Does Corporate Social Responsibility Affect Firms' Performance?[1]

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Abstract

In the last two decades in the OECD countries there have been a raising development of firms certified as Social Responsible (CSR is the acronym of Corporate Social Responsibility). This kind of certification is assigned by private companies that guarantee that the behaviour of a certain firms environmentally and sociologically correct. Some papers (among others Preston and O'Bannon, 1997; Waddock and Graves, 1997; McWilliams and Sieger, 2001; Ullman, 1985) tried to verify if there exists a link between Social Responsibility certification and firms' performance. Their results are ambiguous and do not show a common path. This ambiguity depends mainly on the static nature of their analyses and on the problem if performance is affected more by certification costs or by increasing sales due to a reputation effect. Our work would like to verify, after a review of literature, by using panel data, if some performance indicators can be affected by the firms' social responsible behaviour and their certifications. The novelty of our analysis comes from its dynamic aspect and from the building of a CSR index that intersects two of the three main international indices (Domini 400 Social Index, Dow Jones Sustainability World Index, FTSE4Good Index), in order to be objective and to have a representative sample.

The main results seem to support the idea that the CSR firms are the more virtuous, having better performances in the long run: they bear some initial costs but obtain higher sales and profits due to several causes: reputation effect, a reduction of long rin costs, increasing social responsible demand.

Key Words: Corporate Social Responsibility, Growth.

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1. Introduction

Reality shows who firms have recently been able to adapt to a changing world not only by developing economically but also socially and ethically. A firm's aim remains based on a development strategy that not only favours its share holders but also responds to all stakeholders involved either directly or indirectly in the production process.

A firm is an open system and to carry out its main aim must be able to combine two large categories of interest: profitability and its stakeholders' interest. Given that a system of exchange and mutual influence is created between stakeholders and the firm, management must be able to analyse objectives, resources and the strategy of common groups of stakeholders that need to be considered as well as its own ability to mobilise other stakeholders.

Given their over-riding priority compared with other stakeholders, the consumer has assumed a focal role, which has led firms to act ethically on their behalf as part of a new 'social consciousness'. We can see that once the 'primary needs' of firms have been meet, advanced firms increasingly want to meet ethical values. A clear sign of this has been the growing number of firms that have decided to take 'socially responsible' action (see Masino e Poddi, 2007).

This is where the concept of Corporate Social Responsibility, (CSR) has developed and is beginning to enter into common lexical knowledge and is increasingly being used by academics and economists for the sustainability of economic development. As often happens when new terms are coined, they tend to lose their conceptual precision, leaving their evocative value which is however watered down by the multitude of different meanings and contexts in which it is used. The concept of CSR indeed, takes on different meanings depending on the organisation or group that uses it. Some tend to emphasize individual aspects that they believe to be more important than others e.g., ethics, the environment, safety, education or human rights. Definitions often vary as they represent historical and social differences between countries. Indeed, certain definitions underline a particular theme because it is more relevant in that particular state, at other times the concept of CSR reflects the level of economic and therefore social development of a country[4].

Due to the different weight given to the term by different countries, the World Business Council for Sustainable Development (WBCSD[5]) has given the following definition:

[4] For a more complete definition see Masino-Poddi, 2007.

[5] http://www.wbcsd.org

"CSR is the task of a business to contribute to sustainable economic development, working together with workers, their families, the local community and society in general to improve quality of life.[6]"

Corporate Social Responsibility has begun to be discussed in Italy only recently and in particular since the European Council of Lisbon (2000) included it as a fixed strategy. In 2001, the European Commission published a Green Paper that contained its guidelines. In the United states, the theme has been of interest for longer. Already in the mid 70's the American *Securities and Exchange Commission* requested by the *Natural Resources Defence Council* – introduced certain social variables in the information that a publicly quoted company should give to its investors and the general public. So, themes such as *business ethics* and *corporate responsibility* began to spread among economically developed countries. It is clear that this innovation caused a shake-up in the accepted aspect of firms as they introduced the perception that the source of success could not ignore respect for working conditions or other social implications.

Recently, we have seen a growing, 'race' for social certification as a response to the changed relation between firm and consumers as witnessed by the growing number of CSR firms in particular in OCSE countries (Figure 1).

Thanks to the response to the interrelationship between strategic corporate aims and respect for all players involved in a company, at a theoretical level the stakeholder theory seems to be useful to measure the social responsibility of a firm by means of social accountability. The novelty is in the push of firms to, *'find business and resources opportunities that they would otherwise not know about[7]*" in respect to all the players involved directly or indirectly with a company's activity. This theory underlines the fact that relations are fundamental for the existence of a firm and therefore should be looked at in more detail as they could open up new opportunities for a firm. The subjects that create this network include principally the community where the firm is situated, workers and customers.

In response to consumer satisfaction and the reaction that CSR companies have had in developed countries we can realise that CSR certification is an evolutionary phase of growth and therefore needs structural and linking elements. One of the main aims of this work is to evaluate this concept by using econometric instruments.

[6] Another interesting and complete definition of CSR is "*the duty of an organisation to react to aid both its own interests and those of the general*". S. Ranjan Mohapatra, Programme Manager, VISION FOUNDATION

[7] Frynas, J G. (2005), "Corporate Social Responsibility and Stakeholder Analysis", Chapter 4, Global Strategic Management.

However, if we are to say that CSR is necessary for corporate strategy, given the recentness of the phenomena and absence of a well defined and universally accepted certification method, at present CSR has certain major limitations which we would like to rectify: i.e., 1) certification, that is an objective benchmark rather than a mere marketing tool for the public, 2) the principal motivation and elements that push firms into ethical behaviour and suitable certification. It is actually this second point that has given rise to a proliferation of articles concerning social certification (including Preston e O'Bannon, 1997; Waddock e Graves, 1997; McWilliams e Sieger, 2001; Ullman, 1985) that have still not shed light on the motivation that entices firms to bear the cost of certification or looked at the experimental performance of CSR firms. As a result, various performance measures have been adopted both on the market and in accountability that all give rather discordant results.

Therefore, our paper tries to give an answer to the questions explained above, following this paper scheme: paragraph two is devoted to explain the criteria to choose our sample, paragraph 3 gives some descriptive results, paragraph 4 and 5 list the main variables used in literature and the main results, respectively. Paragraph 6 shows the data used, in paragraph 7 we explain better our aim and our main results. Paragraph 8 studies in depth some peculiar variables and 9 is devoted to the conclusions.

2 The Sample

To define our sample, the first problem we have faced is related to the right and true (non-exploitation) use of the social certification. Therefore, in order to obtain a good sample, we have crossed more social indices. Then, we have selected the firms for our sample, following these steps:

1. we have assumed that the corporate responsibility firms group includes the enterprises that belong at least at two of the three main stock option indices of the market in 2004[8] (i.e. Domini 400 Social Index, Dow Jones Sustainability World Index, FTSE4Good Index, analysed before[9]). In this manner, we have tried to complete the methodology used by Barnea and Rubin (2005) and by Waddock and Graves (1997). The suitable firms obtained have been 317 units;

[8] In this sense we have taken the most famous and recognizable indices at international level. The choice of the year (2004) depends on our need to include the highest number of firms in our sample, given the novelty of this peculiar economic phenomenon.

[9] For the stock market analysis we refer to the following webpage: http://www.sustainable-investment.org/.

2. In the second step we have defined the control sample of 100 units, containing no-CSR enterprises in order it was homogeneous for the sectors with the CSR sample. This part was made by using the Dow Jones Global Index;
3. so, at the end the total sample includes 417 firms in 2004. In order to have the time series of our database, we have started by the 2004 sample, and, maintaining the total number of our firms we have worked backward until 1999, changing the no-CSR/CSR ratio. We mean that we have started from the 2004 sample and we have created a dummy variable for each year from 2004 to 1999, imposing the number 1 if that firm was certified as CSR company in that year and zero otherwise, by using the intersection (for couple of sets) of the three indices[10]. We were not able to work backward over 1999 because there is not a sufficient number of CSR firms in our database; after having built our database in the manner described (for completeness, we show it in the appendix) we have downloaded the balance sheets of all the 417 firms, using the Perfect Analysis software[11].

3. Descriptive analysis

By using the methodology described above, figures 1 and 2 show the number of CSR firms and its growth rate, respectively, for the period between 1999 and 2003. As it is possible to observe, the number of CSR firms has raised with increasing growth rates. For simplicity we have grouped together all the firms in 5 groups that are the following: USA (USA), Japan (Jap), Rest of the World[12] (Altri), Europe (EU)[13] - e World (Totale). From the two figures it is possible to stress that:

- The number of CSR enterprises has increased a lot, showing that "Corporate Social Responsibility" is a very interesting phenomenon and therefore it must be analysed;
- as far as the geographical composition is concerned, it is possible to observe that the highest number of CSR enterprises, comes from United States and European Union, that, as we know, are two of the most developed areas. From this first rough

[10] For the FTSE index we refer to the website: http://www.sustainability-indexes.com/htmle/assessment/review2003.html; for the Domini Social Index the data refer to the Domini 400 SocialSM Index (DS 400 Index).

[11] Perfect Analysis contains the panel data of the stock prices, the level of dividends, and also other financial information about firms' balance, exchange rates, and markets indices. Moreover, it contains the main OECD economic indicators.

[12] With the word "Altri" we do not consider the sum of the residuary countries of the world, but, he number of countries that do not belong to the other three groups (i.e, USA; Jap, and EU) but that belong to the our CSR database. In detail, "Altri" includes: Australia, Canada, Hong Kong, New Zealand.

[13] We have considered Europe in geographical and not political sense. This means that EU includes the following countries: Norway, Sweden, Finland, Denmark, Great Britain, France, Germany, Spain, Italy, Switzerland, Low Countries, Belgium.

observation, we can begin to think that growth is a crucial variable for the development of the ethical conscience, and therefore the CSR;

- Figure 2 sheds light on two further important aspects:

- The rise of the number of CSR enterprises seems not to follow a "time-dependent" trend, but it shows a path with jumps that could depend on the economic conjuncture;

although EU show a number of enterprise, lower than USA; its growth rate is higher than USA's one: maybe it depends on a catch-up phenomenon. It is also important to stress, that the growth rate of the number of CSR enterprises has decreased since 2002. Does social certification depend on the economic conjuncture? And why this reduction does not affect some countries that depend on US economy, like EU and Japan? Our possible conjectures are the following:

a) USA were the first to be subjected a crisis[14], while the other countries, even if are linked to US economy, show some delays in their reaction: this could explain why EU growth rate shows a light reduction in 2002, followed by a stronger decrease in 2003;

b) the increase of the number (flow) of enterprises strongly depends on the total number of firms that are CSR yet (stock): this means that if there is an high number of CSR firms, the probability that new enterprises are certified as CSR is low and also the ratio between the number of new enterprises and the total is low. Nevertheless, even if this explanation is plausible and verifiable when we are near to the saturation point, it is strongly unlikely to be near to this focal point also because the phenomenon is very recent. Moreover this explanation is not able to explain the recovery of 2003;

c) the Enron case[15] and the following financial crises in US (Worldcom), have probably reduced the credibility of some enterprises, changing the management order of priority and increasing probably the control to be certified as a CSR firm, delaying in this manner the certification of new enterprises.

[14] It is useful to remember that the eleventh of September 2001, affected considerably on the US economy at the end of 2001 and at the beginning of 2002.

[15] 16 january 2002.

Figure 1: number of CSR firms

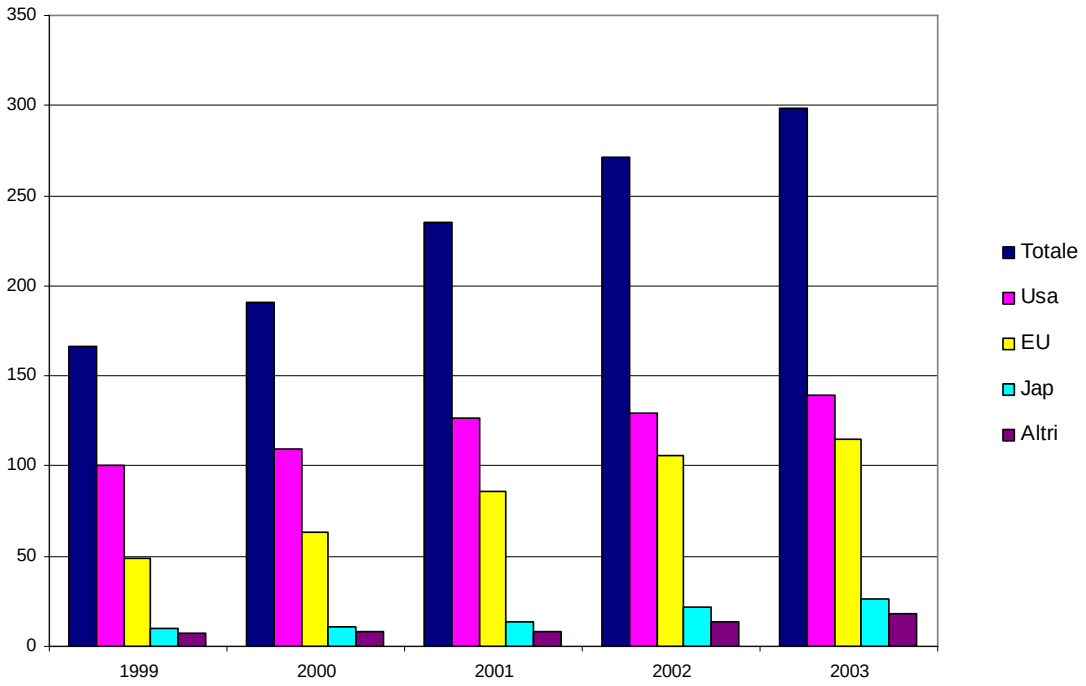
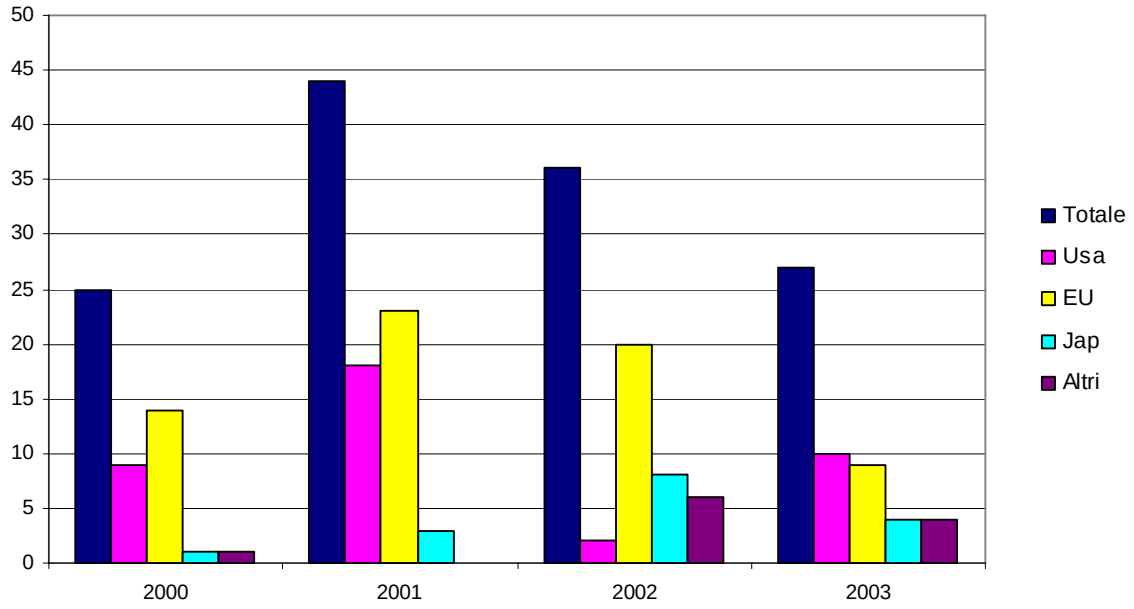


Figure 2: Growth rate of CSR enterprises



4. Literature: Performance Measures

According to the researchers' aim, in literature, we can find many measures useful to verify the performance. In this case, there are both accounting and market variables.

4.1. Accounting measures

ROE (Return on Equity) (1999-2003) is used a great deal in economic literature (Bowman and Haire, 1975; Bregdon and Marlin, 1972; Perket and Eilbirt, 1975; Spicer, 1978; Preston, 1978; Cowen et al., 1987; Waddock and Graves , 1996, 1997; Preston and O'Bannon, 1997). ROE is equal to a fiscal year's net income (after preferred stock dividends but before common stock dividends) divided by total equity (excluding preferred shares), expressed as a percentage. It measures the rate of return on the ownership interest (shareholders' equity) of the common stock owners. It measures a firm's efficiency at generating profits from every dollar/euros of net assets (assets minus liabilities), and shows how well a company uses investment dollars/euros to generate earnings growth.

ROA (Return on Assets) (1999-2003)**.** ROA percentage shows how profitable a company's assets are in generating revenue. It is given by the ratio between net income and total assets. This ratio tells you "what the company can do with what it's got", i.e. how many dollars/euros of earnings they derive from each dollar/euros of assets they control. It's a useful number for comparing competing companies in the same industry. The number will vary widely across different industries. Return on assets gives an indication of the capital intensity of the company, which will depend on the industry; companies that require large initial investments will generally have lower return on assets. It is widely used in literature, i.e. Aupperle, Carroll and Hatfield (1985), Belkaoui and Karpik (1989), Waddock and Graves (1997), Preston O' Bannon (1997), McWilliams and Siegel (2001) Luce, Barber and Hillman (2001).

ROCE (Return on Capital Employed) (1999-2003) is used in finance as a measure of the returns that a company is realising from its capital employed. It is commonly used as a measure for comparing the performance between businesses and for assessing whether a business generates enough returns to pay for its cost of capital. It is given by the ratio between the pre-tax operative profit and the capital employed. As far as our knowledge is concerned, this indicator is used by Preston and O'Bannon (1997).

4.2. Market measures

MKTCAP (Market Capitalization). Also in this case, the MKTCAP is widely used in economic literature: Moskowitz (1972); Vance (1975); Alexander and Buchholz (1978); Belkaoui and Karpik (1989); Patten (1990); Wright and Ferris (1997). It is a measurement of corporate or economic size equal to the share price times the number of shares outstanding of a public company. That is, it is the value of a firm as it is possible to learn by the stock market value multiplied for the total number of market shares.

Beta: The **beta coefficient**, in terms of finance and investing, describes how the expected return of a stock or portfolio is correlated to the return of the financial market as a whole. That is, it shows the volatility of a stock with respect the stock market. A beta coefficient greater that 1 means that the security is aggressive and tends to amplify the stock market movements, and therefore it has a higher risk; a beta lower than 1 shows a defensive security. In economic literature has been used by Alexander and Buchholz (1978), Chen and Metcalf (1980) and by Spicer (1978).

4.3. Mixed Measures

MVA (Market Value Added) (1999-2003). It is the difference between the current market value of a firm and the capital contributed by investors, as it is possible to find in the account books – in this sense it is a mixed measures since it merges account and market values. If MVA is positive, the firm has added value. If it is negative, the firm has destroyed value. This measure has been used by Simerly e Li (2000), Cochran and Wood (1984).

4.4 Other Main Characteristics

Many studies about the relationship between CSR and performance have focussed their attention over a variety of other important characteristics that can be possible causes of firms' performance. Some researches have studied the effect of firm's dimension, industrial sector, age, leverage level and intangible expenditures.

4.4.1 Dimension

According to Waddock and Graves (1997), it is possible to assume that the biggest firms are able to have a behaviour more responsible than the smallest ones. The biggest

ones probably pay more attention to the relationship with external stakeholders. Moreover, also Orlitzky (2001) confirms that firm's dimension affects the link between certification and performance: at the beginning firm's strategies are focussed on the basic survival and just when firm is increasing its dimension because it has crossed the trigger point of survival, it can begin to take care of ethical and philanthropic responsibilities. In the meantime firm's dimension can be linked with financial performance through economies of scale.

In literature, firm's dimension has been measured by using the number of employees, total asset value or the total sales. Belkaoui and Karpik (1989) use the natural logarithm of the sales net value, while Trotman and Bradley (1981) use both the sales value and the total asset. Cowen et al. (1987) and Patten (1991) use also the Fortune 500 index and the natural logarithm of sales. But all the measures used, are quite similar, being strongly correlated, as stressed by Kimberly (1976).

4.4.2 Industrial Sector

The industrial sector could strongly affect the social certification. Dierkes and Preston (1997) affirm that the firms which economic activities are able to modify environment and the firms working in natural resources (mining, forestry, oil, gas,…) are more controlled in environmental performance than other sectors. Moreover some enterprises that have a strong relation with consumers need to show a strong social and clean behaviour, in order that this affects firm's reputation and so its sales (Cowen et. al., 1987). Furthermore, Patten (1991) stresses that the industrial sector (as a proxy of dimension) affects policy fame of a firm and therefore this fact pushes the management to be submitted to public opinion (Belkououi, Karpik, 1989). Indeed industrial sector affects the number of enterprises belonging to the CSR group: sector that with high capital intensity has a lower number of firms than the low- labour intensity sector (i.e. banks, financial services, etc.)[16].

4.4.3 Age of Capital

Another variable that potentially could affect Social Certification is the Age of Capital of a firm. Roberts (1992) assumes that the higher is the historical involvement of an enterprise in social investments, the greater is the induced reputation and the higher are the stakeholders' expectations and hence the profits. In Cochran e Wood (1984) the

[16] About this, see Waddock and Graves, 1999.

capital age has been measured as the gross and net capital: if this index tends to 1, means that this firm is relatively young. Their result is that the age of capital is negatively correlated with the CSR variable. This means that the younger are the enterprises the higher are the ethical investments: indeed, the new firms do not have costs of change to new line of production: it is more expensive to change firm's structure than to create a new one.

4.4.4 Intangible Assets Expenses

Economic literature is focussed strongly on R&D expenses, but our comments on this peculiar variable are quite similar with the total expenses (also considering which ones that are related with CSR index). Indeed, R&D is a subset of the total intangible assets and could also be used as a proxy variable of intangible asset. McWilliams and Siegler (2000) find that R&D variable is positively correlated with CSR index and with financial performance. This result can be explained because R&D expenses and innovation is one of the main variables that can affect economic growth in the medium-long run. Moreover, R&D expenses are sometimes assumed as a proxy of social certifications.

4.4.5 Leverage

Leverage is given by the ratio between the total debt and the shares. Myers (1977), Wallace et al. (1994) have found a positive relationship between leverage variable and CSR index[17]. Jensen and Meckling (1976), support this result, explaining that a firm tends to increase its social information in order to decrease the raising monitoring costs coming from a high leverage. The same explanation is given by Ahmed and Curtis (1999) that stress that the higher is the percentage of bonds in the balance sheet of a firm with respect the shares' percentage, (that is the interest rate less risky than shares) the greater is social information and social certifications.

Roberts (1992) tests the hypothesis that: the higher is the firm's leverage, the higher the creditors' expectations. Unfortunately he doesn't find any empirical result about this. Negative correlations are instead got by Belkaoui e Karpik (1989).

[17] In this approach, CSR index is defined by social disclosure, that is social information.

4.4.6 Risk

Many works have studied if there exists a relationship between market risk and social responsibility, defined by the social disclosure.

Economic literature shows that firms with high systemic risk use social certification in order to reduce their risk, and then their beta coefficient (Trotman and Bradley, 1981; Roberts, 1992). Richardson et al. (1999) and Botosan (1997) show that the increase of social information is able to reduce asymmetric information and then the cost of capital (and so the total costs), by reducing the risk.

5. Literature: empirical analyses

Empirical researches on the link between CSR and financial performance have given a lot of different and heterogeneous results. In particular, it is possible to observe a great variety about the sign of the relationship studied (appendix 1, table 17).

5.1 Negative Sign

Waddock and Graves, (1997): assume that companies with a responsible behavior may have a competitive disadvantage, since they have unnecessary costs. These costs, falling directly on the bottom line, would necessarily reduce shareholders profits and wealth.

Preston and O'Bannon, (1997): fix two separate cases that might justify a negative report:

I. trade-off, similar to the one just presented. By producing in a socially responsible manner, the resources are consumed and this creates disadvantages for more responsible companies;

II. "**Managerial opportunism**"; recognizes in the pursuit of managerial and personal aims the final result reachable by a company. When an enterprise financial performance is good, managers usually cut social costs with the intention to increase profit. As soon as the performance declines, managers seek to justify bad results investing in social programmes.

Both short-term analysis based on measurements of the abnormal return (Wright and Ferris, 1997) and measures of market (Vance, 1975), both long-term studies (Vance, 1975) show a negative relationship between performance and CSR.

5.2 Neutral Sign

Waddock e Graves, (1997): Literature's explanations for a neutral relation agree on the possibility of many ruling variables in the relationship between social and financial performance that make the connection coincidental.

McWilliams e Sieger, (2001): one explanation could be given by the observation that firms supplying CSR products to their own customers has got a different demand curve compared to enterprises that do not provide CSR.

Ullman (1985), underlines that no clear tendency can be recorded between the connections on social information, social performance and economic results. Main reasons come first from theory's inadequacy, inappropriate keywords definition and empiric material's lack.

The author observes that important dimensions are not just social performance and economic result but also "information" about social performance and that only few studies have analyzed this three-dimensional relationship.

Other studies highlight the impossibility to define which is the sign of the existing relation between CSR and performance, both in the short term – on the base of Abnormal return measure (Welch e Wazzan, 1999) and on the market actions - and in the long term (Aupperle, Carroll e Hatfield, 1985)[18].

5.3 Positive Sign

Waddock e Graves, (1997): three explanations exist for a positive relation between CSR and financial performance:

a) Valuating what would happen if an enterprise would not act in a responsible manner. If it tried to reduce its implicit costs acting in an irresponsible manner, the result could probably be an increase of the explicit costs coming from forcing a non efficient condition; the final result is a competitive disadvantage. An example could be the case of an atmospheric pollution that leads to a legal cause.

b) Responsible social practises are the same of the "good management". To focus on CSR strengthen relations with stakeholders, that at the same time improve the overall performance.

a) Third explanation follow the "theory of scarce resources" and identify the adoption of responsible social behaviour as consequence and not cause of performance improvement. The idea is that during a positive current trend it is likely to have less

[18] There is no positive correlation between CSR and financial economic results, also after a correction about the riskiness.

limited resources: it comes out that some of these resources can be liberated in secondary parts as the CSR.

Preston e O'Bannon, (1997): make use of a similar hypothesis called "available funds": a firm behaviour depends on the accessible resources. Authors present an alternative theory to "good management" named "hypothesis of the social impact": better financial performance follows a stronger company reputation. Bearing stakeholders implicit needs increases company reputation that is an important requirement to improve financial performance. Failing in answering to stakeholders' needs creates market uncertainty, raises the risk reward paid to investors and this determines an increase of the costs and the possibility to lose profit.

A less obvious explanation for a positive relation could be the one for which CSR enterprise are more attractive to workers. In the economic information age, employees are the most desirable resource and it is crucial having more appeal to them.

Luce, Barber e Hillman, (2001): they study relation between CSR, enterprise appeal to a worker and firm's familiarity. They assert that firm's familiarity has positive influence on relation between CSR and appeal.

Short term studies based on abnormal return measure (Posnikoff, 1997) and on market actions (Moskowitz,1972) show a positive relation between performance and CSR.

Moskowitz (1972) noticed that the average of "common stock" returns of 14 selected as ethical enterprise for the first half of 1972 was of 7,28%, an amount higher than Dow Jones's industrial index.

For the long term, Cochran e Wood (1984) show a positive relation between social responsibility and financial-economic valuation, after having controlled for the age of the active. On the contrary, Waddock e Graves (1997) find in the following years a significant positive relation between a CSP index and performance measure, as the ROA.

6 Data

Making reference to paragraph 4 literature, using Perfect Analysis database, the following variables – measuring performance – has been collected for the 417 enterprises:

6.1 Accounting measures

ROE (Return on Equity) (1999-2003): the use of this variable is made compulsory by the fundamental usefulness that it guarantees in defining performance from an economic point of view also surrogate from works using it - as highlighted in sub-4.1. Data source: Perfect Analysis.

ROCE (Return on capital Employed) (1999-2003): it was decided to adopt the ROCE, as a variant of the most common ROA, cause the greater compatibility of the data using the referring software. Data source: "Perfect Analysis" database–"Ratios".
Given the illustrated problems on the accounting data subjectivity, it was considered appropriate to adopt market measures also, as often used in literature:

6.2. Market measures

MKTCAP (market capitalization). The data come from Perfect Analysis, in the budget reports of each company – "Fundamentals" sheet; voice "Market Cap".
Finally, it was decided to pay attention to a mixed measure: first because it solves subjectivity's problems taking data relating to the market; furthermore it completes the measure.

6.3. Mixed measures

MVA (Market Value Added) (1999-2003). This measure could identify the "reputation item" of business activities as the stakeholder response to the different enterprise's activities. This performance indicator was achieved with Perfect Analysis data using the following methodology: Enterprise's shares market value has been estimated considering as the referring date July 2004 and multiplying the number of shares to the closing price of shares at December 31 of each year (from 1999 to 2003). Yahoo Finance website is the source for historical stock prices. To the equity market value is then subtracted the voice "stockholder's equity" in the state capital of each company. In this way it is possible to compare the economic value of stakeholders' equity (MV) and its book value, and then as the market (and therefore stakeholders) evaluate the business in place or future.

6.4 Other Variables

Each company is different from another in the way it implements the CSR. Differences depend on many factors as: enterprise's size, the particular sector in which it operates, the corporate culture, stakeholders' demand and historically how progressive the company is in achieving the CSR.
Some companies specialize in a single area, which they consider the most important or where they have the greatest impact or vulnerability (human rights, for example, or the environment); others want to integrate CSR into all aspects of their operations.

Other variables that influence the option to adopt CSR choice are:
AGE (1999-2003) is the ratio between the net value and gross assets in property, buildings and equipment: the more this ratio tends to one, the more the company is new. Data source: Perfect Analysis- "Property, Plant and Equipment - Total (Gross)" and "Property, Plant and Equipment - Total (Net)."
The expectation against the use of this variable consists in defining that:
"The latest companies behave in a more responsible way" (Cochran & Wood, 84).

INTA (Intangible Asset) (1999-2003) annual expenditure on intangible heritage, namely copyrights, patents, intellectual property and know-how. Intangible spending pushes performance and on other side can easily be used as an instrumental variable to be or not a CSR firm, being strongly correlated. Source: Perfect Analysis, -"Intangible Assets - Total."

STLT (Short Term Debt / Long Term Debt) (1999-2003) is the ratio between short-term/long term debt. Considering the important role of indebtedness, we want to discern on its type. Data source: Perfect Analysis - "Common Size "ST Debt (% of Assets)" and "LT Debt (% of Assets)."

Intensity (intensity of work) (1999-2003): ratio between employees' number and total assets In Perfect Analysis database - "profits and losses" - data were get on the number of employees, under the heading "Employees (Units". For total assets: Balance sheet "Total- assets ".

Size (1999-2003). Total sales has been used to define companies' size, as illustrated by Stanwick (1998), based on the work of Fonbrun and Stanley (1990) and Cowen et al. (1987), referred to in paragraph 4.4.1.

Risk. On the relationship between belonging to CSR group and risk, it was pointed out in paragraph 4.4.6. as this link has been underlined in the literature and how it can be quantified through the Beta index. For the data downloading the beta index has been obtained for each of the 417 companies of the sample, compared to 2004. However, it was not possible to get the historical series of such index in order to compare time to those used in the panel analysis: therefore only cross section analysis have been possible.

An useful caveat regarding our future analysis consists in pointing out that in literature the possible reduction of company risk is closely linked to the economic management: the adoption of socially responsible behaviour aims to reduce environmental risks, organizational and operational. Nothing is said about the financial risk, even if it adopts the Beta index as a tool for quantifying risk. This dichotomous methodological discrepancy involves different results and comments on the risk assessment. For detail, refer to the technical part of work.

Reputation. We can sustain that the extreme summary of the benefits coming from belonging to the CSR group, is represented by reputation, from which further advantages descend in operation aspect of the company. It was therefore considered useful to support a search to obtain an explicit index of reputation. Our empirical feedback consisted in identifying a quotient of reputation that the Reputation Institute has published over the last six years, based on a survey on the more visible American multinationals. In detail, every company is assessed by over eighteen randomly selected on the basis of their familiarity with each of them. The respondents associate a score to companies based on 20 attributes relating on six key dimensions:

- Products and services
-- Financial performance
-- Work environment
-- CSR
-- Vision and leadership
-- Emotional appeal.

The index is explained for a sample of firms from 1999 to 2004 (see appendix).

Critical Question (1999-2003). Literature justifies a sales increase resulting from a differentiation on the offer market. This enterprise strategic choice can only depend on an analysis of the critical question's development: the more critical consumers are, the more will be their demand for new products suited to their needs. Data on the critical question stem from a research carried out by MORI (Market and Opinion Research International).

Capital Stock (1999-2003). In order to replace the hypothesis that implicitly assumes that the individuals' media choice (and thus the composition of total demand) has changed with the birth of critical behaviour, it was considered appropriate to seek data on the indicator of capital stock. In recent literature the social capital concept has evolved from the first purely sociological definitions (Bourdieu, 1985; Coleman, 1990) to include a broader meaning that includes the civic sense (Putnam, 1993, 1995), cooperation between individuals and 'Compliance with the laws (Fukuyama, 1995, Guiso et al., 2004; Alesina and La Ferrara, 2000). In this sense, social capital may rise to the role of a proxy of individual behaviour in critical sense and, therefore, in our view, could be an useful variable. The data on social capital has been obtained from IVIE (Instituto Valenciano de Investigaciones Económicas) database.

GDP (1999 - 2003). Interrelationship between belonging to the CSR group and the GDP; data used come from World Bank database.

7 Empirical Analysis

7.1 NPC Test: Stratigraphic Analysis

In order to obtain our first results, that can support the hypotheses we have explained in the previous part, we start with a stratigraphic analysis by using the NPC test software[19].

[19] NPC Test is able to do non-parametric tests to verify hypotheses. In general some parametric methods are used to verify hypotheses like normality of a distribution, that are hard to check. Instead, by using non-parametric methods, we compare different data permutations, and we test the nil hypothesis that the distribution, independently by his shape, is the same in the two groups.

7.1.1 CSR vs. non CSR

The first step has been to compare CSR and no-CSR enterprises. Table 1 shows if the variable in the line is statistically greater for the CSR firms than for the no-CSR firms. The asterisks mean the significance level:

table 1

	1999	2000	2001	2002	2003
MVA	NCSR<CSR **	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR **	NCSR<CSR ***
SIZE	NCSR<CSR **	NCSR<CSR **	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***
INTANGIBLE	NCSR<CSR **	-	NCSR<CSR ***	-	-
ROE	-	NCSR<CSR **	-	-	-

In details, we have compared different variables MVA, SIZE, INTANGIBLE e ROE in couple of two groups (CSR, non CSR, USA and EU, HIGH and LOW) and it is tested the nil hypothesis that a variable of the first group is in average greater (lower) than variable of the other groups. The asterisks show the significance level to accept the nil hypothesis (* = 90%, ** = 95%, *** = 99%). The dash means that the two groups are not statistically different.

Moreover:

- CSR-MVA is greater than the no-CSR-MVA in the years 2000, 2001, 2003 al the significance level of 99% and in the years 1999 and 2002 at 95%;
- the CSR firm dimension (SIZE) is greater than the no-CSR for the whole years (95% in 1999 and 2000 and 99% in the others);
- the intangible expenses are statistically greater in the CSR group than the no-CSR in the year 1999 and 2001. Instead the two group are not significantly different in the other years;
- in 2000 ROE variable is significantly greater in CSR group.

By the cross section analysis we know that CSR-MVA is greater than the no-CSR. Nevertheless, this study is unable to tell us something about the gap level between the two groups, and it tells us nothing about the gap variability (probably it changes in the years but in which direction? Does it increase or reduce? In order to study the magnitude of this variability, we have used average MVA for the two groups, obtaining the following table 2.

table 2

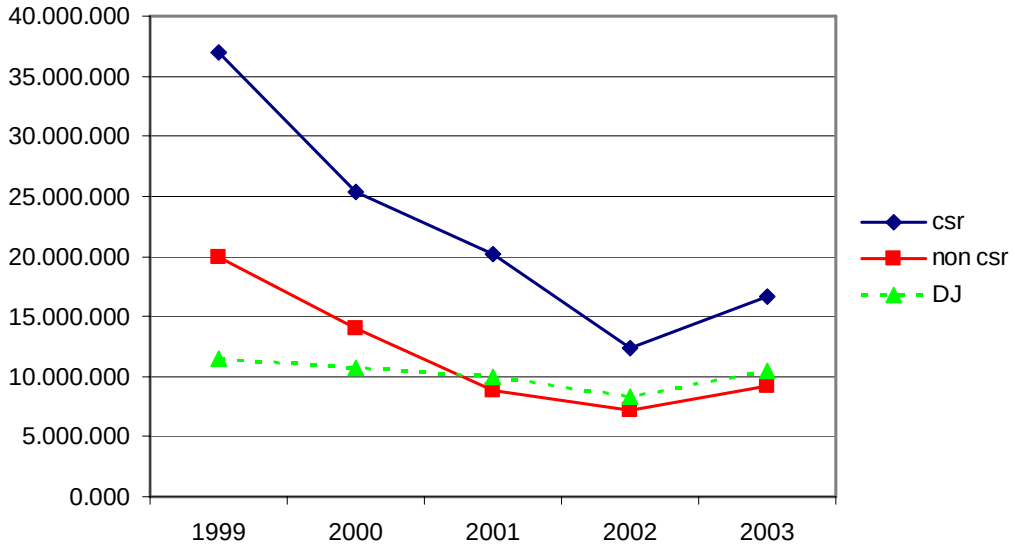
Average levels	1999	2000	2001	2002	2003
MVA CSR	36968.92	25363.29	20231.74	12324.95	16655.41
MVA NCSR	19901.77	14064.49	8881.49	7147.39	9199.32
GAP	17067.15	11298.79	11350.25	5177.55	7456.09

The results are:

- MVA of the two groups decreases until 2002 and in 2003 raises;
- the MVA gap reduces until 2002 and in 2003 increases again;

Given that the MVA of the two groups move with a common path, they probably have a common variable that affects the two groups, that could be the conjuncture, defined in our work by the Dow Jones Global Index: indeed if there is a economic crisis is probable that MVA decreases, ceteris paribus. Therefore, it is useful a comparison with the Dow Jones Global Index and MVA values, in figure 3.

Figure 3: comparison between Dow Jones and MVA



Comments about figure 3 are the following:

- MVA and DJ have a common path;
- MVA of CSR group is higher than no-CSR group, as we have seen in the previous section. This result is a consequence of a) a foresight in a uncertain context (the investors bet on CSR enterprises, forecasting an increase in the CSR shares); b) an increase in the firm value (investors include in their decision a perfect evaluation of the firm);

- both the two groups (CSR and no-CSR) have a evaluation higher than DJ. Since the whole firms belonging to our sample show a MVA higher and since the no-CSR group is built trying to maintain the same homogeneous sector structure with CSR group, our conjecture is that the firms that want to become CSR are characterized by high MVA. This implies a distortion in our sample. So, in conclusion: the gap between no-CSR MVA and DJ comes from the self-selection of enterprises in the CSR group; the gap between CSR and no-CSR group is specific of CSR choice.

The CSR firm size is greater than the no-CSR group in whole the 5 years studied. Size level has been calculated by using the sales values. Therefore, the result could depend on the great financial resources owned by big enterprises with great volume of sales (Waddock and Graves, 1997; Orlitzky, 2000).

The last result is that in CSR firms we observe higher expenses in intangible capital. This result is quite common in economic theory (McWilliams and Siegel, 2000): intangible capital includes also expenses in social context and also points a great attention to social investments.

7.1.2 USA vs. EU

Moreover we have extended our analysis making a comparison between European (EU) firms and United States (USA), table 3.

table 3

	1999	2000	2001	2002	2003
CSR	EU<USA ***	EU<USA ***	-	-	-
MVA	-	EU<USA **	EU<USA ***	EU<USA ***	EU<USA ***
INTANGIBLE	EU<USA **	-	-	-	-
ROE	-	-	-	EU<USA *	-
ROCE	EU<USA **	-	-	-	-
AGE	-	-	-	-	*EU>USA* ***

Comments about table 3 are the following:

- in 1999 the number of European CSR firms was significantly lower than in United States. This fact have changed since 2001, as it is possible to understand from the growth rate of CSR in EU and USA and as it is possible to find in figure 3.

- Since 2000, Market Value Added has been significantly lower for EU enterprises. This result is also supported by ROE and ROCE values. Our explanation is that probably MVA value includes market value of a firm. In particular, its value is greater,

the greater are the expectations about economic growth, i.e. the GDP growth rate. For this, the expectation in US firms' growth is higher than European firms, due to a more optimistic prevision for US growth path. In conclusion, this fact could explain why US MVA is higher that European one.

7.1.3 High vs. Low profile

The next comparison we made is between industrial *High* o *Low Profile*, where:

HIGH: according to Roberts (1992), industrial sector defined as "high profile" are these well-known by the customers with high political risk, characterized by high competition, like: oil, chemical, mining, forest, paper, cars, aeroplanes, energy, transport, tourism, agriculture, tobacco, alcohol, communication and media.

LOW: **in this group we have financial sector,** food, health, hotel, construction, electrical equipments, textile, clothing, retailing, medical provision, real estate. In literature, it is assumed that industrial sector characteristics, can affect social choice of an enterprise and so social performance.

For example, different industrial sectors, can face different risks. Fombrun and Shanley (1990) find a strong correlation between risk and stakeholder's assessment. Moreover, other important features of the sector (like dynamism, etc.) are reckoned as key factors of social performance.

table 4

	1999	2000	2001	2002	2003
CSR	-	-	-	-	-
MVA	-	HIGH<LOW **	HIGH<LOW ***	HIGH<LOW ***	HIGH<LOW ***
ROCE	HIGH<LOW ***	-	-	-	-
INTANGIBLE	-	*HIGH>LOW* ***	*HIGH>LOW* ***	*HIGH>LOW* ***	*HIGH>LOW* **
AGE	HIGH<LOW ***	HIGH<LOW ***	HIGH<LOW ***	HIGH<LOW **	HIGH<LOW **
DEBT	HIGH<LOW ***	-	HIGH<LOW ***		*HIGH>LOW* ***

Looking at table 4, we notice:

- there is no statistical difference between HI and LOW profile about social certification (CSR) and about ROE;
- MVA is strongly higher between 2000 and 2003 for the LOW profile;
- ROCE is higher in the LOW profile, only for 1999;
- intangible expenses are higher in HIGH profile (since 2000 until 2003);
- LOW profile firms are younger than the HIGH profile;

- the ration of short run debt over long run debt is higher in LOW profile in 1999 and 2001, instead it is lower in 2003. The results showed can be explained in the following manner:

- the difference between HIGH and LOW profile, according to the CSR index is not significant. This result comes from the methodology we have adopted to define the CSR sample and the sample of control: indeed, the propositions that the software search to be different, are fixed as equal in 2004 by definition. The result is that working backward the two different databases are not statistically different;

- for MVA values, the HIGH profile group is more volatile and therefore implies that stakeholders believe that their shares are more risky. This fact could explain a performance evaluation worse than LOW profile. Furthermore, the percentage of CSR firms is always higher in the LOW profile. Therefore, if a CRS firm has a higher level of MVA, a high percentage of CSR firms in a group of enterprises increases the MVA average level of that group. For this reason, given that the number of CSR enterprises is higher in the LOW profile than in the HIGH[20], a question arises: why there is a disproportion among the two groups. Is there a sector that pushes the firms to become CSR? From table 4.1, is possible to stress that the financial sector, belonging to the LOW group, has the highest percentage with respect the total number of CSR enterprises[21]. This could be explained bearing in mind that the social certification entails high costs (change of organization, plants, labour relationships and so on). It is probable that financial firms must face low costs to obtain certification;

- the results about ROCE variable are not sufficient to comment them;

- the high level of intangible capital expenses in the HIGH profile is an expected result, because this group includes sector with high technology that are strongly motivated to spend in Research and Development. Instead the LOW profile, is characterized by "traditional sectors" with a low level of innovation;

- as far as AGE is concerned, the result shows that the LOW profile enterprises are the youngest. This fact could be explained stressing that the HIGH profile enterprises are in

[20] Number of CSR for each group
table 5

	CSR		Non CSR	
	HIGH	*LOW*	*HIGH*	*LOW*
1999	41	125	75	176
2000	46	145	70	156
2001	58	177	58	124
2002	70	201	46	100
2003	77	221	39	80

[21] The sector called "discretionary consumption" is equably distributed in High and Low group.

general oligopolistic firms, characterized by a low number of new enterprises, by definition;

- finally, as far as the DEBT variable is concerned, is not possible to comment given the ambiguous result.

7.1.4. In details: USA vs. EU

Studying in depth our results, by focussing on the membership group, we obtain the following results:

US table 6

	1999	2000	2001	2002	2003
ROE	*NCSR>CSR* **				NCSR<CSR **
MVA			NCSR<CSR **		
AGE	NCSR<CSR **	NCSR<CSR **		NCSR<CSR **	

EU table 7

	1999	2000	2001	2002	2003
ROE		NCSR<CSR **	NCSR<CSR ***	-	-
MVA	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR **	NCSR<CSR ***
SIZE	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***
AGE	-	*NCSR>CSR* **	-	-	-
INTA	NCSR<CSR **	NCSR<CSR *	NCSR<CSR ***	-	-

About tables 6 and 7, we advance the following comments:

1) MVA:

- for US does not exist a univocal statistical result about the sign of the relationship between profitability and CSR variable. This fact could depend on an US high MVA independently from qualitative features. It is easy to notice that MVA volatility is higher in CSR enterprises than in the control sample. We have also stressed that during a bad conjuncture, CSR-MVA tends to drop sharply, converging towards the no-CSR level. In 2001 US had a short-term (figure 3), followed by a reduction of the growth rate of the number of CSR enterprises and the Dow Jones. In this step, it is possible that MVA level of CSR enterprises converges in a smooth manner towards the no-CSR value. However, in any case at a higher level than in the European market.

The lack of an univocal statistical result could mean a weak support by the public opinion to the firm's critical behaviour: it is likely that the critical demand in US is not

binding and the investment choice to become a CSR comes from different firms' (they try to forestall the critical growth or they adapt their investment choice to other markets);

- For the EU case, there exists a strong signal that the relationship MVA-CSR is positive. Our conjecture depends on the same comments about the US case, bearing in mind that the critical demand is more developed in EU than in US, as it is stressed in MORI [22] (Market and Opinion Research International) and as it is possible to notice by the political approach of EU and US to the environmental problem (e.g., the ratification of Kyoto Protocol). Moreover, it is possible to observe that the US crisis weakly affected EU market: indeed EU shows decreasing growth rates coming from the conjuncture and also specific causes. In this case, a weak shock implies a lower MVA reduction. For this, the CSR firms maintain a higher level of MVA.

2) AGE:

For USA, AGE variable seems to support Cochran and Wood (1984). Indeed this index for CSR firms is higher and this means that these enterprises are the youngest. Our insight is that the lower firm's age, the lower the costs to change the labour organization chart or to invest in innovations. Less clear are the EU results: the link between CSR and AGE is not statistically verified.

7.1.5. In details: HIGH vs. LOW

Last analysis concerns the comparison between CSR and non, in different HIGH and LOW industrial profiles:

LOW: table 8

	1999	2000	2001	2002	2003
MVA	NCSR<CSR **	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR **	NCSR<CSR **
SIZE	-	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***	NCSR<CSR ***
INTA	NCSR<CSR *	NCSR<CSR *	NCSR<CSR *	-	-

HIGH: table 9

	1999	2000	2001	2002	2003
INTA	NCSR<CSR *	NCSR<CSR *	NCSR<CSR ***	-	-

[22] See www.mori.com

As far as the LOW profile is concerned, and comparing CSR versus no-CSR firms, we obtain the following insights:

- in average MVA is higher in the CSR group in all the five years observed;
- dimension of the no-CSR enterprises is lower for 4 (since 2001 until 2003) of 5 years;
- the CSR expenses in intangibles are higher since 1999 to 2001, and are not significant for the years 2002 and 2003.

About the HIGH profile, the only significant variable is the expense in intangibles, and it is higher for the CSR group.

These results can be explained in the following manner:

- again it is possible to confirm that CSR_MVA is higher than no-CSR enterprises, and this is statistically relevant only for the LOW profile, less volatile;
- CSR dimension is bigger and this fact could depend on the higher level of resources that a CSR firm has. The difference between the LOW and HIGH significances, could depend on a minimum critical dimension of a LOW profile enterprise, required to become a a CSR firm; in the other case (HIGH profile) the firms are obliged to obtain certification independently from their dimension, if certification is part of the firm's strategy ex-ante its investment;
- finally, in both the cases, expenses in intangibles is higher for CSR firms. Indeed Research and Development is part of intangibles and it could be useful to improve "green technology". R&D variable is often used as a proxy of the CSR index.

7.2 Correlations among variables

In table 10, we show the correlations among variables for 2001, that seems to be the most representative[23]. In the following we will comment the main results[24].

[23] For the other correlations, see Poddi, L. (2005).
[24] In this respect we will comment the main relationships for the years in the whole.

Table 10

Correlation 2001	CSR	MVA	ROE	SIZE	AGE	INTA	INTENSITY	STLT	GDP
CSR	1								
MVA	0.1691 ***	1							
ROE	0.0017	0.0712	1						
SIZE	0.1375 ***	0.4034 ***	-0.0580	1					
AGE	0.0327	0.0692	0.0066	0.0473	1				
INTA	0.1186 **	0.0028	-0.0707	0.2522 ***	0.1689 ***	1			
INTENSITY	-0.0195	-0.0718	0.2343 ***	- 0.0968 *	- 0.0662	- 0.0865 *	1		
STLT	0.0325	0.0593	- 0.0059	- 0.0336	- 0.0492	- 0.0426	0.0171	1	
GDP	0.0400	0.0734	- 0.0108	0.0393	- 0.1208	- 0.0289	0.0132	- 0.0111	1

Our first consideration is that the correlation coefficient (r of Pearson) is in all the cases low. Therefore, even if there exists a significant correlation, it is weak. This fact implies that there is not a main variable that could totally explain the phenomenon studied: we need a formal model defined in a regression. Moreover, this evidence could solve the multicollinearity problem among the explanatory variables in the model we will show later.

It is in any cases important to study the sign of the correlation. That is:

- MVA is positively correlated with CSR variable and dimension (SIZE);
- SIZE is positively correlated with expenses in intangibles, that is variable INTA;
- CSR is strongly correlated to dimension and intangibles;
- And intangible is positively correlated with AGE.

It is possible to notice that MVA seems to be linked with CSR index, as also shown in the previous part, while a greater dimension implies a higher firm's evaluation. Indeed, given that SIZE has been built taking into account the total amount of sales, and given that the higher firms business the higher is the firm's performance perceived by the investors, than then the relationship MVA-SIZE is in line with the results shown in our table.

By observing our results, the youngest firms spend more in intangibles. This is due to the start-up procedure of a firm that includes costs for copyrights, R&D and innovation technology.

7.3 Regression Model

The dependent variable of our first model is called Π (that means profit or economic performance) and it can be defined or using MVA variable (that in some cases is assumed as the best variable because takes into account not only accounting data but also market evaluation), o using the ROE or ROCE. The independent variables are CSR and SIZE, according to the following scheme:

$$\Pi_{it} = \beta_0 + \beta_1 CSR_{it} + \beta_2 SIZE_{it}$$

where the subscripts i and t follow the statistical units (firms) during the years.

The next step should be a cross-section analysis for the 5 years to verify magnitude and sign of the relationship studied.

In this context, we might have a possible endogenous problem related to the CSR and performance variables[25]. The problem comes from the following syllogism: the firms with the best performance could be interested to enter in the social index, for their high available resources. Vice versa, a CSR firm has a higher reputation and fame and so could improve their market evaluation. So, before to run our regression, is necessary to understand which is the direction of this relationship $\Pi \Leftrightarrow CSR$.

To solve this problem, we have used the Hausman test[26]. The results of this test are in table 11.

Table 11

	Endogenous	Exogenous
1999		X
2000		X
2001	X	
2002		X
2003		X

[25] In general, endogenous variables are determined by the model, instead the exogenous variables are independent.

[26] This test estimates in two steps a regression by using instrumental variables (IVs) that are correlated with the independent variable (CSR) but not with the dependent one (Π). In the first regression, we fix CSR as the dependent variable and run the regression by using the IVs. The residuals catch the part of the regression which is not explained by the correlated variables. In the second step, we make the regression with the "true" function by inserting the residuals of the regression of the first step as regressors. In our specific case, we assumes MVA as a proxy of the performance for each of the five years and we use the variables INTA (Intangible expenses) and AGE (age of assets) as IVs. For example, for the year 1999 we have the following $CSR99 = \beta_0 + \beta_1 SIZE99 + \beta_2 INTA99 + \beta_3 AGE99$ and in the second step we have: $MVA99 = \beta_0 + \beta_1 CSR99 + \beta_2 SIZE99 + \beta_3 RES\_CSR99$. Finally, to verify if there exists endogeneity, we must observe the significance level of residuals. If they are significant, then there is not an endogenous problem.

The results show 4 cases over 5 the absence of an endogenous problem. Nevertheless to be sure to avoid this problem we have used the IVs' method.

Hausman test tells us nothing about the causality direction of the two variables. To answer to this question we have used the Granger test[27], useful for this problem.

We show the result of this test in table 12:

Table 12

Nil Hypothesis	χ^2	**p-value**
MVA does not cause CSR	0.2196	0.6394
CSR does not cause MVA	22.2216	0.0000

The first p-value does not bring us to refuse the hypothesis that MVA does not cause CSR. And so, the second p-value explain us that:

CSR ➔ MVA

7.4 Panel Data

The panel analysis is more useful to study longitudinal sample[28] in a continuous framework. We have used STATA software to estimate our model. Given that in literature is assumed endogeneity between MVA and CSR index, we have used the instrumental variable (IVs) method. To do this, we have used the variables INTANGIBLE e AGE, that are correlated with the dependent variable MVA but that are not correlated with the independent variable CSR, that we assume as an endogenous variable[29].

7.2 MVA Analysis

In the following we show the main results:

Regression: MVA dependent variable

[27] Granger (1969) approach to answer if x causes y, consists in study how much of y is explained by lagged y and verify if also lagged value of x could improve the explanation of y. Y is "caused in the sense of Granger" by x, if x helps the researcher to forecast y, or, likewise, if the coefficients of the lagged variables of x are statistically significant.

[28] Longitudinal data follow a sample along the time and, therefore, they give multiple observations about an individual. Their advantages with respect a cross section analysis are a higher number of observations, a reduction of the collinearity problem, improving the efficiency of the econometric estimates. In common with the sectional analysis, there is the sampling process, while the temporal organization is in common with time series. Moreover panel data take into account of non-observable heterogeneity among variables. As far as their limit is concerned, the panel analysis entails problems related with collection and organization of data.

[29] The method estimates the coefficients of the two instruments over CSR and uses the residuals in the next regression over MVA, in order to rule out the endogenous effects on the regressor CSR.

Tab. 13

	Model 1 Coefficient (z stat)	Model 2a Coefficient (z stat)	Model 2b Coefficient (z stat)	Model 3a Coefficient (z stat)	Model 3b Coefficient (z stat)	Model 4 Coefficient (z stat)
Intercept	- 1306658 (- 2.13)**	- 1557901 (- 2.27)**	-1370819 (- 2.35)**	- 418917.8 (- 1.36)	39154.62 (1.75)*	- 914084.7 (- 1.78)*
CSR	- 325748.2 (- 2.51)**	- 345438 (- 2.59)**	- 328930.9 (- 2.70)***	- 348862.7 (- 2.55)**	- 341819.9 (-2.59)***	- 323266.9 (- 2.17)**
SIZE	32029.9 (1.58)	50274.22 (2.01)**	43326.09 (2.00)**	42977.74 (1.90)*	43637.06 (1.95)*	28508.12 (1.41)
GDPPRO	47.64 (2.20)**	54.53 (2.32)**	49.02 (2.41)**	15.83 (1.48)		
GDPPRO_1						33.68 (1.86)*
INTENSITY		327.2976 (0.44)				
STLT		0.0004 (1.76)*	0.0004 (1.79)*	0.0004 (1.70)**	0.0004 (1.68)*	0.0004 (1.65)*
DEMAND				2.44e-07 (2.01)**	3.12e-07 (2.30)**	1.53e-07 (1.74)*
$\overline{R}^2$	0.78	0.7167	0.7197	0.7249	0.7248	0.8581

(*) 90% significant; (**) 95% significant; (***) 99% significant;

Where: $\overline{R}^2$ [30]= adjusted R^2; CSR = dummy variable that assumes value 1 if the firm belongs at least to two of the indices adopted; SIZE = variable that assumes 1 for small enterprises, 2 for medium enterprises and 3 for the biggest ones according to the amount of sales; GDPPRO = GDP per capita of the country of a firm; GDPPRO_1 = GDP per capita with a year of lag; INTENSITY = labour intensity calculated as the ratio between the number of employees over the total asset; STLT = is the ratio between short-term debt and long-term debt; DEMAND = is the critical demand in UK, used as a proxy of ethical consumption in OECD.

Model 1

The first model is the following:

$$\mathrm{MVA}_{it} = -1306658 - 325748.2 * \mathrm{CSR}_{it} + 47.64 * \mathrm{GDPPRO}_{it} \qquad (1)$$

The result of our first regression shows that:

"MVA decreases when CSR increases"

Our explanation follows these steps:

[30] It is important to stress that panel regressions have a R^2 very low. The explanation of this is due to the intertemporal interpolation of data. Indeed the panel is a merge of cross analysis with historical series. Its explanatory function is in the between the two methods. The difference with respect historical series is that there exists a difference among individuals. For this we should observe a R^2 quite similar to cross section's one. For this, we must calculate the $\overline{R}^2$ using a methodology adopted in these cases.

- we remember that CSR is a dummy and it assumes value equal to 1 when a firm belongs to the CSR sample. This fact implies that model 1, studies how much the average of MVA changes when a firm starts to belong to the CSR group. From figure 3 and tables 3 and 4 we know that a CSR firm has a higher MVA, thence we could expect a positive relationship between MVA and CSR. But we must pay attention to the comparison between figure 1 and 3: MVA is higher for the CSR firms, but the interpolation analysis does not distinguish among the two groups (CSR and no-CSR), but evaluates the average level of MVA. The result is that along the time MVA has been reducing but in the meanwhile the number of CSR firms has been increasing. This explains why the sign between the two variables is negative. A further close examination stresses that the whole of the sample is a finite number so when the number of CSR increases in the same time the number of no-CSR decreases. For this the coefficient shows how much MVA changes depending on a variation of the percentage of CSR in the sample. Therefore, an increase of the number of CSR enterprises means that some enterprises have changed their group in the sample. These changing firms come from the no-CSR group with a low MVA level, they go in the CSR group with high MVA, so their entries reduce the average MVA.

The second main result that arises from our model 1, is that the MVA increases with the rise of the GDP per capita. This result is not surprising, because when the DGP per capita increases there is a rise in the resources useful for further investments.

The variable SIZE is hot shown because it is not significant. This variable seems to show contradictory results. Intuitively speaking we can argue that it is not so obvious that a higher amount of sales implies a better market evaluation, especially durino a unfavourable conjuncture.

Model 2a

The regression of the 2nd model is the following:

$$MVA_{it} = -1557901 - 345438 * CSR_{it} + 50274.22 * SIZE_{it} + 54.53 * GDPPRO_{it} + 0.0005 * STLT_{it} \quad (2)$$

This model varies in the introduction of the variables STLT and INTENSITY. In this case, variables SIZE and STLT are significant.

About the signs of the CSR and GDPPRO see the explanations given for the model 1. Positive sign of STLT means that the short and long term debt ratio tends towards a

higher percentage of short debt. The investors prefer to buy shares because they expect an increase of profits in the long run.

Finally, variable INTENSITY is not significant and this could mean that CSR index is not affected by variables related to the firms' structure and organization. Indeed it is not verifiable that a firm with low intensity has a lower Π.

Model 2b

The model is:

$$\mathrm{MVA}_{it} = -1370819\ 328930.9 * \mathrm{CSR}_{it} + 43326.09 * \mathrm{SIZE}_{it} + 49.02 * \mathrm{GDPPRO}_{it} + \\ + 0.0004 * \mathrm{STLT}_{it} \qquad (3)$$

Without the variable INTENSITY (not significant) the regression is confirmed and the $\overline{R}^2$ is greater.

Model 3a

The model is:

$$\mathrm{MVA}_{it} = -348862.7 * \mathrm{CSR}_{it} + 42977.74 * \mathrm{SIZE}_{it} + 15.83 * \mathrm{GDPPRO}_{it} + 0.0004 * \mathrm{STLT}_{it} + \\ + 2.44e-07 * \mathrm{DEMAND}_{t} \qquad (4)$$

Our first comment stresses that MVA is not only a premium that investors give to the firms' strategies but it also could be, in the case in which there is a perfect asset evaluation and therefore absence of asymmetric information, the firm profit. On the one hand, a rise in GDP per capita means a higher consumption and therefore higher sales, on the other hand is not so obvious that higher wealth means higher expenses in ethical products. In order to understand in which manner the product differentiation of CSR firms affects the firm Π, we must include another variable: critical demand. This variable is closely related to the GDP per capita because, as we have seen in figure 1, we observe a higher number of CSR firms in the most developed countries. This fact implies that the critical behaviour and so the critical demand tends to rise in OECD countries. To confirm our surmise, we have used a causality test, showing that GDP per capita ➔ DEMAND. After our digression, it is not surprising that model 3° shows a GDP per capita not significant, because its effect is caught by DEMAND. R^2 value and the significance of DEMAND seems to support our model, even if the constant is not significant, showing the DEMAND plus GDP per capita imply not clear results. From this we obtain the following model 3b.

Model 3b

$$MVA_{it} = -39154\ 341819.9 * CSR_{it} + 43637.06 * SIZE_{it} + 0.0004 * STLT_{it} + \\ + 1.53e-07 * DEMAND_{t} \quad (5)$$

R^2 value and the significance of the whole coefficients, show that the model is the best among ours. Nevertheless, we have stressed that a GDP pro capita high implies a development of a critical demand and therefore it is likely that a legged GDP per capita could affect MVA, as we show in the model 4:

Model 4

$$MVA_{it} = -914084.7\ 323266.9 * CSR_{it} + 33.68 * GDPPRO\_1_{it} + 0.0004 * STLT_{it} + \\ + 1.53e-07 * DEMAND_{t} \quad (6)$$

SIZE is not significant.

About R^2 and coefficient see the previous model. A further comment could be about variable SIZE that in the whole cases does not show a clear and univocal result.

For the last three models (3a, 3b e 4) we have developed an analysis that includes a critical demand weighted for the consumption level of each country. It is obvious that, by construction, it must be strongly correlated with the GDP per capita (0,9), knowing that consumption level is one of the main part of the GDP. But the construction of this variable should be the extreme synthesis of the critical behaviour of consumers, including also two variables affecting MVA: a higher GDP per capita is in general linked with an increasing DJ; moreover a high critical demand pushes the investors to bet on CSR enterprises, because they wait for an increase in the profits in the long-term. Nevertheless, Nevertheless, there are two weak aspects that have pushed us to use other variables: a) on the one hand it is weighted with respect the critical demand of UK (thesis due to the fact that, as far as we know, there are no other reports about critical demand) while, instead, it should be better to have more complete data; b) on the other hand, to avoid the problems explained in point a), we have thought to distinguish between the two aspects studied by adopting the following variables:

1. GDP per capita as a proxy of critical behaviour and conjuncture;
2. Demand: variable that tries to catch the linear trend of critical demand. The idea behind consists of assuming that the trend of critical demand follows the same trend in different countries. This is due to the assumption that a ethical behaviour starts after a trigger point about wealth is reached. Therefore the critical behaviour arises after a

common threshold point and for homogeneous countries about the GDP per capita. Adopting this variable we have searched to distinguish between GDP per capita and critical behaviour.

We have test the absence of a multicollinearity among regressors, by using the diagnostic VIF[31]. In our case VIF value is 1.07, and therefore there is no multicollinearity problem.

8 Close Examinations

8.1 CSR and Beta

In order to verify the link between CSR and firm's risk, we have divided the distribution of the whole sample (417 firms) in quartiles, by using the Beta level of 2004. The first quartile contains the 25% of observations belonging to the interval [-0.02; 0.68] in which are gathered the less risky firms that have a beta level lower than the benchmark case (market level equal to 1) and that have a low volatility. The last quartile instead includes the more risky firms[32].

In the following table (table 14) we have the number of CSR and no-CSR enterprises, belonging to the first and fourth quartile, that is, the less (Nrisk) and the more risky (Risk), respectively for the years between 1999 and 2004.

table 14

CSR	1999	2000	2001	2002	2003	2004	TOT
Nrisk	34	37	46	59	65	71	112
Risk	42	48	62	71	78	82	102
NCSR	1999	2000	2001	2002	2003	2004	TOT
Nrisk	78	75	66	53	47	41	112
Risk	60	54	40	31	24	20	102

Our first comment is that nothing can be said about the dynamic impact of the certification on the risk (indeed we have only the beta index of the year 2004). The analysis will be on static relationships among variables, focussing on the number of enterprises belonging to the different groups[33].

Our insights are the following:

a) The total number of Nrisk is higher than for the risky firm. But, it is possible to stress that in the two groups the number of CSR firms is higher in the case Risk (and

[31] VIF means "Variance Improvement Factors". If VIF is high we have a multicollinear problem.

[32] It is useful to stress the Beta index is a market share index and it contemplates a speculative risk. It is could be assumed also as an index of working risk under the assumption of perfect markets.

[33] Our implicit assumption is that we maintain fix the extremis of the intervals.

higher the difference in percentage). This fact implies that there exists a high share of risky CSR firms. It is an odd result that the highest percentage of risky firms is CSR. This fact is in opposite with some results in economic literature. Indeed, McGuire, Sundgren and Schneeweis (1988), Trotman and Bradley, (1981); Roberts, (1992), find that "*risky firms use CSR to reduce their risk*" and therefore our expectation is that we should find a low number of CSR firms in the risky group (the fourth quartile). About this, our insights are the following:

1) a beta higher than 1 could mean a high positive volatility of the share, like a consequence of economic shocks. This observation could come from a investors bet on the shares;
2) if we assume a perfect market, that implies that the investors perfectly foresee the asset value and the riskiness of an investment, then it is useful to study in depth the total distribution of enterprises with respect the beta index (figure 14 and 15):
    i) given that there is an positive (right) asymmetry of distribution, we have a higher number of non-risky enterprises;
    ii) but, since the average beta is higher than 1, then it is possible to observe, according to point a), that in our sample there are some firms very risky (which beta level is so high to move the distribution to right) certified as CSR (i.e. outlier cases). In this context, the strategic choice of the management could have been to become CSR in order to reduce riskiness (as assumed by Jenkins and Newell), but the effect is a medium-long run effect and we must wait for finding some results about it. The crucial insight is in the year taken into account and in the period in which the virtuous behaviours starter. Therefore, our results are not in opposite to economic literature, but they stress that is necessary to focus the analysis on the timing of investment adoptions and on the firms' heterogeneity to better understand the link between CSR and risk. In conclusion, the high number of CSR firms in the fourth quartile stresses that probably the risky firms want to become responsible. Moreover we must wait a medium-long run to find the effects of social responsible behaviour.

Figure 4

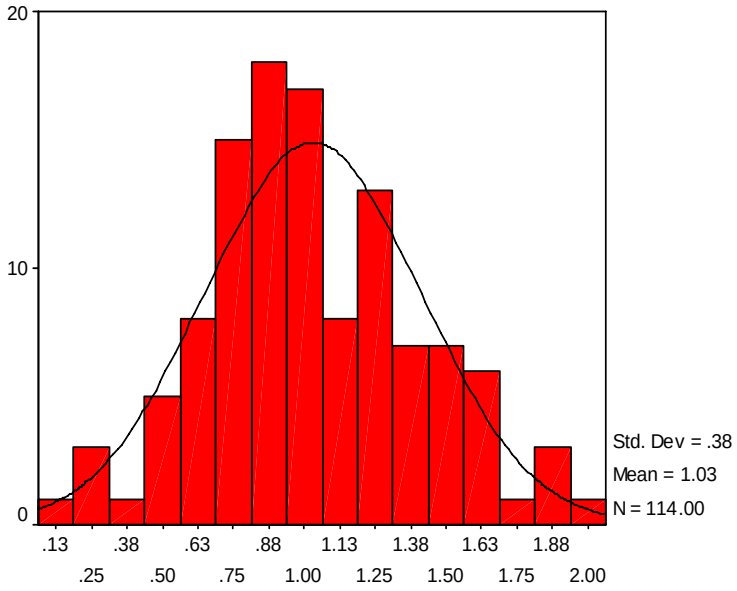


table. 15

Average	1.0299
Median	0.9900
First quartine	0.7900
Second quartile	0.9900
Third quartile	1.2925
Minimum	0.09
Maximum	0.7900

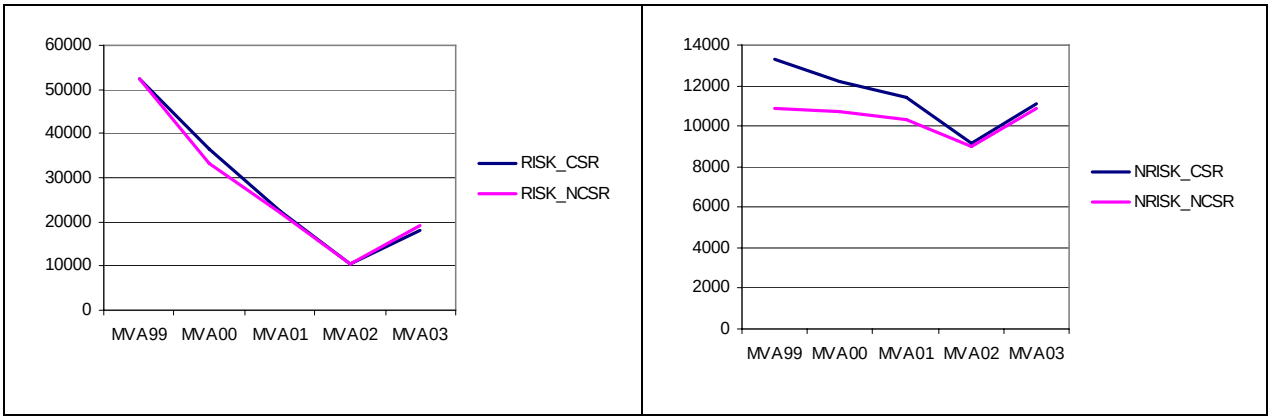
8.2 A comparison between MVA, Beta e CSR

Table 16

	MVA99	MVA00	MVA01	MVA02	MVA03
RISK_CSR	52317.99	36532.09	22342.89	10617.67	18110.22
RISK_NCSR	52459.61	33152.37	21955.76	10624.4	19247.68
NRISK_CSR	13332.24	12214.53	11418.76	9182.31	11134.10
NRISK_NCSR	10839.88	10740.26	10322.76	8972.41	10848.98

Comparing the MVA average level among risky and non-risky firms, we find that a firm with higher volatility in its shares has a higher profitability both in CSR case and in the no-CSR.

Figure 5



From table 2 and figure 3, we know that MVA_CSR is higher than MVA-noCSR, but from figure 5 it is possible to stress that in the last quartile there are quite similar values. How can we explain that MVA_CSR is equal to which one of no-CSR? Comparing this result with table 16, we find that the highest difference about MVA values is in the middle of the distribution. Maybe the only explanation is in the short term effect of the CSR investment: if, as we have observed, the adoption of virtuous behaviours is a management's choice to reduce riskiness in the long-run, it is possible that the fourth quartile is mainly composed by firms that have been recently certified CSR. Therefore, there is not difference among CSR and no-CSR firms. The only difference is a formal certification that needs time to act. Moreover, we stress that if the fourth quartile were composed as a normal Gaussian distribution of new and old CSR firms (therefore, a distribution with respect the age of CSR enterprises), then we will have virtuous and non-virtuous effects that could counterbalance: indeed, on the one hand, in the short-run the certification could reduce MVA level, because the firm must bear costs to become CSR. On the other hand the possibility to have a risk reduction and better performances, could increase the MVA level[34]. The two effects combine, and the result is that we have CSR values equal to the no-CSR ones. As far as the central quartiles is concerned, we must do a different remark: a higher MVA level for CSR could be due to the old age of the firms belonging to these quartiles. In this case they could have "metabolized" the investors' premium that is a lower volatility and a higher MVA[35].

Finally, we find that the addition of beta variable entails a change in the stock perception:

[34] The belonging to the fourth quartile could be due to a short adoption timing or a specific risk.
[35] In order to distinguish the age of CSR firms, we need more data for more years, but this is not possible at the moment.

a) if the firm is non-risky is better to be CSR;

b) for risky firm is indifferent .

8.3 Industrial sectors

As regards the role related industries, you can assume that they constitute an important element for the analysis of CSR companies. A company, to be certified as CSR, has to support costs on the adoption of "virtuous" behaviour in the organisational structure of the company, both as regards ethical and environmental negative externalities. It must also reduce actions detrimental to ethical principles. Therefore it is plausible to consider that it is more difficult to certify as CSR companies that by the very nature of its core business are more involved in potentially harmful activities, such as oil companies. At the same time, some companies are facilitated to support the costs required, as these charges are not in any way to reduce the profitability of the company, like banks. In the light of these comments, we are able to make comparisons between sectors in our sample, in order to discern the sector impact between CSR and not. However, hardly it can be seen significant peculiarities in the two groups, because the control sample has been specially constructed homogeneous for industrial sector. That is to say that there is implicitly difference between the two groups, with regard to sector composition. Therefore, the results derive from the descriptive analysis to which we refer (see Poddi (2005), paragraph 4.1.2).

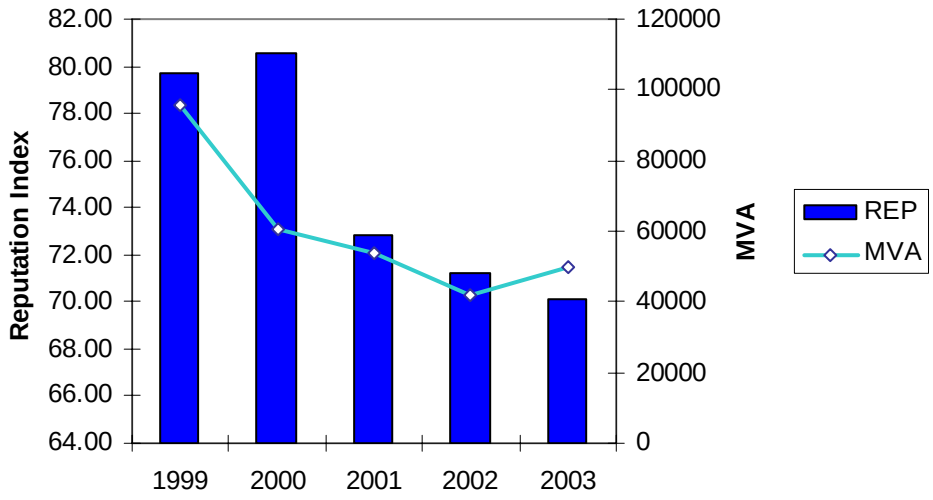
8.4 Reputation

In literature, it seems that the concept of reputation is of fundamental importance as regards the effects of CSR. The basic concept consists in considering the reputation as a consequence and synthesis of a strategic choice of business (Cowen et. Others, 1987; Roberts, 1992; Preston and O'Bannon, 1997): the decision to become CSR is perceived by consumers and by investors as a sign of possible future performance. We have also seen that it is not a cause that investors reward this choice with a highest MVA on average. Therefore, given the importance of this variable, we tried to implement it in our model. How is easily understandable, however, the search for an index that somehow summarising a highly subjective concept, as the reputation, can only lead to considerable problems for its construction, the accuracy with which the parameters are fixed and, ultimately, its reliability. The only parameter that we have been able to find in the literature is the Reputation Institute, shown in paragraph 6.4. As you can observe from the variables with which this index is constructed, at least theoretically, there is a

strong link between CSR and Reputation Index, because the variable CSR is one of its fundamental elements. However carried out by empirical evidence, the reputation index is not significant, thus highlighting errors of the empirical model or for a combination of internal weights to that shall prevail, as preponderant, some other variables.

It should be noted that another key variable in building the reputation quotient is the financial performance. In order to ascertain the reasons for failure significance of the parameters, we projected data related to the reputation and financial data. We show in Figure 6 average values of Reputation Index and the MVA on the only companies we have the data, to represent what has emerged: the index reputation is almost completely weighed on financial variable.

Figure 6



This stimulates highlighted some important comments:

a. the reputation index represents the theoretical summary of the effects of CSR. Therefore, it makes sense to embed the variable CSR in its construction, however,

b. there is an obvious problem cause and levels of analysis: given the point a. and the fact that CSR causes financial performance, it makes little sense, according to the theoretical approach that we follow, to build an index that incorporates different levels of analysis. Indeed embed performance and to be CSR, it means taking the variable explicit and implicit of the same phenomenon. It therefore creates an obvious problem of multicollinearity.

8.5 Social Capital

We have done further a probit analysis inserting as explanatory variables an indicator of the presence of social capital in a country. This measure reflects the number of donations and associations within the community and should provide the degree of altruism present in that area. The most interesting result is that by inserting as regressor SIZE, PILGRO, DEMAND and Social Capital (SC) delayed by one year, you get a coefficient for capital significant and positive. This seems to indicate that the company expects a period to see how consumers react against social exclusion. Based on this trend, the company creates a product, which generates demand for critical consumption.

9 Conclusion

Our work has tried to verify, after a review of literature, by using panel data, if some performance indicators can be affected by the firms' social responsible behaviour and their certifications. The novelty of our analysis comes from its dynamic aspect and from the building of a CSR index that intersects two of the three main international indices (Domini 400 Social Index, Dow Jones Sustainability World Index, FTSE4Good Index), in order to be objective and to have a representative sample.

In our work we have analysed some simple descriptive statistics and after we have studied by using cross section and panel data econometrical approaches, by trying to verify if social certification could affect firms' profit.

The multitude of approaches are here the scope of analysis that we believe necessary given the complexity of this issue.

A first, if rather simple approach has already given us some interesting results concerning aspects which to our knowledge have not been treated in the literature. Indeed, results of our first statistical study have shown the considerable growth of CSR firms over the last ten years that are not uniformly distributed in all countries of the world. Indeed, there is a certain asymmetry of this phenomena. Initially, there would seem that this asymmetry is due to the link between CSR firms and economic development. Intuition would tell us that only when there is a determined level of economic development pro capita will the so called 'critical sense' of an individual develop. This intuition is underlined by the fact that CSR firms have increased substantially almost exclusively in Europe and the United States.

The second result of our descriptive analyses shows that this relation has a delay period as long as certain independent factors influence the dependent factors. This is not

surprising as it is reasonably logical that the perception of a certain ‘status’ can only occur with a temporal lag and that this can in turn be explained by dependent variables.

The following observations have shown that there is a difference in the development of CSR in two principal geographical areas: On one hand the US has more CSR firms while Europe has a higher growth rate of CSR firms that would point to a convergence of the two areas. The following stage is the research for a clear reply to our main question; what relation exists between performance and CSR? As performance yardstick we have used what would appear to be the most complete measure in the literature given that it is a solution to the slowness of accounting measures and the subjectivity of investors to market measures. Due to the lack in the literature of not only a single definition of the performance-CSR relation but also to its cause, we have used a specific analytical statistic to determine the positivity of this relation. From the data we have gathered, it would seem that there is a clear positive relation; i.e., CSR influences performance.

During the calculation of this analysis, we used NPC software that can make layered studies by comparing certain groups to the variables we wan to look at (MVA, CSR, ROE, ROCE, INTA, AGE, etc.). These groups have been defined on a geographical basis, from a low to high industrial profile and to whether the firms belong to the group of CSR firms. The principal findings are that MVR is on average higher in the CSR group than in no-CSR firms. We also found that CSR certified firms have increased (and therefore there is an increase in firms with a low average MVA in the CSR group, thus lowering the average MVA in this group). This result would seem to support what we have stated in the descriptive analysis.

Subsequently we have presented and interpreted the correlation between all these variables. In particular, we have concentrated on MVA as a performance variable, comparing it with two other typical variables ROE and ROCE. Regression was carried out on a data panel and also using the variable instrumental method to eliminate any possible objection to the link between performance and CSR.

The principle result is that MVA decreases with the increase of CSR, which seems to contradict the previous result where MVA is higher in CSR firms. In reality, the increase in the temporal series of CSR firms reduces the number of no-CSR firms: this migration shifts low MVA (non CSR firms) into the CSR group thus reducing the average value of the latter. This process explains the relative negative sign of the regression. Other results of the panel analysis underline that, using MVA as a

performance variable, the focal point is the evaluation of the value of the firm by the investors, so an increase in MVA underlines that they are 'backing' a determined firm.

In this regard, we have reflected on whether the market is indeed perfect: if the market is perfect or at least from the CSR point of view, then investors should be able to perfectly evacuate the value of a firm and so an increase in MVA would generate an instantaneous improvement in the performance of a firm. If this is not the case however, then investors would invest in the future possibility of a particular firm's structure. In this case the analysis would go from being short term to medium-long term.

Subsequently, we looked in more detail into industrial sectors and certain variables linked to CSR such as the risk level of a share, corporate reputation and social capital in the reference country.

For industrial sectors, no econometric analysis can be used, given that the control sample was made up on an ad hoc basis so as to keep the sector composition of the CSR sample. However, it would seem from the descriptive analysis that the financial sector (banking, insurance etc.) is that with the highest rate of CSR, given that costs for CSR certification are lower.

For the risk factor analysis, our results do not disprove the literature but they do underline that it is necessary to concentrate on timing and the heterogeneity of a firm to be able to understand the link between risk and CSR. Indeed, we cannot clear say that the strategic choice of becoming a CSR firm reduces risk. Therefore, it would seem necessary to plan I the medium-long term before being able to see the effect of certification on the market.

An interesting development of the analysis could be to compare MVA with a Tobin study, using a real option approach that would seem to be in line with out own results.

Appendix

Table 17: The sign of the relationship between CSR and Performance in economic literature

Paper	Variables	Sample and Method	RESULTS
Moskowitz, 1972	Shares	14 firms	Positive
Brangdon and Marlin, 1972	ROE ROC EPS	17 paper firms	
Bowman and Haire, 1975	ROE 1969-73	14 firms with equal dimension and sector	
Parker and Eilbert, 1975	ROE EPS	80 firms by Fortune	
Spicer, 1978	ROE P/E ratio Beta	18 paper firms	
Chen and Metcalf, 1980	ROE P/E ratio Beta	16 paper firms	
Cowen, Ferreri and Parker, 1987	ROE	Firms by Fortune	
Waddock and Graves, 1997	ROA ROE	Firms by S&P 500	
Preston and O' Bannon, 1997	ROA	67 firms 1982-92	
Luce, Babe, Hillman, 2001	ROA	100 firms by S&P 500	
Alexander and Buchholz, 1978	Capital gain 1970-74, Beta	40 firms	Neutral
Aupperle, Carroll and Hatfield, 1985	ROA Beta	241 firms	
McWilliams and Siegel, 2001	ROA R&D expenses	524 firms by Compustat	

Vance, 1975	Shares 1972-75	14 firms by Moskowitz	Negative
Cochran and Wood, 1984	Redditi operativi/vendite Redditi operativi/capitale Valutazioni di mercato in eccesso	36 firms in 29 settori industriali	
Wright and Ferris, 1997	Eccesso di rendimenti	31 firms	

Table 18

Company	Country	REP99	REP00	REP01	REP02	REP03	REP04
Johnson & Johnson	USA	83.4	81.6	82.5	82.1	79.47	79.81
3M	USA			80.2	78.2	76.67	79.07
Coca Cola	USA	81.6	80.9	80.8	79	77.95	78.90
Procter&Gamble	USA			76.6	76.7	76.48	78.26
United Parcel Service (UPS)	USA			76.6	78.7	78.49	78.24
Microsoft	USA	77.9		81.8	76.8	77.86	78.00
Sony	USA	77.4	80.5	79.4	77.5	75.81	77.95
Intel Co.	USA	81	79.9	80.8	74.6	74.86	76.10
Dell Computer Co.	USA			77.1	78.2	76.04	76.00
Eastman Kodak Co.	USA				78.5	75.84	
Toyota Motor Co.	USA			75.6	72.9	74.01	75.59
Home Depot	USA		80	75.6	78.2	75.78	74.77
Walt Disney	USA			78	76.2	77.95	74.03
Target	USA			75.1	73	72.09	73.25
Hewlett-Packard/Compaq	USA	81.2	80.6	79.2	73.2	72.95	73.16
Unilever	USA			68.8	68.9	65.9	72.55
Pfizer	USA			73		71.34	70.97
Nike	USA			71.6	69.6	69.81	70.57
Wal-Mart Stores	USA			76.3	75.2	72.87	70.56
E.I. DuPont de Nemours & Co.	USA			72.1	71	71.58	
Sears, Roebuck and Co.	USA			68.5	70.9	68.5	70.06
General Motors	USA			73.6	69.4	66.97	68.18
Verizon Communications	USA				65.8	65.55	67.71
Penney J. C.	USA				69.3	68.41	67.56
Ford motor Co.	USA			63.9	63.9	66.03	65.64
SBC Communications	USA				62.4	65.24	65.05
Citigroup	USA			69.3	63.3		64.10
AOL Time Warner	USA			64.5	59.4	57.25	63.89
Bank of America	USA			60.2		63.43	63.56
At&T	USA	75.7		65.2	65.2	61.83	60.23
Altria Group, Inc.	USA					53.49	60.58
Sprint	USA			65.3	57.7	59.58	59.63
Bridgestone Corp.	USA			46.7	50.3	53.95	58.08

Tab 19	N	N*	Media	Dev Std	Min	Max
Beta04	408	9	0.94	0.40	-0.02	2.06
ROE99	330	87	17.85	20.28	-164.35	123.97
ROE00	402	15	16.49	25.18	-235.56	215.45
ROE01	405	12	13.31	33.24	-110.21	473.08
ROE02	402	15	9.69	60.73	-776.71	659.14
ROE03	397	20	12.48	36.55	-174.87	553.95
ROCE99	229	188	20.91	24.09	-62.61	288.61
ROCE00	298	119	24.20	93.49	-230.87	1548.67
ROCE01	299	118	20.44	106.09	-82.17	1797.38
ROCE02	300	117	10.67	32.84	-303.13	290.64
ROCE02	296	121	13.72	28.80	-85.74	410.61
Size99	333	84	1.56	0.78	1	3
Size00	407	10	1.65	0.81	1	3
Size01	408	9	1.66	0.82	1	3
Size02	409	8	1.67	0.82	1	3
Size03	398	19	1.73	0.83	1	3
Age99	312	105	0.57	0.16	0	1
Age00	388	29	0.58	0.15	0.28	1
Age01	388	29	0.57	0.15	0.24	1
Age02	390	27	0.56	0.17	0	1
Age03	386	31	0.56	0.19	0	1
Inta99	298	119	1700.59	4138.68	0	48686
Inta00	363	54	2577.46	6965.26	0	93322
Inta01	365	52	3816.76	13709.71	-548.47	169054
Inta02	366	51	3934.689	11359.46	0	150864.3
Inta03	361	56	4447.564	12711.91	0	170839.2
MVA 99	319	98	26804	60327	-4855	606311
MVA 00	404	13	19332	38458	-77743	331260
MVA 01	405	12	15383	33241	-33015	312924
MVA 02	407	10	10544	25227	-65281	228879
MVA 03	399	18	14562	28691	-38968	238414
Gdp99	417	0	29687.62	5823.91	13408.69	38503.35
Gdp00	417	0	30521.15	5891.35	13870.68	39322.41
Gdp01	417	0	30572.24	5701.15	14183.02	40197.57
Gdp02	417	0	30848.13	5703.4	14407.88	40526.50
Gdp03	417	0	31414.64	5921.21	14691.25	40481.91
Gdpgr99	417	0	3.52	1.39	0.06	5.61
Gdpgr00	417	0	3.65	0.77	2.04	10.2

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- The London Benchmarking Group - www.lbg-online.net
- UE, Commissione delle Comunità Europee - http://www.europa.eu.int
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