

A STAKEHOLDER-THEORY APPROACH TO ENVIRONMENTAL DISCLOSURES BY SMALL AND MEDIUM ENTERPRISES (SMES)

UNA APROXIMACIÓN DESDE LA TEORÍA DE LOS STAKEHOLDER A LA DIVULGACIÓN DE INFORMACIÓN MEDIOAMBIENTAL DE LAS PEQUEÑAS Y MEDIANAS EMPRESAS (PYMES)

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ABSTRACT

The aim of this article is to analyse the reasons that drive Spanish Small and Medium Enterprises (SMEs) to disclose environmental information. The contribution of the present research to the literature on corporate social reporting is threefold: (i) it widens the scope of Stakeholder Theory; (ii) it analyses the environmental reporting disclosures of SMEs; and, for the first time in this field, (iii) it applies Structural Equation Modelling. The results show that stakeholder salience, manager strategic posture and resource availability, though insufficient in themselves, are necessary to explain the environmental performance of SMEs. Moreover, an analysis of the disclosures they make in their annual accounts brings to light the impossibility of gaining insight into the real environmental behaviour of these firms, which raises reasonable doubts over the effectiveness of the relevant environmental reporting regulation in Spain.

KEY WORDS: Environmental reporting, SMEs, stakeholder theory, structural equation modelling,

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RESUMEN

Este trabajo tiene como objetivo analizar las razones que motivan a las pequeñas y medianas empresas españolas (PYMEs) a divulgar información medioambiental. Las tres principales aportaciones de esta investigación al área de la divulgación de información social son: (i) ampliación del desarrollo de la aplicación de la Teoría de los Stakeholders, (ii) análisis de la divulgación de información medioambiental de las PYMEs, y (iii) utilización pionera de la metodología de ecuaciones estructurales. Los resultados obtenidos muestran que la capacidad de influencia de los stakeholders, la actitud estratégica de los gestores y su disponibilidad de recursos son variables necesarias para explicar el desempeño medioambiental de las PYMEs, pero no suficientes. Por otra parte, el análisis de la información que divulgan las PYMES en sus cuentas anuales saca a la luz la imposibilidad de conocer su desempeño medioambiental a partir de esta información, lo cual abre vías para una posible reconsideración de la eficacia de la legislación española pertinente.

PALABRAS CLAVE: Divulgación de información medioambiental, PYMEs, teoría de los stakeholders, ecuaciones estructurales.

1 INTRODUCTION*

Authors such as Gray, (2002), Parker (2005), Adams and Larrinaga (2007) or Bebbington *et al.* (2008) all agree on the importance of developing the theoretical pillars of Social Accounting. Among other cases, this might refer to the importance of understanding, explaining and predicting the process of social information disclosure¹ by firms, applying well-known and proven conceptual pillars for that purpose, such as Stakeholder Theory (Gray *et al.* 1996; Deegan, 2002).

Another of the possible improvements to be taken into account, if we wish to perform a careful study of Social Accounting, is found in the analysis of social information disclosures made by Small and Medium Enterprises (SMEs). Although the disclosure of social information by large Spanish firms has been widely researched and studied (see among others Moneva and Llena, 1996, 2000; Archel and Lizarraga, 2001; Larrinaga *et al.*, 2002; Llena *et al.*, 2007; Husillos, 2007; and Criado *et al.*, 2008), when the spotlight moves on to SMEs, many and varied opportunities for improvement become apparent. This situation contrasts with the importance accorded to SMEs in the Spanish economy and in consequence their potential social and environmental impact. *They represent 99% of all firms, 80% of all employment, 50% of total business turnover and 20% of all profit obtained* (Lozano *et al.*, 2006:2)

This article seeks to examine the reasons that drive Spanish SMEs to disclose environmental information, thereby extending and developing the application of Stakeholder Theory in this area of research. Thus, starting out with the seminal work undertaken by Ullmann in 1985, the definition of its principal theoretical constructs and their operationalisation are developed, bringing theoretical and methodological advances from other scientific disciplines into the field of Social Accounting (see Álvarez, *et al.*, 2007). Subsequently, by applying structural equation modelling, the underlying theoretical model is used to study the environmental information disclosures of a sample of SMEs that form part of the auxiliary automobile industry in Spain.

SMEs have been chosen since they produce around 70% of the total global pollution (Smith and Kemp, 1998), 60% of the total carbon emissions (Marshall, 1998), and the sum total of SMEs' environmental impacts outweighs the combined environmental impact of large firms (Hillary, 2000). On the other hand, Europe is the world's largest motor vehicle producer. In total, there are more than 250 automobile manufacturing plants in Europe, directly employing

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(1) Both strictly social information as well as environmental information should be considered as included within the term "social information".

2.3 million Europeans (and indirectly supporting a further 10 million jobs in related sectors). These sites produce more than 18.5 million vehicles each year, including over 32% of the world's passenger cars. Spain's automobile industry accounts for 7% of all industrial employment, 5% of gross domestic product and 26% of the nation's exports. Key markets are France, Germany, Italy and Great Britain. Its size and importance is underlined by its significance at the European level. Passenger car production in Spain ranks number 3 in the Union but the country occupies the top position as a producer of industrial vehicles. In 2006 passenger vehicle production reached 2.77 million vehicles while output of industrial vehicles was 570,000 units. More than 80% of its production in this category is exported to other EU Member States. Major operators in the parts and components industry include several Spanish owned companies with growing R&D activities; turnover in the sector was €31 billion in 2006 (ACEA: european automobile manufacturers association, 2008)

The article begins with a justification of the theoretical framework under consideration and the role played by Stakeholder Theory in the social reporting area, after which, a presentation is made of the proposed model, so as to examine the environmental information disclosure processes of the SMEs selected for the sample. Having done so, it moves on to test the underlying hypotheses of the model through a non-parametric structural equation modelling technique, in order to present and to analyse both the results and their implications for academic research, regulatory bodies and the business community. The paper also sets out some reflections on its limitations and opportunities for future research.

2 | STAKEHOLDER THEORY AND SOCIAL DISCLOSURE

Considering organisational behaviour from the perspective of Stakeholder Theory has helped to shed light on, for example, the role that businesses should play in society (Donaldson and Preston, 1995); it has enriched organisational theory by introducing a less restrictive vision than that upheld by traditional economic theories (Jones, 1995); it has contributed to greater awareness of how wealth-creation processes work in organizations (Post *et al.*, 2002); it has developed a crucial role in defining the boundaries of abstract notions of corporate social responsibility and performance (Wood, 1991; Clarkson, 1995); and, it has brought to the fore the relation that exists between the importance accorded by managers to the interests of certain stakeholders, and the behaviour patterns of firms that are both more respectful towards the environment (Henriques and Sadorsky, 1999) and better in terms of sustainable development (Sharma and Henriques, 2005).

Stakeholder Theory is also considered one of the most important conceptual frameworks in the field of Social Accounting (Gray *et al.* 1996). The analysis of social information disclosures by organisations through the relations that they maintain with their

stakeholders has brought important questions to light, such as the limited usefulness to stakeholders of environmental information voluntarily revealed by large firms in their annual accounts (Moneva and Llena, 2000), and it has also contributed to clarifying many other issues (see Chart I). However, with the important exception of Ullmann's (1985), there still ample room for trying to develop a sufficiently robust theoretical framework to explain the interaction between the firm and its stakeholders. It is for this reason that Ullmann's study is taken as a landmark from which to begin our journey².

CHART 1.- RELEVANT CONTRIBUTIONS FROM STUDIES ON SOCIAL INFORMATION DISCLOSURE WITHIN THE FRAMEWORK OF STAKEHOLDER THEORY.

Clarification of the links existing between social disclosure, social performance and the economic performance. (Ullmann, 1985; Roberts, 1992),

Identification of an entity's country-of-origin influence on the quantity and the characteristics of the environmental information disclosed. (Smith *et al.* 2005),

Identification of social groups that determine the disclosure behaviour of firms. (Roberts, 1992; Neu, Warsame and Pedwell, 1998; Cormier *et al.* 2004);

Establishment of the relevance attributed to social and environmental information by different stakeholders. (Deegan and Rankin, 1997)

Specification of aspects of environmental performance on which stakeholders especially wish to be informed. (Azzone and others, 1997; Mastrandonas and Strife, 1992)

Clarification concerning the format that environmental information disclosures should present in relation to stakeholders' needs. (Mastrandonas and Strife, 1992; Azzone, *et al.* 1997).

Source: Authors

3 | A REVIEW OF ULLMANN'S WORK

Ullmann (1985) understood that the differences in the results that have been identified up until the mid 80s between the results in the literature that connected social performance, social disclosure and economic performance, could, in large measure, be attributed to an absence of robust theoretical frameworks capable of explaining such relations. In order to solve this problem, he laid the groundwork for a theoretical model, of a contingent nature, revolving around “*three dimensions*”: stakeholders power (as the cornerstone), the strategic posture of managers, and the economic performance of firms.

Advances in this area of research over the last twenty years and in other similar areas related to the theoretical pillars of Ullmann's work (see, for example Al-Twajiri *et al.*, 2004; Magness, 2006; and Álvarez *et al.*, 2007), make it advisable to update his work, by developing its theoretical constructs and by attempting to improve on its empirical testing.

(2) Although there are other works in the area of Social Accounting that have proposed a robust theoretical model guided by Stakeholder Theory, (see, for example, the work of Cormier *et al.*, 2004), it was decided to follow the work of Ullmann (1985) due to the great influence that it has had on this area of research over the last 20 years.

The review is carried out in three stages. Firstly, the reasons why managers prioritise demands from some stakeholders instead of others, which Ullmann (1985) captured by using the variable “*stakeholder power*”, will be dissected and analysed, and the way they are operationalised will be examined, by applying the model proposed by Mitchell *et al.* (1997). Subsequently, the concept of the “*strategic posture*” of managers will be developed, by studying the attributes that drive managers to pursue sustainable competitive advantage through more active management of their relations with different stakeholders. Finally, the explanatory variable proposed by Ullmann “*economic performance*” will be developed, using the theoretical construct of “*organisational slack*”, widely employed in the literature on management (Bourgeois, 1981).

3.1. Stakeholder power

Stakeholder Theory contends that firm behaviour is conditioned by the pressures exercised on organisations by different stakeholders. In line with this premise, Ullmann (1985) situated stakeholder power as the cornerstone of his analysis of organisational behaviour.

In the past, two stakeholder profiles have been put forward. On the one hand, there are the so-called “primary stakeholders” (Savage *et al.*, 1991; Clarkson, 1995) or “organisational stakeholders” (Henriques and Sadorsky, 1999) whose interdependence with the organisations is very high due to which their support is essential for the organisation to develop and to survive. On the other hand, we find those other stakeholders that, despite influencing and being influenced by a firm, are not closely linked to it, show lower levels of interdependence and satisfaction of their needs is more easily overlooked.

Mitchell *et al.* (1997) contributed to the development of Ullmann’s work (1985) by highlighting that attention should not only be paid to the power of stakeholders, so as to be able to characterize their influence over organisations, but also to the legitimacy and urgency of their claims (Mitchell *et al.*, 1997). The legitimacy of an organisation’s behaviour is one of the cornerstones upon which its survival and development within society is founded (Scott, 1995). If society considers that the behaviour of organisations that operate within is undesirable or inappropriate, those organisations run the risk of disappearing (Suchman, 1995). Thus, if (as Stakeholder Theory maintains) firm behaviour responds to the satisfaction of stakeholder demands, then from among all the competing claims, according to Mitchell *et al.*, (1997), firms will have incentives to attend to those demands that society considers legitimate. Finally, it must be said that the attribute “urgency” is defined as “*the degree to which stakeholder claims call for immediate attention*” (Mitchell *et al.*, 1997:867). This is directly related to the importance that stakeholders attribute to the demand, and the period of time within which they wish the demand is met. Their model has been widely used and validated in other settings, for instance, in a general way in the context of the United States by Agle *et al.*, (1999) and

in the field of corporate environmental strategy, in the Spanish context by Fernández and Nieto (2004).

Due to the explanatory power shown by the model designed by Mitchell *et al.*, (1997), it is used in this study to capture stakeholder salience (the influence of stakeholders over the organisation), taking into account, as previously mentioned, the power of stakeholders, as well as the legitimacy and the urgency of their claims. If the natural environment is prioritised by those stakeholders that already have contractual links with a firm (organisational) or by those that do not have contractual links with a firm (non-organisational), then the firm will have an incentive to pursue activities to satisfy that desire. Thus, the first two proposed hypotheses in this research are:

H1a: *A positive relation exists between non-organisational stakeholder salience and the environmental performance of the firm.*

H1b: *A positive relation exists between organisational stakeholder salience and the environmental performance of the firm.*

3.2. Strategic posture

It appears logical to suppose that the response of organisations to stakeholder demands, in addition to stakeholder salience, could also be influenced by the personal characteristics of the decision-makers within the firm, as was suggested by Hambrick and Manson (1984). This reasoning might be more significant in the case of SMEs, in which the values of their managers pervade all types of organisational decisions among which the implementation of their social and environmental programmes (Murillo and Lozano, 2006; Gueben and Skerratt, 2007).

Ullmann (1985) incorporates this notion in his work under the name of “*strategic posture*”. With this theoretical construct, he attempts to capture the way in which firms confront the social demands of stakeholders in relation to their managers’ pro-active and at times rather less-active postures. However, Ullmann did not fully develop this point, for which reason it was felt necessary in this study to look at those investigations in which more or less “*pro-active*” managerial behaviour is analysed in greater detail (see especially Bateman and Crant, 1993, 1999 and Crant, 2000). Two of the main distinctive characteristics of “*pro-active*” managers are: their tendency to create changes in the environment challenging the prevailing *status quo* (Bateman and Crant, 1993), and to channel these changes towards improving the current circumstances in which their organisations carry out their activities (Crant, 2000). In this sense, behavioural models such as their propensity for change, for “*ongoing scrutiny*” of the business setting in search of new opportunities, their capacity to anticipate problems, to use multiple sources of information, their predisposition towards

taking initiatives or perseverance until change occurs, have been positively related to such issues as: diversification of the activities of larger U.S. firms (Wiersema and Bantel, 1992), the implementation of reverse logistic programmes (Álvarez *et al.*, 2007) or, in the specific field of SMEs, with the entrepreneurial behaviour of their directors and an increase in their sales (Becherer and Maurer, 1999).

With reference to the environmental behaviour of firms and its possible relation to *pro-active* managerial postures, different studies affirm that many opportunities to gain sustainable competitive advantages can arise from the management of a firm's relation with the natural environment (Hart, 1995; Russo and Fouts, 1997). Sharma and Vredenburg (1998:735) discovered that *pro-active* firms, as a result of *habitat preservation, resource management, waste reduction, and energy conservation*, saw trust and collaboration in their relations with stakeholders improve, which in turn led to gains in sustainable competitive advantages. Practices such as pollution prevention, satisfactory management of product life cycles, as well those that guide organisational activities towards more sustainable development, can give rise to tangible and intangible assets that are difficult to imitate, acquire or transfer and are, on occasions, very specific (Hart, 1995). It appears that these attributes tie in with the main characteristics of those assets that generate value in a sustainable way for the firms that possess them.

In view of what has been said, the present investigation maintains that managers with a *pro-active* profile characterized by ongoing analysis of their stakeholder relations, constant search for new ideas and sustainable competitive advantages, will perceive, in the implementation of their environmental activities, a way of improving their relations with stakeholders, thereby differentiating themselves from their competitors. Hence, the second proposed hypothesis in this study:

H2: *A positive relation exists between the pro-active posture of the manager and the environmental performance of the firm.*

3.3. Economic performance

Ullmann (1985) maintains that economic performance significantly influences the social performance of firms for two reasons: on the one hand “*in periods of low profitability [...] economic demands [of stakeholders] will have priority over social demands [...]*”; whereas on the other, “*Economic performance [in itself] influences the financial capability to undertake costly programs related to social demands*” (p.553).

For Álvarez *et al.*, (2007) despite being *pro-active* and, in consequence, wishing to satisfy those stakeholder demands that are considered sufficiently important, the question of whether or not managers will be able to do so will be determined by the volume of

resources that are accessible to them. The influence of resource availability on the behaviour of organisations has been widely studied in the field of management. In fact, the term “*organisational slack*” has been coined to capture this theoretical construction. It could be understood as the “*resources that enable an organization both to adjust to gross shifts in the external environment with minimal trauma and to experiment with new postures in relation to that environment, either through new product introductions or through innovations in management style*” (Bourgeois, 1981:31). Organisational slack influences the capacity of firms to adapt to new business situations (Meyer, 1982) and it also plays a crucial role in the innovative behaviour of organisations, by stimulating experimentation with new strategies that would never be undertaken if resources were scarce (Chakravarthy, 1982; Nohria and Gulati, 1996). On the other hand, the existence of organisational slack increases the feeling of control over possible external threats (Sharma, 2000) and makes it more likely that strategic decisions with higher expected risks will be taken, which would not otherwise be taken in situations of scarce resources (Singh, 1986; Mosess, 1992).

In the context of the present investigation, resource availability assumes, if applicable, greater importance, insofar as the difficulty of SMEs to access the resources needed to develop environmental management systems has been identified as one of the principal barriers to its implantation (Hillary, 2004). Accordingly, in view of the above arguments, it is proposed that:

H3: *A positive relation exists between organisational slack and the environmental performance of firms.*

3.4. The strategic use of environmental information

Behind the affirmation that managers may be using environmental information for strategic purposes lays the assumption that they have a degree of discretion when reporting. Unlike the majority of previous studies, this research has been conducted in a setting in which environmental information is regulated by law, which might lead one to believe that managerial discretion is watered down when disclosing this type of information for strategic ends. Nevertheless, the principal investigations that have studied social disclosure in regulated settings, both in an international context (see Adams *et al.*, 1995) and in the Spanish context, (Larrinaga *et al.*, 2002; Llena *et al.* 2007; Husillos, 2007 and Criado *et al.*, 2008), have reached the conclusion that in the presence of specific legislation, social and environmental information is still being strategically released by firms on a discretionary basis.

Ullmann (1985), when analysing the strategic use of social information and its relation to the social performance of firms, affirmed that the disclosure of social information can serve

as “[...] (i) a supporting strategy connected with social performance or (ii) an alternative strategy for managing stakeholder relations” (p.552).

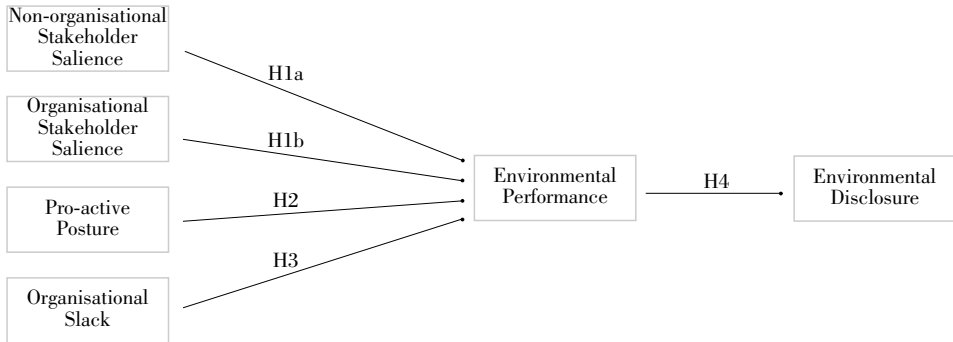
Researchers have adopted different positions on the basis of the relationship between social reporting and the social performance of firms. Information forms part of a strategy connected with the true social behaviour of the firm, for those that uphold the view that the strategic objective guiding the disclosure of social information is to gain sustainable competitive advantages. In other words, social information serves as a vehicle between the social performance of the firm and the perception of its principal stakeholders. Social information reported by a firm will influence stakeholder opinions of the organisation and thereby improve stakeholder/firm relations (see Toms, 2002 and Hasseldine *et al.*, 2005 in the context of large firms or Perrini *et al.*, 2007 in the case of SMEs). Social information will, as a result, be useful to managers that wish to differentiate their organisations, to the extent that it may be interpreted by their principal stakeholders as a signal on: (i) their ethical commitment; (ii) the efficiency of their management; or (iii) risk management. Nevertheless, an important limitation of this type of analysis is that it does not question whether social reporting is really linked to the social behaviour of the firm.

Contrary to the latter current of research, various studies have pointed that it is not possible to gain a reliable picture of the environmental and social behaviour of firms based solely on the study of the information that they disclose (Adams, 2004; Gray, 2006). For various authors from the area of Social Accounting, the social information released by firms could be used (at least on some occasions) to manipulate the perceptions of the principal stakeholders with a view to improving their relations with them (Deegan and Rankin, 1996; Deegan, *et al.*, 2000). Deegan *et al.*, (2002:334-335) maintain that firms could be voluntarily disclosing environmental information in their financial statements (strongly biased towards positive aspects) to avoid state intervention (forced by stakeholder pressures) that would reduce their discretion when deciding, in accordance with their own interests, what type of information to disclose at any moment in time.

In the present study, the possibility that stakeholders might gain accurate knowledge of a firm's environmental performance on the basis of the information that it discloses will be taken from the realm of assumption and treated as a hypothesis. Thus, we formulate the fourth hypothesis:

H4: *A positive relation exists between the environmental performance of firms and the use of environmental information for strategic purposes.*

FIGURE 1.- THEORETICAL MODEL



4 RESEARCH DESIGN

4.1. Methodological approach

The hypotheses proposed in this research were tested using structural equation modelling, which allow the simultaneous estimation of multiple dependency relationships, using latent variables (LVs). A satisfactory analysis of the proposed model's capacity (see figure 1) to predict the behaviour of its endogenous LVs (environmental performance and environmental disclosure) requires the application of a method that complies with such requirements. The non-parametric structural equation modelling technique known as "*partial least squares*" (PLS) (Wold, 1985) was chosen from among the various options. The reasons for choosing PLS as against covariance-based methods are of a methodological and an epistemological order. On the one hand, the lack of symmetry in the multivariate distribution of the data under study was confirmed. Unlike covariance-based methods, PLS models do not depend on prior assumptions adopted by researchers regarding the distribution of the variables that they are studying (Chin, 1999). The second of the methodological reasons refers to the size of the sample under study (135 firms). Previous literature has highlighted how different problems arise with estimations based on covariance methods when the researcher is dealing with samples of below 200 or 250 observations (Chin, 1999). In reference to the epistemological motivations, the problem revolves around the initial assumptions concerning the relation that the manifest variables (MV) (questionnaire items) have with the LV (theoretical constructs) that they are meant to capture. It is standard practice to assume that any alteration in the LVs will be reflected in an alteration in all the manifest variables. However, questions have recently been raised over this presumption, as it was shown that a large group of MVs that had conventionally been considered "reflective" could not in fact be so. Instead of a simple appearance or

measurable symptom of the LV, the MV could be their cause, in which case they are referred to as “*formative*” variables (see MacKenzie *et al.*, 2005). In relation to this study, three of the LVs (organisational stakeholder salience, non-organisational stakeholder salience and organisational slack) are constructed using “*formative*” MVs. Although it is possible to work with formative variables using covariance-based methods, unlike PLS, it can lead to problems related to the identification of the model, or the existence of equivalent models (Chin, 1999).

4.2. Selection of the sample

The organizations under study belong to auxiliary automobile industry in Spain. This industry is made up mainly of SMEs. As Aragón-Correa *et al.*, (2008:101) point out: “*Strategic differences between big and small firms, the scope of SMEs’ impacts on the global economy and on the natural environment, and the absence of previous analysis, all suggest the importance of giving detailed attention to the issue of the strategic behaviour of SMEs in their interface with the natural environment*”

The reasons that drive these kinds of firms either to disclose or to withhold social information are largely unknown at both a national and an international level. With respect to whether the industry selected brings together sufficient scientific requirements from which to derive interesting implications of a scientific and professional nature, which will help to explain the environmental behaviour of the firms under study, the auxiliary automobile industry has been successfully used (see Álvarez *et al.*, 2007) to study the causes that lead firms to introduce reverse logistics systems, practices which are indissolubly linked to the environmental performance of SMEs (see Palmer and Vorst, 1997:58). With regard to the methodological reasons for this choice, as the research centres on a single sector, composed in its immense majority of firms of a reduced size, it is feasible to control the results by taking account of the sector and firm size³.

An extensive revision of the economic activities listed in the Standard Industrial Classification (SIC) was undertaken, at the end of which 11 were selected (see annex, table A1). Subsequently, the database prepared by Dun and Bradstreet Spain S.A. was used to identify Spanish firms belonging to these areas of economic activity. The sample was drawn up from a random selection of 200 from among the 1150 firms extracted in 2004 from the Dun and Bradstreet database. In the sample size calculation for a single proportion, taking a pessimistic estimation of $p=q=0.50$ and a confidence level of 95%, the tolerated sampling error was 6.3%. The majority of firms in the sample had less than 250 workers (see annex, table A1b), a benchmark used to categorise a firm as small or medium-sized.

(3) Nevertheless, a test of robustness was performed which confirmed that after having eliminated from the sample those firms of greater size, the results were not significantly affected.

4.3. Compilation of the data

The information to be examined is drawn from two sources. On the one hand, from the in-depth analysis of the annual accounts of the firms in the study, and on the other, from a questionnaire prepared to that effect, which was filled in by people in the firm whose perception is decisive when deciding whether or not environmental information is to be disclosed. The managing directors of the firms were chosen to complete the questionnaire, as SMEs do not often have an environmental manager, for which reason the head of the organisation takes charge of such tasks (Williamson and Lynch-Wood, 2001). It should be added that the study of environmental disclosure in the framework of the strategic actions of organisations must be conducted at the highest hierarchical level (O'Dwyer, 2002).

The effectiveness of the use of questionnaires for this task has already been proven in the literature on different occasions (see Bebbington *et al.*, 1994 or Cormier *et al.*, 2004). The questionnaire in this study was prepared in two phases. In the first phase, an extensive review of the literature was performed in order to define in a satisfactory way the theoretical constructs to be measured. Subsequently, a group of items was selected on the basis of this preliminary review, taking account of those that were known to effectively capture the concepts. A number of other items were also prepared *ex profeso*. This pilot questionnaire had to pass a *pre-test* in the second phase. To do so, interviews were arranged with directors of some of the firms in the population under study, with the aim of understanding whether they had a full understanding of the questionnaire and whether it was adapted to the realities of the sector. The definitive questionnaire was arrived at after incorporating the modifications suggested by these experts, which centred principally on the inclusion and exclusion of certain items, as well as on their wording.

The questionnaires were completed at personal meetings and through telephone interviews with the managers of 158 of the 200 pre-selected firms. TNS, a market research firm, was contracted to coordinate and supervise these meetings, which took place between November 2004 and January 2005.

The environmental and financial information to be studied was in the first instance compiled from the financial statements that Spanish firms are legally obliged to file with the Mercantile Register (Registro Mercantil). These accounts are without doubt one of the channels of business information with the greatest credibility among stakeholders (Neu *et al.*, 1998). Given the difficulty of accessing the financial information of certain firms, the total number of observations fell from 158 to 135⁴. The content analysis method, which has become standard in the literature, was applied to ensure the reliability and validity of the analysis of the environmental information; the sentence was taken as the basic unit

(4) Despite it being a legal obligation, some of the firms in the sample had not filed their annual accounts, or their accounts were incomplete.

of analysis, for coding as well as for quantification of the information (Milne and Adler, 1999; Husillos, 2007).

4.4. Capturing the theoretical constructs

Environmental disclosure

“*Environmental disclosure*” as a variable was devised to capture the disclosure of environmental information with strategic ends. In this study, information with strategic purposes has been understood as that directed at improving the relations of the firms with their stakeholders through the satisfaction of their demands. The methodological approach to capture the “*environmental disclosure*” variable consisted in weighting the quantity of environmental information disclosed in accordance with its importance to stakeholders, which in this study has been likened to the potential of such information to convince stakeholders that the firms are really carrying out environmental activities.

With that end in sight, the work of Toms (2002) and Hasseldine *et al.*, (2005) was followed, who had posited that, because credibility is the key attribute of information that has the greatest impact on a firm’s reputation, the two most relevant characteristics that environmental information should encapsulate are: to be of a quantitative nature, and to have been audited by a third party unrelated to the organisation. On the basis of these findings and the fact that all the information under analysis was taken from annual accounts⁵, the following attributes of environmental information disclosures were identified: i) their quantitative or qualitative nature; ii) whether they describe a specific action of the firm or are merely rhetorical; and/or iii) whether they specifically stated that they undertook no environmental activity whatsoever⁶. The selected messages were grouped into four types, which in order of greatest to least significance were: (i) quantitative-descriptive, (ii) qualitative-descriptive, (iii) qualitative–rhetorical, and (iv) specific statements of not having undertaken any type of environmental activity (see Cormier *et al.*, 2004 and Al-Tuwaijri *et al.*, 2004 for a similar classification). This classification was used to study the quantity of environmental information disclosed by the SMEs in the sample (see table I).

Stakeholder salience

The importance accorded by managers to different stakeholder demands has been measured by two variables: “*organisational stakeholder salience*” and “*non-organisational stakeholder salience*”. During the pre-test stage, the list of the most important stakeholders in this area of activity was confirmed with experts from the auxiliary automobile sector: clients, employees, shareholders, the government and the local community.

(5) Although due to their reduced size some of the firms under study were not under an obligation to have their annual accounts audited, these constitute one of the most important channels of business information of the greatest credibility to stakeholders (Neu *et al.*, 1998).

(6) This latter case was introduced because under Spanish legislation firms that carry out no environmental activity are specifically obliged make a statement to that effect.

The capacity of these five groups to influence the behaviour of the firms was captured, using the model devised by Mitchell *et al.* (1997), which was based on the analysis of the perception held by managers with respect to the power of stakeholders, and the legitimacy and urgency of their claims. In the first place, making use of the questionnaire, the managers were asked to rate a series of items, which have previously been developed and tested in the literature (Agle *et al.* 1999; Céspedes *et al.*, 2003), on a 7-point Likert scale (on which 1 = totally agree and 7 = totally disagree) that allowed these three stakeholder attributes to be evaluated (see annex, table A2)⁷. In second place, the mean average of the scores given by the managers to those attributes was calculated for each of the stakeholders, thus arriving at the notoriety that each manager attributed to each stakeholder. It is equally worth specifying that the stakeholders considered as organisational or contractual were the clients, the shareholders and the employee, whereas government and the local community were defined as non-organisational or non-contractual stakeholders.

TABLE 1.- CALCULATION METHOD OF THE ENVIRONMENTAL INFORMATION DISCLOSURE VARIABLE

Type of messages	Representative examples	Nº of sentences	Weighting
Quantitative-descriptive	“The financial statement for the annual year 2003 includes costs amounting to 6,510 Euros pertaining to the protection of the environment, corresponding on the whole to the treatment of waste products”.	Q1	4
Qualitative-descriptive	“In relation to the environment, A.P. Amortiguadores S.A., has introduced a system of environmental management in accordance with the policy of the firm and UNE-EN ISO 14001.”	Q2	3
Qualitative-rhetorical	“The firms take the necessary measures so as not to harm the environment”	Q3	2
Undertakes no activities	“The undersigned, as administrators of the said company, declare that in the company accounts that correspond to the present financial year there is no entry that should be included in the separate annex on environmental information specified in the Order of the Ministry of Economy of 8th October 2001.”	Q4	1

Calculation of the variable = $Q1*4+Q2*3+Q3*2+ Q4*1$

Pro-active posture

Three items were drawn up to operationalise the concept of “*pro-active posture*”. The purpose of these three items was to measure the propensity of the managers of the SMEs to seek out new ideas, competitive advantages and to satisfy stakeholder needs on an ongoing basis (see annex, table A2b). These three characteristics should form part of the

(7) Some of these items were, as suggested by the experts, adapted to the auxiliary automobile sector in Spain.

attributes of a *pro-active* manager, in view of how this theoretical construct is defined in this study. The assessment was carried out by asking the managers to rate those items using the same 7-point Likert scale described earlier.

Organisational slack

The economic-financial information on the entities under study has been taken as a reference point to capture data on the “*organisational slack*” of these firms (see Bourgeois, 1981; Singh, 1986 and Moses, 1992). More specifically, two variables were used, which are non-distributed profit and the acid-test ratio.

Environmental performance

This study begins with the assumption that the business approach that is respectful towards the environment will necessarily be reflected in the implementation of a specific set of environmental activities. In consequence, the interviewees were asked to make an explicit statement on the extent to which these activities were implemented in their respective firms, so as to measure the variable “*environmental performance*”. The scale that was used showed different degrees of involvement, from “1 = we do not develop these activities nor do we have plans to do so” to “7 = we have made important progress, we are leaders in this area” (see Aragón-Correa, 1998). Taking as a reference point the indicators developed by Aragón-Correa (1998) and the opinion of the different experts, nine items were described to capture the environmental performance of firms (see annex, table A2b). The managers were asked about activities related to prevention (e.g. development of environmental accident prevention systems), and management (e.g. the use of guidelines for internal management with environmental criteria), as well as the subsequent treatment of resources and residues (e.g. recycling, reuse or installation of filters to control atmospheric emissions and waste). The activities were grouped around those in the sphere of internal management and those linked to manufacturing processes, it being assumed once again that the environmental approach of the firm would be reflected in both spheres.

5 RESULTS

5.1. Analysis of the measurement model

The analysis of the measurement model seeks to test the validity and reliability of the LVs that are studied in the structural model. In order to estimate the validity and reliability of the measurement model correctly, reference must be made to: the reliability of the items used and the reliability of the proposed constructs, as well as the convergent and discriminant validity.

The reliability analysis of the items is intended to determine the extent to which each one is acceptable in order to capture the corresponding LVs. Annex, table A3 shows the

factorial loads of the reflective indicators and the first-order “constructs”, as well as the Variance Inflation Factor (VIF) for the formative-type measures. The majority of the reflective items and all of the first-order (molecular) “constructs” exceeded the recommended value of 0.707⁸ (Chin, 1998). With regard to the analysis of collinearity between the formative indicators, in all cases the VIF was below 5, very much under the recommended threshold of between 5 and 10.

In order to calculate “construct” reliability, the composite reliability was determined (Werts *et al.*, 1974). As may be appreciated from annex, table A3, the values of the composite reliability coefficient fluctuate between 0.796 and 0.913, values that imply a satisfactory level of reliability of the “constructs” under analysis (Nunnally, 1978). Together with the analysis of the internal consistency of the blocks of indicators using the composite reliability coefficient, the convergent validity was also studied. To do so, the Average Variance Extracted (AVE) was calculated, which should at least be 0.5, in order to conclude that the convergent validity is satisfactory (Fornell and Larcker, 1981). As may be appreciated in annex III, the convergent validity is satisfactory.

The discriminant validity is analysed to confirm the extent to which the blocks of items reflect their respective LVs better than the other LVs existing in the model. To that end, it was studied whether the “constructs” shared a greater variance (AVE) with their own indicators than with other “constructs” in the model (Calvo-Mora *et al.*, 2005). As may be confirmed in table 2, the discriminant validity of the measurement model is satisfactory as well.

TABLE 2.- ANALYSIS OF DISCRIMINANT VALIDITY

	Pro-active posture	Environmental performance	Environmental disclosure	Organisational slack	Organisational stakeholders salience	Non-organisational stakeholders salience
Pro-active posture	(0.568) †					
Environmental performance	0.110 ††	(0.681)				
Environmental disclosure	0.004	0.017	(1.00)			
Organisational slack	0.013	0.047	0	(n.a)		
Organisational stakeholder salience	0.069	0.117	0.003	0.005	(n.a)	
Non-organisational stakeholder salience	0.004	0.037	0.055	0.005	0.073	(n.a)

† AVE value
 †† Correlation between the LVs to the square
 (n.a.) not applicable.
 n=135

(8) Although some items did not reach the desired value, it was decided not to eliminate them due to the initial state of development of these scales (Chin, 1998:325)

5.2. Analysis of the structural model

Having tested the appropriateness of the measurement model, the analysis of the structural model is intended to test the significance of the proposed relations between the LVs (the hypotheses) as well as the predictive power of the model.

Test of hypotheses

As is standard practice in this type of study involving PLS models, the non-parametric Bootstrap⁹ technique was applied (Chin, 1998: 320). As may be seen in table 3 (see also figure 2), four of the hypotheses were confirmed and one was not supported. Contrary to what was initially proposed, the relation between the non-organisational stakeholder salience and the environmental performance of the firms under study [H1a] was not supported. The same was not true in the case of organisational stakeholder salience [H1b]. A positive and significant relation was found to exist for the managers between the salience of this type of stakeholders, and the environmental performance of the SEM that they managed ($\beta=0.238$, $p<0.01$). Also upheld is the affirmation that the pro-active posture of the managing directors of the SMEs under analysis was positively related to the environmental performance of the firms [H2] ($\beta=0.244$, $p<0.01$). The initial hypothesis that postulated the existence of a positive, significant relation between the organisational slack and the environmental performance [H3] was also confirmed ($\beta=0.164$, $p<0.01$). Finally, the existence was also confirmed ($\beta=0.132$, $p<0.01$) of a positive, significant relation between environmental performance and environmental disclosures for strategic purposes [H4].

TABLE 3.- HYPOTHESIS TESTING

Hypothesis	Suggested effect	Path Coefficient (β)	t-value (bootstrap)	Confirmed
H1a: Non-organisational stakeholder salience → Environmental performance	+	0.101	1.4020	no
H1b: Organisational stakeholder salience → Environmental performance	+	0.238**	2.6861	yes
H2: Pro-active posture → Environmental performance	+	0.244**	3.0534	yes
H3: Organisational slack → Environmental performance	+	0.164**	2.9003	yes
H4: Environmental performance → Environmental disclosure	+	0.132**	2.8226	yes

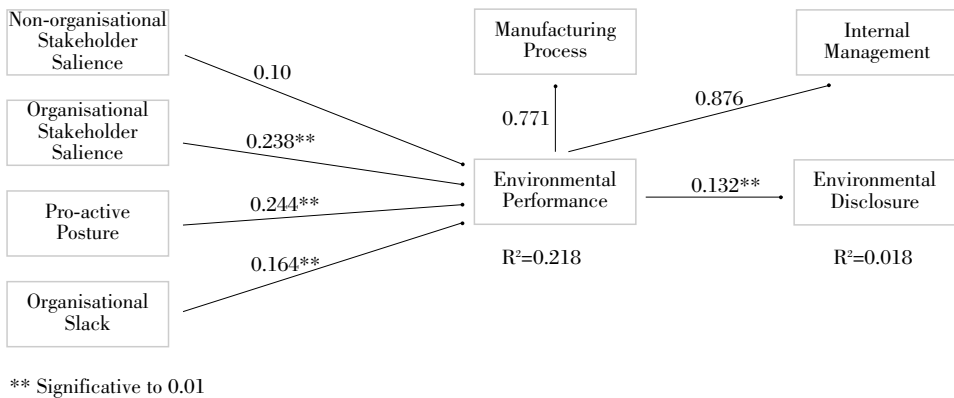
*** $p<0.001$, ** $p<0.01$, * $p<0.05$ (using a one-tailed $t(499)$ student distribution)
 $t(0.05;499) = 1.64791345$; $t(0.01;499) = 2.333843952$; $t(0.001;499) = 3.106644601$
 $n=135$

(9) The number of re-samples was 500 (see Calvo-Mora *et al.*, 2005).

Predictive power of the model

The tested model had two dependent LVs: environmental performance and environmental disclosure. With reference to environmental performance, although three of the four related hypotheses were supported, the predictive power of the model was low¹⁰. The importance that managers attributed to the different stakeholders, their pro-active postures and their resource availability explained 21.8% of the variance of the environmental performance of the organisations (see figure 2). With reference to the environmental disclosure variable, it may be concluded without any doubt whatsoever, that the model does not allow us to predict its behaviour: although there is a significant and positive relation between environmental performance and environmental disclosure, it is low (0.132) and its explicative power is almost zero ($R^2=0.018$).

FIGURE 2.- HYPOTHESIS TEST



6 DISCUSSION

6.1. The environmental performance of SME

One of the purposes of this research was to analyse the way in which the level of stakeholder salience in SMEs, from the managers’ point of view, impacted on the implementation of the firms’ environmental activities. In view of the results, and contrary to initial expectations [H1a], the demands from the non-organisational setting (regulators and community) might not be related to the implementation of environmental activities on the part of Spanish SMEs in the auxiliary automobile industry. The same is not the case, however, for organisational stakeholders [H1b]. These findings might stress the importance of market forces, which is to

(10) Stone-Geisser Test gave a value slightly below 0: -0.0562 (see annex, table A3).

say, the demands made by clients (product markets), employees (employment market) and shareholders on the environmental behaviour of the SMEs under study. Murillo and Lozano (2006) highlighted the influence of employees and consumers on the socially responsible behaviour of Spanish SMEs anchoring their findings in the desire of these firms to improve their conditions in order to compete on the market. Murillo and Lozano (2006) even suggested that in the case of SMEs the term *Corporate Social Responsibility* should be changed to that of *Responsible Competitiveness* (p.237).

In second place, our intention was to study the influence that the characteristics of SME managers can have on the behaviour of these firms. There appears to be a positive and significant relation between certain postures of the managers, such as the search for new business opportunities and the improvement of their relations with stakeholders, and the degree to which environmental practices are implemented [H2]. It could be argued from a combined reading of the support for hypotheses H1b and H2 that *pro-active* managers will perceive a source of competitive advantage [H2], whenever the stakeholders linked to SMEs in the market perceive that the environmental performance of the latter is satisfying their demands [H1b]. This interpretation is consistent with that previously set in the literature concerning large firms (Hart, 1995; Russo and Fouts, 1997), and is relatively novel when situated in the context of SMEs (although see Noci and Verganti 1999, and Murillo and Lozano, 2006). Hillary (2004:567) points out that, for numerous managers of SMEs, the introduction of environmental management systems is not accompanied by sufficient incentives, but is accompanied by great uncertainty with regard to the benefits that can be obtained in the market. It could, in consequence, suggest that the results of this study point towards a line of research that should aim to examine the *pro-active* behaviour of SMEs in greater depth (see also Becherer and Maurer, 1999); unlike that which appears to be the dominant view (see del Brio and Junquera, 2003 for a review of the literature in this area), which maintains that the environmental behaviour of SMEs is eminently reactive.

In third place, this study has concentrated on defining the relation that exists between resource availability for managers and the environmental performance of the firm [H3]. On this occasion, the positive and significant nature of the relation established after testing the third hypothesis hardly attracts any attention, especially if we recall that we are dealing with SMEs; firms that are characterised by their special difficulty in obtaining new resources (del Brío and Junquera, 2003; Hitchens *et al.*, 2003; Hillary, 2004; Perrini *et al.*, 2007).

Finally, to complete the study on the environmental behaviour of SMEs, it must be highlighted that the proposed model (see figure 2) can explain up to 21.8% of the variance of environmental performance. This figure highlights that in order to gain a sufficiently wide vision of the reasons that lead an SME to implement environmental activities, it is not enough to analyse the pressure of the business environment, the *pro-active* posture of

managers and their resource availability¹¹. Thus, future studies could well lend particular attention to the identification and study of these other variables, which to a significant extent determine the environmental behaviour of SMEs, and which have not been taken into account in this investigation.

6.2. Disclosure of environmental information with strategic purposes

As was argued in previous sections of this article, the environmental performance of firms was positively related with their disclosure of environmental information [H4]. Nevertheless, given the scant explicative power of the model, it may be argued that the disclosure of environmental information appears to respond to the existence of pertinent legislation in Spain and not to social or economic criteria. Gueben and Skerratt (2007:1) in one of the few studies on the disclosure of social information by SMEs concluded that *for most 'green' SMEs, the current cost-benefit balance is such that they see no added value in reporting [both formally and systematically] on their environmental activity*, but they use “one-to-one” communication methods with their clients and suppliers. The results also appear to corroborate the observations made by Moneva and Cuellar (1999), in the sense that, the preparation of the annual accounts is not an especially onerous task for managers of Spanish SMEs. They do little more than meet the legal requirements, due among other circumstances, to the inexistence of *a large market of users of the accounting information* (Moneva and Cuellar, 1999, p.153). In this sense, Milanés and Texeira (2006) concluded that, in the Spanish context, the information reported by Spanish SMEs in their financial statements might well be inappropriate in the management decision processes in this kind of firm. Equally, the results are aligned with prior studies for samples of Spanish firms of greater size, such as those of Larrinaga *et al.* (2002), Llena *et al.*, (2007), Husillos, (2007) and Criado *et al.*, (2008), in which it was detected that even after the enactment of a law on the disclosure of environmental information, stakeholders could hardly evaluate the risk, efficiency, or ethics that guided the management of their companies by referring to the social information that they disclosed¹².

7 CONCLUSIONS

This study has sought to study the environmental information disclosures made by Spanish SMEs. The work contributes to theoretical developments in the area of Social Accounting through a better specification of the postulates of Stakeholder Theory. In addition, a pioneering use was made, in the social accounting area, of a robust methodology.

(11) The results obtained with the PLS model were shown to be robust against the omission of regressors in the structural model (Cassel *et al.*, 1999).

(12) It was not possible to arrive at a reliable conclusion on the environmental behaviour of the SMEs analysing the information that they disclose ($R^2=0.018$).

The results of this study are twofold. On the one hand, they allow us to point out that the environmental performance of SMEs can not be satisfactorily predicted by studying the salience of a firm's principal stakeholders, the strategic posture of the firm's managers, as well as their resource availability. On the other hand, it is clearly shown that SMEs do not seek increased transparency by disclosing environmental information in their annual accounts.

Rather than contradicting the seminal work of Ullmann (1985), the study broadens it, insofar as the majority of the proposed working hypotheses were confirmed¹³. This suggests that although the proposed model presented a relatively low predictive power, the variables indicated by Ullmann (1985) continue to be relevant. All the more so as this study was tested on a sample of Spanish SMEs, in what is clearly a very different setting from that used by Ullmann at the time.

7.1. Implications

The results of this research could be sufficiently relevant to merit the reflection of the scientific community, regulatory bodies and SMEs themselves. With respect to the scientific community, one line of future research could revolve around the study of stakeholder capacity to differentiate between firms that issue reliable social information and those that do not do so. With respect to the legislator, there are numerous indicators to suggest that legislation in Spain is not satisfactorily fulfilling its mission of increasing business transparency and accountability to society. In the future, scholars and legislators will have to analyse the innovations that any new legislation should incorporate, as well as the coercive mechanisms associated with it, to make up for its present shortcomings and to increase its effectiveness. Finally, business leaders will have to foresee the consequences ensuing from a reaction by the stakeholders in general, and the legislator in particular, to increasing signals that suggest that compliance with legislation on the disclosure of environmental information might be turning into a mere "*ritual*" (Criado and others, 2008).

7.2. Limitations

The present work could be improved in different ways. Having studied a single sector, one of the limitations of this study is that the results may not be extrapolated to other sectors. A second limitation is that the analysis of the environmental performance of the firm was carried out on the basis of assessments of the latter variable made by the business managers themselves. A third limitation is that no distinction is made between information that is voluntarily disclosed by the firm and that which is disclosed due to legal

(13) Ullman (1985) did not establish a single, specific and rigid model, but one that pointed out the direction towards which researchers should direct their efforts. It was never the intention of the present study to test a preset model but to make an overall interpretation of the ideas expressed by Ullmann in his theoretical work.

obligations. A separate study could conceivably bring to light a wider range of strategies implemented by the organisations. Finally, it is important to reflect on the advisability of pursuing this study on the environmental information disclosures of SMEs, by referring to conceptual frameworks that capture strategic actions that are different and/or complementary to those initially proposed. Doing so might presumably increase the probability of satisfactorily capturing the true intentions harboured by SMEs that disclose environmental information.

ANNEX

TABLE A1.- ECONOMIC ACTIVITIES UNDER STUDY

SIC	ACTIVITY
3465	Automotive stamping
3519	Internal combustion engines, not classified elsewhere
3537	Industrial trucks, tractors, trailers, and stackers
3647	Vehicular lighting equipment
3694	Electrical equipment for internal combustion engines
3711	Motor vehicles and passenger car bodies
3713	Truck and bus bodies
3714	Motor vehicle parts and accessories
3715	Truck trailers
5012	Automobiles and other motor vehicles
5013	Motor vehicle supplies and new parts

TABLE A1b.- SIZE OF THE FIRMS IN THE SAMPLE

N° of workers	N° of firms	Percentage
≤50	98	72.59%
50-100	19	14.07%
100-250	7	5.19%
≥250	11	8.15%
Total	135	100%

TABLE A2.-

Stakeholder Salience	Clients			Government			Shareholders			Employees			Local Community												
	α	Min	Max	Mean	Std. dev	α	Min	Max	Mean	Std. dev	α	Min	Max	Mean	Std. dev										
POWER - This group has the power to ensure its preferences are followed - This group has the capacity to influence the policies of the organization.	0.72	1	7	4.6	1.7	0.7	1	7	3.9	2	0.77	1	7	5.6	1.7	0.69	1	7	4	1.6	0.76	1	7	2.2	1.7
LEGITIMACY - The demands of this group were seen as legitimate by our board of directors (acceptable or appropriate). - The demands of this group are usually out of place.*		1	7	4.6	1.6		1	7	3.8	1		1	7	5.4	1.7		1	7	4	1.4		1	7	2.5	1.9
URGENCY - This group showed a great deal of insistency in its demands on our firm - This group actively lobbied the board of directors to gain its attention.		1	7	3.7	1.9		1	7	2.4	1.6		1	7	3.7	2.1		1	7	3.4	1.9		1	6	1.7	1.2
		1	7	4	1.9		1	7	2.6	1.7		1	7	4.4	2.1		1	7	3.9	1.8		1	7	1.8	1.4

* Reverse-coded

TABLE A2b.-

ENVIRONMENTAL PERFORMANCE		Min	Max	Mean	Std. dev	Sk.	Kurt.
MANUFACTURING PROCESS							
Accident prevention systems to protect against possible environmental accidents and emergencies that might be caused by the firm		1	7	4.48	2.55	-.488	-1.556
Filters and monitoring of atmospheric emissions and waste.		1	7	4.45	2.56	-.413	-1.599
Systematic monitoring of energy use to reduce the overall demand of the firm		1	7	3.77	2.46	.027	-1.715
Recycling of water used by the firm to reuse it in other processes and/or before release into the sewers		1	7	2.46	2.13	1.14	-2.39
Use of standardised and reusable containers/packaging to facilitate their reuse by clients		1	7	3.88	2.54	-.028	-1.75
INTERNAL MANAGEMENT							
Use of environmental arguments in marketing activities, or sponsoring of activities related to the environment		1	7	3.25	2.17	.34	-1.39
Recycling of general residual waste and rubbish produced by the firm		1	7	5.18	2.19	-1.03	-.417
Environmental management guidelines for internal use		1	7	4.28	2.31	-.293	-1.46
Use of advanced prevention and safety systems in the workplace		1	7	5.22	1.90	-1.05	.13
PRO-ACTIVE POSTURE							
In my organisation the managers actively look for							
- new ideas		1	7	5.79	1.18	-1.09	1.51
- stakeholder satisfaction (clients, suppliers, government, shareholders, local community...)		1	7	5.79	1.23	-1.23	1.68
- competitive advantages		1	7	5.97	1.02	-1.44	3.59
ORGANISATIONAL SLACK							
Acid test		-520.70	99.00	-.7096	46.87	-10.1	115.4
Non-distributed profit		-3247426.03	28031000	508048.6	2830664.1	7.99	71.91
ENVIRONMENTAL DISCLOSURE							
Index		0	92	5.44	12.7	4.84	25.83

TABLE A3.-

Theoretical Construct/ Dimension/ Indicator	Variance Inflation Factor (VIF)	Weight	Loading	Composite Reliability (ρ_c)	Average Variance Extracted (AVE)	Explained Variance (R ²)	Stone-Geisser Test (Q ²)
PROACTIVE POSTURE (Reflective)				0.796	0.568		
Proact1			0.670				
Proact2			0.849				
Proact3			0.732				
ENVIRONMENTAL PERFORMANCE (molecular 2nd order factor)				0.809	0.681	0.218	-0.0562
Manufacturing Process			0.771	0.913	0.679		
Manuf1			0.883				
Manuf2			0.882				
Manuf3			0.893				
Manuf4			0.686				
Internal Management			0.876	0.866	0.621		
Inter1			0.633				
Inter2			0.791				
Inter3			0.838				
Inter4			0.868				
ORGANISATIONAL SLACK (Formative)				(n.a)	(n.a)		
Slack1	1	0.627					
Slack2	1	0.778					
ORGANISATIONAL STAKEHOLDER SALIENCE (Formative)				(n.a)	(n.a)		
Shareholders	1.454	0.133					
Employee	1.299	0.549					
Clients	1.462	0.557					
NON-ORGANISATIONAL STAKEHOLDER SALIENCE (Formative)				(n.a)	(n.a)		
Government	1.192	0.781					
Local Community	1.192	0.398					
ENVIRONMENTAL DISCLOSURE (Reflective)				1	1	0.018	-0.7261
Index			Single Indicator				

(n.a.) not applicable

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