 14001. *Journal of Cleaner Production,* Vol. 47, No. May**,** pp. 245-252.

Castka, P., Prajogo, D., Young, A.C.L. & Sohal, A. (2015). Understanding firms' selection of their ISO 9000 third-party certifiers. *International Journal of Production Economics,* Vol. 162**,** pp. 125-133.

Clarke, S. (1999). ISO 9000 series quality standards grow user friendly. *Intech,* Vol. 46, No. 12**,** pp. 37-38.

Cronin Jr, J.J., Smith, J.S., Gleim, M.R., Ramirez, E. & Martinez, J.D. (2011). Green marketing strategies: an examination of stakeholders and the opportunities they present. *Journal of the Academy of Marketing Science,* Vol. 39, No. 1**,** pp. 158-174.

Darnall, N., Seol, I. & Sarkis, J. (2009). Perceived stakeholder unfluences and organizations' use of environmental audits. *Accounting, Organizations and Society,* Vol. 34**,** pp. 170-187.

Davies, C. & Webber, P. (1998). ISO 14001 registration: The process, the benefits, and the choice of registrar. *Environmental Quality Management,* Vol. 8, No. 2**,** pp. 55-64.

Delmas, M.A. (2002). The diffusion of environmental management standards in Europe and in the United States: An institutional perspective. *Policy Sciences,* Vol. 35, No. 1**,** pp. 91-119.

Dogui, K., Boiral, O. & Heras-Saizarbitoria, I. (2014). Audit Fees and Auditor Independence: The Case of ISO 14001 Certification. *International Journal of Auditing,* Vol. 18, No. 1**,** pp. 14-26.

Elsbach, K.D. & Sutton, R.I. (1992). Acquiring organizational legitimacy through illegitimate actions: A marriage of institutional and impression management theories. *Academy of management Journal,* Vol. 35, No. 4**,** pp. 699-738.

Fineman, S. & Clarke, K. (1996). Green Stakeholders: Industry Interpretations and Response*. *Journal of Management studies,* Vol. 33, No. 6**,** pp. 715-730.

Fryxell, G.E., Lo, C.W.H. & Chung, S.S. (2004). Influence of motivations for seeking ISO 14001 certification on perceptions of EMS effectiveness in China. *Environmental Management,* Vol. 33, No. 2**,** pp. 239-251.

Glover Ritzert, C. (2000). Decision points in ISO 14001. *Environmental Quality Management,* Vol. 9, No. 3**,** pp. 65-74.

Gomez, A. & Rodriguez, M.A. (2011). The effect of ISO 14001 certification on toxic emissions: an analysis of industrial facilities in the north of Spain. *Journal of Cleaner Production,* Vol. 19, No. 9-10**,** pp. 1091-1095.

González-Benito, J. & González-Benito, O. (2005). An Analysis of the Relationship between Environmental Motivations and ISO14001 Certification. *British Journal of Management,* Vol. 16, No. 2**,** pp. 133-148.

Grant, R.M. (1991). The Resource-Based theory of competitive advantage: Implications of strategy formulation. *California Management Review,* Vol. 33, No. 3**,** pp. 114-135.

Greeno, J.L. (1992). Rethinking Corporeate Environmental Management. *Columbia Journal of World Business,* Vol. 27, No. 3-4**,** pp. 222-232.

Hart, S.L. (1995). A natural-resource-based view of the firm. *Academy of Management Review,* Vol. 20, No. 4**,** pp. 986-1014.

Hartlieb, S. & Jones, B. (2009). Humanising Business Through Ethical Labelling: Progress and Paradoxes in the UK. *Journal of Business Ethics,* Vol. 88, No. 3**,** pp. 583-600.

Heras-Saizarbitoria, I. & Boiral, O. (2012). ISO 9001 and ISO 14001: Towards a Research Agenda on Management System Standards. *International Journal of Management Reviews,* Vol. 15, No. 1**,** pp. 47-65.

Huarng, F., Horng, C. & Chen, C. (1999). A study of ISO 9000 process, motivation and performance. *Total Quality Management,* Vol. 10, No. 7**,** pp. 1009-1025.

Ivanova, A., Gray, J. & Sinha, K. (2014). Towards unifying theory of management standard implementation: the case of ISO 9001/ISO 14001. *International Journal of Operations & Production Management,* Vol. 34, No. 10.

Jeh-Nan, P. (2003). A comparative study on motivation for and experience with ISO 9000 and ISO 14000 certification among Far Eastern countries. *Industrial Management + Data Systems,* Vol. 103, No. 8**,** pp. 564-78.

Jones, R., Arndt, G. & Kustin, R. (1997). ISO 9000 among Australian companies: impact of time and reasons for seeking certification on perceptions of benefits received. *International Journal of Quality & Reliability Management,* Vol. 14, No. 7**,** pp. 650-660.

Kirkpatrick, D. & Pouliot, C. (1996). Environmental Management, ISO 14000 offer multiple rewards. *Pollution Engineering,* Vol. 28, No. 6**,** pp. 62-65.

Lai, K.-h. & Wong, C.W. (2012). Green logistics management and performance: some empirical evidence from Chinese manufacturing exporters. *Omega,* Vol. 40, No. 3**,** pp. 267-282.

Lal, H. (2004). Re-engineering the iso 9001:2000 certification process. *ISO Management Systems,* Vol. 4, No. 4**,** pp. 15.

Magd, H., Kadasah, N. & Curry, A. (2003). ISO 9000 implementation: a study of manufacturing companies in Saudi Arabia. *Managerial Auditing Journal,* Vol. 18, No. 4**,** pp. 313-322.

Melnyk, S.A., Sroufe, R.P. & Calantone, R. (2003). Assessing the impact of environmental management systems on corporate and environmental performance. *Journal of Operations Management,* Vol. 21, No. 2**,** pp. 329-351.

Meyer, J.W. & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology,* Vol. 83**,** pp. 340-363.

Naveh, E. & Marcus, A. (2005). Achieving competitive advantage through implementing a replicable management standard: Installing and using ISO 9000. *Journal of Operations Management,* Vol. 24, No. 1**,** pp. 1-26.

Newton, T. & Harte, G. (1997). Green business: technicist kitsch? *Journal of Management Studies,* Vol. 34, No. 1**,** pp. 75-98.

Podsakoff, P.M. & Organ, D. (1986). Self-reports in organizational research. *Journal of Management,* Vol. 12, No. 4**,** pp. 531-544.

Poksinska, B. (2003). Behind the ISO 9000 and ISO 14000 certificates. *An investigation of quality and environmental management practices in Swedish organizations,* No. 76.

Porter, M.E. & van der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review* Vol. 73, No. 5**,** pp. 120-133.

Potoski, M. & Prakash, A. (2005). Covenants with weak swords: ISO 14001 and facilities' environmental performance. *Journal of policy analysis and management,* Vol. 24, No. 4**,** pp. 745-769.

Power, D. & Simon, A. (2004). Adoption and diffusion in technology implementation: a supply chain study. *International Journal of Operations & Production Management,* Vol. 24, No. 6**,** pp. 566-587.

Power, D. & Terziovski, M. (2007). Quality audit roles and skills: Perceptions of non-financial auditors and their clients. *Journal of Operations Management,* Vol. 25, No. 1**,** pp. 126-147.

Power, D. & Terziovski, M. (2008). The process, practice and outcomes of non-financial auditing: five Australian case studies. *International Journal of Manufacturing Technology and Management,* Vol. 15, No. 3-4**,** pp. 346-375.

Power, D.J., Terziovski, M. & Sohal, A.S. (2001). From compliance to continuous improvement focused non-financial auditing: A comparison between auditors and their clients. In *5th International and 8th National Research Conference on Quality and Innovation Management.* Terziovski, M. (Ed.). The University of Melbourne: The Euro-Australian Cooperation Centre (EACC) - Victoria. pp. 451-474.

Prajogo, D., Tang, A.K. & Lai, K.-H. (2012). Do firms get what they want from ISO 14001 adoption?: an Australian perspective. *Journal of Cleaner Production,* Vol. 33**,** pp. 117-126.

Prajogo, D.I. (2011). The roles of firms' motives in affecting the outcomes of ISO 9000 adoption. *International Journal of Operations & Production Management,* Vol. 31, No. 1-2**,** pp. 78-100.

Qi, G., Zeng, S., Li, X. & Tam, C. (2012). Role of Internalization Process in Defining the Relationship between ISO 14001 Certification and Corporate Environmental Performance. *Corporate Social Responsibility and Environmental Management,* Vol. 19, No. 3**,** pp. 129-140.

Raiborn, C.A. & Joyner, B.E. (1999). ISO 14000 and the Bottom Line. *Quality progress,* Vol. 32, No. 11**,** pp. 89-93.

Sambasivan, M. & Fei, N.Y. (2008). Evaluation of critical success factors of implementation of ISO 14001 using analytic hierarchy process (AHP): a case study from Malaysia. *Journal of Cleaner Production,* Vol. 16, No. 13**,** pp. 1424-1433.

Sandholtz, K.W. (2012). Making Standards Stick: A Theory of Coupled vs. Decoupled Compliance. *Organization Studies,* Vol. 33, No. 5-6**,** pp. 655-679.

Sharma, S. & Vredenburg, H. (1998). Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. *Strategic Management Journal,* Vol. 19, No. 8**,** pp. 729-753.

Short, J.L. & Toffel, M.W. (2010). Making Self-Regulation More Than Merely Symbolic: The Critical Role of the Legal Environment. *Administrative Science Quarterly,* Vol. 55, No. 3**,** pp. 361-396.

Sine, W.D., David, R.J. & Mitsuhashi, H. (2007). From plan to plant: Effects of certification on operational start-up in the emergent independent power sector. *Organization Science,* Vol. 18, No. 4**,** pp. 578-594.

Singh, P.J., Mei, F. & Smith, A. (2006). ISO 9000 series of standards: comparison of manufacturing and service organisations. *International Journal of Quality Reliability Management,* Vol. 23, No. 2**,** pp. 122-42.

Suchman, M.C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review,* Vol. 20, No. 3**,** pp. 571-610.

Tan, L.P. (2005). Implementing ISO 14001: is it beneficial for firms in newly industrialized Malaysia? *Journal of Cleaner Production,* Vol. 13, No. 4**,** pp. 397-404.

Triebswetter, U. & Wackerbauer, J. (2008). Integrated environmental product innovation in the region of Munich and its impact on company competitiveness. *Journal of Cleaner Production,* Vol. 16, No. 14**,** pp. 1484-1493.

Uzumeri, M.V. (1997). ISO 9000 and Other Metastandards: Principles for Management Practice? *The Academy of Management Executive,* Vol. 11, No. 1**,** pp. 21-36.

Vloeberghs, D. & Bellens, J. (1996). Implementing the ISO 9000 standards in Belgium. *Quality Progress,* Vol. 29, No. 6**,** pp. 43-48.

Wiengarten, F., Pagell, M. & Fynes, B. (2013). ISO 14000 certification and investments in environmental supply chain management practices: identifying differences in motivation and adoption levels between Western European and North American companies. *Journal of Cleaner Production,* Vol. 56, No. 1**,** pp. 18-28.

Wu, Z. & Pagell, M. (2011). Balancing priorities: Decision-making in sustainable supply chain management. *Journal of Operations Management,* Vol. 29, No. 6**,** pp. 577-590.

Yin, H. & Schmeidler, P.J. (2009). Why do standardized ISO 14001 environmental management systems lead to heterogeneous environmental outcomes? *Business Strategy and the Environment,* Vol. 18, No. 7**,** pp. 469-486.

Zobel, T. (2013). ISO 14001 certification in manufacturing firms: A tool for those in need or an indication of greenness? *Journal of Cleaner Production,* Vol. 43**,** pp. 37-44.

Appendix

1. Industry sector: _____

2. The number of people this organisation employs:

   ① Less than 19 ② 20 to 49 ③ 50 to 99 ④ 100 to 199 ⑤ 200 to 499 ⑥ 500 to 999 ⑦ 1,000 or more

3. How long has this organisation been certified to ISO 14001? _____ years

Drivers and motives for adopting ISO 14001

Please indicate to what extent each statement below reflects the motivations of your organisation to adopt ISO 14001 certification	**Strongly disagree**		**Neutral**		**Strongly agree**
To improve environmental performance	①	②	③	④	⑤
To meet customer demands	①	②	③	④	⑤
To comply with government policy or regulations	①	②	③	④	⑤
To match competitors' actions	①	②	③	④	⑤
To improve efficiency and control in the operations	①	②	③	④	⑤
To build synergies among management systems	①	②	③	④	⑤

Auditing orientations

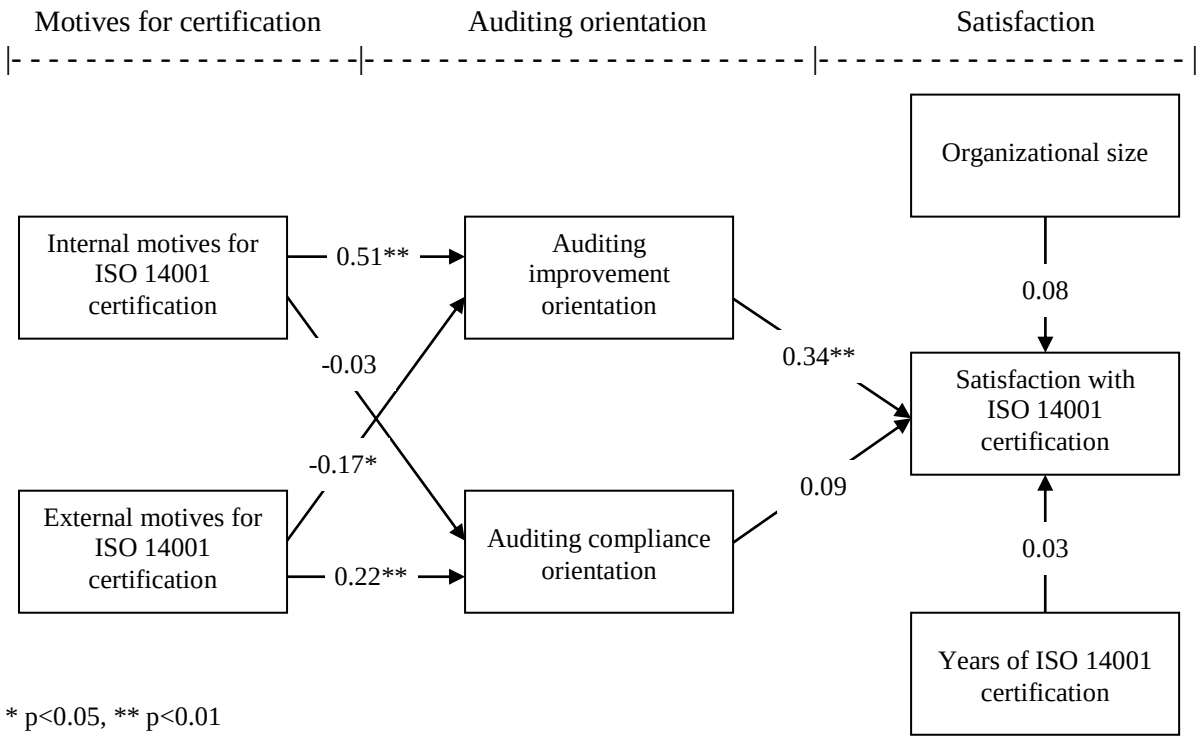
Please indicate to what extent you agree or disagree that each statement concerning your expectations on the role of external auditor	**Strongly disagree**		**Neutral**		**Strongly agree**
The external auditor should solely assess compliance against the applicable standards	①	②	③	④	⑤
The external auditor should assess compliance using evidence of a documented system	①	②	③	④	⑤
The external auditor should only be interested in checking the operation of the system	①	②	③	④	⑤
The ability to facilitate continuous improvement is critical for the external auditor	①	②	③	④	⑤
The external audit should shift activities from reactive to proactive	①	②	③	④	⑤
The purpose of the external audit is to gather data to assist clients in making improvements to their environmental systems	①	②	③	④	⑤
The external auditor should solely assess compliance against the applicable standards	①	②	③	④	⑤

Satisfaction with ISO 14001 certification

Please indicate to what extent you agree or disagree that each statement applies to your organisation	**Strongly disagree**		**Neutral**		**Strongly agree**
We have seen significant benefits from implementing ISO 14001	①	②	③	④	⑤
The benefits of implementing ISO 14001 are worth the cost and time	①	②	③	④	⑤
Overall, we are satisfied with ISO 14001 certification	①	②	③	④	⑤

Table 1 Scale validity and reliability

Scales	Items	Loading Paths	Cronbach's alpha
External motives	To meet customer demands	0.55	0.63
	To comply with government policy or regulations	0.56	
	To match competitors' actions	0.69	
Internal motives	To improve environmental performance	0.72	0.77
	To improve efficiency and control in the operations	0.82	
	To build synergies among management systems	0.59	
Auditing compliance orientation	The external auditor should solely assess compliance against the applicable standards	0.83	0.61
	The external auditor should assess compliance using evidence of a documented system	0.48	
	The external auditor should only be interested in checking the operation of the system	0.50	
Auditing improvement orientation	The ability to facilitate continuous improvement is critical for the external auditor	0.76	0.67
	The external audit should shift activities from reactive to proactive	0.59	
	The purpose of the external audit is to gather data to assist clients in making improvements to their environmental systems	0.57	
Satisfaction with ISO 14001 certification	We have seen significant benefits from implementing ISO 14001	0.79	0.88
	The benefits of implementing ISO 14001 are worth the cost and time	0.83	
	Overall, we are satisfied with ISO 14001 certification	0.88	
$\chi^2 = 290.62$	df = 110	RMSEA = 0.071	NFI = 0.919	CFI = 0.960	GFI = 0.931



* p<0.05, ** p<0.01

χ^2 = 284.77 df = 107 RMSEA = 0.07 CFI = 0.909 GFI = 0.906

Figure 1 Research model