

Certified Environmental Management Standards: An Institution for Removing Information Asymmetries in the Market for Corporate Environmental Performance?

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The Bigger Picture

- Project focuses on exploring environmental certified management standards (CMS).
 - “EMAS with certification: ISO 14001”
- Previous research suggests that the use of CMS is influenced by information asymmetries.
 - Application of Spence’s signaling ideas to the analysis of CMS.

The Bigger Picture – cont'

- BUT... data on CMS adoption doesn't entirely cooperate with a simple signaling story.
- Lower performing firms select into certification (King et al, 2002) and certified firms do not have better performance (Andrews et al, 2001).

Original Research Effort

The Signaling Story that Wasn't

Disturbances in the Simple Signaling Notion

- Different signaling equilibriums in different industries
 - Certified firms have environmental performance that systematically varies across industries
 - Too-cool-for-school effect
- Endogeneity of environmental performance
 - CMS prescribes best practices that may affect firm environmental performance
 - Such endogeneity manageable if performance effects are systematic across firms/industries

Two (Plus One) Revised Research Efforts

- 1) Conceptual study on the power and limitations of CMS to guide environmentally responsible firm behaviors.
- 2) Empirical study on how corporate strategic behaviors shape adoption patterns and use of CMS
- Plus One) Studies exploring how cross-firm observations influence adoption behaviors

Revised Research Effort I

The “Can-do Can’t-do” Project

Terlaak, A. (2007) "Order without Law: The Role of Certified Management Standards in Shaping Socially Desired Firm Behaviors". *Academy of Management Review*, 32(3): 968-985.

Background

- Compare design of CMS to the design of other institutions that guide firm environmental behavior.
 - CMS (ISO 14001), Industry Programs (Responsible Care), laws, norms
- Lack of legal backdrop and decentralized enforcement distinguish CMS from industry programs and laws, and make them most similar to norms.
- When compared to norms, two elements – codification and certification of practices – enable and constrain CMS in guiding desirable firm behaviors.

Enabling Effects of Codification & Certification

Codification and certification enable CMS to shape firm activities more effectively than norms

- when consensus about activities is incomplete
 - emerging management areas and cross-cultural transactions
- when behaviors are difficult to observe
 - practices that are physically removed from transacting parties and that do not manifest in product/service attributes

Constraining Effects of Codification & Certification

Codification and certification limit the ability of CMS to shape firm activities as

- codification of practices attracts poor performers
- certification of practices attracts good performers

→ Codification causes failure in the sorting effect of certification. Both poor and good performers adopt. This causes inconsistencies and weakens the decentralized enforcement processes from which CMS derive their power.

Implications for Policy Makers

- Design matters! Although codification and certification may broaden the applicability of CMS, they may reduce CMS's effectiveness in guiding firm behaviors by weakening enforcement processes
 - Improvement tool and signal of superior performance exclusive endeavors?
- What does that mean for future CMS (ISO 14001)?
 - Centralize enforcement on the industry level
 - Remove the certification element and return to EMAS
 - Encourage involvement of industry bodies and allow for differing cross-industry uses/interpretations of CMS

Revised Research Effort II

How Corporate Social Strategy Shape Adoption Patterns

Terlaak, A. (2007) “Satisficing Signaling: Corporate Social Strategy and Certified Management Standards. *Best Paper Proceedings, Academy of Management Annual Conference.*”

The Findings in a Nutshell

- Facilities that perform poorly relative to industry peers certify with ISO 14001.
- However, these facilities
 - are better performers when compared to other facilities within the firm.
 - operate in relatively cleaner industries
 - have prior experience with CMS

The Story Behind

- Stakeholders exert adoption pressures on firms that own poor performing facilities (Eesley & Lenox, 2006)
- For the firm, the returns to adopting and certifying environmental practices are debatable.
 - Operational benefits are conditional
 - Market benefits depend on WTP which may be below costs of producing environmental protection
- Adoption and certification costs, in contrast, are more concrete.

The Story Behind – cont'

- Corporate HQ chooses which facility to certify (Darnall, 2003)
- Faced with uncertain payoffs, HQ will choose better performing facility to be certified in an effort to lower adoption costs (maximize net benefits).

Data & Model

- Sample draws on and extends dataset built under past NCER STAR grant by A. King et al.
 - 5,215 U.S. manufacturing facilities that are part of multi-plant firms
 - Timeframe: 1995 – 2002.
 - Discrete-time random-effect logistic model to predict facility certification with ISO 14001 in $t+1$ given a set of independent variables and control variables in t (Cox regressions for robustness checks).

Data & Model – cont'

- **Independent Variables:**
 - Facility environmental performance relative to (i) industry peers and (ii) other firm facilities
 - Emissions of industry of each facility relative to industry emissions of other firm facilities
 - Prior facility experience with CMS
- **Control Variables:** information asymmetries, regulatory stringency, supply chain pressures, size, etc.

Results

Facilities that are poor performers when compared to industry peers are more likely to select into certification with ISO 14001.

But these facilities

- are above average performers within the firm
- operate in relatively cleaner industries
- have prior experience with CMS

Introducing ISO 9000 into the Mix

- Notion is to validate story behind these results by comparing inter-firm adoption patterns of ISO 14001 with adoption patterns of ISO 9000 (which ‘produces’ more of a private good).
- When predicting adoption of ISO 9000, better firm performers more prone to adopt.
- When predicting adoption of ISO 9000 vs. ISO 14001, poorer performers more prone to adopt ISO 9000 and better performers more prone to adopt 14001

Implications for Policy Makers

- CMS once more stuck in the middle: Not a reliable signal of superior environmental performance but also only an ineffective improvement tool if it isn't adopted by those that most urgently need to improve.
- Remove certification element so as to focus CMS on potential operational benefits & facilitate those.
- Retain certification element and subsidize a market premium that (ideally) is proportional to improvements (difficult to design and implement!).
- CMS in their current form not suitable as a stand-alone instrument in the regulatory toolbox.

“Plus One” Research Effort

How Vicarious Learning Influences Adoption Behaviors

Terlaak, A. & Gong, Y. (2008) “Vicarious learning and inferential accuracy in adoption processes”. Accepted for publication at *Academy of Management Review*.

Terlaak, A. & King, A. (2007) “Follow the Small? Information-Based Adoption Bandwagons when Profitability Expectations are Related to Size”. *Strategic Management Journal*, 28: 1167-1185.

Get the Underdogs to Participate!

- Firm adoption propensities can be most strongly influenced by previous adopters that benefit less from adoption/that are less prestigious.
- For policymakers, targeting the GEs, DuPonts, and HPs of the world as flagship adopters may create publicity for a voluntary standard/program yet may discourage future adoption by the average firm.
- Pursuing a two-sided strategy that also targets average and below average performers may lead to a broader/quicker uptake of new programs.

Summary

- The current design of CMS like ISO 14001 has encouraged multiple (and often conflicting) uses and interpretations of what CMS can and cannot do.
- Because the codification of best practices (an improvement element) seems at the heart of CMS, certification may at best be meaningless (and at worst confusing) because the magnitude of improvements varies widely.
 - Certification as a signal of willingness to improve?
 - Certification as a signal of improvement?
 - Certification as a signal of superior performance?
- Separate certification program from improvement program.

Future Research Efforts

- Incorporate PCS data (Permit Compliance System) to triangulate environmental performance measure.
- Perform comparative studies with ISO 9000 to explore further the degree to which the public good nature of environmental protection inhibits the functioning of environmental CMS.