Int. J. Environ. Res., 7(2):495-500, Spring 2013
ISSN: 1735-6865

Categorizing Variables Affecting the Proactive Environmental Orientation of Firms

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Received 20 May. 2012; Revised 12 Oct. 2012; Accepted 19 Nov. 2012

ABSTRACT: Despite several authors having studied the strategic approach to environmental orientation and, considering that environmental proactivity is emerging in business strategy, it still remains unclear which real actions influence a firm's environmental orientation. An empirical analysis of a sample of 126 Spanish companies shows that firms' actions are explained as training, information and divulgation actions; firms' goals are understood as actions to improve business competitiveness, and agents' implications and firms' management implications explain the environmental proactivity of firms, while obstacles with negative effects are also identified. This paper undertakes a questionnaire-based study of environmental proactivity to explain the relations among variables through a Structural Equation Modeling (EQS) model.

Key words: Environmental proactivity, Industrial firms, EQS model

INTRODUCTION

Determining how to incorporate environmental orientation into business is a competitive priority to be considered (Baumgartner and Ebner, 2010). Environmental proactivity offers a vision that integrates medium and long term objectives, integrating local, global, social and economic actions as well. For that reason, it has become necessary to study proactive aspects of business management, as well as factors that motivate companies to move towards environmental protection (Lucas, 2010; Mir and Feitelson, 2007; Mossalanejad, 2011; Gázquez-Abad, 2011). Several authors have analysed the integration of environmental factors into competitiveness and management (Christmann, 2000; Segarra-Oña *et al*., 2011) and in innovative attitudes (Nidumolu *et al*., 2009; Mondéjar-Jiménez *et al*., 2010; Garau *et al*., 2011); in general, the influence of factors such as social pressure (Kalantari and Assadi, 2010), environmental legislation (Chappin *et al*., 2009; Telle and Larsson, 2007), competitive advantage (Esty, 2006), management commitment to the company's environmental focus (Christmann, 2000; Abbaspour *et al.*, 2006; López-Gamero *et al.*, 2011) and also environmental related strategy aspects.

Since the seminal work of Banerjee (2002) appeared, some studies have tried to identify factors affecting the environmental orientation adopted by companies, such as the influence of external pressure forces, the environmental orientation and the corporate and marketing strategies´ (Mitchell *et al*., 2010), the industry characteristics (Peiró-Signes *et al*., 2011; Espí Rodriguez, 2011), the environmental policies' influence (Burciu *et al*., 2010; Chappin *et al*., 2009, Kranjac *et al.*, 2012), the firm's strategies (Esty and Winston, 2006), the implementation of environmental management systems (Johnstone and Labonne, 2009), or stakeholder´s attitudes (Kalantari and Assadi, 2010; Abbaspour *et al*., 2006). However, although several articles have analysed those constructs, there are still some questions that need to be answered, such as, why some firms adopt environmental management practices that go beyond regulatory compliance, (Delmas and Toffel, 2004), or whether the managerial control processes and actions significantly impact environmental performance, and which are the main differences between proactive and non-proactive environmental orientated firms. This article aims to contribute to the disentangling of the factors that we can positively influence in order to affect the environmental orientation of firms.

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Along this line and focusing on the analysis of which companies' concrete characteristics affect environmental proactive orientation, and according to the previous theory studied, we raised our hypotheses on theoretical implications grouping the influencing aspects in five areas: firms' actions, firms' obstacles, firms' goals, agents' implications and firms' management.

Related to ***firms' actions*** we expect to find a positive relation between the training, information and divulgation actions that companies develop to improve the absorptive capacity of their workforce, so:

H1: Firms' actions have a positive influence on companies´ environmental proactivity.

On the contrary, we would expect that the lack of information and workforce training and the lack of governmental support, which we called ***firms' obstacles***, would influence environmental proactivity in a negative way, so we state that:

H2: Firms' obstacles have a negative influence on the environmental proactivity of companies.

Following theories that link environmental proactivity and business competitiveness, we agree that following the regulations (Telle and Larsson, 2007; Rivas and Magadán, 2010), implementing an Environmental Management System (Espí, 2011), and considering the environment as an opportunity for innovation and quality improvement, matters that we have named ***firms' goals,*** have a positive effect on environmental proactivity so H3 is stated as follows:

H3: The intention to improve firms' goals also improves the environmental orientation of firms.

Related to ***agents' implications***, we would expect that they would influence the environmental orientation of the company by improving actions taken at an internal level so H4 would say that:

H4: Agents' implications would have a positive impact on environmental proactivity of firms by improving firms' actions that companies are able to decide on (H4.1) and by affecting firms' goals (H4.2).

Regarding ***firms' management*** implications, Aragón-Correa's *et al.* (2004) results showed the importance of the internal management in achieving better environmental orientation. Moreover, until now, it has not been deeply studied how a firm's commitment, from managers to clients, influences environmental proactivity, leading us to propose this hypothesis:

H5: Firms' management implications would have a positive impact on environmental proactivity of firms by improving the firms' actions that companies are able to decide on (H5.1) and by affecting firms' goals (H5.2).

MATERIALS & METHODS

In order to analyse the implementation of environmental measures in companies, 135 industrial companies located in the Valencia region, all of them engaged in industrial activities, were surveyed and interviewed. After analysing the data, 9 of them were discarded due to coherence issues. Fig. 1 shows the classification according to the industry to which they belong and number of firms surveyed.

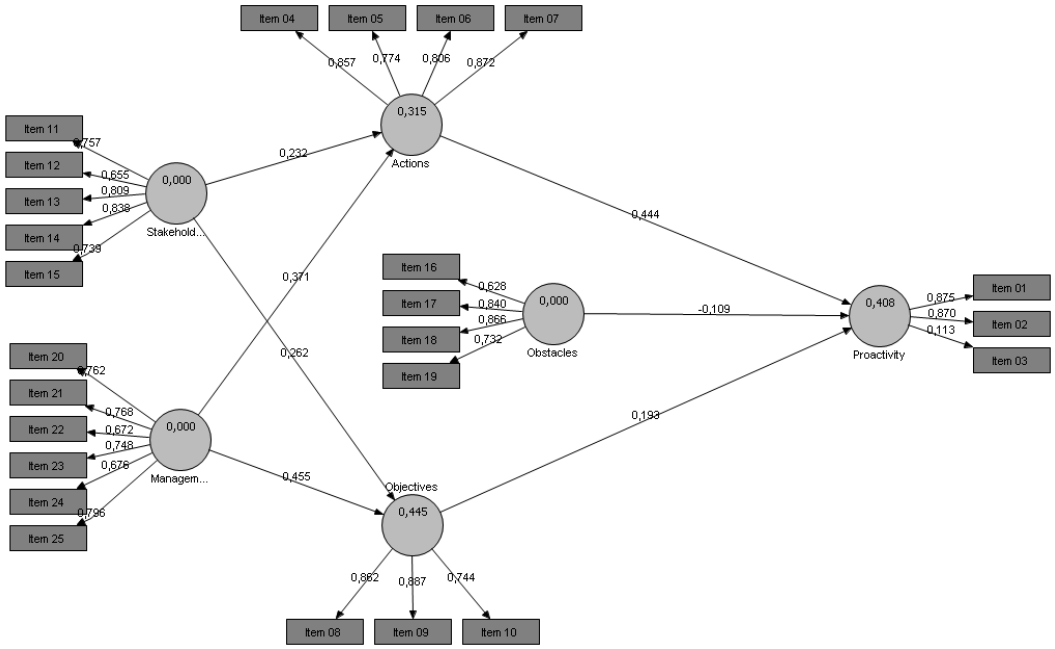

Fig. 1. Estimated structural equation model

Table 1. Sample classification and number of firms surveyed.

ACTIVITY	Number of firms	%
Manufacture of food products	17	12.6
Manufacture of beverages	2	1.5
Manufacture of textiles	8	5.9
Manufacture of leather and related products	2	1.5
Manufacture of wood and of products of wood and cork, except furniture	1	0.7
Manufacture of paper and paper products	5	3.7
Manufacture of chemicals and chemical products	12	8.9
Manufacture of rubber and plastic products	10	7.4
Manufacture of other non-metallic mineral products	33	24.4
Manufacture of basic metals	2	1.5
Manufacture of fabricated metal products, except machinery and equipment	2	1.5
Manufacture of electrical equipment	9	6.7
Manufacture of machinery and equipment n.e.c.	2	1.5
Manufacture of motor vehicles, trailers and semi-trailers	8	5.9
Manufacture of other transport equipment	1	0.7
Manufacture of furniture	6	4.4
Other manufacturing	4	3
Electricity, gas, steam and air conditioning supply.	1	0.7
Civil engineering	1	0.7
Specialised construction activities	3	2.2
Wholesale and retail trade and repair of motor vehicles and motorcycles	1	0.7
Wholesale trade, except of motor vehicles and motorcycles	1	0.7
Retail trade, except of motor vehicles and motorcycles.	1	0.7
Accommodation	1	0.7
Advertising and market research	1	0.7
B. MINING AND QUARRYING	1	0.7
TOTAL	**135**	**100**

The results show that managerial concern about environmental aspects, the aim of economic benefits in the long and short term, the implications for stakeholders, and the implementation of EMS positively influence firms' environmental orientations, while the perception of managerial obstacles to firms' environmental development and high company perception of the administration influence in environmental issues, highly influence the reduction of the odds of being environmentally oriented. The results obtained for the sub-model bear out the choice of indicators. This outcome also constitutes a measure of the validity of the questionnaire used to capture the five latent dimensions. The usual goodness of fit measure, proposed in Tenenhaus et al. (2005), is the geometric mean of the average communality (outer model) and the acceptable average R^2. As to the reliability of the instrument of measurement, the Cronbach's alpha value for all the latent variables is greater, as shown in Table 2. The composite reliability indices are also greater than 0.5 in all cases.

As regards convergent validity (AVE), the values of the four constructs are near to or greater than 0.5, as recommended in Fornell and Larcker (1981). Likewise, the cross-loads are always greater for the latent variables on which the respective items are loaded. The discriminant validity criterion (Fornell and Larcker, 1981) is also met; as for the four latent variables, the corresponding AVE is greater than the square of the estimated correlation between them:

$$AVE_i > \rho_{ij}^2$$
$$AVE_j > \rho_{ij}^2$$

Regarding the structural sub-model, as shown in Table 3, the R^2 coefficients associated with latent variable regressions are significant, with values greater than 0.1 obtained in all cases (Falk and Miller, 1992). An analysis of overall effects, shown in Table 4, highlights the dependence existing between the latent variables and tends to confirm the initial hypotheses for the model.

To confirm the theoretical assumptions, Table 5 shows the regression coefficients between latent factors, their t-statistics and p-values, estimated by bootstrapping with 5000 samples. The seven proposed relations have significant values, confirming the five basic hypotheses in their various concretions.

Table 2. Reliability measurements

	AVE	Composite Reliability	R Square	Cronbach's Alpha	Communality	Redundancy
Management	0.545	0.877		0.837	0.545	
Objectives	0.694	0.871	0.445	0.782	0.694	0.260
Actions	0.686	0.897	0.315	0.847	0.686	0.182
Obstacles	0.596	0.853		0.799	0.596	
Proactivity	0.511	0.702	0.408	0.459	0.512	0.089
Stakeholders	0.581	0.873		0.826	0.581	

Table 3. Matrix of correlation between latent variables

	Management	Objectives	Actions	Obstacles	Proactivity	Stakeholders
Management	1					
Objectives	0.642	1				
Actions	0.537	0.752	1			
Obstacles	-0.115	-0.197	-0.249	1		
Proactivity	0.334	0.549	0.616	-0.258	1	
Stakeholders	0.715	0.587	0.497	-0.059	0.299	1

Table 4. Direct and overall effects between latent variables

	Objectives	Actions	Obstacles	Proactivity
Management	0.455	0.371	0.455	0.253
Objectives				0.193
Actions				0.444
Obstacles				-0.109
Stakeholders	0.262	0.232	0.262	0.154

Table 5. Tests of hypotheses for direct effects between latent variables

Hypotheses	Total Effects	Standard Error	T-statistic
H1: Actions → Proactivity	0.444	0.172	2.576*
H2: Obstacles -> Proactivity	-0.109	0.091	1.201
H3: Objectives -> Proactivity	0.193	0.161	1.200
H4: Stakeholders -> Proactivity	0.154	0.073	2.106*
H5: Management → Proactivity	0.253	0.078	3.252*

* Significant values at the 5% significance level.

CONCLUSION

This approach clarifies the most important aspects to be considered while considering encouraging firms' environmental orientation. It seems that managerial concern regarding environmental aspects is permeating firms' cultures, showing the importance of firms' leaders in firms' strategies. The absence in the perception of obstacles to environmental action and the objective of better economic results in the long and short term are evidence that environmental aspects are perceived as an opportunity for environmentally oriented firms. Also, the implementation and development of an EMS is increasing firms' environmental proactivity as environmental aspects become integrated into every-

day work. The negative impact on firms' environmental orientation is remarkable when high administrative influence is perceived. This might be explained by the focus of administration on regulated activities during the last decade that can result in rejection attitudes towards environmental issues and by the fact that proactive firms usually precede administrative regulations and, so, administrative influence in these firms is low. Finally, the greater the influence of stakeholders, namely clients, stockholders and high level managers on environmental decisions, the higher the environmental orientation of the firm, which fits with the research findings when evaluating other aspects, such as eco-innovation proactivity.

Although some aspects are not statistically significant, some conclusions can be drawn. Environmental information and training action act positively but their influence is insufficient to change environmental orientation. This might be because the information and training are not focusing on the proper aspects or persons and so lose effectiveness. On the other hand, environmental actions, such as energy or water saving, are having influence in an unexpected way, having a negative impact on environmental orientation. As these aspects are highly influenced by the economic interests, companies may take actions in energy and water saving regardless of the environmental orientation of the firm. Technology management systems and market opportunities are an expected variable sign with no significant influence which might be because few companies have already integrated environmental aspects into the innovation processes and because firms are still not sufficiently convinced of the impact of environmental issues in firms' competitiveness.

Therefore, this study highlights the importance of managers' implications and visions in the proactivity attitude towards sustainability and the need to be open to change in the way of doing things, through the implementation of EMS and in the way of thinking, seeing environmental aspects as an opportunity and not as a threat that will result in economic benefits in the short and long term.

The study also displays that, nowadays, public policy is not influential in encouraging environmental proactivity, neither by promoting environmental activity nor by the threat of penalties in environmental regulations. Maybe, public policy has not been focused on making managers realise the necessity of an environmental approach at all business levels and from design to the end product life-cycle to ensure competitiveness and, therefore, the firms' futures and revenues. Our findings highlight that the cultural change needed to reach sustainable orientation in companies must be driven and promoted by high level managers and that, at the same time, some kind of formal organization in relation to environmental aspects, like EMS, is needed to achieve this change. Then, government policy-makers must emphasize to company directors, as drivers of marketplace competitiveness, the relevance of environmental issues and that it is essential to develop public support programmes that correctly aim towards the aspects that have been proved to be more effective and efficient in increasing firms' environmental orientations. EMS promotion and an adequate information and training programme are needed to avoid the threats and to confirm the opportunities and the necessity of an environmental approach to business to assure competitiveness in the future.

Finally, some of the limitations of this article should be overcome with further research. First, our research has to be improved by analysing economic performance variables to see if there is any influence and to determine the proactivity orientation of the firms studied. This research should be seen as a first attempt to understand the variables involved in the environmental orientation of industrial firms but there are still many other variables to focus on, such as proactivity and eco-innovation activity. Also, we should extend the study to other Spanish regions to see if the results can be replicated.

ACKNOWLEDGEMENT

The authors would like to thank the Spanish Economy and Competitiveness Ministry for its financial support through the research project (EC02011-27369). Also the Universitat Politècnica de València for its research funding to the project "Innovative impact on the companies' environmental performance: identifying moderating factors" (PAID-06-2011-1879).

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