

TOWARDS MAPPING ENVIRONMENTAL PERFORMANCE AND FINANCIAL PERFORMANCE

A PRIMER FROM THE HOSPITALITY & TOURISM INDUSTRY

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PURPOSE
THERE is increasing discussion of the way in which corporate social responsibility of firms is assessed in terms of their financial performance. This study aims to review the hospitality industry corporate social responsibility and financial performance literature, thereby providing a conceptual framework for visualizing understanding corporate performance in terms of social performance.

Design/Methodology/Approach: *A comprehensive and extensive literature review helps develop a framework for examining the environmental and financial performance of the hospitality industry.*

Findings: *Given the growing importance of both financial and non-financial disclosures in the decision making processes of stakeholders, it is important that firms' performance on both constructs are assessed and presented in a manner that can be easily understood and interpreted by prudent stakeholders. A better understanding of how these dimensions interact with each other that can be used to present stakeholders with a visual map of performance on both the dimensions.*

Originality/Value: *The study attempts to fill the gaps in the discussion of the way in which corporate social responsibility and financial performance of hospitality industry is developed. A research framework embedded with visualization of CSR and financial performance is proposed. Critical research questions about the impact of CSR on financial performance has been identified.*

Key Words: *Environmental Performance, Financial Performance, Multidimensional Scaling.*

Introduction

In recent years, there has been nascent stakeholder interest in voluntary non-financial disclosures. In fact, academic and corporate awareness of green, environmental or sustainable practices has increased in recent years. Looking at the exigency of tackling climate change and associated concerns, a significant number of people understand their responsibility towards the environment (Singh & Bansal, 2012). In fact, adoption and implementation of environmental initiatives have become an integral strategic component and central tenet of several hospitality organizations. As a consequence, academic and professional literature is replete with articles addressing adoption and implementation of green or environmentally responsible practices. Factors motivating firms to embrace this burgeoning trend include: organizational values, whereby firms and their leaders seek to embrace the green concept and

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provide leadership in this area (Maignan, Hillebrand, & McAlister, 2002, Singh & Bansal 2012); reactive adoptions to assuage threats to transaction costs, brand, and competitive repositioning (Spar & Mure, 2003); the ability to leverage marketing, publicity, and innovation (Maignan et al., 2002) and; globalization, regulation and sustainable development (Panapanaan et al., 2003). In essence, green practice adoptions have been driven largely by societal and competitive pressures in conjunction with changing consumer demand. Consumers sometimes look for green products while making purchases, along with an agreement towards the fact that green product should cost same, but they are willing to opt for green option (Singh & Bansal, 2012).

There has also been a revolutionary shift in theoretical perspectives regarding firms' adoption of green or sustainable initiatives. In recent years, several firms have shifted from the traditional economic theory and have embraced the modern stakeholder-driven economic perspective. The traditional economic theory postulates that companies should aspire to satisfy marginal, legislated and mandatory environmental standards and should not be inclined to use resources, financial or otherwise on activities that are not easily quantifiable such as spending on sustainable or green initiatives (McClain, 1978). Hence, this perspective suggests that voluntary adoption of sustainable initiatives can present barriers to profitability since resources are diverted from easily quantifiable investments to those that are often difficult to measure, and sometimes do not generate immediate, tangible, and discernable direct economic benefits (Walley & Whitehead, 1994). In recent years, however, the traditional economic viewpoint has been challenged, and is slowly being substituted by the modern stakeholder-driven economic perspective which proposes that firms should embrace and implement sustainable initiatives as integral strategic components. Furthermore, the traditional economic view of "minimal compliance" has been challenged, and is slowly being replaced by a new proposition that it "pays to be green", suggesting that firms applying well executed sustainable initiatives derive long term economic benefits from such efforts (Clarkson, Yi, Richardson, & Vasvari, 2011).

The stakeholder-driven economic perspective proposes that firms should embrace sustainable initiatives since they generate economic benefits derived from the attainment of competitive advantages (Porter & Van der Linde, 1995; Salop & Scheffman, 1987) through generation of "green-goodwill" (Dhaliwal, Li, Tsang, & Yang, 2011). This new approach has gained support in recent years, driven in part by society's increased awareness of the negative environmental externalities generated by the production and consumption of goods and services. This awareness has underscored the need for firms to rethink their corporate strategies and management processes and incorporate green or environmental initiatives as integral strategic components. In the context of the hospitality and tourism industry, green or environmental initiatives are business strategies designed to ameliorate, mitigate and/or eliminate the negative environmental externalities associated with the production and consumption of goods and services (Jackson, 2013; Jackson, 2010).

Like most industries, the hospitality industry has responded to societal trends and has become more aware of its role and responsibilities to society (Kasim & Ismail, 2012), and several firms within the industry have invested in green or environmentally responsible initiatives. This is despite the fact that currently, there appears to be lack of consensus about the simultaneous and the symbiotic performance relationship between firms' environmental initiatives and financial outcomes. Instead, there has been active debate regarding this relationship. While some researchers have reported positive linkages (Allouche & Laroche, 2005; Jackson & Hua, 2009; Wu, 2006; De Bakker & Den Hond, 2005; Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003; Roman, Hayibor, & Agle, 1999; Johnson & Greening, 1999; Berman, Wicks, & Jones, 1999; Turban & Greening, 1997; Preston & O'Bannon, 1997; Waddock & Greaves, 1997; Raihi-Belkaoui, 1992), others have reported findings to the contrary (Bromiley & Marcus, 1989; Davidson & Worrell, 1990). Further, others have found no connection between firms' environmental initiatives and their financial performance (Freedman & Jaggi, 1982; Allouche & Laroche, 2005).

Given the growing importance of both financial and non-financial disclosures in the decision making processes of stakeholders, it is important that firms' performance on both constructs are assessed and

presented in a manner that can be easily understood and interpreted by prudent stakeholders. Thus, there is a nascent need for a technique to simultaneously assess and present firms' sustainability and financial performance in a graphical non- esoteric manner. One such technique that can be used to solve this challenge is utilizing a multidimensional scaling technique, a methodology that succinctly summarizes data about associations between a fixed set of objects to reveal relationships between them. The technique presents visual outputs which are useful for interpretative purposes. This paper illustrates how this technique can be utilized to assess firms' simultaneous sustainability and financial performance, with emphasis on the hospitality and tourism industry.

Literature Review

Adoption of environmental or green initiatives by tourism firms remains nascent and has increased exponentially since the 1990s (Nicholls & Kang, 2012). In general, the industry as a whole has generally focused on environmental initiatives that minimize effluents, and consequently overall negative environmental impacts (Myung, McClaren, & Li, 2012; Robinot & Giannelloni, 2010). The increase in adoptions of green initiatives has taken place despite the fact that firms' environmental initiatives are often dismissed by some stakeholder groups as public relations or publicity stunts (McPeak & Tooley, 2008). Further, firms are often skittish about investing in such initiatives since there is discord regarding the relationship between environmental efforts and financial performance (Clarkson et al., 2011). Despite such trepidations, tourism firms continue to invest in environmental initiatives to obtain actual or ostensible benefits and advantages. These include: attainment of competitive advantages and cost savings gained through efficiency derived from usage of less costly materials and processes; savings obtained from the conversion or recycling of waste into valuable and useful forms and; savings derived from implementation of energy efficiency techniques and waste management techniques (Porter & Van der Linde, 1995). Other benefits driving adoption in the industry include: increased employee loyalty; increased customer satisfaction and retention; improvement in firms' ability to comply with, or circumvent governmental regulations and reinforcement of a positive image (Lynes & Dredge, 2006); minimization of exposure to risks (Graci & Dodd, 2008) and; business protection (Bohdanowicz, Zientara, & Novotna, 2011; Bohdanowicz, 2005). It is also suggested that adoption of green initiatives by firms generate "green goodwill" (Dhaliwal, Li, Tsang, & Yang, 2011) or reputation enhancement. In addition, from a resource allocation perspective, researchers have argued that adoptions of such initiatives and practices are congruent with efficient production since poor environmental practices represent inefficiency and wastage of resource inputs. Hence, green practices enhance innovations that result in more efficient operations, product differentiation and profitability (Nehrt, 1996; Porter & Van der Linde, 1995; Reinhardt, 1998).

Green initiatives and Financial Performance

The academic literature is replete with empirical studies designed to examine the association between firms' environmental initiatives and financial performance. Evidence from these studies have either strongly supported association between firm's environmental initiatives and financial performance or have found no such definitive linkages (Clarkson, 2012). Such findings were highlighted in a seminal comprehensive study conducted by Margolis & Walsh (2003). In their research, the authors examined 127 studies over a thirty year period and found that findings from these studies were not one directional or consistent. For example, of 109 studies that attempted to ascertain whether or not firms' green initiatives enhanced financial performance, 54 reported positive relationships, 28 reported non-significance, 20 had mixed findings while 7 reported negative relationship (Margolis & Walsh, 2003). Other researchers examining the issue have reported similar findings. For example, Clarkson et al., (2011) found a bi-directional temporal relationship between firm's environmental initiatives and financial performance. The authors reported that firms experiencing significant environmental performances over time also experienced congruent or similar financial performance changes. Such findings are in congruence with the natural resource based theory of the firm as proposed by Hart (1995), which postulates that firms stand to gain competitive advantages by adopting environmental initiatives. However, Clarkson et al., (2011), cautioned that while the

evidence suggests that it “pays to be green”, all firms should not adopt green strategies, especially if they divert resources away from core functions. Instead, they argued that green initiatives should be adopted by firms with ample resources to sustain core functions, while pursuing such initiatives. This notion was accentuated by Aragon-Correa & Sharma, (2003), who found that investment in green initiatives by some firms can deplete resources, thereby rendering them uncompetitive.

Assessing Environmental and Financial Performance

The issue of assessing firms’ environmental and financial performance is complicated since there is a lack of consensus in the measurement methodologies and tools used to assess linkages between these constructs (Griffin, 2000; Frederick, 1994). Environmental performance is multidimensional and encompasses dimensions that extend beyond issues such as toxic emissions and include broad based environmental impact dimensions (Clarkson et al., 2011; Clarkson, 2012). As such, environmental performance extends beyond assessment of toxic emissions and instead includes broad environmental dimensions such as disturbance of natural habitat, loss of biodiversity, effluent controls, etc. (Clarkson, Overell, & Chapple, 2011). Empirical research on the other hand, requires measurable and observable proxies. However, access to data relating to firms’ environmental performance has been at best, constrained by data availability (Clarkson, 2012). Consequently, empirical research assessing firms’ performance on environmental initiatives has traditionally relied on a wide range of publicly available retrospective quantitative data as proxies for environmental performance (Clarkson, 2012). The advantage of such proxies in assessing environmental performance is that they apply the same measures for all reporting firms and cover a large and diversified set of firms (Pratten, 2002). However, such types of data have historically assessed performance of heavy, high polluting industries (Clarkson, 2012; Hughes, Anderson, & Golden, 2001), and have historically excluded industries such as the tourism industry which is not considered as heavy pollutants (Ilinitich, Soderstorm, & Golden, 1998). Other historical measures of firms’ environmental performance include alternative measures such as examining successful prosecutions of firms for environmental violations (Mitchell, Percy, & McKinlay, 2006). In recent years however, researchers have expressed concerns regarding the use of these types of data and have questioned the consistency of assessment methodology, the types and number of firms assessed and the types of industry assessed. Furthermore, researchers have also criticized the use of successful prosecutions as an objective measure of firm’s environmental performance. Other arguments against such assessments of the performance include the notion that such measures are crude, and further that they inflict restrictions on variance within sampled firms. Furthermore, such measures are typically limited to a small sample of firms (Ilinitich, Soderstorm, & Golden, 1998; Patten, 2002).

Environmental Performance Measures

Empirical studies have used quantitative measures as proxies for assessing firms’ environmental performance. The most prevalent of these proxies have been those generated by the US Environmental Protection Agency’s (EPA) Toxic Release Inventory (TRI) database (Clarkson, Li, & Richardson, 2004; Clarkson, Li, Richardson, & Vasvari, 2008; Patten, 2002). Such data have the advantages of using similar measures to assess performance and they also assess and report the performance of a wide range of firms in different industries and are normalized by a measure of scale (Patten, 2002). Although, researchers have used the TRI data as a measure of environmental performance, and it has been used widely as an empirical proxy for environmental performance (Toffel & Marshall, 2004), it has been criticized for over emphasis on emissions while underemphasizing other dimensions of environmental performance. The most prominent proxy used as alternative to TRI data to assess firms’ performance on environmental initiatives are those prepared by KLD Research & Analytics, Inc. (Cho & Patten, 2007; Cho, Roberts, & Patten, 2010; Dhaliwal, Li, Tsang, & Yang, 2011). KLD data is favored by researchers since it takes a comprehensive all-encompassing examination of firms’ environmental or green dimensions. Other subjective proxies that have gained respect in recent years for focusing on specific green or sustainable dimensions include the Dow Jones Environmental Index’ (DJSI), Fortune and Newsweek green ranking scores. Despite their positive aspects, data from these sources have been criticized since they are developed in an atheoretical

manner (Mattingly & Berman, 2006). Notwithstanding potential drawbacks, such types of data have been described as the best proxy data source for assessing firms' performance on environmental initiatives (Graves & Waddock, 1994). Furthermore, in the absence of specific theoretical or empirical guidance, it has been suggested that the choice of proxy utilized by researchers should be based on the advantages of the proxy in relation to addressing the researchers' specific needs and the research at hand, as opposed to the type of proxy used (Clarkson, 2012).

Financial Performance Measures

In general, there are two sets of measures used to evaluate firms' financial performance—those that measure market performance and those that measure accounting performance. Accounting performance measures focus on profitability, asset utilization and growth while market based measures include stock performance, market return, market value to book value and other market based performance measures (Chand, 2006; Wu, 2006; Griffin & Mahon, 1997; Singh et al., 2014; Luan et al., 2013). Both measures offer benefits and are used extensively by researchers. Some researchers have used market measures to ascertain firm's performance in relation to environmental, (Lou & Bhattacharya, 2006) while other researchers use accounting measures (Waddock & Graves, 1994). Still, others have used a combination of both accounting and financial measures (McGuire, Sundgren, & Schneeweis, 1988). Accounting measures evaluate a firm's performance from a historical standpoint (McGuire et al., 1988), and are subject to biases that pertain to managerial competencies as well as the use and manipulation of accounting procedures. Market measures of performance, on the other hand, tend to be futuristic and are less dependent on the firm's management accounting procedures and instead are representative of investors' perception of the firm's ability to generate future earnings. However, market measures unavoidably incorporate market mispricing and thus may not be as reliable as accounting measures (McGuire et al.; Rust, Lemon, & Zeithaml, 2004).

The Multidimensional Scaling Technique

Selection of data to assess firms' sustainability and financial performance using the multidimensional scaling (MDS) technique should be based on the objectives of the research. For example, measures of financial performance could include profit margin while the sustainability of green scores can be obtained from any of the sources mentioned above in the literature review section. Multidimensional scaling transforms data to indicate the similarity or dissimilarity of objects (such as environmental and financial performance) to scores, thus indicating distances among the objects. A "map" is then created to display the distances among the objects, thus producing a visual output which is useful for interpretive purposes. It should be noted that the technique works best with a relatively small number of object or pairs. The technique works as follows. When the number of objects or pairs is high, personnel comparison of all the items or pairs becomes impractical and inefficient. Objects closer together on the map are perceived as more similar and objects farther apart are perceived as more dissimilar. The same unit of measurement is used for all distances between the objects. A similarity or dissimilarity matrix 'proximity matrix' is created with Euclidean distances and used as raw data for MDS. To create the proximity matrix, cluster analysis is conducted and the resulting matrix was utilized to create the perceptual map. The MDS algorithm employs Euclidean principles where distance (d_{ij}) between points i and j is defined as:

$$d_{ij} = \sqrt{\sum_{\alpha} (x_{i\alpha} - x_{j\alpha})^2} \dots\dots\dots (1)$$

x_i and x_j specify coordinates of points i and j on dimension α , respectively. For non metric data a positive monotone transformation is applied to dissimilarity data for scaling into spatial distances while for metric MDS a linear transformation function is applied (Giguère, 2006). Subsequently, a stress function that measures the fit between input proximities and distances is defined. An iterative process that attempts to find successive approximations to the solution is run until the stress function has been minimized (Arce & Garling, 1989; Kruskal & Wish, 1978). Stress indicates the difference between the

input proximities and the output distances in the n dimensional map. Kruskal’s stress function (1964) are the most commonly used measure in determining a model’s goodness of fit and is defined by:

$$Stress = S = \sqrt{\frac{\sum_{ij} (\delta_{ij} - d_{ij})^2}{\sum_{ij} d_{ij}^2}} \dots\dots\dots (2)$$

Where δ_{ij} is the value of the proximities between items i and j , and d_{ij} is the spatial distance between them. Stress function values lay between zero and one; the smaller the stress function, the better the model represents the input data. Although there are no strict rules regarding how much stress is tolerable, the rule of thumb is that a value ≤ 0.1 is excellent (Kruskal & Wish, 1978). Non zero stress indicates that some, or all, distances in the map are, to some extent, distortions of the input data. Squared correlation index (R^2) is the other diagnostic tool for assessing the appropriateness of the MDS model. This indicates the proportion of variance of the input data accounted for by the MDS procedure. An $R^2 \geq 0.60$ is considered acceptable fit (Meyer, Heath, Eaves, & Chakravarti, 2005). Figure No. 1 below provides an example of what the graphical output of a MDS analysis looks like.

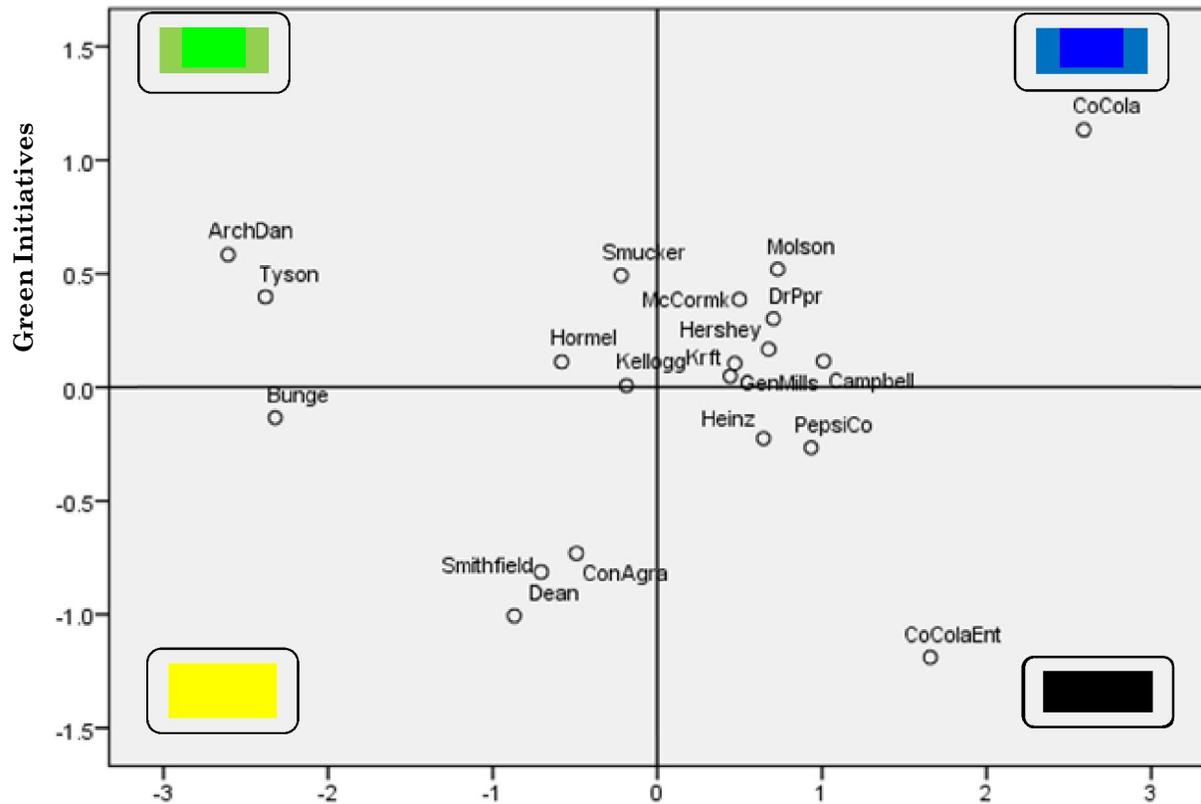


Figure No. 1: Example of an MDS Output Illustrating Green Scores and Financial Performance.

As can be seen in Figure No. 1, the aggregate output of firms displaying similar performance on the two dimensions-green performance and financial performance, are clustered on the four quadrants of the perceptual map depicted. Placement on each quadrant is based on, stimulus coordinates which are analogous to factor loadings in a conventional principal component analysis. The x axis depicts sampled

firms' financial performance while the *y* axis represents firms' performance on green initiatives. Firms displaying similarity in performance on both dimensions are grouped in clusters on the map's four quadrants. Interpreting the diagram, we can see that: firms clustered on quadrant 1 (Q1) performed well on green initiatives but low on profitability; firms clustered on quadrant 2 (Q2) achieved both high environmental and financial performances, as indicated by their high stimulus coordinates relative to the sample; firms clustered on quadrant 4 (Q4) achieved high financial performance but scored low on green initiatives firms clustered on quadrant three (Q3) performed poorly on both dimensions, as indicated by their stimulus coordinates.

Recommendations

Environmental responsibility has become an important element in assessing firms' overall commitment to sustainability. Increasingly, stakeholders, especially socially responsible investors are demanding that firms adhering to green principles and practices ensure that firms in their supply chain adhere to green practices. Failure to conduct transactions with green suppliers could expose hospitality green practicing firms to criticism of engaging in green washing. As such, firms are increasingly encouraged to conduct business with partners adhering to the principles of environmentally responsible logistics. However, firms adhering to the traditional economic theory of minimal compliance are often uneasy about expending resources on initiatives that are difficult to quantify, such as green initiatives. For such firms, it is important to illustrate that firms can excel on green initiatives and financial performance simultaneously. In addition, given the growing importance of performance on these two factors to investors, it is important that firms' performance is depicted in a clear and concise manner. In this regard, the methodology employed in this research, multidimensional scaling (MDS) provides an excellent way for stakeholders to simultaneously assess the financial-sustainability performance of firms.

Conclusion

The issue of firms' simultaneous performance on green and financial initiatives continues to gain prominence amongst stakeholders, especially socially responsible investors who are demanding that firms should excel financially as well as on sustainable or green initiatives. For such firms, it is important to illustrate that firms can excel on green initiatives and financial performance simultaneously. Given the growing importance of performance on these two factors to investors, it is important that firms' performance is depicted in a non-esoteric manner. Multidimensional scaling (MDS), the technique discussed in this article provides an excellent way for stakeholders to simultaneously assess the financial sustainability performance of firms in a graphical manner. The technique essentially classifies and graphically depicts firms' performance on green and financial initiatives into four distinct categories on the MDS four quadrants. Thus, users of the technique can easily identify firms' performance which can be classified as: those that excel on green initiatives and perform well financially in a balanced manner; those that perform poorly on both dimensions; those that perform admirably financially but poorly on environmental initiatives and; those that perform admirably on green initiatives but poorly financially.

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