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Índice

CSR of Portuguese Companies listed on Euronext Lisbon: a multivariate analysis

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Abstract

The purpose of this paper is to present a cluster analysis applied to group companies by their social performance and to compare the results. The results indicate that companies with better social performance are not the ones with better economic performance, and it suggests that the middle path might provide a good relation CSR-Economic performance, as a basis to sustainable development. The study focused on 19 quoted Portuguese companies and the analysis covered a period of five years, between 2005 and 2009. The results indicated that three clusters were classified in CSR Low (3 companies), CSR Medium (12 companies) and CSR High (4 companies). According to the cross validated classification based on discriminant analysis, the results reveal that 94.7% of the cases were classified correctly.

Keywords: Corporate Social Responsibility. Multivariate analysis. PSI-20 companies.

1 Introduction

In recent years, there have been many negative cases involving corporations and theirs leaders, cases of corruption involving fraudulent accounting, the growing gap between the salaries of top managers and their employees, abusive practices, marketing of products harmful to public health, violation of human rights and environmental standards [Lama and Muyzenberg, 2008].

In a world that is characterized by increasing economic and social asymmetries, it is necessary to find a way to promote stability that can be sustained in a virtuous cycle. "We have to choose between a global market driven only by calculation of short-term profit, and one which has a human face (...). Between a selfish free-for-all in which we ignore the fate of the losers, and a future in which the strong and successful accept their responsibilities, showing global vision and leadership" (Kofi Annan as cited in World Business Council for Sustainable Development [WBCSD, 2000]. CSR can be the way to a successful acceptance of responsibilities and to build a sustainable development.

Although the concept of Corporate Social Responsibility (CSR) has gained a prominent position in the general management literature, there is still uncertainty about how to adequately define the term [Bakker et al., 2005, Dahlsrud, 2006].

Bearing these facts in mind, the objective of this paper is to contribute to a better understanding of CSR in a Portuguese context. Therefore, it was intended to identify homogeneous groups of companies listed on EURONEXT belonging to the PSI-20, according to social responsibility, based on two multivariate analyses, namely cluster analysis and discriminant analysis.

The paper is organized as follows: after this introduction, section 2 will provide a synopsis of CSR definitions and measurement of CSR; section 3 will present the methodology used in this research. Section 4 presents the results and the discussion where cluster and discriminant analyses provide insights into the main determinants of CSR strategies and differences between companies. The final section presents the main conclusions and some future research direction.

2 Background

Social business concerns have existed for a long time, but the CSR debate began in the United Sates in 1953, when Howard Bowen argued that businessmen had the obligation to conduct business according

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to society's goals and values [Carroll and Shabana, 2010]. For Wartick and Cochran the CSR concept as suggest by Bowen, has two main premises: (i) the business exists to serve society, and its behaviour must be ruled by society's guidelines, in this context business assumes a social contract with society, which is the vehicle which brings business behaviour to conformity with society patterns; (ii) the business acts as a moral agency in society, and should act consistently according to society's values, many concepts followed, but until now without any consensual definition [Wartick and Cochran, 1985].

In Europe the CSR debate emerged later, in 1993, with the appeal made by Jacques Delors at the time when he was President of the European Community Commission (COM), to company's social intervention, which had a good acceptance [COM, 2001]. In 2001 the COM launched the "Green Paper" aiming to promote a European framework for CSR and considering that CSR could contribute to achieve the goal set at the European Council of Lisbon 2000: European economy becoming the world's most dynamic and competitive, based on knowledge and setting the basis for a sustainable development [COM, 2001].

The World Business Council for Sustainable Development, an organization created in 1995 that addresses the commitment to a sustainable development, also considers that sustainable development is based on "three fundamental and inseparable pillars: the generation of economic wealth, environmental improvement and social responsibility" [WBCSD, 2000] and that "CSR is an integral part of sustainable development" [WBCSD, 2000].

Although there isn't a consensual definition of sustainable development or a CSR definition, we can consider the tree dimensions (economic, social and environmental) as common two both concepts. But if CSR emerges as a way for an organization to assume it's responsibilities and contribute to a sustainable development, it can also raise the question of how can CSR positively affect economic performance in a way that can generate resources to continually invest in social and environmental demands.

According to Waddock and Graves (1997) high levels of financial performance can provide the resources necessary to invest in CSR practices. Also Ullmann argued that in periods of low economic return, companies have other priorities than investment in CSR, which may suggest that a satisfactory financial performance can have a positive influence in future commitment with social responsibility practices [Balabanis et al., 1998]. But CSR can also improve the economic performance, providing greater availability of resources. Orlitzky, Schmidt and Rynes (2003) suggest that social performance and financial and economic performance influence each other through a "virtuous cycle", since companies with good financial and economic performance invest more in social performance because they can do it, but at the same time the social performance also helps them increase financial success.

There are companies that invest in CSR despite the fact that this investment in the short term reduces the present value of their cash flows. According to Mackey and Mackey (2007), that can be explained by the conditions of supply and demand for CSR investments opportunities. When the demand is greater than supply even reducing the present value of cash-flows, the investments may generate economic value for companies [Mackey and Mackey, 2007].

In an attempt to relate CSR and economic and financial performance, many researches have achieved different and opposing results (e.g. [Waddock and Graves, 1997], [Griffin and Mahon, 1997], [Balabanis et al., 1998], [McWilliams and Siegel, 2000], [Poddi and Vergalli, 2009]). Waddock and Graves (1997) argue that difficulties in the measurement of social performance are the main reason for the uncertainty of the results obtained. Some of the measurement criteria often used are the content analysis of annual reports, expert evaluations, the index developed by the rating agency Kinder, Lydenderg, Domini (KLD), or the indexes of Fortune and Moskowitz, based on reputation (e.g. [Waddock and Graves, 1997], [Griffin and Mahon, 1997], [Balabanis et al., 1998], [Orlitzky et al., 2003], [McWilliams and Siegel, 2000], [Poddi and Vergalli, 2009], [Stanwick and Stanwick, 1998], [Goss and Roberts, 2011], [Harjoto and Jo, 2011]).

Szekeley and Knirsch (2005), analyzed the best metrics used by German companies to measure sustainable performance, and conclude that different methods were used, but many have adopted the guidelines of the Global Reporting Initiative (GRI). The authors considered it to be a good start, and a tool that needs to be improved, but is not enough for the structural changes that companies need to undertake internally to become more sustainable, and that requires a strong and visionary leadership [Szekeley and Knirsch, 2005].

In Portugal, although many companies were using CSR practices in a informal way, the CSR systematic practices only begun after the celebration of international agreements, and more specifically the European Lisbon Conference of 2000 [CECOA, 2004]. Researches done in the Portuguese context also refer to the lack of information to study Portuguese reality, and also lack of formulas for CSR implementation [Leite and Rebelo, 2010].

In this research, a different frame from previous researches was followed for the measurement of CSR. The measurement of social performance was based on the COM guidelines, and namely the two

dimensions of CSR, internal and external dimensions [COM, 2001].

3 Methodology

This paper aims to identify homogeneous groups of companies listed on EURONEXT belonging to the PSI-20, according to social responsibility, based on two multivariate analyses: cluster analysis and discriminant analysis. 19 of 20 companies were selected, excluding EDP renewable. This company was excluded by the fact that its reports were published on the official website by EDP which comprised EDP Renewable information. So, the study focus on 19 companies (N = 19) and a period of 5 years (2005-2009) was taken into account. Therefore, the companies under study are Altri, BCP; BES, BPI, Brisa, Cimpor, EDP, Galp, Jeronimo Martins (JM), Mota-Engil (MOTEN), Portucel, Portugal Telecom (PT), REN, Semapa, Sonae Industria (SOIN), Sonae, SonaeCom (SOCOM), Teixeira Duarte (TEIXDU), Zon. Noted that these companies are obliged to report their accounts according to International Accounting Standards - International Financial Reporting Standards (IAS IFRS standard), since 2005. It was chosen a five years period of analysis because a long period can provide more reliable information about companies' commitment with CSR and also allows an evolution analysis of the adoption of CSR.

The variables chosen to measure the multiple dimensions of social performance (see Table 1), were based and adapted from Green Paper guidelines [COM, 2001], considering as well diverse literature on the subject, and also the GRI guidelines used by several Portuguese companies that report their social performance.

The analysis and measurement of social performance was done through content analyses from companies' sustainability and annual reports, available on companies' official websites. An index was built with 239 items considering the relevant aspects for each of the variables defined for measuring social performance. It was also considered the fact that most of Portuguese companies set their CSR goals according to the tree dimensions of the sustainable development: Economic, Environmental and Social. To each item was attributed a score: 0 (to a negative answer); 1 (to a positive answer); 0,5 (to an incomplete answer).

Table 1: Variables of Research.

Internal dimension	External dimension	Other variables
Responsible management	Local communities	
Human resources management	Stakeholders	
Health and safety at work	Human rights	CSR instruments
Environmental and natural resources management	Environmental and philanthropic global concerns	
Business ethics		

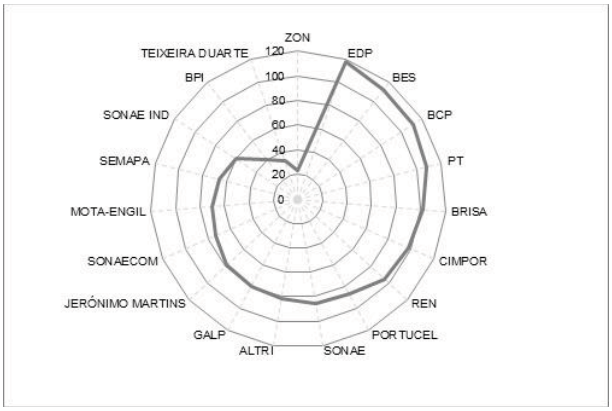

Figure 1: CSR Index for each company under analysis.

The final result, which is the total of all variables scores, was named CSR Index and allowed to positioning the companies according to their social performance (Fig. 1). Through the analysis of Fig. 1, it can be seen that EDP, BES, BCP, PT and BRISA obtained the highest values on the CSR Index, which may indicate that these companies should be more predisposed to adopt CSR practices.

A hierarchical cluster analysis was applied using the method proposed by Ward (1963), for being the one who has made the solution more consistent with other studies and applied to quantitative variables measured on a ratio scale. This analysis was produced in order to identify homogeneous groups of companies based on the variables chosen to measure social performance. A discriminant analysis was also applied to assess the adequacy of classification produced with a hierarchical cluster analysis.

4 Results and Discussion

The hierarchical cluster analysis, using the Ward method and the squared euclidean distance, produced the dendogram in Fig. 2. Trough the analysis of dendogram we can clearly see two main clusters, although the division into three clusters presents a more homogeneous distribution of cases. To decide on the optimal number of clusters the r-square criterium was used and the graph of the relativized distance between clusters. A solution of tree clusters was chosen, explaining 62% of the total variance.

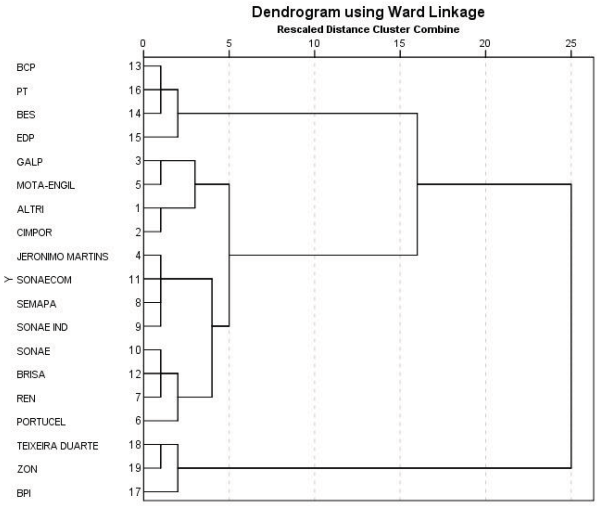

Figure 2: Dendogram using the Ward linkage method.

Each cluster was named according to the social performance of the companies that composed it: Cluster 1 - CSR Medium; Cluster 2 - CSR High; Cluster 3 - CSR Low (see Table 2). The practices uses by companies in these areas were important to define their social performance.

Table 2: Cluster Composition.

Cluster	**Companies**	
Clusters 1: CSR Medium	BRISA	GALP
	CIMPOR	JERONIMO MARTINS
	REN	SONAECOM
	PORTUCEL	MOTA-ENGIL
	SONAE	SEMAPA
	ALTRI	SONAE IND
Clusters 2: CSR High	BES	
	BCP	
	EDP	
	PT	
Clusters 3: CSR Low	BPI	
	TEIXEIRA DUARTE	
	ZON	

A Discriminant Analysis was conducted to predict and classify whether the companies have a low, medium or high CSR. It was also used to confirm the results produced by hierarchical cluster analysis. According to the results produced by Discriminant Analysis it was possible to observe significant mean differences for all predictors - independent variables on the dependent variable. Box's M test indicated

that the assumption of equality of covariance matrices wasn't violated. This can be concluded by the insignificance of the differences observed (Box's M is 9.243 with $F = 1.032$ and $p - value = 0,404$). The discriminate function revealed a significant association between groups and all predictors. Regarding the results, the 1st function with an eigenvalue of 4.71 corresponds to 81% of variance explained in terms of differences between clusters, thus explaining the greater proportion of the variance, and 2nd function 19%. The correlation between the canonical functions and clusters enables us to observe a greater correlation to the 1st function 0,91. Wilks' lambda indicates the significance of the discriminant function and a highly significant function ($p - value < 0.001$). Closer analysis of the structure matrix (Table 3) revealed the significant predictors, namely for the 1st discriminant function of Human resources management (0.891), Environmental and natural resources management (0.778), Local communities (0.621) and for the 2nd discriminant function of CSR instruments (0.495) and Health and safety at work (0.468).

Table 3: Structure Matrix.

	Discriminant Function	
	1	2
Human resources management	0,891	-0,454
Environmental and natural resources management	0,778	0,628
Local communities	0,621	0,271
Responsible management	0,440	0,091
Environmental and philanthropic global concerns	0,427	0,118
Stakeholders	0,314	0,257
Business ethics	-0,171	-0,149
Human rights	0,112	-0,105
CSR instruments	0,350	0,495
Health and safety at work	0,426	0,468

The cross validated classification results reveal that 94.7% of the cases were classified correctly into 'Cluster 1 - CSR Medium', 'Cluster 2 - CSR High' and 'Cluster 3 - CSR Low'.

Fig. 3 shows the clusters classification and it was possible to corroborate the results obtained in the cluster analysis. It was also observed that the centroids of each cluster are quite distant from each other allowing the separation of clusters.

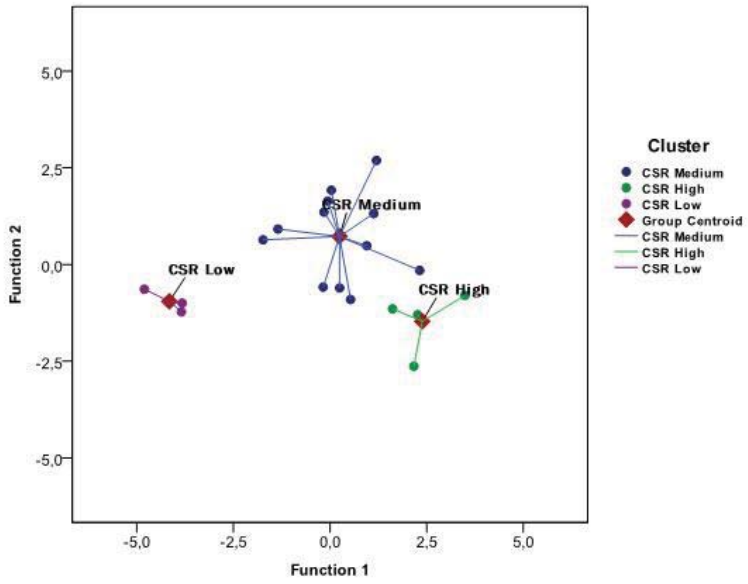

Figure 3: Canonical Discriminant Functions.

Briefly, it can be concluded that the three clusters of companies differ with regards to their dominant motives and culture for pursuing CSR strategies.

5 Conclusions and further research

The objectives of this research were to identify homogeneous groups of companies listed on EURONEXT belonging to the PSI-20, according to social responsibility, and based on two multivariate analyses, hierarchical cluster analysis and discriminant analysis.

According to the outputs produced based on both multivariate analysis it was possible to identified three homogenous groups of companies: (1) CSR Low cluster consisting of three companies, (2) CSR Medium cluster consisting of 12 companies, and (3) CSR High group consisting of 4 companies. It also indicated that the companies in question, which are companies of reference in the Portuguese context, mostly have an average performance in relation to CSR, although some companies present a high level. So it can be concluded that most denote a growing sensitivity to CSR practice.

This research adds an important contribution to the definition of Portuguese companies listed on EURONEXT belonging to the PSI-20, and it also provides a new measurement model that takes into account ten dimensions, a broad view of the multiplicity of CSR and is based on the guidelines of the European Commission. For future research it is suggested that similar methodology is used in a comparative analysis by sectors, taking into consideration the national or international context, with distinct legal and institutional frameworks.

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