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SUSTAINABILITY DISCLOSURE AND REPUTATION: A COMPARATIVE STUDY

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Sustainability Disclosure and Reputation:

A Comparative Study*

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Abstract

This paper aims to explore the relationship between a company's sustainability disclosure and its reputation. The sample consists of 57 companies in the Dow Jones Sustainability Index (DJSI) and a control group belonging to the Dow Jones Global Index (World1), matched on country, industry and size. The extent of sustainability disclosure is determined using the content analysis method performed via multimedia.
The empirical research provides evidence that reputation does affect the extent of sustainability disclosure. Furthermore, results indicate that European companies disclose more than US companies.
This paper is exploratory in nature as it investigates the effects of reputation on corporate sustainability disclosure (CSD). It also examines sustainability disclosure by type of information – strategic, financial, environmental and social – and it extends previous studies on CSD by concentrating on information released not only on annual reports, but also in multimedia, such as social reports, environmental reports and sustainability reports.

Keywords: sustainability disclosure; reputation; legitimacy theory; USA, Europe, UK; content analysis

JEL CODES: M14, M41

1. Introduction

Corporate sustainability has been defined as the strategy adopted by a company to satisfy the legitimate social, economic and environmental expectations of its stakeholders[1](Husted and Allen, 2000). Furthermore, according to legitimacy and stakeholder theories, corporate sustainability disclosure (CSD) is part of the dialogue between a company and its stakeholders and provides information on a company's activities that help legitimise its behaviour, educate and inform, and change perceptions and expectations (Gray et al., 1995; Adams and Larrinaga-González, 2007; Adams and McNicholas, 2007).

Various authors claim that social and environmental disclosures are signals companies give to stakeholders in order to increase reputation (Friedman and Miles, 2001; Toms, 2002; Hasseldine et al., 2005). The link between reputation and social-environmental disclosure has been studied following agency and signalling theories, within the resource-based approach (Toms, 2002; Hasseldine et al., 2005).

Accounting literature has also focused on sustainability reporting, conceived of as both an outcome of, and part of the reputation risk management (Bebbington et al., forthcoming). Indeed, sustainability reporting can be seen as a driver of reputation in the sense that it communicates the social and environmental performance of a company to its stakeholders. If a company is behaving as a 'good corporate citizen', then such disclosures will increase the reputation of the organisation. Once a company has a strong reputation, CSD can be used to preserve such reputation since companies are "more aware of the need to manage a wide range of sustainability risks and to show externally that they are doing so" (Friedman and Miles, 2001 p. 528). Therefore, if a company already has a strong reputation, it is

expected to engage with stakeholders and to communicate to them how the company is behaving in the three dimensions of sustainability. Within the legitimacy theory framework, companies are operating in a constantly changing external environment and they seek to ensure that they operate within the bounds and norms of their respective societies (Brown and Deegan, 1998). CSD therefore provides voluntary information on companies' activities that helps legitimise their behaviour, educates and informs, and changes perceptions and expectations (Gray et al., 1995). Among the challenges of sustainability reporting, Gray et al. (1995) assert that organisational legitimacy serves to connect the social contract with sustainability, whereby disclosure of sustainability information facilitates the projection of a socially accountable image. This will lead to increased legitimacy and will allow the company to manage reputational risks (Fombrun et al., 2000; Bebbington et al., forthcoming).

The idea that reputation may be a driver of CSD has not been systematically studied by academic research. Previous literature has been primarily concerned with the impact of corporate characteristics (such as size, industry grouping and financial performance) or general contextual factors (socio-political context) on CSD. Indeed, recent literature has pointed out the need to investigate further other complex and various internal contextual factors influencing disclosure practices (Adams, 2002), and there is an emerging debate on the possibility that the empowering potential of social and environmental reporting is being captured and institutionalised (Gray, 2002; O'Dwyer, 2003; Parker, 2005).

The aim of this paper is to enhance our understanding of the relationship between CSD and reputation. In order to do so, the study compares the amount of disclosure made by

reputable Continental European, UK and USA companies, matched by country, industry and size. In particular, the paper examines the disclosures of 57 companies in the Dow Jones Sustainability Index (DJSI) and of a control group of companies belonging to the Dow Jones Global Index (World1).

In addition, this comparative study examines CSD by type of information. It classifies CSD into four categories – strategic, financial, environmental and social. It is likely that the decision relevance of information varies by type. That is, strategic and financial information have relevance to investors and shareholders, while environmental and social disclosures interest a broader group of stakeholders. Thus, the variables affecting the disclosure choices of a company may also vary by type of information.

Moreover, this study extends previous studies on CSD by concentrating on information released not only on annual reports, but also on multimedia, such as social reports, environmental reports and sustainability reports.

The remainder of the paper is structured as follows. Section two discusses the theoretical framework adopted in this study and the development of the hypothesis. Section three describes the research method and the measurement of variables. Section four presents the sample characteristics and the results of the model, while section five draws some conclusions.

2. Literature Review and Hypothesis Development

Previous literature on the determinants of social and environmental disclosure has mainly focused on the impact of corporate characteristics (such as size, industry grouping and financial performance) or on general contextual factors (socio-political context) (Belkaoui and Karpik, 1989; Guthrie and Parker, 1990; Patten, 1991; 1992; Roberts, 1992; Hackston and Milne, 1996; Pava and Krausz, 1996; Adams, 1999; Cormier and Gordon, 2001).

Gray et al. (2001) note that previous researches have been "largely inconclusive", showing controversial and mixed results. These inconclusive results could be due to many reasons, such as differences in socio-political environments between countries, organisational structures, construction of the informational items in disclosure indexes, omitted variables and sampling errors (Ahmed and Courtis, 1999). As Adams (2002) has suggested, another crucial issue in social and environmental accounting is that little attention has been given to internal organisation factors that may explain the disclosure policies of companies (Cowen et al., 1987; Campbell, 2000; Adams, 2002). Furthermore, reporting proponents (GRI, 2006; KPMG, 2005) and academic researchers (Friedman and Miles, 2001; Toms, 2002; Hasseldine et al., 2005; Bebbington et al., forthcoming) have suggested that reputation may be both an effect and a driver of sustainability disclosure.

Up to now, the literature has not considered the concept of reputation a driving force for sustainability reporting and disclosure, even if legitimacy and reputation are somewhat overlapping concepts (Deegan, 2002; Deephouse and Carter, 2005). As stated by Friedman and Miles (2001), reputation can be conceived of as a determinant of sustainability

disclosure since companies show externally that they are aware of the need of managing a wider range of social and environmental issues. At the same time, other authors, following signalling theory (Toms, 2002; Hasseldine et al., 2005), argue that companies engage in sustainability reporting as a way to increase their reputation. Such a bi-directional relationship is intuitive, but the existence of these linkages is an empirical question that has not been systematically studied in the accounting literature.

Reputation can be conceptualised with reference to both the strategic management literature (Roberts and Dowling, 2002) and a sociological perspective (Fombrun, 1996). From the first perspective, reputation can be defined as an organisational attribute (Roberts and Dowling, 2002) that reflects the extent to which stakeholders see the company as a good corporate citizen, and it therefore constitutes an intangible asset with the potential for creation of value (Little and Little, 2000). From the other perspective, reputation is a "subjective collective assessment of the trustworthiness and reliability" of companies (Fombrun and Van Riel, 1997).

Deephouse and Carter (2005) state that both reputation and legitimacy represent assessments of an organisation by a social system. They observe (2005, p. 330) that there are three areas of overlapping between legitimacy and reputation. Since they are "social construction processes as stakeholders evaluate an organization", they are "linked to the same antecedents" (size, financial performance and strategic posture) and they both improve the "ability to acquire resources". Nevertheless, they state that there are two important criteria for distinguishing legitimacy and reputation: "the nature of the assessment stated in the definition and the dimension on which the two concepts can be

assessed" (2005, p. 331). While legitimacy is conceived as "the generalized perception or assumption that the actions of an entity are desirable, proper and appropriate" (Suchman, 1995, p. 573) – and organizations must therefore conform to normative rules, regulative processes and cognitive meanings (Scott, 1995) – , reputation is equated to image, esteem, prestige and goodwill in developing the encompassing concept of organizational standing (Shenkar and Yuchtman-Yaar, 1997). In particular, Deephouse and Carter (2005) stress the idea that the concept of reputation recalls the relative position of an organisation among its counterparts: the relative standing of a company has to be determined through comparison with other companies. "For any two organizations, they will either have the same reputation or, more likely, one will have a better reputation than the other" (2005, p. 331). Gaining a favourable reputation implies that differentiation is necessary (Fombrun, 1996), as effective building and preserving trust and consensus requires the "capacity of simultaneously address coexisting pressures for continuous growth through wealth creating innovation and widespread expectations about appropriate strategic conduct and governance practices" (Mazzola, Ravasi and Gabbioneta, 2006).

Recently, Bebbington et al. (forthcoming) and O'Dwyer (2002) have questioned whether the adherence to social and environmental norms and values is crucial to legitimacy. When a company faces various demands from different stakeholders, it follows that, in the mediation process, it will give priority to stakeholders that are more powerful. Furthermore, in some cases, companies behave in the same way as before despite social and environmental controversies and demands for change showing de facto that they do not consider such conducts fundamental to their legitimacy. It may indeed be that management of sustainability and the subsequent disclosure of social and environmental

performance are not driven and affected by legitimacy issues, but by reputation building and preservation.

Based on the above considerations, the present study empirically investigates the effect of reputation on CSD.

Bebbington et al.'s (forthcoming) examination of corporate reputation ranking studies has shown that there are five elements on which reputation is built: 1. financial performance; 2. quality of management; 3. social and environmental performance; 4. employee quality; and 5. quality of goods and services. Such examination suggests that reputation is conceptualised on the three dimensions of sustainability performance: financial, social and environmental performance.

As the above literature review has shown, reputation can be conceived of both as an outcome and a driver of CSD. While most studies have mainly focused on the role of social and environmental disclosure in shaping the reputation of a company (Toms, 2002; Hasseldine et al., 2005; Bebbington et al., forthcoming), it is argued that there is a need for investigating whether reputation can be conceived of as a driver of CSD.

Following Ullmann (1985), and on the premise that the reputation of a company is also built on its social and environmental performance, it can be expected that companies with a stronger reputation will present higher amounts of CSD. Companies that have a low reputation could either dismiss social and environmental disclosure without consequences (Adams et al.,1995; Neu et al., 1998) or use CSD to overstate social responsibility

activities in order to create a positive reputation (as shown by the many recent corporate scandals) or to ward off criticism from pressure groups. Conversely, a company with a strong reputation is expected to engage in dialogue with stakeholders by using voluntary disclosure practices that reflect their behaviour, as the reputational risk they incur in communicating false information would likely have wide and severe effects on their reputation.

Following Roberts and Dowling (2002), reputation is a complex organisational characteristic created over time during which a company engages with stakeholders and communicates corporate actions and outcomes in the three dimensions of sustainability. The assumption is that reputation reflects the extent to which stakeholders see the company as a good corporate citizen: a company with a strong reputation is expected to engage with stakeholders by disclosing information on its economic, social and environmental performance. Therefore, the following hypothesis is proposed:

H_1: *Companies with a stronger reputation present higher sustainability disclosures*

As will be explained in the next section, the above research hypothesis will be verified via an empirical investigation into the association between reputation and the extent of CSD.

3. Research Method

The research method used in the study involved the content analysis of corporate annual reports and other multimedia from the sample of companies represented.

3.1 Sample Design and Data Collection

The study examined the extent of disclosure of 57 companies in the Dow Jones Sustainability Index (DJSI) at 31 December 2003, and of a control group of companies matched on country, industry and size belonging to the Dow Jones Global Index (World1). Using the DJSI allowed an international comparison, since its components are worldwide. In particular, the differences or similarities between US, UK and other Continental European companies (which have historically different approaches to social responsibility) were analysed. Moreover, the index covers all economic sectors, thus enhancing the generalisation of results.

The DJSI selects companies according to their economic, social and environmental performance. These companies are identified as good corporate citizens with well-developed sustainability practices. In particular, the Dow Jones Sustainability World Index (DJSI World) tracks the performance of the top 10% of companies in the DowJones Global Index (World1) that lead the field in corporate sustainability. These companies are defined as excellent in the financial, social and environmental dimensions of a business, and are therefore deemed to be good corporate citizens by market and stakeholders (Knox, Maklan and French, 2005).

The methodology used for the DJSI provides a consistent framework for the qualification of a company with a strong reputation. The identification of sustainability leaders for the DJSI is based on the Corporate Sustainability Assessment of SAM Research. A defined set

of criteria and weightings is used to assess the opportunities and risks deriving from economic, environmental and social developments.

A major source of information is the SAM questionnaire, which is completed by companies participating in the annual review. Further sources include company and third party documents as well as personal contacts between the analysts and companies. An external assurance report by PricewaterhouseCoopers ensures that the corporate sustainability assessments are completed in accordance with the defined rules.

Once a company is selected as a member of the DJSI, it is monitored with regard to critical issues. The monitoring process comprises an assessment of a company's involvement in economic, environmental or social crises and compares its crisis management with its stated principles and policies. Corporate Sustainability Monitoring can lead to a company's exclusion from the DJSI, regardless of how well it has performed in the yearly assessment.

In order to sample companies included in this study, a stratified random procedure was used. With stratified random sampling, the population is first divided into a number of parts or strata according to some characteristic, chosen to be related to the major variables being studied. The strata should be mutually exclusive: every element in the population must be assigned to only one stratum. The strata should also be collectively exhaustive: no population element can be excluded. Then random or systematic sampling is applied within each stratum. This often improves the representativeness of the sample by reducing sampling error.

In this study, the regional index, which assembles companies from homogenous countries (Europe vs. USA), was defined as first-level stratum. The sample was then drawn using a two-step stratified procedure. Within each group, the listed companies were stratified according to economic sector and market capitalisation at 31 December 2003 (as a proxy for size). The industrial sectors are Basic Material, Consumer Cyclical, Consumer Non-Cyclical, Energy, Financial, Healthcare, Industrial, Technology, Telecommunications and Utilities.

The control group was drawn from the Dow Jones Global Index (DJGI) and was built up using companies that, for size, industry and stock exchange, matched those in the DJSI. DJSI companies for which no match was available (2) were excluded from the sample. Out of the sample of 78 DJSI companies and 78 DJGI companies, the companies (21) whose financial year-end is not 31 December were erased from the analysis, to assure comparability of the results, leaving a final sample of 57 DJSI companies and 57 matching DJGI companies[2].

3.2 Measurement of Variables

3.2.1 Dependent Variable – Corporate Social Disclosure

The extent of sustainability disclosure was determined using the content analysis method, a line of research widely adopted to ensure reliability and valid inference from narrative data in compliance with their context (Guthrie et al., 2004; Krippendorff, 2004; Guthrie and Abeysekera, 2006; Bozzolan et al., 2006). Content analysis is a method of codifying the

text (or content) of a piece of writing into various groups or categories depending on the selected criteria. Following coding, quantitative scales are derived to permit further analysis. In one form or another, this method has been widely adopted in previous social responsibility disclosure studies (Abbott and Monsen, 1979; Guthrie and Mathews, 1985; Guthrie and Parker, 1990; Hackston and Milne, 1996; Bozzolan et al., 2003; Guthrie et al., 2004; Guthrie and Abeysekera, 2006; Bozzolan et al., 2006). The application of the method consisted of different phases (Krippendorff, 2004; Weber, 1985): the choice of the framework used to classify information; the definition of the recording unit; the coding; and the assessment of the level of reliability achieved.

The reporting framework for the content analysis integrates the Global Reporting Initiative approach (2002) and that of Epstein and Birchard (2000)[3]. The framework is structured as a set of indicators and elements belonging to four categories of information: strategic, financial, environmental and social. For each of these categories, a disclosure index was created, allowing for an analysis of disclosure by information type. Table 1 shows the five disclosure indexes and provides a short description on each.

"take in Table 1"

"STRINF" (Strategic Information Index) is the disclosure index on background information of the company, such as management's objectives, business strategy and governance model, the competitive environment and the principal products and markets served. It counts for 42 disclosure items. "ECINF" (Financial Information Index) is the disclosure index on financial and operational information (52 disclosure items).

“ENVINF” (Environmental Information Index) is the disclosure index regarding information on environmental impacts of the company’s activities and comprises 35 items. “SOINF” (Social Information Index) is the disclosure index on social aspects of the company’s activities such as labour practices, human rights, product responsibility (49 items). “SUD” is the total disclosure index determined as the sum of the other disclosure indexes.

Each single sentence from the reports was chosen as the recording unit to overcome problems related to the use of words or portions of pages that add unnecessary unreliability. Thus, each sentence was matched with all 178 sustainability disclosure indicators and was coded as follows: a score of 0 for providing no information; a score of 1 if disclosing information. The amount of disclosure was measured by counting the frequency of sustainability indicators: the same sentence could disclose more than one indicator, while if the same information was repeated in the report, this information was only considered once.

An overall index was given to a company in relation to the total amount of information disclosed and, moreover, disclosure indexes were also calculated for each category of information. Only voluntary disclosure was measured. Information relating to sustainability that was reported only because accounting standards required disclosure of the item in the annual report was excluded from the data set.

A key issue with self-constructed disclosure measures is reliability. Three types of reliability have been identified in the content analysis literature (Krippendorff, 2004):

stability refers to the level to which a coding process is invariant over time; *reproducibility* deals with the assessment of coding errors when multiple coders are involved (inter-coder reliability); and *accuracy* compares the results of reliability obtained with a predefined standard.

To address inter-coders' reliability, the coding was conducted following a coordination phase where a set of coding rules had been prepared. Following this first phase, questionable points were discussed and new coding rules introduced either by being better specified or rewritten. The data collection was conducted by the author: a research assistant reviewed a sample of reports in order to verify reproducibility. Once an adequate level of reproducibility in the coding process had been obtained, the coding process began.

The content analysis was performed on the annual, social, environmental and sustainability reports of the companies (for year 2003), in order to gain all possible sustainability information disclosed by the companies. The notes to the financial statements were not included in the analysis. Research on disclosure mainly focused on disclosure in annual reports because they: 1. are the official public information documents; 2. are considered the most important source of a company's information by external users (Lang and Lundholm, 1993); and 3. represent the main information source in studies on corporate disclosure (Botosan, 1997; Guthrie and Parker, 1989; Newson and Deegan, 2002). Nevertheless, social and environmental reports are voluntary reports dedicated to the disclosure of social and environmental information and therefore they may contain both qualitative and quantitative information on relationships with all stakeholders (Mathews, 1993; Zadek et al., 1997; Adams, 2004). In a recent article, Gray (2006) radically states

that scholars have exhausted the analysis of annual report disclosures and should concentrate on more substantive data such as stand-alone reports. Such reports are indeed complementary and integrative of the annual reports (Guthrie and Boedker, 2006; Gray, 2006). Table 2 shows the different types of reports codified using the content analysis method.

"take in Table 2"

For the sample of 114 companies, 166 reports were analysed. Forty-nine percent of companies in the sample do not release voluntary reports and therefore all the information is contained in the annual report. Eighteen percent also release sustainability reports. Eleven companies out of 114 (10%) release a unique corporate report that they label "sustainability report". Environmental reports are not so common (6 companies out of 114), while social reports seem to be more widespread: 19 companies (16%) do make use of social reports as a media for communicating sustainability information.

3.2.2 Independent Variables

Reputation

As discussed before, the companies belonging to the DJSI have been identified as having well-developed sustainability reporting practices and are selected on the basis of their financial, social and environmental performance. As information about the reputation ranking of companies within and out of the DJSI was not available, it was decided that a categorical variable to analyse differences in the amount of disclosure between DJSI and

matched companies would be employed. This was measured by a dummy variable equal to 1 if the company belonged to the DJSI, and 0 otherwise.

3.2.3 Control Variables

Both the empirical and theoretical literature suggests several variables that explain CSD. The following section identifies size, industry, age, leverage and region of origin as relevant control variables for the analysis.

Corporate Characteristics

Corporate size has persistently been found to be significantly and positively associated with disclosure, suggesting that larger companies follow higher disclosures (Kelly, 1981; Trotman and Bradley, 1981; Cowen et al., 1987; Belkaoui and Karpik, 1989; Patten, 1991; 1992; Hackston and Milne, 1996). Arguments for a size-disclosure relationship are offered by legitimacy theory (Hackston and Milne, 1996): larger companies undertake more activities, have a greater impact on society and have more stakeholders who might be concerned with the social activities undertaken by the company. Ahmed and Courtis's (1999) meta-analysis also provides support for the political and agency theory arguments that larger companies are more likely to disclose more information. Positive accounting researchers (e.g. Watts and Zimmerman, 1990) have also found evidence of this relationship: disclosure helps manage political visibility and the potential resulting costs.

The nature of a company's industry potentially affects disclosure practice. Dierkes and Preston (1977) contend that companies whose economic activities modify the environment, such as natural resources companies (mining, forestry, oil and gas, etc.) are

more closely monitored for environmental performance than companies in other industries (Deegan and Gordon, 1996), and therefore are more likely to disclose information about their environmental impact. Consumer-oriented companies may exhibit greater concern about demonstrating to the community their social involvement, since it is likely to affect their corporate reputation and therefore influence sales (Cowen et al., 1987). On the other hand, Patten (1991) argues that industry – like size – influences political visibility and therefore leads disclosure to ward off undue pressure and criticism from social activists (Fry and Hock, 1976; Belkaoui and Karpik, 1989). Industry category is also cited as a significant factor for social and environmental disclosure. As early as the late 1970s Dierkes and Preston (1977) hypothesised that the environmental disclosures of companies involved in environmentally sensitive industries are higher. In particular, membership in environment-sensitive industries such those of the basic material sector has found to be relevant (Cowen et al., 1987; Patten, 1991; 1992; Roberts, 1992; Neu et al., 1998, Cormier and Gordon 2001).

Another factor that may influence the amount of social disclosure is the age of the company. Roberts (1992) hypothesised that reputation and history of involvement in social responsibility activities can become entrenched, and therefore raise the expectations of stakeholders. Indeed, he found a positive association between age and social disclosure, as did Haniffa and Cooke (2002).

Another driver of disclosure has been identified in leverage (Myers, 1977; Wallace et al., 1994). Jensen and Meckling (1976) argue that because highly leveraged companies incur more monitoring costs, they try to reduce these costs by disclosing more information.

Roberts (1992) tested the hypothesis that the greater the degree to which companies rely on debt financing, the greater the degree to which they are expected to respond to creditor expectations, but he found no association with social disclosure, nor did Wallace et al. (1994). On the other hand, Belkaoui and Karpik (1989) found a negative association between leverage and social disclosure. Eventually, Ahmed and Courtis (1999), in their meta-analysis, highlighted that companies with capitalisation structures characterised by a greater proportion on fixed interest securities relative to equity are significantly associated with the release of higher disclosures. The results by Ahmed and Courtis (1999) support the agency cost arguments that companies with higher debt finance have more managerial discretion to shift resources away from debt holders, increasing agency costs and therefore requiring companies to disclose more information.

Referencing legitimacy and agency theory, this study assumes that size, age and leverage are positively correlated to the disclosure of sustainability information. Moreover, it is assumed that there is an industry effect with respect to natural resources companies.

Region of origin

In explaining differences across countries, Adams (1999) highlights the importance of the ethical and environmental impacts of the industry and the political issues facing it, which have an impact on ethical behaviour. Gray et al.'s (1995) review of studies seems to indicate that the country in which the company reports affects the themes of social disclosure if not the quantity. Guthrie and Parker (1990) undertook a comparative international analysis of CSD practice in the US, the UK and Australia for the year 1983. They investigated disclosures related to environment, energy, human resources, products and community involvement, and found that CSD in Australia (measured by pages within

the annual report) was relatively low compared with the US and the UK. Various studies have examined variations in social and environmental disclosure across single countries (Adams, 1999; Adams et al., 1995; Adams and Kuasirikun, 2000; Andrew et al., 1989; Roberts, 1991). The extent of these differences in some studies, however, is somewhat difficult to determine because of the different characteristics (i.e. size and industry composition) of companies making up the sample from each country. Nonetheless, the role of factors such as legal origins and culture continue to be of interest to accounting researchers investigating variations in disclosure practices across national boundaries (Healy and Palepu, 2001).

So far, not many studies have explored the differences in CSD between Continental Europe, the UK and the US, which may be significant since Corporate Social Responsibility (CSR) models have developed differently in the US and in Europe. This can be explained by the fact that the US financial market-centered economic system has a stronger tradition of corporate philanthropy. In European 'social' capitalism, the concept of CSR has developed around the theme of workforce participation, both for the more permeating role of the State in economic activities and related welfare politics, and for the social partnership culture, in which reciprocal obligation represents the cardinal rule of the contract between society and institutions (Hutton, 2003). Rights to health and free education, to unemployment benefits and so on, are considered part of citizenship as well as political rights. According to this social-economic approach, companies serve the community. Mueller et al. (1994) observed that disclosure of non-financial information is better developed in Europe than in the US. Meek, Roberts and Gray (1995) found that

social disclosure is not significantly different between Continental European and British companies, both of which disclose more than US companies.

Following legitimacy theory, this study assumes that there is a country effect on the extent of disclosure. Therefore, country dummy variables were employed to verify such an effect in the model.

Table 3 shows the independent control variables representing the construct. All the measures are defined according to what has been employed in the previous literature.

"take in Table 3"

4. Findings

The empirical investigation employs descriptive statistics, univariate, correlation and multivariate analysis. In particular, OLS technique was deemed the most suitable methodology to test the hypothesis presented in the paper. This section is dedicated to the presentation of main findings.

4.1 Descriptive Statistics

Table 4 presents descriptive statistics for the independent variables. The average size of companies is about $6,500 million in terms of net sales (and $6,600 million in terms of market value). Companies in the sample are not highly leveraged (mean is 1.8, median is 0.7). Ten percent of the sample companies (around 11) are younger than 23 years, while on

average companies are relatively old (mean is 97.6, median is 93.5). This table also compares DJSI vs control companies (Panel B). The table shows descriptive statistics for companies belonging to the DJSI and the control group, respectively. DJSI companies present larger means in size (t-test at 1% significance level) and are generally older than the control group companies (t-test at 1% significance level). There is no mean difference regarding leverage between DJSI companies and the control group.

"take in Table 4"

4.2 Univariate Analysis

With regard to dependent variables, descriptive statistics of the disclosure indexes appear in Table 5. "SUD" is the total disclosure index; the mean is 49, which indicates that companies in the sample on average disclose 49 items (out of a highest possible score of 178). The median is 44 and the standard deviation is 25.8. "STRINF" is the disclosure index on background information on the company, such as management's objectives, business strategy and governance model, the competitive environment and the principal products and markets served. The mean score is 14 (out of a highest possible score of 42). The median is 18 and the standard deviation is equal to 8.6. "ECINF" is the disclosure index on financial and operational information. The mean (median) score is 14.8 (15). The standard deviation is 5.2, being the less dispersed independent variable. "ENVINF" is the disclosure index regarding information on environmental impacts of the company's activities: the mean (median) score is 6.2 (4.5) out of a highest possible score of 35. The standard deviation is 6.7. "SOINF" is the disclosure index on social aspects of the company's activities such has labour practices, human rights and product responsibility.

The maximum score possible is 49; the mean (median) value obtained is 9 (7). The standard deviation is 8.5.

"take in Table 5"

With regard to the univariate analysis, the main findings can be summarised as follows. All means of the disclosure indexes, with the exception of financial information, are significantly higher (t-test at 1% significance level) for DJSI companies. The highest total score is 128 (compared to a highest possible score of 178), and is performed by a US company belonging to the control sample, while the highest total disclosure index score of DJSI companies is performed by a European company.

4.3 Correlation Analysis

In order to verify whether an association exists between the disclosure indexes and the independent variables, a correlation analysis was performed. Such analysis also allows the identification of multicollinearity, which may lead to an underestimation of the coefficients of the regression model.

"take in Table 6"

Table 6 presents the Pearson correlations matrix between the dependent and independent variables. Consistent with prior research, SUD is positive correlated with size (0.32) and industry (0.37) at a 1% significance level. SUD is also weakly correlated with leverage

(10% significance level) and the sign of the correlation coefficient (0.18) is positive. The total disclosure index is also positively correlated with reputation (membership to the DJSI) (0.37) at a 1% significance level.

With regard to the other disclosure indexes, all are strongly correlated to size (SIZE) and sector (BSC), while none is correlated to AGE. The financial disclosure index (ECINF) is positively correlated to leverage (LEV), but weakly correlated to reputation (DJSI).

The correlation analysis shows an association between the total disclosure index and two control variables: size and industry. Moreover, it provides evidence of a relationship between reputation and CSD, as there is a positive correlation between DSJI membership and the disclosure index (SUD).

Table 6 results also indicate the presence of multicollinearity. There are six pair-wise correlations of independent variables: two are significant at the $p = 0.01$ level, one is at the $p = 0.05$ level and three are at the $p = 0.10$ level. This could adversely affect the interpretation of the regression coefficients to be calculated. When independent variables provide redundant information relative to the dependent variable, the individual coefficient's significance levels are usually underestimated. In some cases, the sign of the coefficient versus the zero-order relationship is reversed. Therefore, a test was run in order to verify whether multicollinearity is a problem of the model.

4.4 Multivariate Analysis

Despite a company with strong reputation is expected to have better disclosure policies and practices, CSD can also improve the reputation of a company. Reputation is thus both an independent and a dependent variable, therefore causing problems of endogeneity in the multivariate analysis. In the multivariate analysis in this study, it is assumed that a company with a strong reputation is expected to have higher disclosure policies and practices.

Such a claim is theoretically justified by discussing the conceptual difference between legitimacy and reputation and referring to Friedman and Miles (2001) who state that reputation can be conceived of as a driver of CSD. Empirically, this problem was solved in the study by leaving a temporal lag between the selection of companies within the reputation index and the disclosures in the corporate reports. As companies in the DJSI are constantly monitored, the sample was selected from the Index at the end of 2003, when the annual and other corporate reports of were not available. As disclosures about the sustainability performance of companies for year 2003 were not already available, they could not be used for the assessment of their sustainability performance by the SAM group and should not have affected inclusion in the index.

Therefore, we can specify the following OLS regression model:

$$Disclosure\ index = \alpha_0 + \alpha_1 DJSI + \alpha_2 COUNTRY + \alpha_3 SIZE + \alpha_4 BSC + \alpha_5 LEV + \alpha_6 AGE + \varepsilon$$

Where:

Disclosure Index = Total, Strategic, Economic, Environmental and Social indexes
DJSI = dummy variable equals 1 if company belongs to the DJSI; 0 otherwise
COUNTRY = dummy variable equals 1 if company is European, 0 if American
SIZE = company size, measured as Logarithm of sales
BSC = dummy variable equals 1 if company belongs to the Basic Material Sector; 0 otherwise
LEV = leverage, measured as Total Debt / Shareholders Equity
AGE = company age

Table 7 provides the results for the multivariate regression models using the various disclosure indexes.

With regard to the regression which employs the total disclosure index, the adjusted R^2 is 0.394 and the model appears highly significant (F = 6.26, p = 0.000). The estimated coefficient for DJSI is also different from zero at a 1% significance level, confirming the hypothesis that well-reputed companies disclose more sustainability information. On average, DJSI companies disclose 11.8 items more than the control group companies.

The regression coefficient for the control variables SIZE, BSC and LEV are significant and have the expected signs. In other words, the decision to disclose social information is found to be statistically significant with size, sensitive industries and high leverage. The estimated coefficient for age is not significant.

Results show a country effect on SUD (estimated coefficients for UK, France, the Netherlands, Spain and Denmark are significant and positive). The estimated coefficient of the intercept, the benchmark for US companies, is also noteworthy. As the sign of this coefficient is negative, it can be inferred that US companies have lower disclosure rates.

“take in Table 7”

In order to ascertain whether relevant multicollinearity is affecting the results, the Variance Inflator Factor (VIF) was tested. The largest value among all independent variables is often used as an indicator of the severity of multicollinearity (Neter et al., 1996). A VIF value in excess of 10 is frequently an indication that multicollinearity may be unduly influencing the least square estimate. In this study, the largest VIF is equal to 1.68, so multicollinearity among the predictor variables is not a problem.

Table 7 also reports regression results for each of the four information sub-indexes. The results are statistically significant by information type. However, the amount of explained variation in disclosure ranges from 16% in the case of financial information to 40% in the case of strategic general information, with environmental and social information in between, at 34.7% and 34.9% respectively. Looking at Table 7, the same independent variables are not consistently significant across information types. In other words, different factors are important in explaining the voluntary disclosures of different types of information.

Membership of the DJSI appears to be a determinant in the amount of strategic, environmental and social disclosure, but it is not significant for financial information. Companies with a strong reputation seem to be more sensitive toward social accountability issues.

Company size and industry are the two most important variables explaining the voluntary disclosure of this sample of companies. Consistent with previous research, larger companies disclose significantly more information than smaller ones. The size effect holds for all categories of information, at the same significance level (1%) except for environmental disclosure (significant at 5%). In addition, industry appears to be influential in all cases, at a 1% significance level for all types of information. Companies in sensitive industries, such as those of the basic material sector, on average disclose significantly more information than companies in other industries, reflecting a greater sensitivity toward environmental issues. Indeed, five out of eight companies in this economic sector are in the 95th percentile.

Leverage is statistically significant (even if the value of the predicted coefficient is very close to zero) for financial and strategic information and the positive sign support the agency costs argument, that companies with higher debt finance will disclosure more information (Ahmed and Courtis, 1999). There is weak evidence for an association between leverage and social disclosure as the estimated coefficient is significant at 10%.

The other control variable – age – does not appear to be significant in explaining the extent of strategic, financial, environmental and social information for the sample of companies in this study.

With respect to country controls, there are some variations as well. All country dummies except for Germany are significant (at different levels) in the strategic disclosure index regression and all the signs of the estimated coefficients are positive. With regard to

financial disclosure, the country effect for Danish and Spanish companies is weakly significant. The coefficient of the dummy variable UK is significant at a 5% level for environmental information and at a 1% level for social information. The estimated coefficient for French companies is associated with environmental information (10% significance level) and social information (5% significance level). Furthermore, in the regression analysis with social disclosure as an independent the estimated coefficients for Denmark, The Netherlands, Spain and the UK are also significant.

The coefficient of the intercept is significant (and negative) for all regression models except for financial disclosure, hinting that US companies do present a lower amount of each type of information. From the results, it can be drawn that, in general, European companies provide significantly more strategic, environmental and social information than American companies do. This is consistent with previous studies (Meek et al., 1995) which have found that the voluntary disclosure of non-financial information appears to be a particularly European phenomenon, so that both UK and Continental European companies provide more information than American companies do. Furthermore, a simple mean comparison test and a one-way analysis of variance was performed to verify whether there was a significant difference in the amounts of disclosure between UK and Continental European companies. However, findings show that there is no difference in disclosure means between UK and Continental European companies.

5. Conclusions and Discussion

If, as Roberts and Dowling (2002) state, reputation is a complex organisational characteristic created over time, then reputation reflects the extent to which a company

engages with stakeholders, by disclosing information on its performance in the three dimensions of sustainability. Following Friedman and Miles (2001), this study conceives reputation as a determinant of CSD, and it develops and empirically tests a descriptive model on corporate sustainability disclosure in terms of reputation, after controlling for other relevant variables.

The hypothesis aimed at verifying the relationship between disclosure and reputation is confirmed. The measure of reputation, membership to the DJSI, is significantly associated with the amount of CSD. Such a finding is relevant as it provides empirical evidence of other internal contextual factors and characteristics, besides those traditionally explored in the literature, which affect the extent of CSD. From the results, it can be stated that companies with a strong reputation provide to stakeholders a significantly higher amount of CSD, most likely in order to preserve their reputation and maintain their legitimacy to operate.

The empirical model also confirmed a difference in the extent of disclosure between European and American companies. In general, European companies have higher disclosures. The differences in CSD across different countries depend on ethical, social and environmental impacts and the political issues facing the company and its behaviour. The results of this study agree with previous research, which has highlighted variation in CSR disclosure according to the country of origin (Adams, 1999; Adams et al., 1995; Andrew et al., 1989; Roberts, 1991; Guthrie and Parker, 1989). This study contributes to this field of research by exploring the difference in CSD between different countries in Europe and the USA. While American companies have developed a tradition of corporate

philanthropy following the classical free market view, European companies have experienced a stronger role of the State and its welfare politics, and have therefore dealt more with the theme of workforce participation. Moreover, the socio-economic approach is more widespread in Europe than it is in the USA. According to this approach, companies serve the community, and their aim goes further than creating economic value, as their role is bound in society and in civic systems. As the objects of sustainability are various and aim for different goals, the disclosure also presents different amounts of information. It is interesting to note that the UK, despite being considered very similar to the USA as an 'Anglo-Saxon' culture, is one of the relevant countries with a higher extent of disclosure.

The results also indicate some differences in the factors explaining CSD by information type. With reference to financial information, the region of origin or the reputation of the company appear to be significant determinants of disclosure, but results support the agency cost arguments that companies with higher leverage disclose more information. Nevertheless, strategic, social and environmental disclosure is associated with reputation, that is, companies with strong reputations do disclosure higher amounts of non-financial information.

Finally, this study provided empirical support in asserting that a company's size affects the amount of CSD as well as membership to particularly sensitive industries. Arguments for size-disclosure relationship come from legitimacy theory (larger companies are involved in more activities and therefore have a greater impact on society) and agency theory (larger companies are more likely to disclose more information).

In summary, this study investigated a descriptive model of sustainability disclosure in terms of reputation. The results suggest that the disclosure of sustainability information with regard to strategic, financial, social and environmental factors appear to be higher for (1) companies with a strong reputation; (2) European companies; (3) companies belonging to sensitive industries, such as those of the basic material sector; and (4) larger companies.

Further research could consider the quality (content) of disclosure, rather than the amount, in order to better disentangle the relationship between reputation and disclosure, in terms of positive or negative items of information and therefore different strategies of preservation or building of reputation. Moreover, further analysis could verify whether companies with a strong reputation use multimedia to communicate to stakeholders.

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Tables

Table 1 Disclosure Indexes

Disclosure index	Type of information	Description of items
STRINF	Strategic	Background information on the company, management's objectives, business strategy and governance model, competitive environment and principal products and markets served
ECINF	Economic	Financial and operational information and data
ENVINF	Environmental	Environmental impacts of companies' activities, with focus on: materials, energy, water, biodiversity, emissions
SOINF	Social	Labour practices, human rights, health and safety, product responsibility
SUD	Sustainability	Sum of the above disclosure indexes

Table 2 Type of Reports Analysed

Type of reports	No. of companies	Total reports analysed
Annual Report and other type of report	2	4
Annual Report only	56	56
Environmental and Annual Report	4	8
Environmental, Social and Annual Report	2	6
Social and Annual Report	15	30
Social, Annual Report and other type of report	2	6
Sustainability Report only	11	11
Sustainability and Annual Report	21	42
Sustainability, Annual Report and other type of report	1	3
Total	114	166

Table 3 Constructs of the Control Variables

Explanatory variables	*Measurement*
Size (SIZE)	Natural logarithm of net sales
Industry type (BSC)	Dummy variable equal to 1 if company belongs to the basic material sector, 0 otherwise
Leverage (LEV)	Total debt / Shareholders equity
Age (AGE)	Company age
Country of origin (COUNTRY)	Dummy variable referable to Denmark, Finland, France, Germany, Netherlands, Spain, Sweden, Switzerland, United Kingdom

Table 4 Descriptive Statistics – Independent Variables

Panel A. All companies						
	SIZE ($millions)		AGE		LEV	
Variables	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
All companies	6,467.14	1.71	97.6	62.64	1.842	3.939

Panel B. DJSI vs. control group						
	SIZE ($millions)		AGE		LEV	
Variables	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
All DJSI companies (n=57)	10,694.55	1.231	108.544	67.50	1.858	3.308
Control Group (n = 57)	3,891.26	1.97	86.67	55.85	0.182	4.513

SIZE = company size, measured as logarithm of sales
LEV = company leverage, measured as total debts/shareholders equity
AGE = company age

Table 5 Descriptive Statistics - Disclosure Indexes

	All companies		All DJSI companies (n=57)		Control Group (n = 57)	
Disclosures	**Mean**	**Std Dev**	**Mean**	**Std Dev**	**Mean**	**Std Dev**
STRINF	19,088	8,662	22,0702	8,92	16,1053	7,33067
ECINF	14,851	5,284	15,7895	5,79636	13,9123	4,57587
ENVINF	6,246	6,721	8,05263	6,38755	4,4386	6,61173
SOINF	9	8,505	11,2807	7,97934	6,7193	8,46791
SUD	49,184	25,852	57,193	25,1705	41,1754	24,1765

SUD = sustainability disclosure index; STRINF = company's strategic information disclosure index; ECINF = company's financial and operational information disclosure index; ENVINF = company's environmental information disclosure index; SOINF = company's social information disclosure index.

Table 6 Pearson Correlation – Sig (2-tailed) N=114

Variables	LEV	SIZE	AGE	DJSI	BSC	SUD	STRINF	ECINF	ENVINF	SOINF
LEV	1									
SIZE	**0.2469*** **	1								
AGE	**0.1802***	**0.1560***	1							
DJSI	0.0042	**0.2964*** **	**0.1754***	1						
BSC	-0.0445	-0.0484	**0.1922** **	0.0000	1					
SUD	**0.1789***	**0.3214*** **	0.1192	**0.3112*** **	**0.3676*** **	1				
STRINF	**0.1759***	**0.2698*** **	0.1036	**0.3458*** **	**0.2640*** **	**0.9200*** **	1			
ECINF	**0.2558*** **	**0.3021*** **	0.1024	**0.1784***	**0.2102** **	**0.7433*** **	**0.6005*** **	1		
ENVINF	0.0652	**0.2303** **	0.1424	**0.2700*** **	**0.5133*** **	**0.8889*** **	**0.7584*** **	**0.5156*** **	1	
SOINF	0.1542	**0.3325*** **	0.0808	**0.2693*** **	**0.3123*** **	**0.9384*** **	**0.8056*** **	**0.6192*** **	**0,8189*** **	1

*** Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

LEV= company leverage, measured as total debts/shareholders equity; SIZE = company size, measured as logarithm of sales; AGE= company age; DJSI = dummy variable equals to 1 if company belongs to the DowJones Sustainability Index, 0 otherwise; BSC = dummy variable equals to 1 if company belongs to the Basic Material Sector, 0 otherwise; SUD = sustainability disclosure index; STRINF = company's strategic information disclosure index; ECINF = company's financial and operational information disclosure index; ENVINF = company's environmental information disclosure index; SOINF = company's social information disclosure index.

Table 7 Multiple Regressions using Different Disclosure Indexes as Dependent Variables

	Sustainability Information	Strategic information	Financial Information	Environmental information	Social information
Predictor Variables	Coefficient value *(p value)*	Coefficient value *(p value)*	Coefficient value *(p value)*	Coefficient value *(p value)*	Coefficient value *(p value)*
DJSI	**11.85**	**4.79**	1.089	**2.84**	**3.129**
	*0.004***	*0.001****	*0.265*	*0.009****	*0.025***
SIZE	**5.08**	**1.53**	**0.868**	**0.929**	**1.756**
	*0.000***	*0.001****	*0.009****	*0.013***	*0.000****
BSC	**44.16**	**11.09**	**5.259**	**14.16**	**13.652**
	*0.000***	*0.000****	*0.008****	*0.000****	*0.000****
LEV	**0.01**	**0.004**	**0.003**	0.001	**0.003**
	*0.021**	*0.011***	*0.012***	*0.358*	*0.073* [x]
AGE	-0.05	-0.02	-0.005	-0.008	-0.016
	0.162	*0.105*	*0.568*	*0.388*	*0.155*
DENMARK	**22.35**	**7.182**	**4.916**	2.59	**7.66**
	*0.043**	*0.050***	*0.063**	*0.381*	*0.042***
FINLAND	14.68	**8.205**	1.9	3.64	0.931
	0.199	*0.033***	*0.488*	*0.238*	*0.81*
FRANCE	**24.34**	**9.317**	2.63	**3.585**	**8.809**
	*0.003***	*0.001****	*0.173*	*0.099**	*0.002****
GERMANY	7.72	3.367	1.202	0.829	2.322
	0.236	*0.123*	*0.442*	*0.637*	*0.296*
NETHERLANDS	**23.32**	**10.201**	2.237	2.654	**8.23**
	*0.002***	*0.000****	*0.205*	*0.181*	*0.001****
SPAIN	**38.62**	**13.4**	**6.635**	6.244	**12.341**
	*0.010***	*0.007****	*0.063**	*0.118*	*0.015***
SWEDEN	15.14	**7.264**	3.474	0.574	3.831
	0.173	*0.050***	*0.193*	*0.848*	*0.311*
SWITZERLAND	11.86	**7.817**	-1.344	2.954	2.434
	0.274	*0.032***	*0.605*	*0.313*	*0.51*
UNITED KINGDOM	**21.73**	**9.557**	1.863	**3.429**	**6.878**
	*0.000***	*0.000****	*0.165*	*0.024***	*0.000****
Intercept	**-85.74**	**-23.55**	-6.799	**-18.572**	**-36.362**
	*0.007***	*0.024***	*0.353*	*0.028***	*0.001****
Adjusted R2 =	0.394	0.399	0.163	0.347	0.349
F-statistic =	6.26	6.37	2.57	5.28	5.33
p =	0.000	0.000	0.003	0.000	0.000

(*) Significant at α = 0.10
(**) Significant at α = 0.05
(***) Significant at α = 0.01

DJSI = dummy variable equals to 1 if company belongs to the DowJones Sustainability Index, 0 otherwise; SIZE = company size, measured as logarithm of sales; BSC = dummy variable equals to 1 if company belongs to the Basic Material Sector, 0 otherwise; LEV = company leverage, measured as total

debts/shareholders equity; AGE= company age; COUNTRY DUMMIES = equal to 1 when company is from that country, 0 otherwise

[1] In the remainder of the paper, we will use the terms sustainability and CSR indifferently.

[2] Full details are available from the author at request.

[3] The disclosure framework is available from the author on request.