CORPORATE SOCIAL RESPONSIBILITY FOR THE PSI 20 PORTUGUESE COMPANIES

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Abstract:

In Europe, the Corporate Social Responsibility (CSR) issue was boosted by Jacques Delors in the Green Paper on social responsibility. Two dimensions were defined, the internal and the external ones, which include several aspects of what should be considered in the CSR performance assessment. Following the global market trend, Portuguese companies are also aware of these issues and report their social responsibility activities, although currently there are no social and sustainable indicators to assess the Portuguese CRS performance.

The purpose of this paper is to present a multivariate analysis and to verify homogenous groups of companies with identical social responsibility. The study focused on 19 of companies in the Portuguese Stock Index PSI 20 and the analysis covered a period of five years, between 2005 and 2009. The results showed that 3 clusters were identified.

Keywords: *corporate social responsibility*; *PSI20 Portuguese companies*; *multivariate analysis*; *cluster analysis*; *discriminant analysis*

RESPONSABILIDAD SOCIAL CORPORATIVA PARA LAS EMPRESAS PORTUGUESAS PSI 20

Resumen:

En Europa, la cuestión de la Responsabilidad Social Corporativa (RSC) fue impulsada por Jacques Delors en el Libro Verde sobre la responsabilidad social. Se definieron dos dimensiones, la interna y la externa, incluyendo varios aspectos de lo que debiera considerarse en la evaluación del desempeño de RSC. Siguiendo la tendencia del mercado global, las empresas portuguesas también son conscientes de estos temas e informan de sus actividades de responsabilidad social, aunque no hay indicadores sociales y sostenibles para evaluar el desempeño de RSC portugués.

El propósito de este artículo es presentar un análisis multivariante y verificar grupos homogéneos de empresas con idéntica responsabilidad social. El estudio se centró en 19 de las empresas del Portuguese Stock Index PSI 20 y el análisis cubrió un período de cinco años, entre 2005 y 2009. Los resultados mostraron que tres clusters fueron identificados.

Palabras clave: *responsabilidad social corporativa*; *empresas portuguesas PSI20*; *análisis multivariante*; *análisis cluster*; *análisis discriminante*

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1. Introduction

Companies are currently more aware and implement more socially responsible practices, since the market, the stakeholders and society in general are also more demanding. This behaviour is also a consequence of globalization, as the society is aware of the impact of the organizations' activities in the regions they are located in, not only from the economic point of view, but also from the social and environmental perspective. One of the main questions posed is how to define Corporate Social Responsibility (CSR) and how to measure corporate social performance. These are not consensual, having several definitions and methods been presented. Nowadays, many medium and large-sized companies report their CSR activities, also known as sustainability reports, using the guidelines of the Global Reporting Initiative. Practitioners and academics have been using several criteria to measure corporate social performance. Some have used expert assessment, others, the analysis of reports and other documents, and further others, the pollution control performance measures. Although the concept of 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).

In Europe, the CSR issue was boosted by Jacques Delors (former President of European Commission) in the Green Paper on social responsibility. In this Green Paper, two dimensions were defined, the internal and the external ones, which include several aspects of what should be considered in the CSR performance assessment (Commission of the European Community 2001). The internal dimension comprises issues related to "human resources management", "health and safety at work", "adapting to change", and "management of environmental impacts and natural resources". On the other hand, the external dimension of CSR includes "local communities", "business partners, suppliers and consumers", and "human rights and global environmental concerns". Following the global market trend, Portuguese companies are also aware of these issues and report their social responsibility activities, although currently there are no social and sustainable indicators to assess the Portuguese CRS performance.

To this end, 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 a cluster analysis, thus providing insights about the main determinants of CSR strategies and differences between companies as basis for conclusions and future research guidelines.

2. Theoretical framework

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 to society's goals and values (Carroll and Shabana 2010). According to Wartick and Cochran (1985), the CSR concept has two main premises: i) the business exists to serve society, and its behaviour must be ruled by society's guidelines, so assuming in this context a social contract with society, which is the vehicle bringing 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. M any concepts followed, but until now without any consensual definition.

Strictly speaking, in Europe the properly 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– to company's social intervention, which had a good acceptance (Commission of the European Community 2001). On this basis, the European Commission has defined CSR as a concept as companies incorporate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis (Commission of the European Community 2001).

The World Business Council for Sustainable Development, an organization created in 1995 that addresses the global commitment to a sustainable development, also considers that sustainable development is based on three important and inseparable pillars: i) the generation of economic wealth; ii) environmental improvement; and iii) social responsibility. Thus this institution highlights the CSR fundamental role as part of sustainable development (World Business Council for Sustainable Development 2000).

In 2011, the European Commission suggested a new definition of CSR such as the responsibility of enterprises for their impacts on society (Commission of the European Community 2011). To completely meet their corporate social responsibility, enterprises should have in place a process to integrate social,

environmental, ethical, human rights and consumer concerns in to their business operations and core strategy in close collaboration with their stakeholders, with the clear purpose of: i) maximizing the creation of shared value for their owners/shareholders and for their other stakeholders and society at large; and ii) identifying, preventing and justifying their possible adverse impacts. The difficulty of that procedure will depend on factors such as the size of the company and the nature of its operations, and for most small and medium-sized companies the CSR process is likely to remain informal and intuitive.

According to Freeman and Hasnaoui (2011), and despite the fact that organizations are increasingly under pressure, the main motivation for these turning towards social responsibility relates to organizational changes and market driven by globalization and technological development. What is more, also a growing number of investors require to know about companies responsibility actions, employees feel more motivated when working for a company with good image that undertakes initiatives to contribute to a better society, more consumers choose to buy products and services of socially responsible companies and so on (Cho and Patten 2008; Lama and Muyzenberg 2008; Lioui and Sharma 2012). All this changes inspire organizations to undertake CSR relating with their social performance and some of them take the opportunity to improve their image and reputation.

CSR actions can be based on good intentions. This does not mean that the companies are implementing them in practice, they are really making a difference or being social responsible. According to Jones and Nisbet (2011) companies select the causes and the social priorities they support in areas favourable to their strategy and market image, mostly identified with shareholder interests, and even not taking in consideration problems that are due to business activities. So it is important to measure social performance choosing CSR measurements that comprise a large scale of actions in diverse areas, in order to ensure a realistic vision.

In this sense, we can say that the measurement of social or CSR performance is one of the main difficulties and has not been consensual, which accounts for the existence of several methods. Specifically, European researchers recognize difficulties in the measurement of CSR. For example, Szekeley and Knirsch (2005) concluded that many German companies adopted the guidelines of the Global Reporting Initiative (GRI) to measure their sustainability according to economic, environmental and social goals diverging on the aspects they chose to report. These authors consider GRI as a good start and a tool to be improved, but they also consider it not enough to meet the structural changes that companies need to undertake internally to become more sustainable and responsible.

Several researches have used the Kinder, Lindenberg and Domini (KLD) index. It was considered by Waddock and Graves (1997) as the best one available considering its diverse approach, although they recognize some limitations. KLD is also the most comprehensive and widely accepted on CSR research for Goss and Roberts (2011), and Harjoto and Jo (2011) as well.

In Portugal, although many companies were using CSR practices in an 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 in the Portuguese context also refer to the nonexistence of information to study the Portuguese reality and the lack of methods for CSR implementation (Leite and Rebelo 2010).

In this study, we follow a different frame from previous researches to measure CSR. The measurement of social performance was based on the European Commission guidelines, namely the consideration of the internal and external dimensions of CSR.

3. Corporate social responsibility for the PSI 20 Portuguese companies

Aiming the main purpose of this study, i.e. to understand how the companies in the Portuguese Stock Index PSI 20 are implementing CSR in their strategies to achieve more market and social reputation, we used sustainability reports –when available– from those companies between January 2005 and December 2009. We also aimed to identify homogeneous groups of companies according to social responsibility parameters, based on two multivariate analyses: a cluster analysis and a discriminant one. 19 of the 20 companies were selected, excluding *EDP Renováveis*. This company devoted to renewable energy was excluded as its reports were published on its official website and based on its provided information.

Therefore, the study focused on the performance of 19 companies in the five years period 2005-2009: *Altri* (paper and energy), *Banco Comercial Português* (Commercial Portuguese Bank, *BCP*), *Banco*

Espírito Santo (Espírito Santo Bank, *BES*), *Banco Português de Investimento* (Investment Portuguese Bank, *BPI*), *BRISA Autoestradas de Portugal* (highways and transport), *Cimentos de Portugal* (Portuguese Cements, *Cimpor*), *Energias de Portugal* (Portuguese Energies, *EDP*), *Galp* (oils and fuels), *Jerónimo Martins* (food wholesaler, *JM*), *Mota-Engil* (civil construction, *MOTEN*), *Portucel* (paper), *Portugal Telecom* (telecommunications and multimedia, *PT*), *Rede Eléctrica Nacional* (generation and distribution of electricity, *REN*), *Semapa* (cements, paper and environment), *Sonae Indústria* (wood panelling, forestry and sawmills, *SOIN*), *Sociedade Nacional de Estratificados* (food and non-food retail, shopping centres, tourism, construction, transport and risk capital, *Sonae*), *Sonaecom* (fixed and mobile telecommunications, *SOCOM*), *Teixeira Duarte* (civil construction, *TEIXDU*), *ZON* (multimedia distribution). These companies are obliged to report their accounts according to the International Accounting Standards and International Financial Reporting Standards (IAS-IFRS Standards) since 2005.

The variables to measure the multiple dimensions of social performance were based and adapted from the European Commission Green Paper guidelines (2001), as well as considering diverse contributions in literature and the GRI guidelines used by several Portuguese companies that report their social performance. To be precise, the 239 items analysed to construct the CRS index form groups of variables that measure both the internal (116 items) and external (123 items) dimensions of CSR. On the one hand, the *internal dimension* (STDI) included *responsible management* (15 items), *human resources management* (36 items), *health and safety at work* (17 items), *business ethics* (18 items), and *environmental and natural resources management* (30 items). On the other hand, the *external dimension* (STDE) included *local communities* (29 items), *stakeholders* (17 items), *human rights* (10 items), *environmental and philanthropic global concerns* (10 items), and *other CSR instruments* (57 items).It was also considered the fact that most of Portuguese companies set their CSR goals according to the three dimensions of the sustainable development: *economic*, *environmental* and *social*. To each item was attributed a score of 0 (negative answer), 1 (positive answer) or 0.5 (incomplete answer).

A hierarchical cluster analysis was applied to identify homogeneous classes of companies based on the variables chosen to measure social performance. This analysis starts with each case as a separate cluster (i.e. there are as many clusters as cases), and combines the clusters sequentially, reducing the number of groups at each step until only one cluster is left. Following Ward's proposal (1963), the variance was analyzed to evaluate the distances between clusters. Following this approach, Ward's distance (D_w) between clusters *Ci* and *Cj* is the difference between the total within cluster sum of squares for the two clusters separately, and the within cluster sum of squares resulting from merging the two clusters in cluster C*ij*, as expressed by the following equation (Marôco, 2010):

$$D_w\left(C_i, C_j\right) = \sum_{x \in C_i}\left(x - r_i\right)^2 + \sum_{x \in C_j}\left(x - r_j\right)^2 - \sum_{x \in C_{ij}}\left(x - r_{ij}\right)^2 \qquad [1]$$

where,
  r_i is the centroid of C_i;
  r_j is the centroid of C_j; and
  r_{ij} is the centroid of C_{ij}.

To assess the adequacy of the classification produced with a hierarchical cluster analysis, a *k*-means non-hierarchical cluster analysis was applied as well. This analysis aims the partition of the *n* observations into *k* clusters, each observation belonging to the cluster with the nearest mean. So, known a set of data $(X_1, X_2,\ldots, X_n)$, where each data is a *d*-dimensional real vector, the *k*-means cluster analysis purposes the partition of the *n* data into *k* sets $(k \leq n)$ $S = \{S_1, S_2,\ldots, S_k\}$ so as to minimize the within-cluster sum of squares, as expressed by this new equation (Singh et al., 2011):

$$J = \sum_{j=1}^{k}\sum_{i=1}^{n}\left\| x_i^{\;j} - c_j \right\|^2 \qquad [2]$$

where,
  $\left\| x_i^{\;j} - cj \right\|^2$ is a chosen distance measure between a data point $X_i^{\;j}$ and the cluster C_j, and performs as an indicator of the distance of the *n* data points from their respective cluster centres.

The *k*-means cluster analysis achieves this result by subdividing the data into the required number of clusters by grouping records thus that the Euclidean distances between the record's dimensions and the clusters centroid (point with the average dimensions of the points in the cluster) are as small as possible (Marôco, 2010).

3. Results and discussion

The total of all variables scores was entitled CSR Index and allowed to positioning the companies according to their social performance. According to the results in Figure 1, we can see that those companies scoring the highest values on this CSR Index were *Energias de Portugal –EDP–*, *Banco Espírito Santo –BES–*, *Banco Comercial Português –BCP–*, *Portugal Telecom –PT–* and *BRISA Autoestradas de Portugal –BRISA–*, which may indicate that these companies should be more predisposed to adopt CSR practices.

In Figure 2 we can observe that all companies under analysis are more focused on internal dimension, as average scores are higher. The highest STDI Index was observed in *Energias de Portugal –EDP–* (70.5), followed by *Banco Espírito Santo –BES–* (65.5) and *Banco Comercial Português –BCP–* (63.8). In the opposite side, the lowest STDI Index were obtained by *ZON* (14.6), *Teixeira Duarte –TEIXDU–* (21.1) and *Banco Português de Investimento –BPI–* (21.2).

On the other hand, analyzing the external dimension of CSR, that is, according to the STDE Index results, the highest value was obtained again by *Energias de Portugal –EDP–* (47.7), this time followed by *Banco Comercial Português –BCP–* (47.4) and *Banco Espírito Santo –BES–* (46.8). The lowest values were again obtained by the same companies: *ZON* (8.5), *Teixeira Duarte –TEIXDU–* (11.7) and *Banco Português de Investimento –BPI–* (18.8).

Thus, it can be easily concluded that the companies that presented the highest STDI values were the same that presented correspondingly the highest STDE results, as for those showing the lowest index values. Additionally, it was evidenced that *Banco Português de Investimento* (*BPI*), *Portucel*, *ZON* and *Teixeira Duarte* (*TEIXDU*) were those that presented the shortest distance between STDI and STDE indexes, which may indicate that these companies give the same importance to both dimensions even though they have small scores.

Based on the index values given above for each variable, that is, aiming to embrace the two CSR dimensions –internal and external–, it was intended to generate homogeneous groups of companies. At this purpose, a hierarchical cluster analysis was applied. The resultant dendogram, which was obtained using the Ward method and the Euclidean distance, may give support to the agglomeration schedule. In Figure 3 two main clusters are shown, although the division into three clusters presents a more homogeneous distribution of cases.
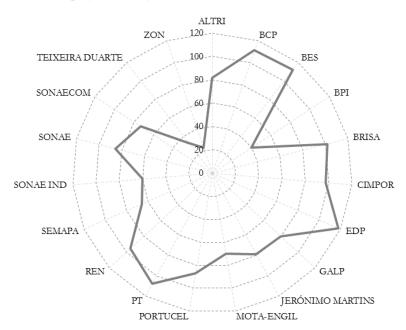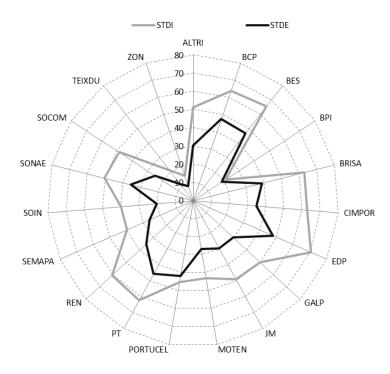
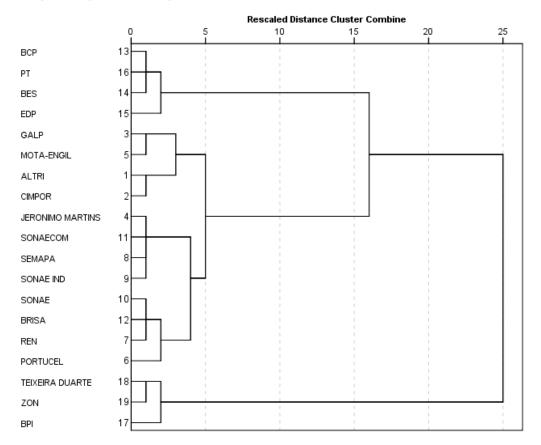**Figure 1** CSR Index for each company under analysis

Source: own elaboration

Figure 2 Internal and external corporate social responsibility index

Source: own elaboration

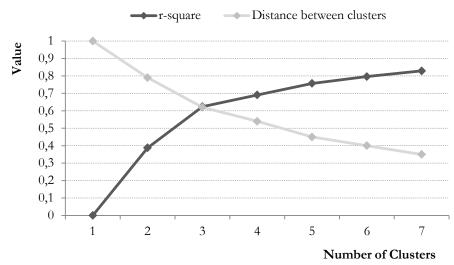**Figure 3** Dendogram using the Ward linkage method

Source: own elaboration

In order to decide on the optimal number of clusters we used the *r*-square criterion and the graph of the relative distance between clusters. A solution of tree clusters was chosen, explaining 62% of the total variance (see Figure 4). Each cluster was named according to the social performance of the companies that composed it. Then the first cluster was labelled as *CSR medium*, the second cluster was labelled as *CSR high*, and the third cluster was labelled as *CSR low* (see Table 1). The practices used by companies in these groups were important to define their social performance.

Subsequently it was applied the *k*-means method, which allowed the validation the solution produced by hierarchical cluster analysis and identified the variables that contributed to the separation of clusters using the analysis of variance (Table 2). The variables that best discriminate the clusters are those with a higher *cluster mean square* and a lowest *error mean square* values. The variable that allows further differentiation in the clusters was *human rights* ($F = 42.345$), followed by *environmental and natural resources management* ($F = 27.971$), *human resources management* ($F = 23.394$), and *responsible management* ($F = 15.872$).

Figure 4 Optimal number of clusters

Source: own elaboration

Table 1 Cluster composition

Cluster	Companies
Cluster 1 *CSR medium*	*BRISA Autoestradas de Portugal* *Cimentos de Portugal* (*Cimpor*) *Rede Eléctrica Nacional* (*REN*) *Portucel* *Sociedade Nacional de Estratificados* (*Sonae*) *Altri* *Galp* *Jerónimo Martins* (*JM*) *Sonaecom* (*SOCOM*) *Mota-Engil* (*MOTEN*) *Semapa* *Sonae Indústria* (*SOIN*)
Cluster 2 *CSR high*	*Banco Espírito Santo* (*BES*) *Banco Comercial Português* (*BCP*) *Energias de Portugal* (*EDP*) *Portugal Telecom* (*PT*)
Cluster 3 *CSR low*	*Banco Português de Investimento* (*BPI*) *Teixeira Duarte* (*TEIXDU*) *ZON*

Table 2 One-Way ANOVA and variables which separate clusters

Internal and external variables	Cluster		Error		F	p-value
	Mean square	df	Mean square	df		
Responsible management	5.984	2	0.377	16	15.872	<0.001
Human resources management	6.707	2	0.287	16	23.394	<0.001
Health and safety at work	4.196	2	0.601	16	6.986	0.007
Environmental and natural resources management	6.998	2	0.250	16	27.971	<0.001
Business ethics	4.681	2	0.540	16	8.672	0.003
Local communities	5.816	2	0.398	16	14.614	<0.001
Stakeholders	5.897	2	0.388	16	15.201	<0.001
Human rights	7.570	2	0.179	16	42.345	<0.001
Environmental and philanthropic global concerns	2.962	2	0.755	16	3.924	0.041
CSR instruments	5.589	2	0.426	16	13.109	<0.001

4. Conclusions and further research

The main purposes of this study were to identify homogeneous groups of companies listed on Euronext belonging to the Portuguese Stock Index PSI 20, according to their social responsibility parctices, and based on the results from a hierarchical cluster analysis.

Then, and according to the outputs from a multivariate analysis it was possible to identify three main homogenous groups of companies: i) a *CSR low* cluster, consisting of 3 companies; ii) a *CSR medium* cluster, consisting of 12 companies; and iii) a *CSR high* cluster, consisting of 4 companies.

The obtained results also point to the conclusion that the respective companies, which are reference points in the Portuguese context, mostly show an average performance in relation to CSR, although some of them present a higher level of commitment. Thus, we can also conclude that most of these companies denote a growing sensitivity to CSR practice.

Additionally, the variable related to *human rights* was identified as the main one allowing further differentiation among the clusters, together with those related to *environmental and natural resources management*, *human resources management*, and *responsible management*. In this sense, we should take in mind that having a CSR strategy is important for current companies and they shouldn't carelessness that part of their strategic plan.

Summarily, this study can be considered as a significant contribution to the definition of the PSI 20 companies on their responsible practices, and it also provides a new measurement model that takes into account ten dimensions, that is, a broad view of the multiplicity of CSR both in its internal and external dimensions, on the basis of the guidelines that were provided in the Green Paper by the European Commission.

Considering possibilities for future research, we suggest to use the same or similar methodology to conduct a comparative analysis grouping the companies by business activity sectors, taking also into consideration the national and/or international context in which they operate, as they can be influenced by different legal and institutional frameworks. It would be also interesting to contrast the data gathered by this methodology with other from alternative ways to verify the real situation of companies regarding CSR practices and the data they provide (to confront what companies report with what they really do in practice).

Finally, and more important than analyzing the absolute positioning of companies in terms of CSR, the values from any methodology should enable changes in practices in order to obtain a better position in forthcoming editions.

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