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The impact of organizational pressures on environmental performance of firms

Abstract

The role of various organisational pressures in influencing performance of firms has been an interesting research topic in a variety of fields, and has received the attention of researchers working in the field of environmental strategy. Though there are previous studies that looked at the influence of various pressures in influencing firms' environmental strategies, our study provides a more holistic analysis considering a variety of such pressures in a single framework. We discuss a research study to analyse how pressures from internal and external stakeholders of a firm, economic pressures, environmental regulations, and pressures environmental compliance have affected environmental performance of firms using data collected from manufacturing firms in the UK. We have found that internal stakeholders provide the greatest impact in shaping environmental performance of firms, closely followed by economic pressures, environmental regulations and external stakeholders in that order. Fears of penalties due to environmental compliance have the least impact, though this pressure also has a positive and significant impact on environmental performance.

Key Words: Stakeholder pressures, regulatory pressures, economic pressures, environmental performance.

INTRODUCTION

In this era of increased environmental awareness, firms recognize that adopting proactive environmental strategies would reap benefits in the form of green leadership and reduced risks of environmental disasters. Environmental mismanagement have caused firms public relations nightmares and nullified market leadership, and in several cases, have seen significant fall in their share prices (Esty & Winston 2006, Darnall et al. 2010). Recognising

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this, firms have invested in environmentally sustainable performance. A number of organisational pressures have been responsible for environmental performance of firms. Firms generally invest in some environmental improvements because doing so could save them money. However, legislations could force the firms to be environment friendly as well. The negative impacts of non-compliance also influence firms to take environmental initiatives. Often, stakeholders force a firm to adopt superior environmental strategies through their actions (Sarkis et al. 2010). For example, customers may change their purchasing habits to promote environmentally active suppliers. The media has brought out a number of stories on unethical strategies of firms forcing a change in their environmental strategies.

In this paper, we study the impact of various organisational pressures on a firm's environmental performance. We divide the organisational pressures as economic pressures, legislative pressures and other stakeholder pressures in this study. Though the extant literature has recognized the impact of all these pressures on environmental performance, unfortunately, previous studies have focused only on a sub-set of these pressures.

Specifically, a number of researchers (e.g., Delmas & Toffel 2008) have specifically studied stakeholder pressures. Literature suggests that firms can register better performance when it manages its relationships with various stakeholders well and meets their expectations (Freeman 1984, Donaldson & Preston 1995). Environmental concerns have recently received higher priority among stakeholders, and managing these environment-related expectations have forced firms to take up environmentally benign strategies. In the past few decades, pressures from social or community groups, governments (regulatory) and stakeholders (i.e., internal and external) and economic pressures have caused firms to consider environmental issues in their strategic views (Sarkis et al. 2010, Kassinis & Vafeas 2006, Henriques & Sadosky 1999). Many a times, these environmentally proactive strategies can help firms

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increase their internal operations efficiency and gain green leadership, which, in turn, can lead to better corporate performance (Hart 1995, 2005, Hart & Milstein 2003).

Many of the above studies have considered the government as a stakeholder, who, through legislations, can attempt to internalize the externalities of environmental issues and influence firm behaviour. However, there are also studies that specifically looked at the impacts of legislations (e.g., Porter 1991, Rugman & Verbeke 1998) because of the importance of legislative pressures on organisational performance. Further, firms comply with regulations for fears of reprisals due to environmental noncompliance.

In addition to the above pressures, extant literature also recognizes the importance of economic pressures in influencing environmental performance of firms. Efforts that result in reduced waste and energy such as lean manufacturing and six-sigma quality improvement programs are consistent with environmental performance initiatives (Melnik et al. 2003, Toffel & Lee 2009). These economic efforts minimise costs associated with environmental compliance (Florida 1996, Berman et al. 1999) and drive down operating costs (Berman et al. 1999) while at the same time help in improved environmental performance. In addition to these explicit economic benefits, environmental performance can also help in reducing future environmental liabilities by reducing the likelihood of accidents (Henriques & Sadosky 1996) which could cause serious problems for management. Such extreme environmental events usually require significant cash outflows to deal with compensation and cleanup costs, making firms more vulnerable to bankruptcy and other adverse business developments, which could reduce profitability, impair the firm's reputation, or reduce the value of its asset base (Sharfman & Fernando 2008). The experience of BP in the oil spill in the US Gulf of Mexico in 2010 exemplifies such effects (Economist, 2011).

Thus there are previous studies in the literature that have separately explored the impact of the three kinds of organisational pressures (stakeholder, legislations and economic) on

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environmental performance of firms. However, to the best of our knowledge, no study considers these pressures in a single framework. Our study fills this gap. The holistic view to understand the role of various pressures together on environmental performance is crucial.

LITERATURE SURVEY AND HYPOTHESIS DEVELOPMENT

Extant literature offers link between the different organisational pressures and environmental performance of firms. The resource dependence theory (RDT) is one such theoretical framework to understand the role of organisational pressures on a firm's environmental performance. As per this organisational theory, a firm cannot be completely self-sufficient in terms of all its resource needs, is dependent on various entities, and should seek to collaborate with them to seek higher performance gains in the long run instead of pursuing short-term benefits (Sarkis et al. 2011). The entities are generally external parties but there are a number of internal areas, and satisfying expectations of these internal parties is also equally important for a firm's long-term survival. For example, the interests of management and/or employees in minimizing wastage are important. RDT further suggests that firms should carefully manage this dependency to strive for sustainable development (Ulrich & Barney 1984). The resource dependence theory has been applied in the context of organizational environmental performance (Sarkis et al. 2011, Shang et al. 2010, Zhu & Sarkis 2004, Zhu et al. 2005).

Stakeholder Pressures (Internal and external) and link to Performance

It is widely accepted that firms face pressures from various stakeholders, both internal (e.g., employees and shareholders) and external (e.g., customers, suppliers and the media), on various issues including environmental performance (Henriques & Sadorsky 1999). Delmas and Toffel (2008) have considered ten different external stakeholders, namely customers, suppliers, competitors, trade associations, local communities, environmental organizations, regulators/legislators, the media, shareholders, and socially responsible investment (SRI)

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funds. Henriques and Sadorsky (1996) broadly classify stakeholders into legislative and regulatory stakeholders (who restrict firm behaviour that causes any social and environmental damage), consumer and community stakeholders (who restrict firm behaviour through negative publicity or discriminatory purchase), and financial stakeholders (who directly or indirectly, influence company strategies). A study by Wagner and Schaltegger (2004) has reported that firms taking shareholders or stakeholders into account (including them in firms' strategies) would have a more positive relationship between environmental performance and economic performance. Thus, it is important for firms to respond to stakeholder interests. This is consistent with the original study by Freeman (1984) who argued that pressures from either or both internal and external stakeholders significantly encourage companies to improve their performance. Likewise, a study of Schaltegger and Synnestvedt (2002) also state that a company would face less internal/external conflicts by employing a progressive environmental management, which could lead to an ability to increase its performance.

Zhu and Sarkis (2007) posit that firms resist implementing environmental practices if they do not feel any pressure from customers. This may result in having poor environmental performance to the firms, lose additional customers, and thus affect their financial performance. Similarly, the findings of a study by Henriques and Sadorsky (1996) assert that customer pressure (one of many pressures) positively influences a firm's environmental plan. Thus, stakeholder pressures could motivate companies to take more consideration of environmental issues and may encourage them to incorporate environmental practices into their management strategies.

Link to performance: Since companies have to respond to pressures emanating from stakeholders as well as to meet their interests and needs (Eiadat et al. 2008), these pressures have significantly contributed to an increased environmental performance of companies (Smith 2003). As mentioned earlier, RDT posits that organisations that carefully manage

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dependency with stakeholders achieve better levels of sustainable development and (Ulrich and Barney, 1984). Other organizational theories, such as the Institutional theory or resource-based view of the firm also provide similar predictions but we stick to RDT in this paper for simplicity.

Sarkis et al. (2010) have reported that the stakeholder pressures positively influence firm environmental performance. Further, a study by Kassinis and Vafeas (2006) has found a positive link between stakeholder pressures emanating from communities and firm environmental performance at the plant level. Darnall et al (2005) suggest firms adopt environmental management system with the intention of improving environmental performance. Dahlmann et al (2008) find cost and risk reduction of environmental hazards and achieve compliance with environmental regulations and thus improve environmental performance are key motivators for UK firms.

Thus, evidenced by these previous studies and supported by RDT, we posit our first two hypotheses.

H1: Pressures from internal stakeholders will positively influence environmental performance of firms

H2: Pressures from external stakeholders will positively influence environmental performance of firms

Regulatory pressures (legislation and compliance)

Pressures from regulatory stakeholders through, for example, regulatory changes, non-compliance penalties, product elimination, etc. affect, directly or indirectly, a firm's decision making process (Henriques and Sadorsky, 1996) which cause some firms to devote more resources to environmental performance. Literature stresses the importance of formulating

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proper governmental regulations to encourage environmental performance of firms (Porter, 1991).

Environmental regulations. Environmental regulations have significant impact on firms' strategic initiatives and outcomes. For instance, literature examines the effect of environmental regulations on a firm's investment strategies (like Zarsky, 1999; Levinson, 2000). Researchers argue that government (policy makers) lax environmental standards to attract corporate investment and create a "pollution haven." However, some authors (like Madsen, 2009) posit attracting corporate investment and preserving environmental standards need not be opposing objectives. Environmental management literature proposes that environmental regulations can have both positive and negative effect on firms' performance. Environmental regulations can lead to improved financial performance by forcing firms to be more efficient in their manufacturing process, reduce wastage, improve quality, health and safety in the operational process and achieve better competitive advantage (Dahlmann et al., 2007; Montabon et al., 2007). However, environmental initiatives lead to various uncertainties in the operations of an organization and that lead to unforeseen costs (Berrone and Gomez-Mejia, 2009). For example, environmental initiatives require investment in improved operational infrastructure, investment in product and process redesign and firm-supplier coordination (Aragon-Correa, Matias-Reche, and Senise, Barrio, 2003; Berrone and Gomez-Mejia, 2009).

Environmental compliance. Understanding the effects of environmental regulations and compliance is important. Developing a proper monitoring mechanism and setting the legal enforceable limits to manufacturers environmental emissions is a key activity for the environmental policy agencies. Although some previous studies (like Harrington, 1988; Decker and Pope, 2005) report environmental audits are infrequent and penalties for non-compliance are often too small, yet the compliance rates for firms to adhere to environmental

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standards are high across industries. Thus, it is important for researchers and policy makers to understand why firms comply with environmental standards as designed by regulatory bodies. Winter and May (2001) identified five reasons for firms compliance strategies: calculated motivations, normative motivations, social motivations, awareness to rules and capacity to comply. The role of the monitoring agency is also significant in firms' decision to comply (Botelho, Pinto and Rodrigues, 2005). In the era of economic restraint, a firm's decision to comply with environmental regulations is rather strategic in nature. Non-compliance to the environmental requirements has much higher impact rather than facing regulatory sanctions. Previous studies like Decker (2003); Konar and Cohen (2001) cite evidence of huge financial losses incurred by firms due to non-compliance. Delmas and Toffel (2008) propose firms need to adopt "beyond compliance environmental practices" to mitigate pressures from all stakeholders like customers, suppliers and competitors. Thus, institutionalized environmental compliance practices are likely to fetch more reward in the long run.

Thus, evidenced by these previous studies and supported by RDT, we posit our third and fourth hypotheses.

H3: Pressures due to environmental regulations will positively influence environmental performance of firms

H4: Pressures due to environmental compliance will positively influence environmental performance of firms

Economic pressures

Economics pressures also influence the relationship between environmental performance and economic success of firms in that they could motivate firms to find ways to meet environmental regulations with lower costs, inducing cost savings and thus improve their financial performance (Sarkis et al, 2010; Kassinis & Vafeas, 2006). This is somewhat

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consistent with an empirical study by Schaltegger and Synnestvedt (2002) who argued that the majority of industries, which have a certain level of environmental impact, experiences financial incentives for some levels of environmental protection. Further, economic pressures could stimulate firms to innovate, adopt environmental practices in response to environmental regulations and ultimately these practices could result in greater competitiveness and better financial performance. Companies have engaged in environmental initiatives (e.g., recycling, remanufacturing, energy conservation) to improve their environmental performance because of economic and market incentives and these incentives could further encourage firms to use technologies for meeting or even go beyond environmental regulatory requirements creatively (Porter and van der Linde 1995; Hitchens, 1999; Brunnermeier and Cohen, 2003, Delmas and Toffel, 2004). Literature suggests that this economic pressure is of two types: to improve the financial performance like decrease of cost of energy consumption, waste treatment, and to avoid a drop in the financial performance like avoiding penalties for ineffective recycling process (Zhu and Sarkis, 2004). Thus, responding to economic pressures and implementing an environmental policy for, as a mean to boost financial performance is a well-supported hypothesis (Dahlmann et al., 2008).

Thus, evidenced by these previous studies and supported by RDT, we posit our fifth and final hypothesis.

H5: Economic pressures will positively influence environmental performance of firms

Thus the previous literature generally point to the link between different organisational pressures and environmental performance of firms. However, almost all the previous studies have considered one or two pressures in isolation but have not looked at the simultaneous impact of multiple pressures. We use structural equation modelling framework to consider the impact of all these pressures simultaneously. Figure 1 shows the conceptual framework.

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Insert Figure 1 about here

METHODOLOGY

This study uses structural equation modelling (SEM) using Amos version 18.0 to examine a series of dependence relationships simultaneously. SEM is a statistical analysis approach that analyses path relationships (Hair et al., 2006). We have adopted Anderson and Gerbing's (1988) two-stage procedure for testing our conceptual framework and research hypotheses.

Measures and scale development

We developed our scales and measures by drawing from previous academic and practitioner literature. Environmental performance measures are complex and difficult to design (Montabon et al., 2007). In practitioners' context, there are host of organisations like Global Reporting Initiative (GRI), Global Environmental Management Initiative (GEMI) that have proposed list of environmental performance measures. However, self-reported financial information act as the basis of such data and are not popular with environmental researchers. On the other hand, academic literature propose a list of conceptual measures to measure environmental performance (like Zhu and Sarkis, 2007; Montabon et al., 2007). Such studies use cost savings as a measure of environmental performance as improved environmental performance would lead to savings. Using a similar approach, we used achieving targets on energy conservation, recycling or waste reduction, and achievement of environmental certifications as measures of environmental performance. This study also used environmental

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regulations of company headquarters as an internal stakeholder. Delmas and Toffel (2008) in their study highlight the idea of pressures exerted by regulations from headquarters. They argue that the stringency of environmental regulations of a facility's headquarters country could affect how closely the corporate legal affairs department (which is an internal stakeholder) scrutinizes its facilities' environmental practices. This study followed this argument. Table 1 lists the measures and their literature sources used in this study.

Insert Table 1 about here

Sample selection and survey

We collected primary data on the influence of organizational pressures on environmental performance by conducting a specialized questionnaire survey among manufacturing firms in the UK. Table 1 lists the measures. All the questions had Likert-type scales.

Our questionnaire consisted of several sections. The first section inquired about the details of the company such as the nature of their business, products, and the experience of the respondent. The next section examined the environmental regulations that affect the business of the company. The third section involved questions regarding voluntary action. The fourth section examined the pressures from stakeholders (external and internal) and economic pressures regarding cost savings and market gains. The fifth section comprised of questions concerning innovation and environmental innovation (sustainable business practices). The sixth section involved questions regarding environmental performance and financial performance. The final part of the question asked for some additional company information such as company size and number of employees.

We conducted the survey by contacting nearly 2000 manufacturing firms in the UK. In

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spite of reminders, we managed to get only 125 completed questionnaires. In order to improve sample size, we contacted another 1000 firms in February 2010 resulting in 50 more responses. After deleting unsatisfactory responses, the final sample size was 169.

Before merging the two waves of questionnaires, we performed t-tests to verify whether there were substantial differences between the two sets of samples. We found no statistically significant difference for all questions in the questionnaire.

Our sample consisted of 48 British companies, 63 global companies but based in the UK, and 58 subsidiaries of overseas companies. In terms of their main activities, all the firms in our sample belonged to standard Industrial classification codes between 28 and 35, corresponding to different categories of manufacturing. Specifically, 51 companies were manufacturers of fabricated metal products; 27, 11, and 18 companies were manufacturers of electrical machinery, medical, and automobile respectively, while three were manufacturers of computer industry and radio/TV. The remaining 59 companies were manufacturers of miscellaneous equipment.

The companies in our sample were generally big in terms of annual sales in the UK. There were 129 companies with annual UK sales of more than £ 10 million. In terms of number of employees, 98 companies had employee size between 50 and 250, while 24 companies had more than 1000 employees. 127 companies were in business in the UK over 25 years. Further details on the characteristics of our sample are available in Table 2.

Insert Table 2 about here

We first tested for non-response bias (Armstrong and Overton, 1977). One way of checking non-response bias is to compare the responses of late respondents with those of early respondents. As mentioned above, there were no statistically significant differences between the two waves of questionnaires. We then compared data on the three organizational

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characteristics (2008 turnover, 2008 cost of sales and 2008 total assets) of our respondent companies with corresponding data on all manufacturing firms in the UK in order to confirm that data collected from our survey (from 169 companies) represented the population of manufacturing companies in the UK. The study obtained the data from Financial Analysis Made Easy (FAME) Database. We found no statistically significant differences, confirming that non-response bias was not a serious problem with our survey.

As the study collected the data from a single respondent within each company, therefore common method bias might exist. We tested such possibilities by employing Harman's one factor test (Sarkis et al., 2010; Darnall et al., 2010). The procedure is to carry out a factor analysis of all the items of interest without using factor rotation methods. If all variables load on one factor, common method bias exists (Doty and Glick, 1998). In our case, a factor analysis resulted in more than five different factors, implying that there is no common method bias.

EMPIRICAL ANALYSIS AND RESULTS

Model constructs

In the first stage, we used Confirmatory Factor Analysis (CFA) to test the reliability, validity of the latent constructs, and the adequacy of the measurement model.

Stage 1: Measurement models

Figure 2 explains the measurement model. As it tests the correlational relationship and the validity, reliability of the constructs, so there is a need to inter-link the latent constructs. However, the measurement model does not test the causal relationships between the latent constructs. The estimation model tests such relationship and we describe it in the next section.

SEM assesses the quality of models using a set of goodness of fit indices. These fit indices help us to decide whether the measurement models are reliable and valid for further

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analysis (Hair et al, 2006). SEM considers three general groups of indices to do this: absolute measures, incremental measures and parsimony fit measures.

Insert Figure 2 about here

For the first measure, we use the root mean square error of approximation (RMSEA) which represents how well a model fits a population; that is, it indicates the amount of variance which cannot be explained (Hair et al, 2006). RMSEA values below 0.10 represent an excellent fit model, whereas values below 0.08 represent a good fit model (Bustinza et al, 2010; Hair et al 2006).

The second group of indicators are the incremental measures. It examines how well a specified model fits compared with a null model in general (i.e., assuming all observed variables are uncorrelated) (Hair et al, 2006). Values for the indicators range between zero and one and is widely accepted that values for these indicators should be close to or above 0.90 for a good model fit (Hair et al, 2006). We used Competitive fit index (CFI) and Incremental fit index (IFI) as indicators for incremental measures.

The last group of measures is parsimony fit indices. This indicates which model among a set of models is best by taking into account its fit compared with its complexity. A study by Bustinza et al (2010) recommends the use of normed chi-square (CMIN/DF), which is one of the indicators of parsimony fit measures, as an appropriate indicator to indicate a good fit in confirmatory analysis. The value of this ratio in a range of 1 to 5 indicates an acceptable or reasonable fit (Carmines and McIver, 1981).

For the CFA model shown in Figure 1, the values of fit indices were the following.

CMIN = 258; DF = 188; CMIN/DF = 1.37; RMSEA= 0.05; CFI = 0.94 and IFI = 0.94.

The indices satisfied the requirements of good fit. Therefore, we proceeded to the next stage to test the causal relationships between the latent constructs.

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Stage 2: Structural Model

In the structural model, we examined whether or not organisational pressures (i.e., environmental regulations, external stakeholder pressures, internal stakeholder pressures, economic pressures, and environmental compliance) predict environmental performance. Figure 3 shows the results of the structural analysis. Before proceeding to identify significant relationships revealed by the structural model, it is important to first establish whether the structural models provides statistically acceptable results. We check the acceptability of the structural model using the same fit indices. The results of goodness-of-fit indices for model 3 are $CMIN/DF = 1.757$, $RMSEA = 0.066$, $CFI = 0.882$ and $IFI = 0.888$. This indicated good fit.

Insert Figure 3 about here

The results suggest that the links between the latent variables are statistically significant. The latent constructs of pressures from internal stakeholders, external stakeholders, environmental regulations, environmental compliance and economic pressures positively and significantly influence environmental performance of firms. This result validates all our five hypotheses.

Note that pressures from environmental compliance has a lower level of significance (at 5% level), while the other four pressures are highly significant in affecting environmental performance. In terms of the magnitude of impact, pressures from internal stakeholders, economic pressures, and environmental regulations have the strongest influence, while environmental compliance has the least influence.

DISCUSSION OF RESULTS

This study estimated the impacts of various organisational pressures on environmental performance of manufacturing firms in the UK. As mentioned earlier, the main contribution

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of this research is to look at the impacts of five different pressures in a single research study. We have found that all the five pressures exert significant influence on environmental performance. The findings also enable us to rank the five pressures in terms of extent of their influence. This ranking is done using the magnitude of influence of various pressures on performance. Internal stakeholders, with a magnitude of influence of 0.795, seem to have the strongest impact on environmental performance of firms, closely followed by economic pressures and environmental regulations. Environmental compliance has the least impact on environmental performance.

Our results show that internal stakeholders (marketing department, shareholders, and regulations in headquarters country) exert the highest influence in shaping environmental performance of firms. We believe that it is a significant finding of our study. Though previous studies have recognized the importance of these stakeholders in influencing environmental performance of firms (e.g., Wagner, 2011; Sarkis et al., 2010; Kassinis and Vafeas, 2006), no studies show that internal stakeholders would provide the highest influence. This finding is important, as internal stakeholders, through their regular discussions in internal meetings, would have the greatest scope to influence management perceptions and policy. Marketing as a discipline not only influences firm's stock price and expected cash flow but the whole manifestation of environmental marketing affects economic performance of firm as well as boost shareholder value (Rao and Bharadwaj, 2008; Andres et al., 2009). Our finding supplements this result. It also supports the argument that firms following stringent environmental standards achieve higher market value and is consistent with previous literature (eg. Dowell et al., 2000). The perceptions of the marketing department could influence a firm's environmental policy. This is quite consistent with several previous studies that have argued for the importance of marketing in shaping environmental strategies. Similarly, shareholders, through the regular general meetings and

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through their influence on share prices, exert a high influence on environmental performance of firms. This finding thus supports similar findings from the previous literature. Our findings also highlight the important role played by the headquarters in shaping environmental policy of subsidiary firms. Headquarters often serve as a primary source of labour, capital, and media coverage for firms (Delmas and Toffel, 2008), and the pressure exerted by headquarters on environmental decisions of firms is stronger than other kinds of pressures.

Our study has found that economic pressures have the next highest level of influence on environmental performance of firms. Thus companies, which have realized that minimizing the wastage of raw materials and energy make economic sense, have registered better environmental performance. Therefore, our study contributes to extant research that shows the importance of waste minimization efforts in improving environmental performance (for example, Kleindorfer et al. (2005); Toffel and Lee (2009); Triebswetter and Hitchens, 2005).

Regulations have a moderate level of impact on environmental performance of firms. We have included a variety of regulations (that set standards, provide incentives, or help to integrate pollution control) for this latent construct, and all the components have received approximately equal loading on this latent construct. Thus, all kinds of regulations (be it flexible or inflexible from the point of view of Porter and van der Linde, 1995) exert a moderate level of influence in shaping environmental performance of firms. This result is consistent with the views of Christmann (2000) and Lopez-Gamero et al., 2009 who argued that regulations do provide opportunities to improve environmental performance.

Another significant finding of our study is that external stakeholders (such as community, media and socially responsible investment funds) do exert some influence on environmental performance of firms but the extent of influence is not as high as that influenced by internal stakeholders. Our finding supports a similar result reported by Darnall et al. (2010) who found that societal stakeholders (environmental groups, community

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organizations, labour unions and industry or trade associations) had a lower level of significance and lower level of impact on environmental achievements of firms compared to internal stakeholders (management employees and non-management employees). These external stakeholders often attempt to gather public opinion in favour of or in opposition to the firm (Freeman, 1984). Since they lack a direct economic stake in a firm, they utilize indirect approaches to influence firm behaviour (Sharma and Henriques, 2005).

Finally, we have found that environmental compliance does exert some influence on environmental performance of firms but it has the lowest level of influence compared to the other four pressures. This would suggest that the fear of non-compliance or penalties does not have much influence on a firm's environmental performance, compared to other pressures. Perhaps the reason lies in the spatial heterogeneity in environmental standards and enforcement regulations between firms in UK and firms with overseas parent operating in UK. This result supports that the differential exposure of firms to environmental standards lead to varying levels of perceived environmental compliance costs and follows previous literature (eg. Becker, 2011).

CONCLUSIONS

In this paper, we have analysed how pressures from internal and external stakeholders of a firm, economic pressures, environmental regulations, and environmental compliance have affected environmental performance of firms, using data collected from manufacturing firms in the UK. Our study has interesting implications for managers and extends the applications of the resource-dependence theory. Organisations need to depend on several stakeholders for their sustained performance, and have obligations to meet the pressures and expectations of these stakeholders. Given the growing awareness for environmental issues, some of these pressures are related to the environment. In order to ensure long-term survival, firms need to invest in resource and energy conservation, but these economic pressures are

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only one of the many pressures faced by firms to improve their environmental performance. Internal stakeholders are expected to provide the highest influence and managers should make every effort to elicit their opinions and streamline their operational practices. Firms depend on the government for a variety of measures needed for their survival, and hence meeting the expectations of the government, in the form of environmental regulations, is important. Other external stakeholders such as the community also play a role in the survival of corporations, and efforts should be made to account for their expectations.

The most important implication of these results from an environmental perspective is that firms in the UK face positive and significant pressures from many stakeholders to improve their performance. This study further concludes that firms face the greatest pressures from internal stakeholders while external stakeholders do have some influence but at a lower level.

In spite of these interesting implications, we would like to point out some limitations of our study and some scope for future work. First, our study has considered manufacturing firms in the UK but more sectors and more countries could be considered. This will require a larger scale survey for data collection. Second, some relevant variables have been omitted from further analysis since they loaded on more than one factor or since they had insignificant loading during factor analysis. Our study has not considered financial performance but it would be interesting to study how these pressures have influenced financial performance of firms and to check whether environmental performance would moderate or mediate the relation between these pressures and financial performance. They will form scope for further research in this direction.

REFERENCES

- Anderson, J. C. and Gerbing, DW. 1988. "Some methods for respecifying measurement models to obtain unidimensional construct measurement." *Journal of Marketing Research*, 19 (4), 453-460
- Andres, E.F., Salinas, E.M., and Vallejo, JM. 2009. "A multidimensional approach to the influence of environmental marketing and orientation on the firm's organizational performance." *Journal of Business Ethics*, 88, 263-286.
- Aragon-Correa, J.A., Matias-Reche, F. and Senise-Barrio, MA. 2003. "Managerial discretion and corporate commitment to the natural environment." *Journal of Business Research*, 57, 964-975.
- Armstrong, J. and Overton, T. 1977. "Estimating nonresponse bias in mail surveys." *Journal of Marketing Research*, 14, 396-402.
- Becker, R.A. 2011. "On spatial heterogeneity in environmental compliance costs." *Land Economics*, 87(1), 28-44.
- Berman, S.L., Wicks, A.C., Kotha, S., and Jones, T.M. 1999. "Does stakeholder orientation matter? The relationship between stakeholder management models and firm performance." *Academy of Management Journal*, 42 (5), 488-506.
- Berrone, P. and Gomez-Mejia, LR. 2009. "Environmental performance and executive compensation: An integrated agency-institutional perspective." *Academy of Management Journal*, 52 (1), 103-126.
- Botelho, A., Pinto, LC. and Rodrigues, I. 2005. "How to comply with environmental regulations? The role of information." *Contemporary Economic Policy*, 23(4), 568-577.
- Brunnermeier, SB., Cohen, M.A. 2003. "Determinants of environmental innovation in US manufacturing industries." *Journal of Environmental Economics and Management*,

[Type text]

45; 278-293.

Burt, R. S. 1976. "Interpretational confounding of unobserved variables in structural equation models." *Sociological Methods and Research*, 5, 3-52.

Bustinza, O.Z., Arias-Aranda, D., Gutierrez-Gutierrez, L. 2010. "Outsourcing, competitive capabilities and performance: an empirical study in service firms." *International Journal of Production of Economics*, 126 (2), 276-288.

Carmines, E.G. and McIver, J.P. 1981. "Analyzing models with unobserved variables." In Bohrnstedt, G.W. and Borgatta, E.F. (eds), *Social measurement: Current issues*. Beverly Hills: Sage.

Christmann, P. 2000. "Effects of 'best practices' of environmental management on cost advantages: the role of complementary assets." *Academy of Management Journal*, 43, 663-681.

Dahlmann, F., Brammar, S. and Millington, A. 2008. "Environmental management in the United Kingdom: New survey evidence." *Management Decision*, 46(2), 264-283.

Darnall, N., Henriques, I. and Sadorsky, P. 2010. "Adopting Proactive Environmental Strategy: The Influence of Stakeholders and Firm Size." *Journal of Management Studies*, 47, 1072-1094.

Decker, C.S. 2003. "Corporate environmentalism and environmental statutory permitting." *Journal of Law and Economics*, 46(1), 103-129.

Decker, C.S. and Pope, CR. 2005. "Adherence to environmental law: the strategic complementarities of compliance decision." *The Quarterly Review of Economics and Finance*, 45 (4-5), 641-661.

Delmas, M. A., Toffel, M.W. 2008. Organizational responses to environmental demands. , *Strategic Management Journal*, 29, 1027-1055.

Donaldson, T. and Preston, L. E. 1995. "The stakeholder theory of the corporation: Concepts,

[Type text]

evidence, and implications.” *Academy of Management Review*. 20, 65-91.

Doty, D.H. and Glick, W.H. 1998. “Common method bias: does common methods variance really bias results?” *Organizational Research Methods*, 1, 374-406.

Dowell, G., Hart, S., Yeung, B. 2000. “Do corporate global environmental standards create or destroy market value?” *Management Science*, 46(8), 1059-1074.

Economist (2011), BP and the oil price: Black gold, but at what price?, *The Economist*, 01

February 2011. (Available online:

http://www.economist.com/blogs/dailychart/2011/02/bp_and_oil_price, accessed on 10 March 2011.)

Eiadat, Y., Kelly, A., Roche, F., Eyadat, H. 2008. “Green and competitive? An empirical test of the mediating role of environmental innovation strategy.” *Journal of World Business*, 43; 131-145.

Esty, D. C. and Winston, A. S. 2006. *Green to gold: How Smart Companies Use Environmental Strategy to Innovate, Create Value, and Build Competitive Advantage*, New Haven, CT: Yale University Press.

Florida, R. 1996. “Lean and Green: The move to environmentally conscious manufacturing.” *California Management Review*, 39 (1) 80-105.

Freeman, R. 1984. *Strategic Management: A stakeholder approach*, Marshfield, MA: Pitman Publishing Inc.

Hair, F.J., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L. 2006. *Multivariate Data Analysis*, 6th Edition, Pearson Prentice Hall: Upper Saddle River, New Jersey.

Harrington, W. 1988. “Enforcement leverage when penalties are restricted.” *Journal of Public Economics*, 37 (3), 29-53.

Hart, S.L. 1995. “A natural resource-based view of the firm.” *Academy of Management Review*, 20, 986-1014.

[Type text]

- Hart, S.L. 2005. *Capitalism at the Crossroads: The Unlimited Business Opportunities in Solving the world's Most difficult Problems*, Upper Saddle River, NJ: Wharton School Publishing.
- Hart, S.L. and Milstein, M.B. 2003. "Creating sustainable value." *Academy of Management Executive*, 17, 56-69.
- Henriques, I., Sadorsky, P. 1996. "The determinants of an Environmentally responsive firm: an empirical approach." *Journal of Environmental Economics and Management*, 30, 381-395.
- Henriques, I., Sadorsky, P. 1999. "The relationship between environmental commitment and managerial perceptions of stakeholder importance." *Academy of Management Journal*, 42, 87-99.
- Hitchens, D.M.W.N. 1999. "The implications for competitiveness of environmental regulations for peripheral regions in the E.U." *Omega: International Journal of Management Science*, 27; 101-114.
- Kassinis, G. and Vafeas, N. 2006. "Stakeholder pressures and Environmental performance." *Academy of Management Journal*, 49 (15), 145-159.
- Klassen, R.D. and McLaughlin, CP. 1996. "The Impact of Environmental Management on Firm Performance." *Management Science*, 42(8), 1199-1214.
- Koner, S. and Cohen, MA. (2001). "Does the market value environmental performance?" *The Review of Economics and Statistics*, 83(2), 281-289.
- Lopez-Gamero, M. D., Claver-Cortes, E. and Molina-Azorin, JF. 2009. "Evaluating environmental regulation in Spain using process control and preventive techniques." *European Journal of Operational Research*, 195, 497-518.
- Madsen, P.M. 2009. "Does corporate investment drive "a race to the bottom" in environmental protection? A re-examination of the effect of environmental regulation

[Type text]

- on investment.” *Academy of Management Journal*, 52(6), 1297-1318.
- Majumdar, SK. and Marcus, AA. 2001. “Rules versus discretion: The productivity consequences of flexible regulation.” *Academy of Management Journal*, 44, 170-179
- Melnyk, S.A., Sroufe, R.P., Calantone, R.L. (2003). “Assessing the impact of environmental management systems on corporate and environmental performance.” *Journal of Operations Management* 21, 329–351.
- Montabon, F., Sroufe, RP. and Narasimhan, R. 2007. “An examination of corporate reporting, environmental management practices and firm performance.” *Journal of Operations Management*, 25, 998-1014.
- Porter, M. E., van der Linde, C. 1995. “Green and competitive: Ending the stalemate.” *Harvard Business Review*, Sept-Oct, 120-134.
- Porter, M.E. 1991. “America’s green strategy.” *Scientific American*, 264 (4), 168.
- Rao, R.K.S., Bharadwaj, N. 2008. “Marketing initiatives, expected cash flows, and shareholders’ wealth.” *Journal of Marketing*, 72(Jan), 16-26.
- Rothwell, R. 1992. “Industrial Innovation and government environmental regulation: some lessons from the past.” *Technovation*, 12 (7) 447-458.
- Rugman, A. M. and Verbeke, A. 1998. “Corporate strategies and environmental regulations: An organizing framework.” *Strategic Management Journal*, 19, 363–375.
- Gonzalez-Torre, P.L., Adenso-Diaz, B. 2010. “Stakeholder pressure and the adoption of environmental practices: The mediating effect of training.” *Journal of Operations Management*, 28 (2), 163-176.
- Sarkis, J., Zhu, Q., Lai, KH. 2011. “An organizational theoretic review of green supply chain management literature.” *International Journal of Production Economics*, 130 (1), 1-15.
- Schaltegger, S., Synnestvedt, T. 2002. “The link between ‘green’ and economic success: environmental management as the crucial trigger between environmental and economic

[Type text]

- performance.” *Journal of Environmental Management*, 65, 339-346.
- Shang, K.-C., Lu, C.-S. and Li, S. 2010. “A taxonomy of green supply chain management capability among electronics-related manufacturing firms in Taiwan.” *Journal of Environmental Management*, 91 (5), 1218–1226.
- Sharfman, M.P., Fernando, C.S. 2008. “Environmental risk management and the cost of capital.” *Strategic Management Journal*, 29 (6) 569-592.
- Smith, N.C. 2003. “Corporate Social Responsibility: whether or how?” *California Management Review*, 45 (4), 52-76.
- Toffel, M., Lee, K. 2009. *Sustainability at Millipore*, Harvard Business Publishing, ECCH Case Reference: 9-610-012. .
- Ulrich, D. and Barney, J.B. 1984. “Perspectives in organizations-resource dependence, efficiency, and population.” *Academy of Management Review*, 9 (3), 471–481.
- Wagner, M. 2011. “Corporate performance implications of extended stakeholder management: New insights on mediation and moderation effects.” *Ecological Economics*, 70(5), 942-950.
- Wagner, M., Schaltegger, S. 2004. “The effect of corporate environmental strategy choice and environmental performance on competitiveness and economic performance: An empirical study of EU manufacturing.” *European Management Journal*, 22 (5) 557-572.
- Winter, S. and May, P. 2001. “Motivation for compliance with environmental regulations.” *Journal of Policy Analysis and Management*, 20(4), 675-698.
- Zhu, Q., Sarkis J. 2004. “Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises.” *Journal of Operations Management*, 22, 265-289.
- Zhu, Q., Sarkis, J. 2007. “The moderating effects of institutional pressures on emergent green

[Type text]

supply chain practices and performance.” *International Journal of Production Research*, 45 (18-19), 1036-1045.

Zhu, Q., Sarkis, J. and Geng, Y. 2005. “Green supply-chain management practices in China: drivers, practices, and performance.” *International Journal of Operations and Production Management*, 25, 449–468.

TABLE 1
Indicators and their acronyms for various factors used in the study

Indicators for environmental performance (Ref: Zhu and Sarkis, 2007)	
envcert	Achievement of important environment related certifications (e.g., ISO 14000)
envtarg	Achievement of targets imposed on energy conservation, recycling or waste reductions
envsave	Cost savings due to environment friendly practices (not including the achievements in terms of energy conservation, recycling or waste reductions)
Indicators for environmental regulations (Ref: Delmas and Toffel, 2008; Majumdar and Marcus, 2001; Rothwell, 1992; Rugman and Verbeke, 1998)	
eregstand	Company faces environmental regulations which set standards/ absolute thresholds
eregincen	Company faces environmental regulations that offer economic incentives
eregipc	Company faces environmental regulations which force integration of pollution control into production processes
Indicators for external stakeholders' pressures (Ref: Christmann, 2000; Darnall et al., 2008; Delmas and Toffel, 2008)	
commpress	Local communities put pressure on management in adopting environmentally friendly practices
medpress	The media exerts pressure on management in adopting environmentally friendly practices
sripress	Socially responsible investment funds put pressure on management in adopting environmentally friendly practices
Indicators for internal stakeholders' pressures (Ref: Christmann, 2000; Darnall et al., 2008; Delmas and Toffel, 2008)	
marketpress	Marketing department puts pressure on management in adopting environmentally friendly practices
sharepress	Shareholders put pressure on management in adopting environmentally friendly practices
eregospress	Environmental regulations in country of headquarters puts pressure on management
Indicators for economic pressures (Ref: Berman et al., 1999; Florida, 1996; Klassen and McLaughlin, 1996; Toffel and Lee, 2009)	
Rawecon	Company has adopted environmentally friendly practices because it is cheaper than buying raw materials
energyecon	Company has adopted energy conservation because it is cheaper than buying energy
Efpenal	Company has adopted environmentally friendly practices to avoid penalties from future environmental liabilities
Indicators for environmental compliance (Ref: Berman et al., 1999; Florida, 1996; Delmas and Toffel, 2008)	
Enforce	Compared to closest competitor, company faces fewer formal environmental enforcement actions
Finpen	Compared to closest competitor, company faces fewer financial penalties
Compviol	Compared to closest competitor, company faces fewer formal environmental compliance violations

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Table 2: Sample characteristics

Company size (annual UK sales figure)	<£1m	£1m-2m	£2m-5m	£5m-10m	>£10m
	-	-	6	31	129
No. of employees in the UK	<50	50-250	251-500	501-1,000	>1,000
	6	98	23	19	24
No. of years company is in business in the UK	<2	2 to 5	5 to 10	10 to 25	>25
	-	3	8	33	127

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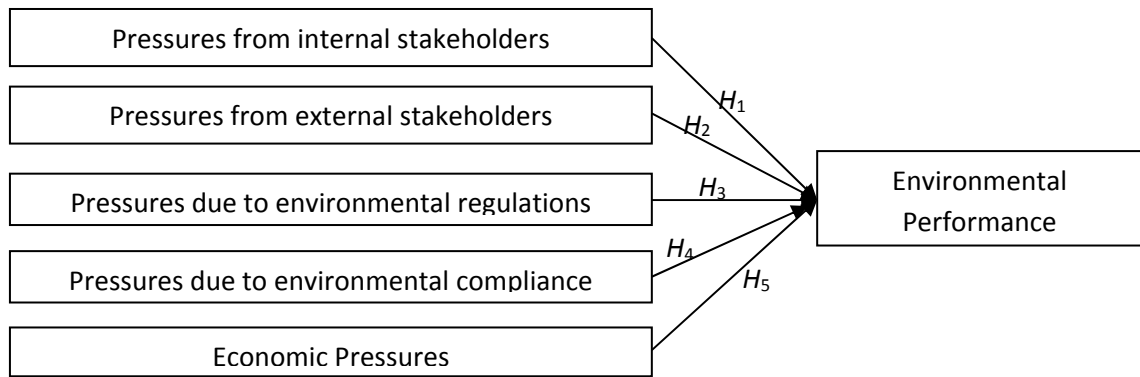


FIGURE 1

A conceptual framework on the impacts of organizational pressures on environmental performance of firms

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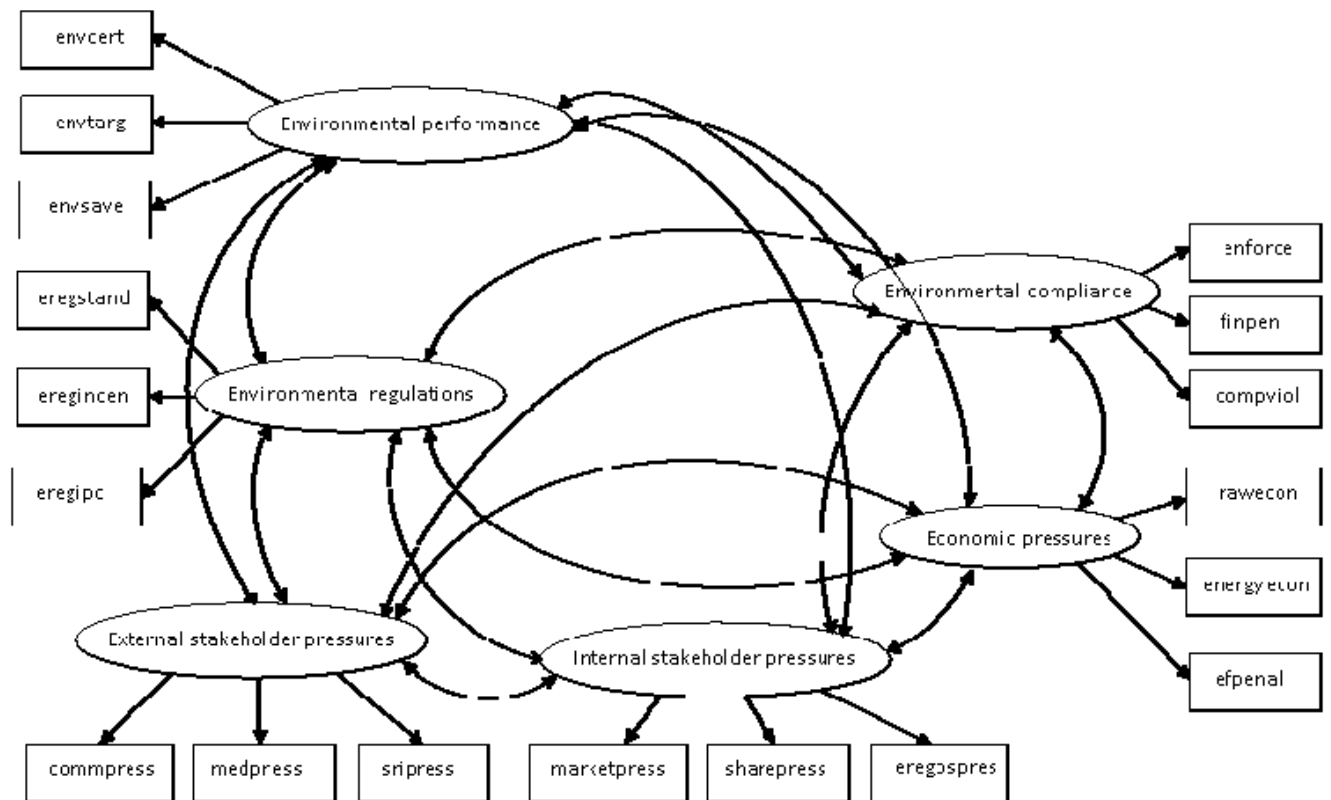


FIGURE 2

The Measurement Model (CFA)

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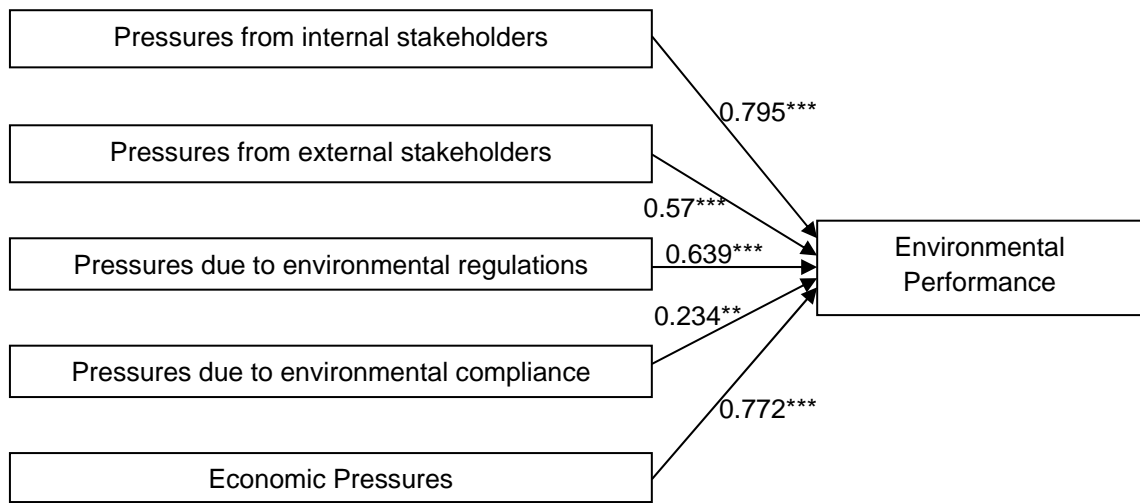


FIGURE 3

The structural model (* p<0.1; ** p<0.05; *** p<0.01)