DISTINCTIVE FEATURES ON ENVIRONMENTALLY (NON-) EFFICIENT COMPANIES

Céline GAINET
Allocataire recherche GREGOR - Doctorante en Sciences de Gestion
Ecole Doctorale des Sciences de la Décision IAE Paris – HEC – ENSAM
Celine.gainet@malix.univ-paris1.fr

Heidi WECHTLER
Ingénieure d'Etudes Statistiques GREGOR
IAE Paris – Université Paris 1 Panthéon – Sorbonne

DISTINCTIVE FEATURES ON ENVIRONMENTALLY (NON-) EFFICIENT COMPANIES

Abstract: This research overtakes the conceptual problems and the CSR measure questions to understand what makes the societally efficient companies different. It is based on the assumption that CSR is a parameter through many others that are taken into account to analyse a company on an economical point of view. Then, the hypothesis is made that it is possible to bring out a global profile of the more societally - and of the less societally - efficient companies. This paper discusses the link between corporate environmental performance and the main outlines of the more environmentally efficient companies compared to the less efficient environmentally companies over the European market. Three distinctive groups of companies were created according to their environmental efficiency level. These groups were analysed through 24 variables concerning privately versus publicly held shares, the size of companies, their capital structure, their profitability, their growth potential, their capital expenditures and their available cash. Complete information on the 24 variables was found for 393 companies on which a factor analysis and a cluster analysis were conducted. From this study, it is demonstrated that there are global profiles of the more environmentally efficient companies and of the less societally efficient companies. One of the most unexpected result underlines that the most efficient companies have more publicly held shares (versus privately held shares) compared to the other companies. Results analysis emphasizes differences resulting of the various regulation environments and then governance perspectives within Europe.

Key-words: Corporate environmental responsibility, European panorama, financial perspective.

Résumé : L'objectif de cet article est de mettre en évidence les grandes différences économiques entre les entreprises sociétalement responsables. Cet article se fonde sur l'hypothèse que, lors de l'analyse économique d'une entreprise, la RSE est une donnée parmi les autres. Ainsi, le postulat a été fait qu'il est possible d'appréhender un profil général des entreprises les plus et les moins efficaces sociétalement.
Cette communication analyse les relations entre la performance environnementale des entreprises européennes et certaines de leurs caractéristiques. Trois groupes distincts ont ainsi été créés en fonction du degré d'efficacité environnementale de chaque entreprise. Chaque groupe a été analysé à partir de 24 variables. Des informations exhaustives ont été relevées pour 393 entreprises pour lesquelles une analyse factorielle et une analyse de groupe ont été menées. Sur la base de cette analyse, des profils d'entreprises très efficaces sur le plan environnemental, ou au contraire inefficaces, peuvent être caractérisés. En particulier, cette étude montre que les entreprises les plus efficaces sur le plan environnemental font moins appel à l'épargne publique que les autres entreprises. L'importance des multiples environnements réglementaires et des différentes perspectives de gouvernance au sein de l'Europe sur la performance environnementale est également mise en évidence.

Mots-clés : Responsabilité environnementale des entreprises, Panorama européen, perspective financière.

Introduction

For half a century of systematic reasoning about a conceptual framework for corporate social responsibility, fundamental questions have been aired and debated. How can CSR be conceptualized? How general or particular should it be? How can it be measured? And how can this concept be linked to financial performance? This research overtakes the conceptual problems and the CSR measure questions to understand what makes the societally efficient companies different. It is based on the assumption that CSR is a parameter through many others that are taken into account to analyse a company on an economical point of view. Then, the hypothesis is made that it is possible to bring out a global profile of the more societally - and of the less societally - efficient companies.
This paper discusses the link between corporate environmental performance and the main outlines of the more environmentally efficient companies compared to the less efficient environmentally companies over the European market.

Based on the assumption that the very nature of CSR is directly link with cultural and regulatory environment of companies (Matten & Moon, 2007), it was chosen to focus this study on the European market that has quite a distinct historical, philosophical, and religious legacy compared to the one of the United States (Crane & Matten, 2007). In fact, it can be noticed a burgeoning academic literature on the US market and a significant lack of researches that focus on the European context. It could be reasonably thought that empirical evidence from Europe does not have any a priori reasons to be similar to North American empirical evidence, in particular when we look at the differences in terms of governance approaches between continental Europe and the US (Shleifer & Vishny, 1997; La Porta & al., 1998; La Porta, Lopez-de-Silanes & Shleifer, 1999; Pagano & Volpin, 2000; Matten & Moon, 2005). Hence, the assumption could be made that corporate social performance is embedded in national business and legal systems. Based on the classification made La Porta & al. (1998), we choose to group - within Europe - Common-Law countries, Civil-Law countries, German and Scandinavian countries.

In this perspective, the following research question is investigated: are there fundamental differences between the best-in-class companies in terms of environmental performance compared to the less environmentally efficient companies? The aim of this study is to sort out a global profile of the more environmentally and the less environmentally efficient European companies in a financial perspective. One contribution of this paper is to provide some clarification on who are

the more and the less efficient companies in Europe mainly in terms of capital structure, size, growth potential, available cash, profitability, shares profitability, privately (versus publicly) held shares, capital expenditures.

Corporate environmental performance is measured through a construct that captures the major environmental behaviours of companies. The research is based on an initial sample of 896 companies from 20 different European countries from various sectors, and was done over the year 2004. Three distinctive groups were created according to their environmental efficiency level. The first group is made up with the 30% environmentally best companies. The third group with the 30% less environmentally efficient companies. These groups were analysed through 24 variables concerning the size of companies, their growth potential, their available cash, their profitability, their shares profitability, their capital structure, their privately (versus publicly) held shares, their investment (capital expenditures). Complete information on the 24 variables was only found for 393 companies on which the factor analysis and the cluster analysis were conducted.

Results analysis emphasizes differences resulting of the various regulation environments and then governance perspectives within Europe.

Literature review

Definition of environmental performance

Although many have attempted to define CSR over the years, the concept could still be considered as vague and ambiguous. CSR fall into a spectrum with Friedman's conception of CSR at one extremity and Brummer's conception at the other one. As defined by Allouche, Huault and Schmidt (2004), there are three main positions in this "managerial continuum". The first one would be the neo-classical model with a minimalist view of what CSR is. Hence, for Friedman (1970), "the social responsibility of business is to make a profit". The intermediate position is notably represented by the mainstream of stakeholder theories. Freeman (1984) considers that CSR practices should be directed toward a wider group than the one of shareholders and would nonetheless permit to enhance company profitability and thus shareholders' wealth. The third position corresponds to the second extremity with a social voluntarism model. Brummer (1991) is supporting that companies should actively act in favour of social projects even if they do not maximize shareholders' wealth. These CSR conceptualization attempts have led us today to a non-consensus that is one of the major problems when it comes to operationalize it.

It was chosen in this study to adopt a view of CSR corresponding to the intermediate position that could be called the encompassing view. In this perspective, CSR encompasses the economic, legal, ethical and philanthropic expectations that society has of organizations at a given point in time (Carroll, 1979; Carroll & Schwartz, 2003). Hence, in an environmental point of view, companies would have to balance their economic performance with their level of environmental risk at the present time and in the future. The measure of environmental performance taken into account in this study is then consistent with the analysis that is made with it.

A European perspective

Crane & Matten (2007) underlined that Europe has quite a distinct historical, philosophical, and religious legacy, giving rise to a different approach to the study, as well as the practice, of business ethics in Europe. Europe is considered here on the basis of its common intellectual and cultural heritage (Morin, 1987). In this logic, Europe would be probably constituted of the countries in the European Union. As the empirical analysis is run on 2004, it was chosen to focus on the countries that were part of the European Union in January 2004 (15 countries). Two countries – members of the EFTA – were added because of the strong links they have with the previous countries: Switzerland and Norway.

The choice to focus on Europe in this study was motivated by these distinctive European features as well as the empirical observation that CSR has gained unprecedented momentum in recent years. Cultural and legal issues have a direct impact on corporate environmental responsibility considerations. For instance, the social democracies (mostly countries from the continental Europe) are "nations committed to private property but whose governments play a large role in the economy, emphasize distributional considerations, and favour employees over capital-owners when the two conflict" (Roe, 2000). This co-existence of different governance systems that have been emphasized by Caby and Hirigoyen (2005), lead to a large presupposition that the characteristics of the most and the less environmentally efficient companies will not be the same from one country to another.

By focusing on Europe, we will be giving the opportunity to compare our results with studies done on the US. In depth-analysis comparing European countries should be done too. In fact, Europe remains an heterogeneous entity in terms of economic conditions, business activities, legal issues, and even cultural legacies. According to La Porta & al. (1998), in Europe, distinctions could be made between common law countries (Great Britain, Ireland), civil law countries with French origin (France, Belgium, Greece, Spain, Italy, Portugal, Netherlands), German countries (Austria,

Deutschland, Switzerland), and Scandinavian countries (Finland, Denmark, Norway, Sweden). Companies will be grouped according to this typology in the following study (see figure 1).

Characteristics identified

A certain number of characteristics allowing the distinction between the more and the less environmentally efficient companies have been identified (Amato and Amato, 2006). The main one is probably firm size (Jonhson, 1966; Burlingame and Frishkoff, 1996). While studying corporate giving, Atkinson and Galaskiewicz (1988), Boastsman and Gutpa (1996) and Buckholtz (1999) concluded that large firms tend to take more into consideration corporate social responsibility than the small ones. The hypothesis is made that similar results will be found concerning the environmental responsibility of European companies. Because larger companies tend to be more visible, they also tend to be more careful about their environmental impact.

Hypothesis 1: The more environmentally efficient companies are bigger than the less environmentally efficient companies.

To proxy for potential growth rate, the variables 'book-to-market' and 'intangibles' were chosen. The book-to-market ratio is a future oriented measurement since the market is expected to discount future growth opportunities. Hence, firms with higher book-to-market ratios are named 'value firms' whereas lower book-to-market ratios are characteristic of 'growth firms'. Intangibles are defined as other assets not having a physical existence. Their value lies in their expected future return.

According to Venanzi & Finanza (2006), a high growth rate improve a firm's image and market appreciation, leaving the pursuit of corporate social responsible goals negligible. Hence, growing companies would focus on financial performance whereas environmental performance would become a negligible factor to value the company.

Hypothesis 2: The less environmentally efficient companies are more growth potential than the more environmentally efficient companies.

The slack resource view of social responsibility argues that companies commit themselves to socially responsible behavior when slack resources allow it (McGuire and al., 1988; Ulmann, 1985; Roberts, 1992). Extending the slack resources hypothesis to corporate environmental responsibility, available cash should not be equivalent in environmentally efficient companies compared to less environmentally efficient companies.

Hypothesis 3: The more environmentally efficient companies have more available cash than the less environmentally efficient companies.

In the slack resource view, McGuire and al. (1988) and Waddock and Graves (1997) found strong relationships between corporate social responsibility and financial performance. Slack resource theory suggests a link between profitability and corporate environmental responsibility.
Hypothesis 4: The more environmentally efficient companies are more profitable in terms of accounting results than the less environmentally efficient companies.
Hypothesis 5: The more environmentally efficient companies are more profitable for shareholders than less environmentally efficient companies.

Even if the major part of the literature focuses on the role of public shareholders to improve corporate social responsibility, it generally neglects the potential impact of the credit channel and closely held shares on companies' non-financial policies and performance. Closely held shares are shares held by insiders, which means shareholders that could have an impact on companies' policy. On the role of the structure of capital (that is to say on publicly versus privately owned companies and on the weight of equity compared to weight of debt), two opposite positions could be defended.

a. On the basis of three main arguments, Scholtens (2006) asserts that public stock market would have only a weak link with corporate social performance. Firstly, public stock market hardly provides new finance to companies for helping them investing in environmental projects. Secondly, these shareholders would not feel responsible for the environmental policies of companies in which they invest since their liability is limited and share ownership is often widely dispersed. Thirdly, the short-term approach of the market cannot permit to evaluate and to regulate companies' long term responsibilities.
In contrast, banks and venture capitalists have the opportunity to investigate companies' environmental policy in which they want to invest. Supporting this view, Goss & Roberts (2006) found that companies with the worst social responsibility scores pay higher loan spreads.
Hypothesis 6: The most environmentally efficient companies are mostly held by long term debt whereas the less environmentally efficient companies are mostly held by equity.
Hypothesis 7: The most environmentally efficient companies are mostly held by closely held shares compared to the less environmentally efficient companies.

b. On the contrary, private capital and bank credit could be considered as more opaque than financing via the market (Boot & Thakor, 1997) and as a mean allowing reducing environmental disclosure and companies' environmental responsibilities. Furthermore, bank debt is also known for its role in limiting free cash flow and therefore hemming in the ability of managers to invest (Lang et al., 1995). It is possible, then, that quite apart from liquidity constraints, investments in corporate social issues is lower for forms with relatively high levels of bank debt.

Hypothesis 6bis: The most environmentally efficient companies are mostly held by equity whereas the less environmentally efficient companies are mostly held by long term debt.

Hypothesis 7bis: The most environmentally efficient companies are mostly held by publicly held shares compared to the less environmentally efficient companies.

Methodology and data

Corporate environmental performance is measured through a construct that captures the major environmental behaviours of companies. Epistemological and ontological critics were pointed out by Margolis & Walsh (2001). In response to the ontological critic that drew attention to CSR measures and to all the difficulties it leads to, this research only addresses the environmental issue (the social issue will be developed in further researches). Most studies measure environmental performance through one dimension only. To proxy for corporate environmental performance in this study, scoring data were graciously given by a socially responsible investment advisory firm. Even if this does not evade all the problems that measures raise, the way these measures are constructed takes into account more than sixty dimensions and, in this sense, seems to give a more accurate image of reality than measures based only on a single parameter. To the epistemological question, corporate environmental performance is analysed trough a comparison between companies. In fact, one could argue that when a company invests more in ethical consideration that its peers (companies in the same sector for instance), it is not certain that this company is socially responsible, but, at least, it is sure that this company is more socially responsible than the others. In short, this research is based on a best-in-class versus worst-in-class approach.

The scores given by the socially responsible investment advisory firm are built on the economic value a company adds (e.g. by producing products and delivering services) relative to the waste it generates when creating that value. The main benefits of these scores are their completeness. Using about twenty information sources, both quantitative and qualitative in nature, the socially

responsible investment advisory firm's analysts evaluate a company relative to its industry peers via an analytical matrix. Companies are evaluated along approximately sixty dimensions, which jointly constitute the final rating. For each of these factors, each company receives a score between one and ten. Because these variables are not considered equally important in the overall assessment, each factor is weighted differently. The final numerical rating assigned to a company is converted into a relative score based on the total spread of scores in the sector to which the company belongs. The socially responsible investment advisory firm defines five main sectors in terms of industrial intensity that go from services companies (sector intensity 1) to heavy industries (sector intensity 5). Criteria can be grouped into five broad categories, which address five fundamental types of environmental factors: historical liabilities (risk resulting from previous actions); operating risk (risk exposure from recent events); sustainability and eco-efficiency risk (future risks initiated by the weakening of the company's material sources of long-term profitability and competitiveness); managerial risk efficiency (ability to handle environmental risk successfully); and environmentally related strategic profit opportunities (business opportunities available to the company relative to industry peers).

The research is based on an initial sample of 896 companies from 20 different European countries and from various sectors and was done over the year 2004. The database given by a socially responsible investment advisory firm was used to compare environmentally efficient companies to less environmentally efficient companies. In order to create three groups, the companies were ranked according to their environmental scores going from 0 to 2000. Controlling for industries bias, our final sample (composed of 393 companies) was roughly divided by three: the 'environmental leader' group (composed of 116 companies), the 'in the environmental average' group (composed of 138 companies), and the 'environmental lagged behind' group (composed of 138 companies).

These groups were analysed through 24 variables concerning companies' size, growth potential, available cash, profitability, shares profitability, capital structure, privately (versus publicly) held shares, investment (capital expenditures). Based on the assumption that economic and legal systems may have an impact on corporate environmental performance, companies were split to four country groups describe below (see figure 1.). These four country groups were created according to the classification proposed by La Porta & al. (1998) based on the different degrees of regulation in European countries. In total, there are 16 countries: 14 countries were chosen for

being a member of the European Union in January 2004[1] and 2 countries for being a member of the EFTA. Common law countries represent 42% of the sample, civil law countries 28 % and German and Scandinavian countries together about 30%.

Figure 1. **Country groups**

Country groups		Observations	%
1. Common law countries	Great Britain, Ireland	165	42%
2. Civil law countries	Belgium, France, Netherlands Greece, Spain, Italy, Portugal	110	28%
3. German origin countries	Austria, Germany, Switzerland	63	16%
4. Scandinavian origin countries	Finland, Denmark Norway, Sweden	54	14%
		393 companies	100%

Complete information on the 24 variables was found for 393 companies only on which exploratory methods were conducted: factor and cluster analysis. As the 24 selected indicators had very different units (dollar, percentage,…), variables were standardized to control size effect. T-tests were conducted to distinguish most typical indicators for each class. Results are presented in figure 2 and represented diagrammatically in figure 3.

As any reasons were given to support strict linear relationships between indicators, the choice made was to use flexible methods. Variables were transformed into qualitative indicators, based on quartile thresholds. Quartiles are the three values which divide the sorted data set into four equal parts, so each variables can take 4 values: 1, if the value is inferior to Q1 ; 2, if the value is between Q1 and Q2 ; 3, if the value is between Q2 and Q3 ; 4, if the value is superior to Q3. Therefore, we propose a correspondence analysis with the 24 transformed indicators and country groups (active variables), and environmental scores (passive variable).

A classification is composed from emerging factors in order to present a mapping of indicators and links with most/less environmentally efficient companies. Hierarchical Agglomerative Cluster method was used on the half best factors (26 factors). The cubic clustering criterion (CCC) indicated that 4 clusters were optimal for this cluster tree formation (with Ward's Minimum-Variance Method). The main characteristics of each class are represented dramatically in figure 4.

Finally, in order to present a mapping of typical indicators clusters associates to country group and their links with most/less environmentally efficient companies a descriptive analysis is proposed, the most characteristic associations are synthetically represented in figure 5.

[1] There were 15 countries that were members of the European Union in January 2004. Luxembourg is missing in the sample studied.

Results and Discussion

From this study, it is demonstrated that there are global profiles of the more environmentally efficient companies and of the less societally efficient companies (figure 2).

Figure 2. **Student tests results.**

		Total sample		**Worst in class**		**Best in class**	
Observations		393		117		138	
Percentage				30%		35%	
Statistics		Mean	Std	Mean	Std	Mean	Std
SIZE	**Total Capital**	0	1	-0.085	0.993	**0.240*** **	1.231
	Market Value	0	1	***-0.138****	0.66	**0.250*** **	1.405
	Total sources	0	1	-0.077	0.717	**0.226*** **	1.483
GROWTH POTENTIAL	**Intangibles**	0	1	0.12	1.485	0.059	0.829
	Book To Mark Value	0	1	0.089	1.812	-0.034	0.208
AVAILABLE CASH	**Cash Flow To Sales**	0	1	**0.181** **	1.221	***-0.126****	0.834
	Capital Expenditure	0	1	0.069	1.459	-0.084	0.508
PROFITABILITY	Net Margin	0	1	0.06	1.094	-0.09	0.778
	Return On Equity	0	1	-0.02	0.753	-0.045	0.9
	Return On Invested Capital	0	1	-0.023	1.156	-0.009	0.919
	Return On Assets	0	1	-0.045	1.064	-0.044	0.891
	Reinvestment rate per share	0	1	-0.093	0.819	0.016	1.098
SHARES PROFITABILITY	**Dividend Per Share**	0	1	**0.153** **	1.681	-0.081	0.368
	Cash Dividend CF	0	1	-0.036	0.99	0.035	0.954
	Dividend Yield	0	1	-0.041	1.171	0.095	0.92
	Book Value Per Share	0	1	0.126	1.766	-0.07	0.113
	Market value per total capital	0	1	0.009	0.882	0.022	1.283
	Volume per shares. per market value	0	1	-0.074	0.516	0.096	1.446
CAPITAL STRUCTURE	Weight Of Debt	0	1	0.027	1	-0.012	0.985
	Total Debt per Total Asset	0	1	0.039	1.032	-0.038	0.951
	Long term debt per Total capital	0	1	0.013	1.033	0.011	0.967
	Total share equity per total liability	0	1	0.011	1.066	-0.03	0.964
PRIVATELY VS PUBLICLY HELD SHARES	**Closely held shares per total shares**	0	1	0.095	1.018	***-0.133****	0.978

Student test : *** prob <.01 ** prob <.05 * prob <.1

Standardized variables allow comparing quickly the mean of indicators per class (worst in class, neutral and best in class) and the mean of the total sample and presenting the most characteristic indicators (t-tests were conducted) which have a significant difference on average between a class and the total sample.

Best-in-class companies have, on average, significantly a bigger amount of capital, sources and market value (respectively .240, .226, .250) and the worst-in-class companies have, on average, a

smaller market value (-.138). Hence, as supposed the environmental performance is positively related to size (hypothesis 1).

Growth potential (hypothesis 2), capital expenditure (hypothesis 3) and profitability (hypothesis 4) are not significantly related to corporate environmental performance. Any significant results were found concerning the capital structure dimension (hypothesis 6) too. Other variables could have been used as a proxy for capital structure. Barnea and Rubin (2006) test the relation between firm's CSR ratings and leverage. Leverage was defined as long-term debt divided by the total book value of assets. It allows capturing the monitoring ability of debt holders and availability of cash flow. Even of this two dimension were taken into account in our analysis, the leverage variable might be more synthetic and relevant in a future study.

The best-in-class companies have, on average, significantly less cash flow to sale (-.126) and the worst-in-class companies have, on average, significantly more cash flow to sale (.181). These observed associations between cash-flow to sales and environmental performance are reversed comparing to the hypothesis we made (hypothesis 3). It means that cash flow yield is negatively associated with environmental performance. This result is counter-intuitive and goes against the available cash flow theory that supposes the more cash flow a company has, the more it will let it the possibility to invest in extra-necessary programs (Margolis & Walsh, 2001). These results can be interpreted by considering that environmentally efficient firms spend probably more for environmental issues and then lower their level of cash flow at the end of the financial year. For instance, environmentally efficient firms might spend more on the environment as part of their production process, thus lowering cash flows due to higher operational expenditures. This result would need to be checked over few other years in order to be confirmed.

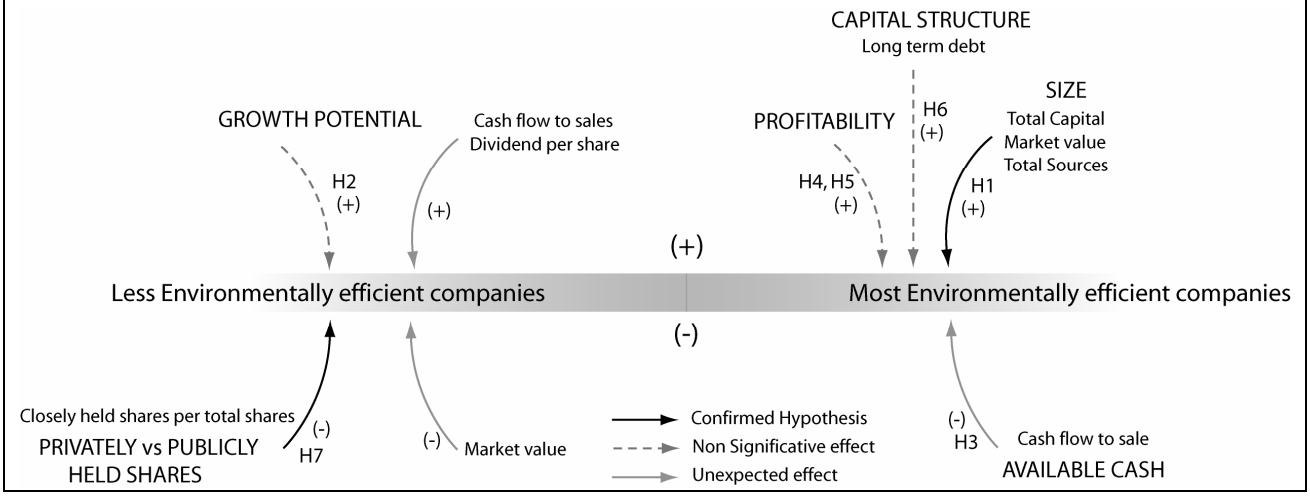
Furthermore, contrarily at what was hypothesized (hypothesis 5), it appears that dividends per share is negatively associated to environmental performance. The worst-in-class companies have, on average, significantly more dividends per share (.153). The less environmentally efficient companies give more dividends per share than their counterparts. This could be understood as a conflict on which stakeholders should be of first interest. Companies that above all take into consideration shareholders' wealth might show less concerned for the other stakeholders, and more particularly for environmental issues. This result is congruent with the normative stakeholders field of research. According to this theory, managers have to give a priority to competing stakeholder

claims upon the firms (Margolis & Walsh, 2002), and some claims are considered as more justifiable than others (Agle, Mitchell & Sonnenfeld, 1999).

Concerning the privately versus publicly held shares variable (hypothesis 7), a negatively association was observed with environmental performance. Best in class companies have, on average, significantly a fewer closely held share percentage (-.133). Hence, the most environmentally efficient companies are mostly held through publicly held shares. On possible explanation might be that publicly held shares impose a certain number of obligations on companies, in particular in terms of environmental disclosure and requirement. This leads to the hypothesis that privately held shares companies might have stronger short term profit objectives to realize with fewer environmental concerns than do publicly held shares companies.

The previous findings have been summarized in the following figure and in appendix one.

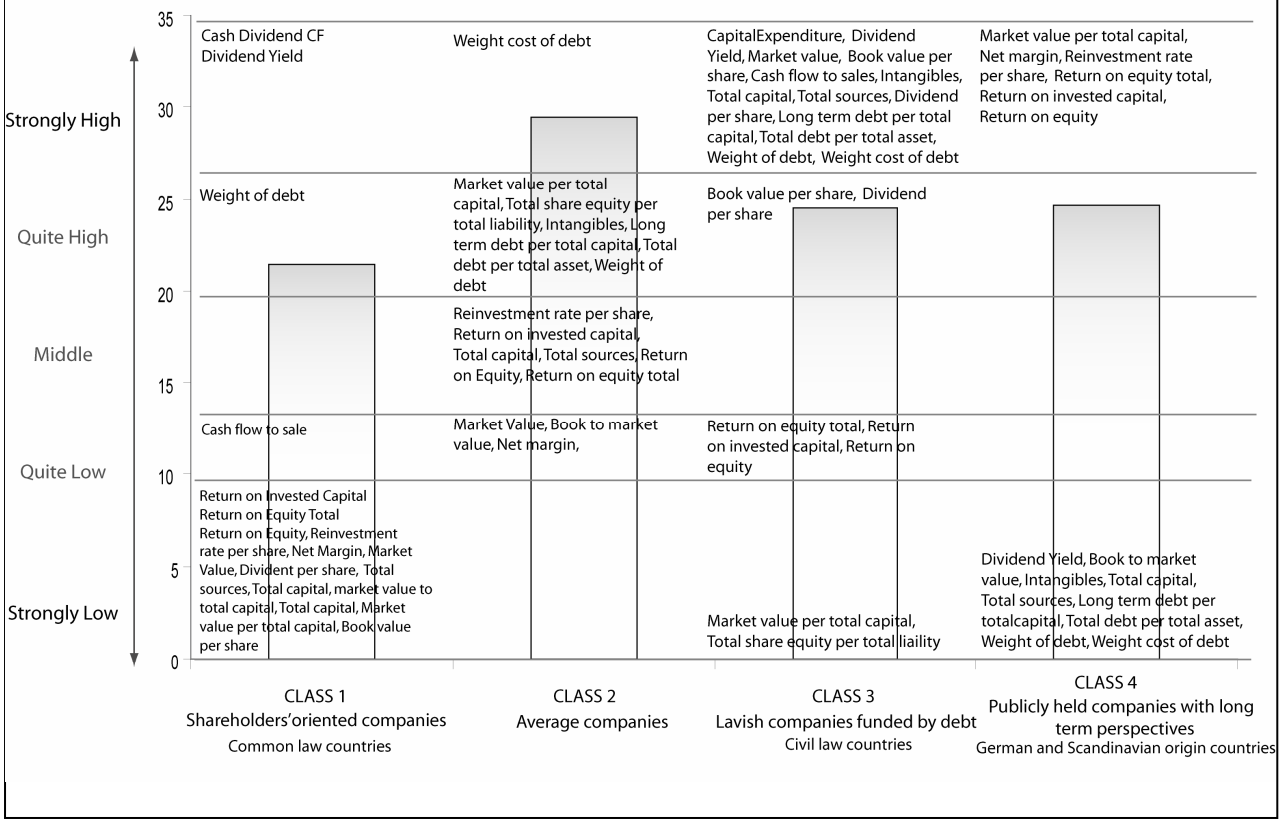
Figure 3. **Characteristics of environmentally efficient companies and tested hypothesis**



Then, based on the assumption that social and economic system influences corporate social performance (Igalens, Déjean, El-Akremi, 2007), the companies were grouped through a cluster analysis. This analysis was conducted through the 393 companies and 24 variables in order to identify class of companies and associate them with environmental performance. Quartile cutting allow comparing quickly the representation of indicators per class (cluster 1 to cluster 4) and the theoretical representation in the total sample. Only over-representative and significant characteristic transformed indicators are presented (Chi² were conducted, the variables are

considered as statistically significant if probability is inferior to 0.05). The following figure (Figure 4) helps to the interpretation.

Figure 4. **Companies' profiles**



The "shareholders'oriented companies" (class 1) are mostly from common law countries. It is small companies, with a low profitability and a high weight of debt. They are mostly held by closely held shares than publicly held shares. They have a low reinvestment rate per share but a high dividend yield.

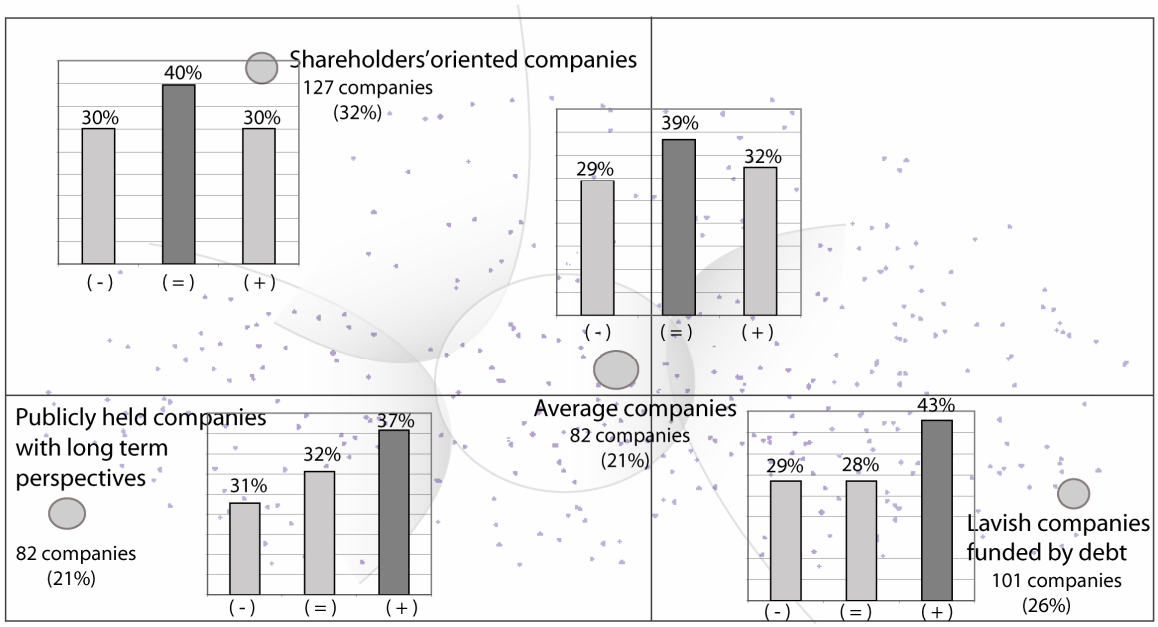
The "average companies" (class 2) are medium size companies. They have profitability on average and intangibles above the mean.

The "lavish companies funded by debt" (class 3) are mostly from civil law countries. It is big size companies with average profitability, available cash above the mean, high weight of debt and high weight cost of debt. They paid a high dividend per share. They spend a lot on capital expenditure and have a high growth potential.

The "publicly held companies with long term perspectives" (class 4) are mostly from German origin countries and Scandinavian origin countries. Even if they have a low growth potential, it is highly profitable companies mostly held by publicly held shares with a high reinvestment rate per share and a low dividend yield. They have a low weight of debt and low cost of debt.

These results emphasize differences resulting of the various regulation environments and governance perspectives within Europe. A correspondence analysis was conducted in order to associate these four classes with corporate environmental performance (figure 5). The figure shows the mapping of a two first factors plot with the companies' dispersion, the gravity center of each class and the frequency of the most and the less environmentally efficient companies.

Figure 5. **Companies' profiles and environmentally efficiency**



In the "average companies", no clear distinction could be done between environmentally efficient and less efficient companies.

More surprisingly, environmental performance does not seem to be a differentiating characteristic of the "shareholders'oriented companies", which are mostly held by closely held shares.

The “lavish companies funded by debt” and the “publicly held companies with long term perspectives” are mostly constituted of environmentally efficient companies. Nevertheless, the reasons permitting to explain this observation may differ between the two groups.

The “lavish companies funded by debt” are big companies with available cash above the other companies. Investing in corporate environmental responsibility might be one way for them to allocate their significant discretionary funds (Seifert & al, 2003), like giving high dividend per share. These lavish companies are over funded through debt and may not have a construct plan on how to spend their extra available cash. Hence, even if they have a relatively low profitability compared to the other companies, they have high capital expenditures that underline a long term perspective of these companies.

The “publicly held companies with long term perspectives” are the only ones that are mostly held by publicly held shares. They are taking into account environmental considerations through their growth. They are not big firms yet but they are highly profitable and have projects of expansions (high reinvestment rate per share and low dividend yield). It can be thought that these companies have a clearer long-term environmental strategy than the “lavish companies funded by debt” group that may only spend its available cash when it have some to environmental consideration.

Conclusion

This study has various contributions. It is proved that capital structure significantly influences corporate environmental performance. Companies that have more publicly held shares are more inclined to commit themselves into environmental activities and to perform them well. Furthermore, this study is a contribution for understanding how corporate environmental performance is embedded in national business and legal systems. The level of corporate environmental performance is linked with companies’ global profile and thus with companies’ country of origin. Different groups of companies have been identified: the “shareholders’ oriented companies”, the “lavish companies funded by debt” and the “publicly held companies with long term perspectives”. The last two groups hold more environmentally efficient companies than the other groups. Hence, ‘coordinated market economies’ (Hall & Soskice, 2001) and ‘social systems of production’ (Hollingsworth & Boyer, 1997) seems to give better results in terms of corporate environmental performance than the ‘liberal market economies (Hall & Soskice, 2001). It should

be reminded that the “publicly held companies with long term perspectives” is characterized by on average more publicly held companies. This confirms our first finding about the importance of capital structure.

This research calls for future in depth developments. Firstly, the social dimension of corporate social responsibility should be taken into consideration too. Secondly, a longitudinal analysis would allow us to have a better understanding of the phenomenon observed and their persistence over the years. Thirdly, a qualitative analysis should then be considered for corroborating and complementing our results. For instance, one could state the hypothesis that publicly held companies are considered as being more environmentally efficient because they communicate better on environmental issues. A qualitative analysis is needed to be able to test this hypothesis.

Bibliography

Agle, B.R., Mitchell R.K. & Sonnenfeld J.A. 1999. "Who Matters to CEOs? An Investigation of Stakeholder Attributes and Salience, Corporate Performance, and CEO Values", *Academy of Management Journal*, 42: 507–525.

Allouche, J., Huault, I., & Schmidt, G. 2004 (4-6 September). "Responsabilité Sociale des Entreprises : La Mesure Détournée ?" Paper presented at the Colloque de l’AGRH (proceedings), UQAM-Montreal.

Amato, L.H., & Amato, C.H. 2007. "The effects of firm size and industry on corporate giving" *Journal of Business Ethics*, 72: 229-241.

Atkinson, L., & Glaskiewicz, J. 1988. "Stock Ownership and Company Contributions to Charity." *Administrative Sciences Quarterly*, 33(1): 82–100.

Barnea A. & Rubin A., 2006, “Corporate Social Responsibility as a Conflict between Shareholders”, Centre for Corporate Governance and. Risk Management Working Paper Series, Simon Fraser University.

Boatsman, J. R., & Gupta, S. 1996. "Taxes and Corporate Charity: Empirical Evidence from Micro-Level Panel Data." *National Tax Journal*, 49(2): 193–213.

Boot, A. W.A., & Thakor, A.V. 1997. "Financial system architecture". *Review of Financial Studies*, 10: 693-733.

Brummer, J.J. 1991. *Corporate Responsibility and Legitimacy - An Interdisciplinary Analysis* (Greenwood Press ed.). Westport, CT.

Buckholtz, A.K., Amason, A.C., & Rutherford:, M. A. 1999. "Beyond Resources: The Mediating Effects of Top Management Discretion and Values on Corporate Philanthropy." *Business & Society*, 38 (2): 167–187.

Burlingame, D. F., & Frishkoff, P.A. 1996. "How does firm size affect corporate philanthropy?" In D. F. BURLINGAME, & D. R. YOUNG (Eds.), *Corporate Philanthropy at the Crossroads* p. 86 - 104. Bloomington: Indiana University Press.

Caby, J., & Hirigoyen, G. 2005. *La création de valeur de l'entreprise* (Economica ed.). 2ème édition.

Carroll, A.B. 1979. “A three dimensional conceptual model of corporate social performance”. *Academy of Management Review.*

Carroll, A.B., & Schwartz, M.S. 2003. "Corporate social responsibility: a three-domain approach." *Business Ethics Quaterly*, vol.13(n°4): p.503-530.

Crane, A., Matten, D. 2007. *Business ethics: managing corporate citizenship and sustainability in the age of globalization* (2nd ed.). New-York: Oxford University Press.

Derwall, J., Gunster, N., Bauer, R., & Koedijk, K. 2005 (March/April). “The eco-Efficiency Premium Puzzle”. *Financial Analysts Journal*, vol. 61(n° 2).

Freeman, R. E. 1984. Strategic Management: A stakeholder approach (MA: Pitman/Ballinger ed.). Boston.

Friedman, M. 1970. “The social responsibility of business is to increase its profits”, *New York Times Magazine.*

Goss, A., & G.S.Roberts. 2006. "The Cost of Virtue: Corporate Social Responsibility and the Cost of Debt Financing": Working Paper.

Hall, P. A., & Soskice, D. 2001. "An introduction to varieties of capitalism." In P. A. Hall, & D. Soskice (Eds.), *Varieties of Capitalism. The institutional of Foundations of Comparative Advantage.* : p.1-68: Oxford U.P.

Hollingsworth, J. R., & Boyer, R. 1997. "Coordination of economic actors and social systems of production". In J. R. Hollingsworth, & R. Boyer (Eds.), *Comtemporary capitalism: the embeddedness of institutions*: 1-47. Cambrigde: Cambridge University Press.

Igalens, J., Dejean, F., & El-Akremi, A. 2007. "Etude la notation sociétale - Influence des systèmes économiques et sociaux", Paper presented at the XVIème Conférence Internationale de Management Stratégique AIMS, Montréal, 6-9 Juin.

Johnson, O. 1966. "Corporate Philanthropy: An Analysis of Corporate Contributions." *Journal of Business*, 39(4): 489–504.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. 1999. “Corporate ownership around the world ” *The Journal of Finance*, Cambridge.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. 1998. "Law and finance." *The Journal of Political Economy*, vol.106(n°6).

Lang, L., Ofek, E., & Stulz, R. M. 1995. "Leverage, investment, and firm growth". *Journal of Financial Economics*, 40: p.3-29.

Margolis, J.D., & Walsh, J.P. 2002. “Misery loves companies: Whiter social Initiatives by business?” Working Paper.

Matten, D., & Moon, J., 2007. "'Implicit' and 'Explicit' CSR: A conceptual framework for a comparative understanding of corporate social responsibility". *Academy of Management Review*.

Matten, D., & Moon, J., 2005. "A Conceptual Framework for Understanding CSR in Europe". In A. Habisch, J. Jonker, M. Wagner, & R. Schmidpeter (Eds.), *Corporate Social Responsibility Across Europe:* p. 335-356. Berlin.

Mcguire, J. B., Sundgren, A., & Schneeweis, T. 1988. “Corporate Social Responsibility and Firm Financial Performance”. *Academy of Management Journal.*

Morin, E. 1987. *Penser l'Europe*. Paris: Gallimard.

Pagano, M., & Volpin, P. 2000. “The political economy of corporate governance”: Working paper, Università degli Studi di Salerno.

Roberts, R.W. 1992. "Determinants of Corporate Social Responsibility Disclosure: An Application of Stakeholder Theory." *Accounting, Organizations and Society,* 17(6): 595–612.

Roe, M.J. 2000. “Political preconditions to separating ownership from corporate control”: Working paper, Columbia Law School.

Scholtens, B. 2006. "Finance as a Driver of Corporate Social Responsibility." *Journal of Business Ethics,* 68(1): 19.

Seifert B., Morris S.A., Bartkus B.R., 2003. “Comparing Big Givers and Small Givers: Financial correlates of Corporate Philanthropy”, *Journal of Business Ethics*, p.195.

Shleifer, A., & Vishny, R. W. 1997 (June). “A survey of corporate governance.” *The Journal of Finance*: Cambridge.

Ullmann, A.A. 1985. “Data in search of a theory: a critical examination of the relationships among social performance, social disclosure and economic performance of U.S. firms”. *Academy of Management Review,* vol.10(n°3): p.540-557.

Venanzi, D., & Fidanza, B. 2006. "Corporate Social Responsibility and value creation - Determinants and mutual relationships in a sample of European Listed Firms." Working Paper.

Waddock, S.A., & Graves, S. B. 1997. “The Corporate Social Performance – Financial Performance Link.” *Strategic Management Journal,* vol.18: p.303-319.

Appendix 1 : Hypothesis and results						
Hypothesis		Dimension	Variables	Content	Predicted association with env. perf.	Observed association with env. perf.
H1	Environmental performance is positively related to size.	Size	Total Capital	the total investment in the company. It is the sum of common equity, preferred stock, minority interest, long-term debt, non-equity reserves and deferred tax liability in untaxed reserves.	+	+
			Market Value	The value of a corporation as determined by the market price of its issued shares and common shares outstanding (Market Capitalization).		
			Total sources	the total funds generated by the company internally and externally during the fiscal period.		
H2	Environmental performance is negatively related to growth potential.	Growth potential	Intangibles	other assets not having a physical existence. The value of these assets lie in their expected future return.	-	NS
			Book To Market Value	Price of the company on its books compared to its market price		
H3	Environmental performance is positively related to available cash.	Available cash	Cash flow To sales	(income before extraordinary items and preferred and common dividends and after operating and non-operating income and expense, reserves, income taxes, minority interest and equity in earnings + depreciation, depletion and amortization) / sales	+	-
			Capital Expenditure	(acquisitions of tangible fixed assets and intangible fixed assets) / Net Sales or Revenues * 100	+	NS
H4	Environmental performance is positively related to accounting performance.	accounting performance, profitability	Net Margin	Net Income before Preferred Dividends / Net Sales or Revenues * 100	+	NS
			Return On Equity	(IncomeBefPreferredDividends PreferredDividends) / TotalCommonEquity*100		
			Return On Invested Capital	(Net Income before Preferred Dividends + ((Interest Expense on Debt - Interest Capitalized) * (1-Tax Rate))) / (Last Year's Total Capital + Last Year's Short Term Debt & Current Portion of Long Term Debt) * 100		
			Return On Assets	(Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Last Year's Total Assets * 100		
			Reinvestment rate per share	(Earnings Per Share - Dividends Per Share) / Last Year's Book Value Per Share * 100		
H5	Environmental performance is positively related to shareholders' wealth.	shares profitability	Dividend Per Share	Total dividends per share	+	-
			Cash Dividend	Total common and preferred dividends paid to shareholders of the company.		NS
			Dividend Yield	The percentage yield an issue is paying out on an annual basis for dividends.		
			Book Value Per Share	proportioned common equity divided by outstanding shares		
			Market value per total capital	Market value / Total capital * 100		
			Volume per shares	number of shares traded for a stock / outstanding shares * 100		
H6	Environmental performance is positively related to a capital based on debt instead of equity.	Capital structure	Weight Of Debt	(TotalDebt) / (TotalDebt + PreferredStock + TotalCommonEquity)	?	NS
			Total Debt per Total Asset	(Short Term Debt & Current Portion of Long Term Debt + Long Term Debt) / Total Assets * 100		
			Long term debt per Total capital	Long Term Debt / Total Capital * 100		
			Weight Cost Of Debt	the weighted average interest rate of the total fixed rate long term debt.		
			Total share equity per total liability	Equity / total Liabilities (equity included) * 100		
H7	Environmental performance is related to closely held shares.	Privately (versus publicly) held shares	Closely held shares per total shares	shares held by insiders	?	-