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RESEARCH ARTICLE

ENVIRONMENTAL PRACTICES AND COMPETITIVENESS

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ABSTRACT

Although considerable amount of the literature related to examination the link between environmental protection issues and the performance, different results and mixed outputs have been articulated by these studies, and previous research yet to investigate the relationship between multidimensional approach of corporate environmental practices and competitiveness. The purpose of this paper was to disaggregate corporate environmental activities into six dimensions (green practices, employees' involvements, environmental management systems, organizational practices, strategic planning process and stakeholders' integration) based on both stakeholders and resource- based view theories, and examine how each dimension would affect competitiveness among manufacturing industries. While all corporate environmental activities were proposed to have positive effects, the results revealed that each dimension has a different effect on competitiveness. Such results may assess the industrial corporation by directing their efforts to specific areas when trying to improve their competitiveness.

INTRODUCTION

Competitiveness and the organization's resource are widely studied in the concept of resource-based view theory (RBV) (Barney, 1991; Barney, 1995; Priem and Butler, 2001; Wernerfelt, 1984), in way that assumes the non-evenly distribution of the resources across corporations, which hinder their capability to compete effectively (Duncan, *et al*., 1998). However, the role of environmental issues has been widely ignored by RBV (Hart, 1995), and make such theory inadequate as guide for determining the whole competitiveness' resources. The effort to understand the importance of environmental issues within the organization is guided this current paper into understanding the term "environmental practices" which refers to the activities undertaken by corporations for the goal of reducing the environmental impacts (López-Gamero, Molina-Azorín, and Claver-Cortés, 2009; Wagner, 2007). These activities include the conventional green practices, involvements of employees, environmental management systems, organizational practices, and the strategic planning process (Hart, 1995; Buysse and Verbeke, 2003; Freeman, 2010; Surroca, *et al*., 2010). The review of Etzion (2007) identified four environmental- related organization resources; innovativeness, employee. He emphasized that some resources such as stakeholders' integration need further investigation. The way in which a corporation maintain the stakeholders' needs prevent the corporation from having decisions might promote stakeholders' incentives to obstacle its objectives (Freeman, 2010; Freeman and Reed, 1983). The instrumental approach of stakeholders theory suggests that maintain stakeholders' interests could help in improving the competitiveness (Barney 1991; Surroca *et al*., 2010). Keeping manageable interaction between (and among) corporations and environmental agencies extends stakeholders' management (Perry and Singh, 2001) and can be considered as competitive resource, since such activities are difficult to replicate and socially complex (Vachon and Klassen, 2008).

Literature review

The relationships between environmental practices and competitiveness have been widely discussed in the literature. Several studies have studied the relationship between these practices and desired outcomes of corporations (Christmann, 2000;González-Benito and González-Benito, 2005; Ngwakwe, 2009; Karagozoglu and Lindell, 2000; Klassen and Whybark, 1999; Li, Alonso-Almeida, García-Castellví and Bagur-Femenias, 2014; Rao and Holt, 2005; Shrivastava, 1995b; Saridogan, 2012; Sarkis and Cordeiro, 2001).

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Porter and Van der Linde (1996) emphasized that environmental innovation can be a way to improve competitiveness of corporations. Such innovation has been found to have a direct relationship with corporation's performance and competitiveness (Chiou *et al*., 2011). However, still some scholars such as Sarkis and Cordeiro's (2001) call that implementing environmental consideration could not guarantee good financial outputs. Additionally, there is a call for disaggregating the environmental practices into more specific and concrete relationships (González-Benito and González-Benito, 2005). Following such call, our review has found that there is a trend to study the individual impacts of each environmental practices on organization outcomes. For instance, the environmental literature has covered areas such as employees' involvements (Denton, 1999; DelBrío, *et al*., 2007; Delmas, 2001; Jackson *et al*, 2011; Wanger, 2011). The relationship seems to be positive in most studies. Such result reflects the importance of human resource factors as social issues in improving the corporate performance. Such result can be observed in the social responsibility literature (Ali, Rehman, Ali, Yousaf, and Zia, 2010; Cavaco and Crifo, 2010; Inoue and Lee, 2010; Yang, *et al*., 2010). Interestingly, all these studies have indicated the importance of human resource factors as social issues in improving the corporate performance.

In line with the role of employees' involvements, the adoption of a environmental management system has been studied individually as a predictor to desired outcomes (Buysse and Verbeke, 2003; Darnall, *et al*., 2008; Florida and Davison, 2001; Levy, 1995; Link and Naveh, 2006; Melnyk, *et al*., 2003; Sroufe, *et al*., 1998; Watson *et al*., 2004). However, unlike employees' involvements, the environmental management systems did not provide full guarantee to the improvements in outcomes. When some studies approve the importance of such systems (Buysse and Verbeke, 2003; Darnall, *et al*., 2008; Florida and Davison, 2001; Levy, 1995; Melnyk, *et al*., 2003; Sroufe, *et al*., 1998), others found such system do nothing regarding the performance or the competitiveness (González-Benito and González-Benito, 2005; Iraldo, *et al*., 2009; Watson, *et al*., 2004). More interestingly, the review found that few studies have considered the role of the environmental coverage of the organizational functions in environmental issues (Buysse and Verbeke, 2003; Cruzi and Sotoii, 2010; Judge and Douglas, 1998; Levy, 1995; Shrivastava, 1995a; Wanger, 2007).

Additionally, there is a call to investigate such area in environmental concern (Judge and Douglas, 1998; Shrivastava, 1995a). For instance, Wanger (2007) found a significant positive relationship between the level of integration and competitiveness. However, such investigation was limited to only three managerial functions considered as strategic relevant functions. The only study by Levy (1995) was found that there is a significant and positive relationship between organizational variables (incentive and functions) and corporate environmental performance. Thus, the relationship between environmental coverage of the critical functional areas and competitiveness has not been studied completely before, which might be indicator for great opportunity to investigate such relationships. In addition to organizational practices, the strategic planning process does not seem to be studied widely in the environmental literature. Few studies have been conducted to link such practices to competitiveness (Henri and Journeault, 2010; Judge and Douglas, 1998). Judge and Douglas (1998) found a significant relationship between the integration of environmental issues in strategic planning process and organizational outcomes. Henri and Journeault (2010) concluded that the high level of incorporation of environmental issues in the strategic planning process could improve the financial performance. Finally, the relationship between stakeholders' integration and competitiveness has been established in environmental literature (Delmas, 2001; Sharma and Vredenburg, 1998). The ability of the corporation to manage its relationships with its stakeholders could be a determinant of company success (Bayoud, Kavanagh, and Slaugther, 2012; Hart, 1995; Sharma and Vredenburg, 1998; Vachon and Klassen, 2008). The review of the literature resulted that there is still a gap need to be closed regarding the outcomes of environmental activites. First question is; what are the roles of environmental practices in strategic planning process, employees' involvement, and stakeholders' integration (Renwick, Redman, & Maguire, 2013). Additional, using the financial performance as a representative for the result from the environmental proactively of the corporation might be a misguide (Crittenden, Crittenden, Ferrell, Ferrell, & Pinney, 2011; Lankoski, 2000; Nu, 2011; Wood, 2010).

Therefore, the relationship becomes clear when the investigation is limited to environmental competitiveness, which represents a sub-segment of overall business competitiveness that strongly is influenced by environmental activities (Gamero *et al.,* 2009; Lankoski, 2000; López-Gamero *et al*., 2009; Sharma, 2001; Schaltegger and Wagner, 2006; Wagner, 2003, 2007). This corresponds with the recommendation of using disaggregated dependent variable when testing Resource-Based View Theory (Ray *et al*., 2004). In conclusion, this paper corresponds with the call that one issue leading to the existing confusion in environmental-related research is the lack of an agreed upon definition of what actually constitutes environmental practices and how their outcomes are to be determined and evaluated (Lucas, 2010; Schaltegger and Synnestvedt, 2002). Lucas (2010) articulated that studies that have considered environmental issues suffer from a widespread lack of clear concepts, definitions, and a coherent theoretical framework.

Overview of Libyan Industries

The industrial sector, including oil production represents approximately 99% of Libyan exports and employs around 91,892 employees (General Information Authority, 2007). However, the performance of this section seems to be dissatisfaction (Aboujdiryha, 2011). The productivity of Libyan corporations is weak (Porter and Yergin, 2006). The global competitiveness index 2009-2010 ranked Libya 88th of 133 countries. Such rank strongly speaks to the fact that Libyan corporations are weak with regard to the competitiveness because a nation's competitiveness depends on the competitive ability of its corporations (Porter and Van der Linde, 1996; Swift and Zadek, 2002). Disappointingly, despite the importance paid to the Libyan industrial sector,

Libyan corporations seem unable to face increased international competition in the open market economic (Aboujdiryha, 2011;Almahdi, 2011; Alghadafi and Latif, 2010; Haman, 2003). All previous studies have shown that the current competitiveness of Libyan industrial corporations is poor, and steps have to be taken to improve it. Although a variety of complex factors might affect the competitiveness, environmental practices has been recognized widely as parts of the determinant factors of the competitiveness in Libya (Arab Forum for Environment and Development, 2011; Eltaief', 2009; Porter, 2007). Partically in Libya, Porter (2007) articulated that one of the determinants of Libyan corporations' competitiveness is protecting the natural environment.

MATERIALS AND METHODS

Although many related studies have used data sources such as KLD, TRI, and other local (Inoue and Lee, 2010; King, Lenox and Terlaak, 2005; Salama, 2005; Sarkis and Cordeiro, 2001; Turban and Greening, 1997; Wagner, 2010; Watson *et al*., 2004), the self-perception of managers has been usually used to measure the environmental and economic aspects of corporations (Christmann, 2000; López-Gamero *et al*., 2009; Sharma, 2000; Sharma and Vredenburg, 1998; Wagner, 2007). This seems to be the only feasible approach of collect data with regard to the environmental activities in Libya.With regard to the instrumentation, several items were used to measure each environmental practice as well as the competitiveness. The items are adopted from previous studies; 13 items to measure conventional green practices (Aragon-Correa, 1998; Buysse and Verbeke, 2003; González-Benito and González-Benito, 2005; Sharma & Vredenburg, 1998), 12 items to measure employees' involvements (Baba, 2004; Figge, Hahn, Schaltegger and Wagner, 2002; López-Gamero, *et al*., 2009; Sarkis and Cordeiro, 2001; Sharma and Vredenburg, 1998), 7 items to measure environmental management system (Aragón-Correa *et al*., 2008; Baba, 2004; Buysse and Verbeke, 2003; González-Benito and González-Benito, 2005; López-Gamero, *et al*., 2009; Sharma and Vredenburg, 1998), 7 items to measure organizational practices (Buysse and Verbeke, 2003; Cruz and Sotd, 2010; Judge and Douglas, 1998;Levy, 1995), 4 items to measure strategic planning process (Buysse and Verbeke, 2003; Journeault, 2010) and 12 items to measure Stakeholders' integration (Plaza-Úbeda *et al*, 2010).

The respondents were asked to range on the seven- point scale measurement the level of importance paid by their corporations to these activities. Competitiveness was represented by a sub-segment (11 items) of overall business competitiveness strongly influenced by environmental activities (Al Sharairi and Al Awawdeh, 2012; DelBrio, *et al*., 2007; Chiou, *et al*., 2011; Karagozoglu and Lindell, 2000; López-Gamero, *et al*., 2009; Sharma, 2001; Sharma and Vredenburg, 1998; Rao and Holt, 2005; Wagner, 2003, 2005, 2007). The respondents are asked on 7-point Likert scale about the extent to which environmental issues were important to improve their competitiveness.

RESULTS

After assuring the reliability and validity of the questionnaire, 490 questionnaires have been mailed or delivered by hand in some cases to Libyan corporations in nine industrial sectors for the purpose of getting 270 respondents as a representative sample of the study. 155 questionnaires considered to be useable returned questionnaires with a response rate of 31% of distributed questionnaires. The outliers test was first conducted using SPSS (18) program to investigate the values of Mahalanobias distance (Hair, William, Barry, & Anderson, 2010; Stevens, 1984). The results indicated that all values are less than the critical value 101.879, which gives a clear indicator that each case is not significantly separated from the rest of data. The results of independent- samples T test show that the P value "2 tailed" is greater than 0.05 for all variables, which indicates that there is no enough evidence to accept that there is systematic differences between the early and late respondents (Armstrong and Overton, 1977; Bluman, 2011; Hair, Money, Samouel and Page, 2007). Additionally, we test assumptions of multiple regression; normality, linearity, and homoscedasticity (Bluman, 2011; Hair, Black, Babin, Anderson, and Tatham, 2006; Hair, William, Barry, and Anderson, 2010; Pallant, 2007). All tests proved that assumption of multiple regressions in the data are met. In the stage of multiple regressions, we consider the environmental practices as independent variables, when competitiveness represents the dependent variable; all environmental practices were hypothesized to have positive relationships with competitiveness. Conducting the multiple regression analysis resulted in the following equation:

For Libyan industrial corporations, the estimated model of competitiveness is as following:

$$\hat{Y} = 2.478 + 0.172\,GCP - 0.289\,EI - 0.182\,EMS + 0.158\,OP + 0.207SP + 0.462\,SI$$

(7.610)** (2.229) * (-3.587) ** (-2.290)* (2.197)* (3.034)* (6.651)**

$R^2 = 0.400$, $F = 16.419$**

When

( ) {T value for each environmental practice}, ** {significant at the 0.01},* {significant at the 0.05 level}

Y = COMP (Competitiveness), X_1= GCP (green conventional practices), X_2= EI employees' involvements), X_3= EMS (environmental management systems), X_4= OP (organizational practices), X_5= SP (strategic planning process), X_6= SI (stakeholders integration).

1- F value was statistically significant (< 0.05). 2- R^2= 0.40, which can be considered enough to demonstrate the fit of the model. 3- Equation showed that all variables contributed significantly to COMP, with a significance level of 0.05

Conclusion

Based on resource-based view and stakeholders theories, the paper disaggregated the environmental practices into six dimensions (green practices, employees' involvements, environmental management systems and procedures, strategic planning processes, managerial functions, and stakeholders' integration) and examined the effects of each dimension on

competitiveness. While all corporate environmental practices were proposed to have positive influences on competitiveness, the results revealed that some of these activities don not support the pre-propositions, which approved that different environmental activities may have different impacts on the competitiveness. There was a negative relationship between environmental management systems and COMP. Although this result was unexpected and conflicted with the assumptions of RBV theory, the findings corresponded with the results provided by some previous studies (Ahmed Montagno and Naffziger, 2003; González-Benito and González-Benito, 2005; Kamande, 2011). Such result may be due to the cost associated with setting up the environmental management system (Kamande, 2011; Zutshi and Sohal, 2004), or justified by that the motivation for implementing environmental management system is a critical determinant to the benefits associated with the implementation. For instance, Darnall *et al*. (2008) concluded that environmental management system improved corporate performance only when such system was driven by the resources and capabilities of the corporation, and not by institutional pressure.

Finally, the type of environmental management system might be a determinant of the effects of these systems, as having a formal environmental system was not enough to improve corporate performance, but that this system should be supported by having ISO 14001 certification(Melnyk *et al*., 2003). Notable, that only 24 corporations were having ISO 14001 certification. Moreover, customers might not be influenced by environmental certification (González-Benito & González-Benito, 2005). Additionally, a significant negative relationship was observed between employee involvement and COMP. These results were consistence with the study of Inoue and Lee (2010), who found that, with respect to corporate social issues, there was no observed positive relationship between employee involvement and both short and future profitability. It might be due to the lack of employee awareness of the social initiatives including environmental ones (Bhattacharya, Sen, and Korschun, 2008). In such cases, corporations may fail to educate their employees regarding the engagement of corporate social and environmental issues, or fail to implement programs related to these issues in a way that satisfied the employees' needs.

This thought is corresponds with that of Rashid *et al*. (2008), who noted that the involvement provided by management to employees, should perceived by employees as something important to them to be useful. In addition to the previous results, the study found significant and positive relationships between COMP and each of green conventional practices, organizational practices, stakeholders' integration and strategic planning process. These results were consistence with both RBV and stakeholders' theories. Moreover, they were in line with the results of much previous literature (e.g. Aragon-Correa, 1998; Aragón-Correa, *et al*., 2008; Donaldson and Preston, 1995; Epstein and Wisner, 2001; Figge, *et al*., 2002; González-Benito and González-Benito, 2005; Shrivastava, 1995b; Sharma and Vredenburg, 1998; Surroca, *et al*., 2010, Zhu and Sarkis, 2004). In summary, the paper contributes to state explicitly and test the relationship between each practice of environmental issues and the overall output resulted in competitiveness. Although such relationships have been investigated in spritely fashion, this study represents the whole picture that gives clear understanding of the relationship. The study demonstrated that different corporate environmental practices have different impacts on competitiveness. When the relationship seems to be positively between some environmental practices and competitiveness, such relationship was not supported for the other practices. Such results may assess the industrial corporation by directing their efforts to specific areas when trying to improve their competitiveness. Although the previous mentioned contributions of the study, several limitations should be mentioned. Firstly, using self-reported questionnaire failed by managers in the sample of study, future study should be done using more direct objective measurements. Secondary, caution should be taken when generalize the results of the study, and the results may be generalized only to similar environment and stage of development of Libya. Thirdly, as mentioned by previous studies (González-Benito and González-Benito, 2005; López-Gamero, *et al*., 2009), the environmental management practices are multidimensional nature; therefore, the implied approach may also be inadequate and may not fairly reflect a corporation's.

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