NOTA DI LAVORO

53.2012

Does Corporate Social Responsibility Affect the Performance of Firms?

By **Nicola Comincioli**, University of Brescia

Laura Poddi, University of Ferrara

Sergio Vergalli, University of Brescia and FEEM

Economy and Society Series
Editor: Giuseppe Sammarco

Does Corporate Social Responsibility Affect the Performance of Firms?

By Nicola Comincioli, University of Brescia
Laura Poddi, University of Ferrara
Sergio Vergalli, University of Brescia and FEEM

Summary

Over the last two decades in OECD countries an increasing number of firms are obtaining certification as Socially Responsible (CSR is the acronym for Corporate Social Responsibility). Several studies (including Preston and O'Bannon, 1997; Waddock and Graves, 1997; McWilliams and Sieger, 2001; Ullman, 1985) have sought to test whether there is a relation between Social Responsibility certification and firm performance. Our work builds 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 overcome some problems related to the multiplicity of CSR definitions and certifications. By using this database in a panel framework, our work shows that some performance indicators are affected by a firm's social responsible behaviour and certifications. The main results seem to support the idea that CSR firms, which are more virtuous, have better long-run performance: even if they have initial costs due to the certification, they achieve higher sales volumes and profits, thanks to the reputation effect, a reduction in long-run costs and increased social responsible demand.

Keywords: Corporate Social Responsibility, Growth

JEL Classification: M14, C23, O10

Address for correspondence:

Sergio Vergalli
University of Brescia
Via San Faustino 74/b
25122 Brescia
Italy
E-mail: vergalli@eco.unibs.it

Does Corporate Social Responsibility Affect The Performance of Firms?

Nicola Comincioli Laura Poddi[1] Sergio Vergalli[2]

Abstract

Over the last two decades in OECD countries an increasing number of firms are obtaining certification as Socially Responsible (CSR is the acronym for Corporate Social Responsibility). Several studies (including Preston and O'Bannon, 1997; Waddock and Graves, 1997; McWilliams and Sieger, 2001; Ullman, 1985) have sought to test whether there is a relation between Social Responsibility certification and firm performance.

Our work builds 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 overcome some problems related to the multiplicity of CSR definitions and certifications. By using this database in a panel framework, our work shows that some performance indicators are affected by a firm's social responsible behaviour and certifications.

The main results seem to support the idea that CSR firms, which are more virtuous, have better long-run performance: even if they have initial costs due to the certification, they achieve higher sales volumes and profits, thanks to the reputation effect, a reduction in long-run costs and increased social responsible demand.

Key Words: Corporate Social Responsibility, Growth.

JEL: M14, C23, O10

[1] University of Ferrara
[2] University of Brescia and FEEM

Introduction

Over the past two decades in OECD countries there has been an increase in Corporate Social Responsibility (CSR, hereafter[3]) firms[4] (see figures 1 and 2).

Given the importance of the phenomenon, the economic literature has begun to deal with it, developing extensive lines of research on issues concerning the theme of sustainability and CSR. The economic debate has mainly focused on three aspects: first, the very definition of CSR (see Garriga and Mele, 2004; Dahlsrud, 2008, Beurden and Gossling, 2008, etc.) and its measurement (Türker, 2008), secondly the main reasons that lead companies to adopt sustainable behaviours and then to obtain certification (Sotorrio and Sanchez, 2008; Detomasi, 2007; Udayasankar, 2007) and thirdly the effect of CSR on the economic and financial system (Beurden and Gossling, 2008; Sotorrio and Sanchez, 2008).

Given that the definitions of CSR currently used in economic literature are not homogeneous (Dahlsrud, 2008), it is now difficult to uniquely and correctly define this concept. Moreover, due to the fact that CSR is "not a variable and therefore it is not measurable", the economic literature has introduced the concept of Corporate Social Performance (CSP, hereafter), which is a way of making CSR applicable and putting it into practice (Maron 2006). Even if CSP is difficult to measure, it can be transformed into measurable variables. Beurden and Gössling (2008), also in line with Sotorrio and Sanchez (2008), describe CSP as "a concept of three categories": CSP1: social disclosure about social concern (Wu, 2006; Orlitzky et al., 2003); CSP2: corporate action, such as philantropy, social programs and pollution control; CSP3: corporate reputation ratings or social indices that may be provided by social rating institutions, such as KLD, EIRIS; Fortune, Moskowitz, or ad hoc indices drawn up

[3] CSP can be defined as 'a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships' (Wood 1991a: 693).

[4] This term defines those firms that adopt ethical behaviour, both in the environmental field (respecting biodiversity, adopting environmentally friendly fuels, using alternative energy sources, reclaiming polluted areas, etc.), and in purely business (improving workers' conditions, respecting all types of diversity, allowing for good governance and transparency in the management of business, etc.). See Dahlsrud (2008).

by the researchers themselves (Beliveau et al., 1994; Brammer et al., 2006; Hillman et al., 2001; Johnson and Greening, 1999; Mahoney and Thorne, 2005; Moore, 2001). In this regard, this paper refers to the category CSP3.

However, in the context of CSP3, the perception of increasing numbers of CSR companies is partially distorted for two reasons, which reduce the value of the certification itself: firstly, there is no unambiguous definition of "socially responsible". On the other hand, since the birth of CSR, there has been a proliferation of certification agencies, evaluating firms on the basis of widely varying non-standard criteria.

As regards the factors that drive companies to CSR, the research into corporate social responsibility has been related to the analysis of value creation (Alexander and Buchholz, 1978; Belkaoui, 1976; Clarkson, 1995; Harrison and Freeman, 1999; Preston and O'Bannon, 1997; Kohers and Simpson, 2002; Vance, 1975; Waddock and Graves, 1997).

Moreover, Sotorrio and Sanchez (2008) identify different "starting points": a) disclosure of information about social natures (Belkaoui and Karpik, 1989; Brammer and Pavelin, 2006, Fernandez Sanchez and Sotorrio, 2008; Roberts, 1992; Stanwick and Stanwick, 2006); b) the reasons behind spending on social performance, such as donations, philanthropy, etc. (Adams and Hardwick, 1998; Amato and Amato, 2007; Brammer and Millington, 2004, 2006; Navarro, 1988); c) a variety of principles, processes, policies, programmes and observable results relating to the company's relationship with society. In this last case, some social indices, credit ratings provided by social institutions, such as EIRIS or KLD, or ad hoc indices drawn up by the researchers themselves (Beliveau et al., 1994, Brammer et al., 2007, Hillman et al., 2001; Johnson and Greening, 1999; Mahoney and Thorne, 2005; Moore, 2001).

Regarding the impact of CSR on the economic system, several works (Beurden and Gossling (2008); Sotorrio and Sanchez (2008), Orlitzky et al., 2003; Garriga and Mele, 2004; Kitzmueller, 2008) have analyzed this relationship, focusing primarily on the link between CSR and the financial performance of the certified firms. However, the effect of CSR is reflected on the whole economic system, in line with the stakeholder

theory[5]. Therefore, there are different effects of CSR to be classified according to different variables. About this, research shows that there is a difference in the prediction of financial performance between measures of market-based accounting and CFP-based measures of CFP (Orlitzky et al., 2003; Wu, 2006).

Beurden and Gössling (2008) use CFP as the instrument to measure economic performance. It consists of two categories. CFP 1 incorporates market-based measures that include stock performance, market return, market value to book value, price per share, share price appreciation and other marketbased measures; CFP 2 is the second category for measuring CFP, incorporating accounting-based measures. Using the definitions of Beurden and Gossling (2008), this paper tests some indicators of economic performance, primarily focusing on the Market Value Added (MVA hereafter), as a summarizing indicator. In this manner our paper is a context of type CFP1.

One of the main aims of our work consists in building 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 partially solve the problem related to the multiple CSR definitions and certifications.

Our second purpose, by using a panel dataset, is to verify whether certain performance indicators can be affected by a firm's social responsible behaviour and its certifications.

The main results seem to support the idea that CSR firms, which are more virtuous, have better long-run performance: even if they have initial costs due to the certification, they achieve higher sales volumes and profits, thanks to the reputation effect, a reduction in long-run costs and increased social responsible demand. Moreover we also carried out some in-depth analyses focused on particular variables, like social capital, beta financial index and reputation and finding interesting results about CSR and non-CSR riskiness.

[5] The central idea in stakeholder theory is that the success of an organization depends on the extent to which the organization is capable of managing its relationships with key groups, such as financers and shareholders, but also customers, employees, and even communities or societies.

Our paper is organised as follows: in paragraph 2 the construction of the sample is explained, paragraph 3 shows the results of some descriptive statistics, paragraph 4 lists the main variables used in the literature and the main results formerly achieved respectively. Paragraph 5 shows the data used to run our analysis. In paragraph 6 the aim of this study is formalized and better explained and the complete results are shown. In paragraph 7 we carry out some detailed examinations of particular and important variables. The conclusions are contained in paragraph 8.

2 The Sample

The first problem faced while building the sample is related to the redundancy of social certification. One way to overcome this problem is twofold: either to identify the best (most influential) rating agencies and take only the criteria that they express, or to use multiple assessments, so that the certification of an enterprise can be confirmed by several rating agencies. In our opinion, the most powerful way is to combine the two solutions, that is use multiple evaluation criteria characterized by good quality (Poddi and Vergalli, 2009). Therefore, our paper's first goal consists in defining a database of CSR firms that combine more than one certification index. In detail, we selected the firms for our sample following the steps below:

1. First, we assumed that the group of corporate responsible firms includes enterprises that belong at least to two of the three main stock option indices of the market in 2004[6] (i.e. Domini 400 Social Index, Dow Jones Sustainability World Index, FTSE4Good Index[7]). We then tried to complete the methodology used by Barnea and Rubin (2005) and by Waddock and Graves (1997). In this way, we obtained a sample consisting of 317 suitable firms.
2. In the second step, in order to build the control sample, we chose 100 non-CSR enterprises, to make it homogeneous for the

[6] In this sense we took the most famous and recognizable indices at an international level. The choice of year (2004) was due to our need to include the highest number of firms in our sample, given the novelty of this peculiar economic phenomenon.

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

sectors with the CSR sample. For each economic sector, several firms were randomly chosen from the Dow Jones Global Index.

3. The selection process generated a sample consisting of 417 firms. In order to generate the time series necessary for our analysis, we started with the 2004 sample, and maintaining the total number of firms we worked backward until 1999, changing the non-CSR/CSR ratio[8]. After building our database (see the appendix) we downloaded the balance sheets of all 417 firms, using Perfect Analysis software[9].

[8] We started from the 2004 sample and we created a dummy variable for each year from 2004 to 1999, imposing the number 1 if that firm was certified as a CSR company in that year and zero otherwise, by using the intersection (for a couple of sets) of the three indices. We were not able to work further back than 1999 because the CSR firms available in our database were not sufficient. For the FTSE index we referred 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).

[9] 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 market indices. Moreover, it contains the main OECD economic indicators.

3. Descriptive Analysis

In Figure 1 we show the number of CSR firms from 1999 to 2009, according to the DJSI (Dow Jones Sustainability Index).[10] It is useful to observe how the diffusion of the CSR phenomenon is not homogeneous from the geographical point of view. In fact Figure 1 shows firms belonging almost all to developed countries.[11] The proliferation of sustainable indices may be a litmus test for diffusion of the phenomenon. It is not a coincidence that most of the sustainability indices arise in OECD countries. In the light of this insight, recent studies have observed that the phenomenon of social responsibility is influenced by the level of economic development. From figure 1, it can be seen that:

- the number of CSR enterprises has considerably increased, showing that "Corporate Social Responsibility" is a very relevant phenomenon and therefore requires detailed investigation;
- the highest number of CSR enterprises is from the United States and the European Union, i.e. two of the most developed areas. From this first rough observation, we can infer that GDP is a crucial variable for the development of ethical conscience, and therefore CSR.

In order to better describe our database and the growth of CSR firms, in figures 2 and 3 we show the number of CSR firms and the growth rate of our database.

From these, we can observe that the growth rate of the CSR enterprises seems to depend on the economic development of the area referred to, and is not only time-related. Although the EU has fewer enterprises than the USA, its growth rate is higher, probably because of a catch-up phenomenon. It is also important to note that the growth rate of the number of CSR enterprises has decreased since 2002. Does social certification depend on economic trend? Why does this reduction not

[10] In our previous paper (Poddi and Vergalli, 2009) we showed the number of CSR firms and their growth rates, by using the sample built as described above. In this version, we update our data and we try to show the most recent data. In detail, each year the DJSI creates a ranking of the most virtuous enterprises in terms of social responsibility. Since 2004 the number of firms belonging to the DJSI has been almost constant and equals 318. However, a large turnover among firms can be noted, which implies strong competition and also strong interest in the topic of CSR. Therefore, by calculating the total number of firms, certified at least once, and observing social evolution, it is possible to obtain an indication of the growth rate in the number of CSR firms. In figure 1, we have adopted this criterion.

[11] Nevertheless, it should be noted that the type of index adopted is of crucial importance: use of the DJSI influences selection of the sample in figure 1. In recent papers (i.e. Muller and Kolk, 2008), there is a study of CSR in emerging countries.

affect some countries that depend on the US economy, like the EU and Japan? The conjectures we tried to explain are:

a) Because the USA is the world's leading economy, it is also the first country to be hit by economic crisis[12], while other countries, even if they depend on the US economy, have a delayed reaction. This could explain why the EU growth rate was only slightly lower in 2002 but dropped the following year.

b) The number (flow) of enterprises strongly depends on the total number of firms that are CSR (stock). This means that if there are many CSR firms, the probability that new enterprises are certified as CSR is low and the ratio between the number of new enterprises and the total also decreases[13].

c) The financial crisis in the US (i.e. the Enron case[14] and Worldcom), probably reduced the credibility of some enterprises, changing the management priority and probably increasing certification control of CSR firms, thus delaying the certification of new enterprises.

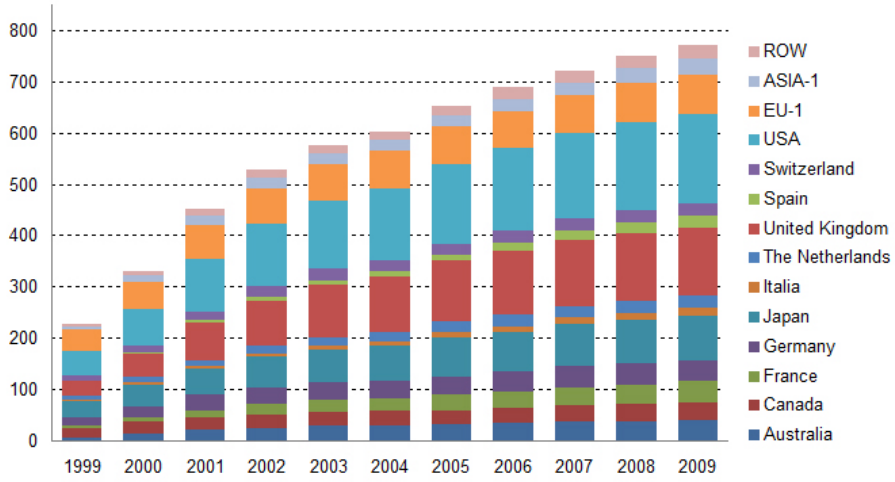


Figure 1: ROW includes Brazil, Chile and South Africa, EU-1 includes Austria, Belgium, Denmark, Finland, Greece, Ireland, Norway, Portugal, Sweden; ASIA-1 includes India, Indonesia, China, Malaysia, Singapore, Thailand, Taiwan, Hong Kong.

[12] It is useful to remember that 11th September 2001 considerably affected the US economy at the end of 2001 and at the beginning of 2002.

[13] Nevertheless, even if this explanation is plausible and verifiable when we are near the saturation point, this is extremely unlikely because the phenomenon is very recent. Moreover, this explanation does not explain the 2003 recovery.

[14] 16th January 2002.

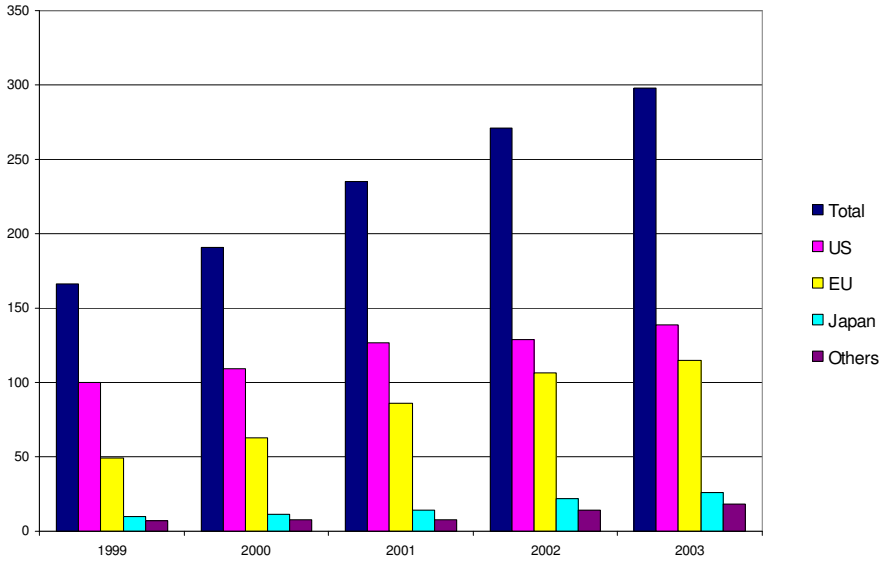


Figure 2: number of CSR firms

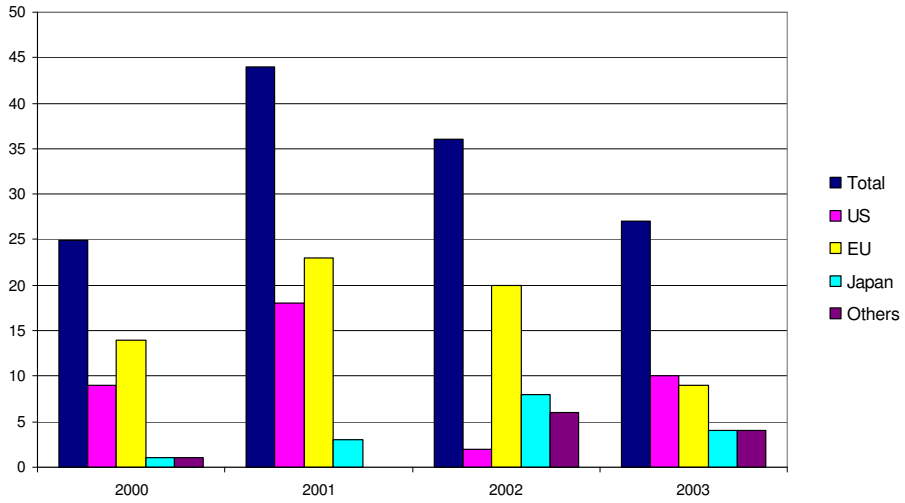


Figure 3: Growth rate of CSR enterprises

4. Literature: Performance Measures

According to economic literature, the variables suitable for representing performance can be classified into accounting and market measures. The variables useful for pursuing the aim of this study belong to both these sets and are now briefly summarized.

4.1. Accounting measures

ROE (Return on Equity) (1999-2003). It is one of the most widely used performance measures (see: Bowman and Haire, 1975; Bragdon and Marlin, 1972; Parket and Eilbirt, 1975; Spicer, 1978; Preston, 1978; Cowen et al., 1987; Waddock and Graves, 1996, 1997; Preston and O'Bannon, 1997). This variable is given by the yearly net income of a firm (after preferred stock dividends but before common stock dividends) divided by the total equity (excluding preferred shares), expressed as a percentage, that is the rate of return of the risk capital invested by the shareholders. The information provided by this parameter is useful in order to estimate the profitability of a firm, that is its efficiency in generating earnings from every dollar/euro of net assets (assets minus liabilities).

ROA (Return on Assets) (1999-2003). It is a variable, expressed as a percentage, that measures the contribution of the assets of a company to the revenue generating process. This parameter is given by the ratio between net income and total assets. The ratio describes "what the company can do with what it has got", i.e. how many dollars/euros of earnings it can obtain from each dollar/euro of assets owned. Because the average level of this measure varies considerably depending on the economic sector, the ROA is mostly useful in order to compare the profitability of the companies belonging to the same industry. This measure also gives an indication of the capital intensity of a company, which also depends on the industrial sector. Another variable that usually affects the value of the ROA is the size of the company considered, because those that require a large initial investment are likely to generate a lower return on assets. The literature available concerning this measure is very wide, see 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). It is used in finance in order to measure the return that a company is generating from capital employed. It is commonly used as a measure for comparing the performance between different businesses and to check if the return that is being generated is enough to pay back the cost of capital. This parameter is given by the ratio between the pre-tax operative profit and the employed capital. The main reference for the ROCE is Preston and O'Bannon (1997).

4.2. Market measures

MKTCAP (Market Capitalization). This variable is the most important market-based performance measure and there is a huge amount of literature on it: Moskowitz (1972); Vance (1975); Alexander and Buchholz (1978); Belkaoui and Karpik (1989); Patten (1990); Wright and Ferris (1997). The MKTCAP is given by the number of outstanding shares multiplied by their market price, hence it measures the value of a firm in terms of market capitalization.

Beta. The **beta coefficient** is a content of the Capital Asset Pricing Model (see: Treynor, 1961, 1962; Sharpe, 1964; Lintner, 1965 and Mossin, 1966) whose importance has increased to become one of the best known variables in finance and investing. This parameter describes the relation that links the expected return of a financial portfolio (or a single stock) to the expected return of the whole market. The value of the beta coefficient can also be interpreted as a risk measure, because when its value is greater than one unit, the considered asset is likely to amplify the market fluctuations, while the opposite happens when its value is lower than 1. The main references for the beta coefficient are: Alexander and Buchholz (1978), Chen and Metcalf (1980) and Spicer (1978).

4.3. Mixed Measures

MVA (Market Value Added) (1999-2003). This measure, firstly introduced by Simerly and Li (2000), Cochran and Wood (1984), is given by the difference between the current market value of a firm and the capital contributed by investors, as of the balance sheet. This measure allows those companies that have been able to add value, whose MVA is positive, to be distinguished from those that have destroyed value, whose MVA is negative. Because the computation of this variable is based on both market and account values, it belongs to the mixed measures category.

4.4 Other Main Characteristics

The performance measures considered so far are not the only ones used in the economic literature in order to investigate the relationship between CSR certification and performance. More specifically, many studies have focused their attention on a variety of other important characteristics that can be linked to a firm's performance: size, industrial sector, age, leverage level and intangible expenditure.

4.4.1 Dimension

According to Waddock and Graves (1997), it is possible to assume that as the size of a firm increases, so does its behaviour to act responsibly. This happens because big companies are more likely to be conscious of the importance of their relationship with the public (and external stakeholders) than the smaller ones. The research of Orlitzky (2000) confirms that the size of a firm affects the link between CSR certification and performance: at the beginning of its life, the strategy of a firm is focused on basic survival, while the focus shifts to its ethical and philanthropic responsibilities as its size increases.

In the economic literature, the size of a firm has been measured by the number of employees, the 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 value. Cowen et al. (1987) and Patten (1991) also use the Fortune 500 index and the natural logarithm of sales. All these measures are quite

similar and strongly correlated to each other, as shown by Kimberly (1976).

4.4.2 Industrial Sector

The industrial sector could strongly affect social certification. According to Dierkes and Preston (1997), those firms whose economic activities have effects on the environment or are involved in the exploitation of natural resources (mining, forestry, oil, gas and so on) are subject to stronger environmental controls than those belonging to other sectors. Moreover some enterprises that have a strong relation with consumers need to show a clear social behaviour, in order strengthen the firm's reputation and achieve positive effects on the sales volumes (see: Cowen et. al., 1987). Furthermore, Patten (1991) shows that the industrial sector (as a proxy of dimension) affects the "fame policy" of a firm, forcing the management to take public opinion into account (Belkououi and Karpik, 1989). Moreover, the industrial sector affects the number of enterprises belonging to the CSR group: sectors with high capital intensity have a lower number of firms than the low-labour intensity sector (i.e. banks, financial services, etc.)[15].

4.4.3 Age of Capital

Another variable that is likely to affect social certification is the 'Capital Age' of a firm. Roberts (1992) assumes that the firms historically highly involved in social investment have a greater induced reputation, making the stakeholders more confident about the expected profits. In the studies of Cochran and Wood (1984), the capital age is measured as gross and net capital: if this index tends towards 1, then the firm is relatively young. The result is that the age of capital is inversely correlated with the CSR variable. This means that the younger the enterprise, the higher the ethical investment. Indeed, it is important to note that new firms do not have transformation costs for new lines of production and that it is more expensive to change a firm's structure than to create a new one.

[15] On this point, see Waddock and Graves, 1999.

4.4.4 Intangible Assets Expenses

The economic literature is strongly focused on R&D expense, but our comment about this variable is that it is very similar to the total expense (also considering costs related to the CSR index). Indeed, R&D is a subset of total intangible assets and could also be used as a proxy variable of them. McWilliams and Siegler (2000) found that the R&D variable is directly correlated with the CSR index and financial performance. This relation is due to the fact that 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 for social certification.

4.4.5 Leverage

The leverage is given by the ratio between total debt and shares. Myers (1977), Wallace et al. (1994) have shown that there is a positive relation between the leverage and CSR index[16]. Jensen and Meckling (1976) supported this result by explaining that a firm tends to increase its social information in order to reduce rising monitoring costs from high leverage. A similar explanation was provided by Ahmed and Curtis (1999), who stressed that as the weight of the bond in the balance sheets increases at the expense of the ordinary stocks, so does importance of the social information and social certification.

Roberts (1992) tested the hypothesis that the higher a firm's leverage, the higher creditors' expectations, while not finding any statistical evidence to support this relation. However, the studies of Belkaoui e Karpik (1989) showed negative correlations.

4.4.6 Risk

Much research has studied whether there is a relation between market risk and social responsibility, defined by social disclosure.

The economic literature shows that those firms subject to high systemic risk use social certification in order to reduce their exposure risk: hence, their beta coefficient also decreases (see: Trotman and Bradley, 1981; Roberts, 1992). Richardson et al. (1999) and Botosan (1997) show that increased social information can also reduce information asymmetries

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

and accordingly the cost of capital, thanks to the reduction in the exposure to risk.

5 Data

Referring to paragraph 4 and using the Perfect Analysis database, the following performance variables were collected for 417 enterprises:

5.1 Accounting measures

ROE (Return on Equity) (1999-2003): this variable is fundamental as it defines economic performance - as highlighted in sub-4.1.

ROCE (Return on capital Employed) (1999-2003): it was decided to adopt ROCE as a variant of the more common ROA, due to the greater compatibility of data.

5.2 Market measures

MKTCAP (market capitalization). Data derived from Perfect Analysis, in the budget reports of each company – "Fundamentals" sheet; voice "Market Cap". Finally, it was decided to look at a mixed measure, mainly because it is more objective thanks to market related data.

5.3 Mixed measures

MVA (Market Value Added) (1999-2003). This measure identifies the "reputation" of business activity as the stakeholders' response to different company activity. This performance indicator was built using Perfect Analysis data with the following methodology: the company's market share value was estimated referring to July 2004 and multiplied by the number of shares at the closing share price on December 31st of each year (from 1999 to 2003). The Yahoo Finance website was the source for historical stock prices. The "stockholder's equity" is then subtracted from the equity market value in the social balance sheet of each company. We can therefore compare the economic value of stakeholders' equity (MV) and its book value, and then the market (and therefore stakeholders) can evaluate the business in place or in the future.

5.4 Other Variables

Each company differs in how it implements CSR. Differences depend on many factors such as, for example, the enterprise's size, the particular sector in which it operates, the corporate culture, stakeholders' demand and historically how progressive the company is in achieving 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), while others aim to integrate CSR into all aspects of their operations.

Other variables that influence CSR choice are as follows:

AGE (1999-2003) is the ratio between the net value and gross assets in property, buildings and equipment. The more this ratio tends to a value of one, the newer the company is. Data source: Perfect Analysis- "Property, Plant and Equipment - Total (Gross)" and "Property, Plant and Equipment - Total (Net)".[17]

INTA (Intangible Asset) (1999-2003) annual expenditure on intangible heritage, namely copyrights, patents, intellectual property and know-how. Intangible spending drives performance and can easily be used as an instrumental variable, which is also strongly correlated to CSR. 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 wanted to discern its type. Data source: Perfect Analysis - "Common Size "ST Debt (% of Assets)" and "LT Debt (% of Assets)."

INTE (intensity of work) (1999-2003): ratio between number of employees and total assets. In the Perfect Analysis database - "profits and losses", - data were collected 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 a company's size, as illustrated by Stanwick and Stanwick (1998), based on the work of Fonbrun and Stanley (1990) and Cowen et al. (1987), referred to in paragraph 4.4.1.

[17] The expectation against the use of this variable is defined as: "The latest companies behave more responsibly" (Cochran & Wood, 1984).

Risk. On the relation between belonging to a CSR group and risk, paragraph 4.4.6. points out how it can be quantified through the Beta index. The Beta index was obtained for each of the 417 companies of the sample, compared to 2004. However, it was not possible to obtain the historical series of this index to compare time to those used??? in the panel analysis. Therefore only cross section analysis was possible. A useful caveat regarding our future analysis is that the possible reduction of company risk is closely linked to economic management. Socially responsible behaviour aims at reducing environmental organizational and operational risk. Nothing is said about financial risk, even if it adopts the Beta index to quantify risk. This discrepancy creates different results and comments on risk assessment.

Reputation. We use a reputation quotient published over the last six years by the Reputation Institute[18], based on a survey on the more visible American multinationals. In detail, each company was assessed by over eighteen random factors selected by the company's policy. The respondents associated a score based on 20 attributes relating to six key dimensions: a) Products and services; b) Financial performance; c) Work environment; d) CSR; e) Vision and leadership; f) Emotional appeal.

The index is explained for a sample of firms from 1999 to 2004.

Critical Demand, D (1999-2003). The literature justifies a sales increase from a differentiation on the market supply The critical consumers satisfy their needs with particular goods characterized by environmental respect or improvement of labour conditions. Data on critical questions are taken from a research carried out by MORI (Market and Opinion Research International)[19].

Social Capital (1999-2003). To replace the concept that an individual's choice (and therefore total demand) has changed due to critical behaviour we looked at data on social capital indicators. In recent literature, the social capital concept has evolved from initially purely sociological definitions (Bourdieu, 1985; Coleman, 1990) to broader meanings including civic sense (Putnam, 1993, 1995), cooperation between individuals and compliance with the law (Fukuyama, 1995,

[18] Reputation Institute - www.reputationinstitute.com - www.harrisinteractive.com
[19] MORI (Market and Opinion Research International) – www.mori.com

Guiso et al., 2004; Alesina and La Ferrara, 2000). So, social capital could be considered a proxy of individual behaviour and, therefore, could be considered a useful variable. The data on social capital were obtained from the IVIE (*Instituto Valenciano de Investigaciones Económicas*) database[20].

GDP (1999 - 2003): data from the World Bank database.

6 Empirical Analysis

6.1 Correlations among variables

In Table 1 the correlations (computed on 2001 data, which is the most representative year[21]) between all variables considered are shown.

Table 1: Correlations[22].

Corr.	CSR	MVA	ROE	SIZE	AGE	INTA	INTE	STLT	GDP
CSR	1								
MVA	**0.169 *****	1							
ROE	0.002	0.0712	1						
SIZE	**0.137 *****	**0.4034 *****	-0.058	1					
AGE	0.033	0.0692	0.007	0.0473	1				
INTA	**0.119 ****	0.0028	-0.071	**0.2522 *****	**0.169 *****	1			
INTE	-0.019	-0.0718	**0.234 *****	- 0.097 *	- 0.066	- 0.086 *	1		
STLT	0.032	0.0593	- 0.006	- 0.034	- 0.049	- 0.043	0.017	1	
GDP	0.040	0.0734	- 0.011	0.039	- 0.121	- 0.029	0.013	- 0.011	1

The analysis of the correlations allows us to conclude that:

1. The MVA is positively correlated with CSR variable and size;
2. The size is positively correlated with expenses in intangibles;
3. CSR is strongly correlated to dimension and intangibles, which are positively correlated with the age of the firms.

We can also see that MVA seems to be linked with the CSR index, while the bigger the firm's size, the higher its value. Given that the size took

[20] Instituto Valenciano de Investigaciones Economicas - www.ivie.es
[21] For other correlations, see Poddi, L. (2005).
[22] Our first consideration is that the correlation coefficient (r of Pearson) is low in all cases. Therefore, even if there is a significant correlation, it is weak. This implies that it does not totally explain our phenomenon. We need a formal model in regression. This could solve the multi-collinearity problem among variables in the model we will look at.

account of total sales and given that more business meant better performance for investors, then the MVA-SIZE relation is in line with our results. The most recent firms spend more in intangibles, due to the start-up procedure of a firm that includes copyright, R&D and innovation technology costs.

6.2 The Regression Model

In order to describe the relationship between the profit or the economic performance with corporate social responsibility, we used the following general linear regression model:

$$\Pi_{ict} = \boldsymbol{\alpha} + \beta_1 CSR_{ict} + \beta_2 SIZE_{ict} + \beta_3 INTE_{ict} + \beta_4 STLT_{ict} + \beta_5 D_{ct} + X'_{ct}\gamma + \eta_c + \nu_t + \varepsilon_{ict} \quad (1)$$

Where the dependent variable is the economic performance (Π) for each firm (i), in country (c) and year (t). Π can be represented either by the MVA or by the ROE/ROCE. The regressors or independent variables are represented by the following variables: a) CSR; b) SIZE: the dimension of each firm which is 1 for small enterprises, 2 for medium enterprises and 3 for the biggest ones according to the amount of sales; c) INTE: the intensity of work, calculated as the ratio between the number of employees over the total asset; d) STLT: the ratio between long and short-term debt; e) D: the critical demand[23], f) X': the growth domestic product per capita for year t (x_t) and lagged (x_{t-1}). The regressions are made taking into account geographical (η_c) and time (ν_t) fixed effects.

As in our previous work (see Poddi and Vergalli, 2009) we performed the regression analyses over all the variables described but we show only the most significant results. For some variables we carried out some specific analyses as we will show in the next parts. As is also shown by table 1 (also confirmed by our regressions) the only significant performance variable is the MVA, therefore our results will focus on this.

Having defined the model, we used this regression in order to test the sign and the magnitude of this relation over a 5-year period. Before

[23] This variable takes into account MORI work about UK demand and readjusts the calculation with respect to each country.

running the regression, a further problem has to be investigated: the possible endogeneity among considered variables. More specifically this problem may be due to the fact that the best performing firms may be interested in entering the social index also due to their available resources. Vice versa, a CSR firm with a high reputation could improve its market evaluation. In order to verify the presence of an endogenous relation between Π and CSR we used the Granger test and the Hausman test. While the first one shows that CSR causes MVA, the results of the second show 4 out of 5 cases with no endogeneity problem[24]. Nevertheless, to be sure of avoiding this problem, we also checked our results by using the IV method, taking INTA and AGE for CSR variable.

6.3 Results [25]

In Table 2 the main results of the panel analysis are shown:

Table 2: Regressions: MVA dependent variable

Model	**1**		**2a**		**2b**		**3a**		**3b**		**4**	
	β	**z-**	**β**	**z-**	**β**	**z-**	**β**	**z-**	**β**	**z-**	**β**	**z-**
Int. (a)	- 1.3 (**)	- 2.1	- 1.6 (**)	-2.3	-1.4 (**)	-2.4	-0.42	-1.4	-0.04 (*)	-1.8	- 0.9 (*)	**-1.8**
CSR(a)	- 0.3 (**)	- 2.5	- 0.3 (**)	-2.6	-0.3 (***)	-2.7	- 0.35 (**)	-2.6	- 0.35 (***)	-2.6	- 0.32 (**)	**-2.2**
SIZE(a)	0.03	1.6	0.05 (**)	2.0	0.04 (**)	2.0	0.04 (*)	1.9	0.04 (*)	1.9	0.03	**1.4**
x_t	47.6 (**)	2.2	54.5 (**)	2.3	49.0 (**)	2.4	15.8	1.5				
x_{t-1}											33.7 (*)	**1.9**
INTE			327.2	0.44								
STLT			0.0004 (*)	1.8	0.0004 (*)	1.79	0.0004 (*)	1.7	0.0004 (*)	1.7	0.0004 (*)	**1.7**
D(a)							24.4 (**)	2.0	31.2 (**)	2.3	15.3 (*)	**1.7**
$\bar{R}^2$	**0.78**		**0.717**		**0.72**		**0.725**		**0.725**		**0.858**	

Where: $\bar{R}^2$ [26] is the adjusted R^2 ; β is the coefficient value; "z-" is the z stat with significance: (*) 90% Significant; (**) 95% significant; (***) 99% significant; (a) all the data are divided by one million.

The result of our regression 1 shows that *"MVA decreases when CSR increases"*. Our explanation follows these steps:

We remember that variable CSR assumes a value of 1 when a firm belongs to the CSR sample. This implies that model 1 studies how much

[24] See Poddi and Vergalli (2009) for details.

[25] All the panel analyses are made by using STATA software.

[26] It is important to stress that panel regressions have a very low R^2. This is due to the inter-temporal interpolation of data. Indeed, the panel is a merge of cross analysis with a historical series. Its explanatory function is between the two methods. The difference compared with the historical series is that there is a difference between individuals. For this reason we should see an R^2 quite similar to that of the cross section. We must therefore calculate the R^2 using the methodology adopted in these cases.

the MVA average changes when a firm starts to belong to the CSR group. From some descriptive statistics that we omit for the sake of simplicity, we know that a CSR firm has a higher MVA[27], hence we would expect a positive relationship between MVA and CSR. But even if the MVA is higher for CSR firms, the interpolation analysis does not distinguish between the two groups (CSR and non-CSR) but evaluates the average level of MVA. The result is that over time, MVA decreases but the number of CSR firms increases. This explains why the sign between the two variables is negative. For this the coefficient shows how much MVA changes depending on the variation of CSR percentage in the sample. Therefore, more CSR enterprises means that some enterprises have changed their group in the sample. These firms come from the no-CSR group with a low MVA level and go to the CSR group with high MVA, reducing the average MVA.

The second main result from model 1 is that MVA increases with the rise in GDP per capita. This is not surprising because when GDP increases there are more resources useful for further investment.

The variable SIZE is not shown because it is not significant. This variable seems to show contradictory results. We could say that it is not so obvious that a higher amount of sales implies better market evaluation, especially during unfavourable situations.

The regression of the model 2(a) varies as it introduces the STLT and INTENSITY variables. In this case, variables SIZE and STLT are significant. Concerning the signs of CSR and GDPPRO, see the explanations given for model 1. A positive STLT sign means that the short and long-term debt ratio tends towards a higher percentage of short-term debt. The investors prefer to buy shares because they expect an increase in profits in the long run.

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

Now let's look at model 2b and model 3a. Our first comment stresses that MVA is not only a premium of a firm's strategies but could also

[27] See Poddi and Vergalli, 2009 for further details.

represent, if there is perfect asset evaluation, a firm's profit. On the one hand, increased GDP *per capita* means higher consumption and therefore higher sales, on the other hand, higher wealth does not necessarily mean more spending on ethical products.

In order to understand how product differentiation of CSR firms affects Π, we must include in model 3 another variable: critical demand. This variable is closely related to GDP *per capita* because, as we have seen in figure 1 and 2, CSR firms are concentrated in the most developed countries. This implies that critical behaviour and therefore critical demand tend to rise in OECD countries. To confirm this, we used a causality test, showing that GDP per capita implies DEMAND. After our digression, model 3° clearly shows non-significant GDP *per capita*, because its effect is caught by DEMAND. R^2 value and the significance of DEMAND[28] seem to support our model, even if the constant is not significant. From this we obtain the following model 3b in which the R^2 value and the significance of all coefficients show that the model is our best one. Nevertheless, a high GDP pro capita implies a development of a critical demand and therefore lagged GDP *per capita* could affect MVA, as shown in model 4 in which SIZE is not significant. Anyway, in all cases SIZE does not show clear and univocal results.

7 Close Examinations

7.1 CSR and Beta

In order to verify if there is a link between the riskiness of a firm and the CSR, we divided the whole sample (417 firms) into quartiles, by using the

[28] For the last three models (3a, 3b and 4) we developed an analysis that includes a critical demand weighted for each country's consumption level. Obviously, this must be strongly correlated with GDP *per capita* (0.9), as consumption level is one of the main components of GDP. But constructing this variable could be an extreme synthesis of the critical behaviour of consumers, including two variables affecting MVA, i.e. a higher GDP *per capita* is generally linked with increased DJ and high critical demand pushes investors towards CSR enterprises as they wait for long-term profits. Nevertheless, there are two weak aspects which have made us use other variables: a) on the one hand, it is weighted to UK critical demand (we have no other reports about critical demand); b) on the other hand, we have distinguished these two aspects by adopting the following variables:

1. GDP *per capita* as a proxy of critical behaviour and economic trend;
2. Demand: a variable that tries to trace the linear trend of critical demand. The idea consists in assuming that critical demand trend follows the same trend in different countries. This is because ethical behaviour starts after a trigger wealth point is reached and therefore, after a common threshold point for homogeneous countries in GDP. By adopting this variable, we have tried to distinguish between GDP *per capita* and critical behaviour.

We tested the absence of a multi-collinearity among regressors, by using the diagnostic VIF.

beta level of 2004. So the first quartile contains 25% of observations belonging to the interval [-0.02; 0.68] in which less risky firms are grouped that have a beta level lower than the benchmark case (market level equal to 1) and have low volatility. At the opposite end, the last quartile includes the more risky firms[29].

In the following table (table 3) we have the number of CSR and non-CSR enterprises belonging to the first and fourth quartile, i.e. the least (Nrisk) and the most risky (Risk), for the years between 1999 and 2004[30].

Table 3: number of CSR and non-CSR enterprises, belonging to the first and fourth quartile

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

The analysis on the static relation between variables, focusing on the number of enterprises belonging to different groups[31], leads to the following findings.

The total number of Nrisk is higher than risky firms. However, it should be stressed that the number of CSR firms is higher in the Risk case (and a higher percentage). This implies that there is a high share of risky CSR firms, and this is an unexpected result. Indeed, McGuire, Sundgren and Schneeweis (1988), Trotman and Bradley, (1981); Roberts, (1992), found 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. Concerning this:

1) A beta higher than 1 could mean a high positive volatility of shares as a consequence of economic shock;
2) Under the assumption of a perfect market, the investors perfectly foresee the asset value and the riskiness of the investment, then we

[29] It is useful to stress that the Beta index is a market share index that considers speculative risk. It could be assumed as an index of working risk under the assumption of perfect markets.
[30] It is worth noting that nothing can be said about the dynamic impact of the certification on risk: indeed we have only the Beta index of the year 2004.
[31] Our implicit assumption is that we keep the intervals fixed.

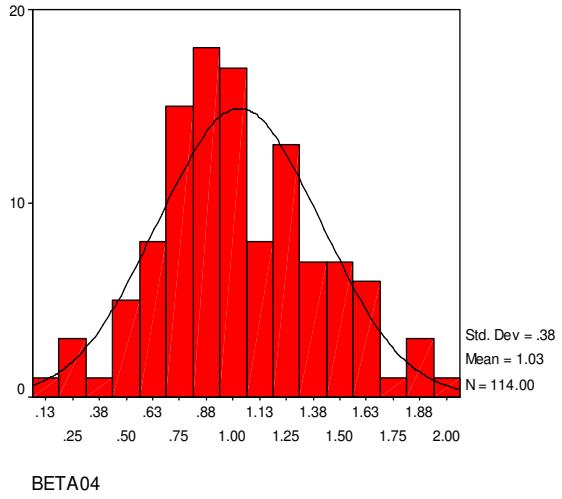
need to study in depth the total distribution of enterprises with respect to the Beta index (figure 4):

i) given that there is a positive (right) asymmetry of distribution, we have a higher number of non-risky enterprises;

ii) however, since the average Beta is higher than 1, there are some very risky firms in our sample (whose Beta level is high enough to move the distribution to the right) certified as CSR (i.e. outlier cases).

In this context, the strategic choice of the management could be to become CSR in order to reduce riskiness (as assumed by Jenkins, 2001 and Newell, 2002), but the effect is a medium-long run effect and we must wait for the results. The crucial finding is in the year taken into account and in the period in which the virtuous behaviour started. Therefore, our results do not contradict the economic literature, but stress that we need to focus analysis on investment timing and on firms' heterogeneity to understand the link between CSR and risk. To conclude, the high number of CSR firms in the fourth quartile stresses that the risky firms probably want to become more responsible. We must wait for the medium-long term to find the effects of social responsible behaviour.

Figure 4: Total distribution of enterprises with respect to the Beta index



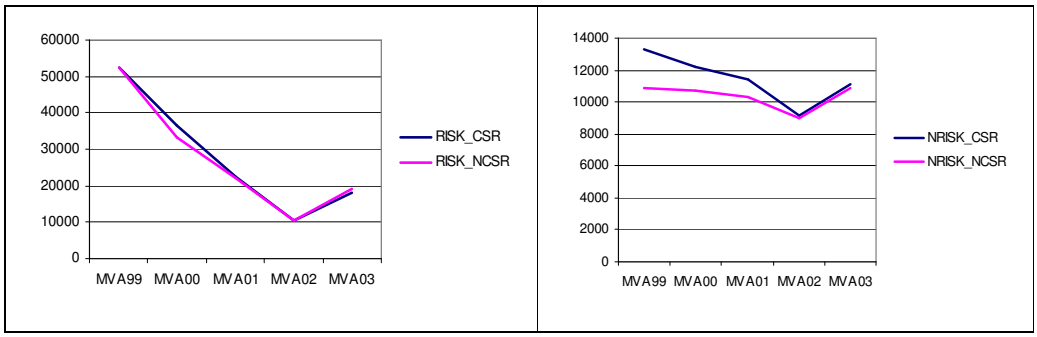
7.2 A comparison between MVA, Beta and CSR

Comparing the average MVA level among risky and non-risky firms in table 4 and in figure 5, we found that a firm with highly volatile shares always has a higher profitability, regardless of whether it is CSR or not.

Table 4: MVA comparison level among risky and non-risky firms between 1999 and 2003

	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

Figure 5: MVA comparison level among risky and non-risky firms



We know that MVA_CSR is higher than MVA non-CSR, but from figure 5 we can see that in the last quartile there are quite similar values. How can we explain that MVA_CSR is equal to non-CSR? Comparing this result with table 4, we find that the highest difference of MVA values is in the middle of the distribution. The only explanation maybe is the short-term effect of CSR investment. If, as we have observed, the adoption of virtuous behaviour is a management choice to reduce long-run riskiness, the fourth quartile may consist of firms that have been recently certified CSR. Therefore, there is no difference between CSR and non-CSR firms. The only difference is a formal certification that needs time to act.

Moreover, we need to stress that if the fourth quartile were composed of a normal Gaussian distribution of new and old CSR firms (therefore, distribution according to the age of CSR enterprises), then we will have virtuous and non-virtuous effects that could counterbalance each other. On the one hand, short-run certification could reduce the MVA level, because the firm must pay to become CSR. On the other hand the

possibility of reducing risk and improving performance could increase the MVA level[32].

The two effects combine, and so CSR values equal the non-CSR ones. As far as the central quartiles are concerned, it should be pointed out that a higher MVA level for CSR may be due to the age of the firms. In this case they could have "metabolized" the investors' premium that is a lower volatility and a higher MVA[33].

Finally, addition of the Beta variable entails a change in stock perception:

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

b) for risky firms, it makes no difference.

7.3 Industrial sectors

Regarding the role-related industries, we can assume that this is an important element to analyse CSR companies. To be certified as CSR, a company has to sustain costs on the adoption of "virtuous" behaviour in the organisational structure of the company, both for ethical and negative environmental externalities and also reduce detrimental action of ethical principles. Therefore we can consider that it is more difficult to certify as CSR companies which by their nature are more involved in potentially harmful activities, such as oil companies. At the same time, some companies are aided in this as they in no way reduce the company's profitability, e.g. banks.

We can therefore compare sectors in our sample, in order to discern the sector impact of CSR. However, it is difficult to see significant peculiarities in the two groups, as the control sample was specifically homogeneous for the industrial sector, in other words there is an implicit difference between the two groups, for sector composition. Therefore, results derive from our descriptive analysis (see Poddi, 2005; paragraph 4.1.2).

7.4 Reputation

[32] Belonging to the fourth quartile could be due to short adoption timing or a specific risk.

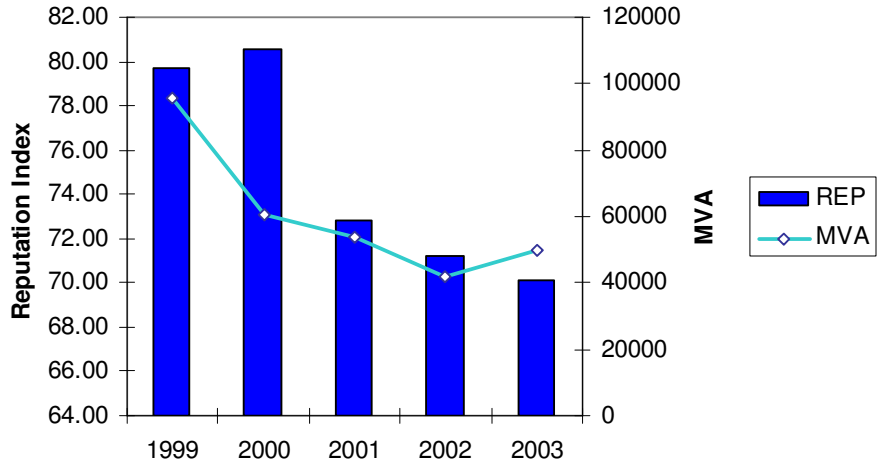
[33] In order to distinguish the age of CSR firms, we need more data for several years

In the literature, it seems that the concept of reputation is of fundamental importance for the effects of CSR. The basic concept consists in considering reputation as a consequence and synthesis of a strategic business choice (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 investors do not reward this choice with a higher average MVA. Therefore, given the importance of this variable, we have tried to implement it into our model.

The parameter that we found in the literature is the Reputation Institute, shown in paragraph 5.4. At least theoretically, there is a strong link between CSR and the Reputation Index, because the CSR variable is one of its fundamental elements. However according to empirical evidence, the reputation index is not significant, highlighting either errors of its empirical model or a combination of internal weights.

It should be noted that another key variable in building the reputation quotient is financial performance. In order to find why it is not significant, we projected data relating to reputation and financial data. Figure 6 shows the average values of the Reputation Index (also shown in Table 18) and the MVA for the companies for which we have data, to show that the Reputation Index is almost completely weighted on financial variables.

Figure 6: Reputation Index and MVA



7.5 Social Capital

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

8 Conclusion

Our work has tried to verify whether certain performance indicators can be affected by a firm's social responsible behaviour and its certifications. The novelty of our analysis lies in its dynamic aspect and the construction of a CSR index that intersects two of the three main international indices (Domini 400 Social Index, Dow Jones Sustainability World Index, FTSE4Good Index) for an objective and a representative sample. We have analysed some simple descriptive statistics and we have used cross section and panel data econometrical approaches to verify whether social certification could affect a firm's profit.

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 instrumental variable method to eliminate any possible objection to the link between performance and CSR.

The principle result is that MVA decreases with the increase in CSR, which seems to contradict some previous results where MVA is higher in CSR firms. In reality, the increase in the temporal series of CSR firms reduces the number of non-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 firm's value 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 evaluate a firm's value 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 maintain the sector composition of the CSR sample. However, it would seem from the descriptive analysis that the financial sector (banking, insurance etc.) is the one with the highest CSR rate, 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 clearly say that the strategic choice of becoming a CSR firm reduces risk. Therefore, it would seem necessary to plan 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 our own results.

References

- Adams, M., Hardwick, P., 1998, "An Analysis of Corporate Donations: United Kingdom Evidence", *Journal of Management Studies*, 35 (5), 641-654.
- Ahmed, K., Courtis J. K., 1999, "Associations between corporate characteristics and disclosure levels in annual reports: A meta-analysis", *British Accounting Review*., 31, pp. 35-61.
- Alesina, A., La Ferrara, E., 2000, "Participation in Heterogeneous Communities", *Quarterly Journal of Economics*, 847-904.
- Alexander, G. J., Buchholz R. A., 1978, "Corporate Social Responsibility and Stock Market Performance", *Academy of Management Journa,l* 21 (3): 479-86.
- Amato, L. H., Amato, C. H., 2007, "The Effects of Firm Size and Industry on Corporate Giving", *Journal of Business Ethics*, 72 (3), 229-241,
- Barnea A., Rubin A., 2005, "Corporate Social Responsibility as a Conflict between Owners", Center for Responsible Business, Working Paper Series, No. 20, University of California, Berkeley
- Beliveau, B., Cottrill, M., O'Neill, H. M., 1994, "Predicting corporate social responsiveness: A model drawn from three perspectives", *Journal of Business Ethics*, 13 (9), 731-738.
- Belkaoui A. R., 1976, "The Impact of the Disclosure of the Environmental Effects of Organizational Behavior on the Market", *Financial Management*, 5 (4): 26-31.
- Belkaoui A., Karpik P.G., 1989, "Determinants of the Corporate Decision to Disclose Social Information", *Accounting, Auditing & Accountability Journal*, Vol. 2, No. 1, pp.36-51.
- Beurden, P. van and Gossling, T., 2008, "The Worth of Values – A Literatyre Review on the Relation Between Corporate Social and Financial Performance", Journal of Business Ethics, 82/2, 407–424.
- Botosan C. A., 1997, "Disclosure Level and the Cost of Equity Capital", *The Accounting Review,* 72 (3, July), pp. 323-349
- Bowman E. H., Haire M., 1975, "A Strategic Posture Toward Corporate Social Responsibility", *California Management Review* , 18 (2): 49-58.
- Bragdon J. H., Marlin J. T., 1972, "Is Pollution Profitable?", *Risk Management* , 19 (2): 9-18.
- Brammer, S., Cox, P., Millington, A., 2004, "An Empirical Examination of Institutional Investor Preferences for Corporate Social Performance", *Journal of Business Ethics*, 52 (1), 27-43.
- Brammer, S., Millington, A., 2006, "Firm Size, Organizational Visibility and Corporate Philanthropy: an Empirical Analysis", *Business Ethics: a European Review*, 15(1), 6-18.
- Brammer, S., Millington, A., 2004, "The Development of Corporate Charitable Contributions in the UK: a Stakeholder Analysis", *Journal of Management Studies*, 41(8), 1411-1434.
- Brammer, S., Williams, G., Zinkin, J., 2007, "Religion and Attitudes to Corporate Social Responsibility in a Large Cross-Country Sample", *Journal of Business Ethics*, 71(3), 229-243.
- Brammer, S. J., Pavelin, S., 2006, "Corporate Reputation and Social Performance: The Importance of Fit", *Journal of Management Studies*, 43 (3), 435–455.
- Chen K. H., Metcalf R. W., 1980, "The Relationship Between Pollution Control Record and Financial Indicators Revisited", *The Accounting Review*, 55 (1): 168-77.
- Clarkson, M. B. E., 1995, "A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance", *The Academy of Management Review*, 20 (1), 92-117.
- Cochran P. L., Wood R. A., 1984, "Corporate Social Responsibility and Financial Performance", *Academy of Management Journal*, 27 (1): 42-56.
- Cowen S. S., Ferreri L. B., Parker D. B., 1987, "The Impact of Corporate Characteristics on Social Responsibility Disclosure: A Typology and Frequency-Based Analysis", *Accounting Organizations and Society*, 12 (2): 111-22.
- Dahlsrud, A., 2008, " How Corporate Social Responsibility is Defined: an Analysis of 37 Definitions", *Corporate Social Responsibility Environmental Management*, 15, 1–13.
- Detomasi, D. A., 2007, "The Political Roots of Corporate Social Responsibility", *Journal of Business Ethics*, 82 (4): 807-819.

- Dierkes, M., and L. Preston. 1977. "Corporate Social Accounting Reporting for the Physical Environment: A Critical Review and Implementation Proposal." *Accounting, Organization and Society* 2 (1): 3-22.
- Fukuyama, F., 1995, "Trust: The Social Virtues and the Creation of Prosperity", *Free Press*.
- Garriga E., Mele D., 2004, "Corporate Social Responsibility Theories Mapping the Territory", *Journal of Business Ethics*, 53: 51–71.
- Guiso, L., Sapienza, P., Zingales, L., 2004, "Cultural Biases in Econimic Exchange", *NBER Working Paper*, 11005.
- Harrison, J. S., Freeman, R. E., 1999, "Stakeholders, Social Responsibility, and Performance: Empirical Evidence and Theoretical Perspectives", *The Academy of Management Journal*, 42 (5), 479-485.
- Hillman A.J., Keim G., 2001, "Shareholder Value, Stakeholder Management, and Social Issues: What's the Bottom Line?" *Strategic Management Journal* 22 (2): 125-139.
- Jenkins, R., 2001, "Corporate Codes of Conduct: Self Regulation in a Global Economy", *Technology, Business and Society*, Programme Paper n. 2.
- Jensen M.C., Meckling W.H., 1976, "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics,* 3, pp. 305-360.
- Johnson, R. A., Greening, D. W., 1999, "The Effects of Corporate Governance and Institutional Ownership Types on Corporate Social Performance", *The Academy of Management Journal*, 42 (5), 564-576.
- Kimberly, J., 1976. Organizational size and the structuralist perspective: a review, critique, and proposal. *Administrative Science Quarterly* **21**(4): 571–597.
- Kitzmueller, M., 2008,"Economics and Corporate Social Responsibility", *Economics Working Paper*, European University Institute.
- Kohers, T., Simpson, W. G., 2002, "The Link Between Corporate Social and Financial Performance: Evidence from the Banking Industry", *Journal of Business Ethics*, 35(2), 97-109.
- Lintner, J., 1965, "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets", *The Review of Economics and Statistics*, 47, 13-37.
- Luce R. A., Barber A. E., Hillman A. J., 2001, "Good Deeds and Misdeeds: A Mediated Model of the Effect of Corporate Social Performance on Organizational Attractiveness", *Business and Society*, 40 (4), pg. 397.
- Mahoney, L. S., Thorne, L., 2005, "Corporate Social Responsibility and Long-Term Compensation: Evidence from Canada", *Journal of Business Ethics*, 57 (3), 241-253.
- Maron, I.Y., 2006, "Toward a Unified Theory of the CSP– CFP Link," *Journal of Business Ethics*, 67(2), 191–200.
- McGuire, J. B., Sundgren, A., Schneeweis, T., 1988, "Corporate Social Responsibility and Firm Financial Performance", *The Academy of Management Journal*, 31(4), 854-872.
- McWilliams A., Siegel D., 2001, "Corporate Social Responsibility: A Theory of the Firm Perspective", *Academy of Management Review*, Vol. 26, No. 1, January 2001, pg. 117-127.
- Moore, G., 2001, "Corporate Social and Financial Performance: An Investigation in the U.K. Supermarket Industry", *Journal of Business Ethics*, 34 (3-4), 299-315.
- Moskowitz M., 1972, "Choosing Socially Responsible Stocks", *Business and Society Review*, 10:71-5, 1975.
- Mossin, J., 1966,"Equilibrium in a Capital Asset Market", *Econometrica*, 34(4), 768-783.
- Muller and Kolk, 2008, CSR Performance in Emerging Markets Evidence from Mexico, «Journal of Business Ethics», Vol. 85, pp. 325-337),
- Myers S., 1977, "Determinants of Corporate Borrowing", *Journal of Financial Economics*, 5, 147-75.
- Navarro, P., 1988, "Why do corporations give to charity?", *Journal of Business***,** 61(1): 65–93.
- Newell, P., 2002, "From Responsibility to Citizenship: Corporate Accountability for Development", *IDS Bulletin*, 33(2).
- Orlitzky M., 2000, "Corporate Social Performance: Developing Effective Strategies", Working Paper.
- Orlitzky M., Schmidt, F. L., Rynes, S. L., 2003, "Corporate Social Performance and Firm Risk: A Meta-Analytic Review", *Business & Society*, Vol. 40 No.4: 369-396.

- Parket R., Eilbirt H., 1975, "Social Responsibility: The Underlying Factors", *Business Horizons,* 18 (4): 5-11.
- Patten D. M., 1990, "The market reaction to social responsibility disclosures: The case of the Sullivan principles signings", *Accounting, Organizations and Society* 15(6): 575-587.
- Patten D. M., 1991, "Exposure, Legitimacy, and Social Disclosure", *Journal of Accounting and Public Policy*, Vol. 10, pp. 297-308.
- Poddi, L., (2005), "Responsabilità Sociale e Performance d'Impresa: un'analisi empirica", PhD thesis, Università di Ferrara.
- Poddi, L. and S. Vergalli, (2009), "Does Corporate Social Responsibility Affect The Performance of Firms?", Feem Working Paper 52.09
- Preston L.E., 1978, "Analyzing corporate social performance: methods and results", in *Journal of Contemporary Business*, 7, 135-150.
- Preston L. E., O'Bannon D.P., 1997, "The Corporate Social - Financial Performance Relationship: A Typology and Analysis", *Business and Society*, 36 (4), pg. 419.
- Richardson A.J., Welker M., Hutchinson I., 1999, "Managing Capital Market Reactions to Corporate Social Responsibility", in *International Journal of Management Review*, 1, pp.17-43.
- Roberts C., 1992, "Determinants of Corporate Social Responsibility Disclosure: An Application of Stakeholder Theory", *Accounting, Organizations and Society*, 17, 6, 595 - 612.
- Sanchez, J. L. F., Sotorrio L. L., 2008, "Corporate Social Responsibility of the Most Highly Reputed European and North American Firms", *Journal of Business Ethics*, 82 (2): 379-390.
- Sharpe, W. F., 1964, "Capital Asset Prices: a Theory of Market Equilibrium Under Conditions of Risk", *The Journal of Finance*, 19 (3), 425-442.
- Simerly R. L., Li M., 2001, "Corporate Social Performance and Multinationality, A Longitudinal Study", Working Paper.
- Sotorrio L. L., Sanchez, J. L. F., 2008, "Corporate Social Responsibility of the Most Highly Reputed European and North American Firms", *Journal of Business Ethics*, 82 (2): 379-390.
- Spicer B. H., 1978, "Investors, Corporate Social Performance and Information Disclosure: An Empirical Study", *The Accounting Review*, 53 (1): 94-111.
- Stanwick P. A., Stanwick S. D., 1998, "The Relation Between Corporate Social Performance, and Organizational Size, Financial Performance, and Environmental Performance: An Empirical Examination", *Journal of Business Ethics*, 17: 195-204.
- Stanwick P. A., Stanwick S. D., 2006, "Corporate Environmental Disclosures: A Longitudinal Study of Japanese Firms", *Journal of American Academy of Business*.
- Treynor, J. L., 1961, "Market Value, Time and Risk", *Unpublished Manuscript*, 95-209.
- Treynor, J. L., 1962, "Toward a Theory of Market Value of Risky Assets", *Unpublished Manuscript*.
- Trotman K., Bradley G.W., 1981, "Associations Between Social Responsibility Disclosure and Characteristics of Companies", *Accounting, Organizations and Society*, Vol. 6, No 4, pp. 355-362.
- Turker, D., 2008, "Measuring Corporate Social Responsibility: a Scale Development Stury", *Journal of Business Ethics*, 85 (4): 411-427.
- Udayasankar, K., 2008, "Corporate Social Responsibility and Firm Size", *Journal of Business Ethics*, 83 (2): 167-175.
- Ullmann A., 1985, "Data in Search of a Theory: A Critical Examination of the Relationship Among Social Performance, Social Disclosure, & Economic Performance", *Academy of Management Review*, 10:450-77.
- Vance S. C., 1975, "Are Socially Responsible Corporations Good Investment Risks?", *Management Review*, 18-24.
- Waddock S. A., Graves S. B., 1997, "The Corporate Social Performance-Financial Performance Link", Paper presented at the national meetings of the *Academy of Management*, Dallas, TX.
- Wallace R.S.O., Naser K., Mora A., 1994, "The Relationship Between the Comprehensiveness of Corporate Annual Reports and Firm Characteristics in Spain." *Accounting and Business Research*, 25, 97, 41 - 53.
- Wright P., Ferris S. P., 1997, "Agency Conflict and Corporate Strategy: The Effect of Divestment on Corporate Value", *Strategic Management Journal*, Vol. 18 (1), 77-83.

- Wu, M., 2006, "Corporate Social Performance, Corporate Financial Performance and Firm Size: a Meta-Analysis", *Journal of American Academy of Business*, 8 (1): 163-171.

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our Note di Lavoro are available on the Internet at the following addresses:

http://www.feem.it/getpage.aspx?id=73&sez=Publications&padre=20&tab=1
http://papers.ssrn.com/sol3/JELJOUR_Results.cfm?form_name=journalbrowse&journal_id=266659
http://ideas.repec.org/s/fem/femwpa.html
http://www.econis.eu/LNG=EN/FAM?PPN=505954494
http://ageconsearch.umn.edu/handle/35978
http://www.bepress.com/feem/

NOTE DI LAVORO PUBLISHED IN 2012

CCSD	1.2012	Valentina Bosetti, Michela Catenacci, Giulia Fiorese and Elena Verdolini: The Future Prospect of PV and CSP Solar Technologies: An Expert Elicitation Survey
CCSD	2.2012	Francesco Bosello, Fabio Eboli and Roberta Pierfederici: Assessing the Economic Impacts of Climate Change. An Updated CGE Point of View
CCSD	3.2012	Simone Borghesi, Giulio Cainelli and Massimiliano Mozzanti: Brown Sunsets and Green Dawns in the Industrial Sector: Environmental Innovations, Firm Behavior and the European Emission Trading
CCSD	4.2012	Stergios Athanassoglou and Valentina Bosetti and Gauthier de Maere d'Aertrycke: Ambiguous Aggregation of Expert Opinions: The Case of Optimal R&D Investment
CCSD	5.2012	William Brock, Gustav Engstrom and Anastasios Xepapadeas: Energy Balance Climate Models and the Spatial Structure of Optimal Mitigation Policies
CCSD	6.2012	Gabriel Chan, Robert Stavins, Robert Stowe and Richard Sweeney: The SO2 Allowance Trading System and the Clean Air Act Amendments of 1990: Reflections on Twenty Years of Policy Innovation
ERM	7.2012	Claudio Morana: Oil Price Dynamics, Macro-Finance Interactions and the Role of Financial Speculation
ES	8.2012	Gérard Mondello: The Equivalence of Strict Liability and Negligence Rule: A « Trompe l'œil » Perspective
CCSD	9.2012	Eva Schmid, Brigitte Knopf and Nico Bauer: REMIND-D: A Hybrid Energy-Economy Model of Germany
CCSD	10.2012	Nadia Ameli and Daniel M. Kammen: The Linkage Between Income Distribution and Clean Energy Investments: Addressing Financing Cost
CCSD	11.2012	Valentina Bosetti and Thomas Longden: Light Duty Vehicle Transportation and Global Climate Policy: The Importance of Electric Drive Vehicles
ERM	12.2012	Giorgio Gualberti, Morgan Bazilian, Erik Haites and Maria da Graça Carvalho: Development Finance for Universal Energy Access
CCSD	13.2012	Ines Österle: Fossil Fuel Extraction and Climate Policy: A Review of the Green Paradox with Endogenous Resource Exploration
ES	14.2012	Marco Alderighi, Marcella Nicolini and Claudio A. Piga: Combined Effects of Load Factors and Booking Time on Fares: Insights from the Yield Management of a Low-Cost Airline
ERM	15.2012	Lion Hirth: The Market Value of Variable Renewables
CCSD	16.2012	F. Souty, T. Brunelle, P. Dumas, B. Dorin, P. Ciais and R. Crassous: The Nexus Land-Use Model, an Approach Articulating Biophysical Potentials and Economic Dynamics to Model Competition for Land-Uses
CCSD	17.2012	Erik Ansink, Michael Gengenbach and Hans-Peter Weikard: River Sharing and Water Trade
CCSD	18.2012	Carlo Carraro, Enrica De Cian and Massimo Tavoni: Human Capital, Innovation, and Climate Policy: An Integrated Assessment
CCSD	19.2012	Melania Michetti and Ramiro Parrado: Improving Land-use modelling within CGE to assess Forest-based Mitigation Potential and Costs
CCSD	20.2012	William Brock, Gustav Engstrom and Anastasios Xepapadeas: Energy Balance Climate Models, Damage Reservoirs and the Time Profile of Climate Change Policy
ES	21.2012	Alireza Naghavi and Yingyi Tsai: Cross-Border Intellectual Property Rights: Contract Enforcement and Absorptive Capacity
CCSD	22.2012	Raphael Calel and Antoine Dechezleprêtre: Environmental Policy and Directed Technological Change: Evidence from the European carbon market
ERM	23.2012	Matteo Manera, Marcella Nicolini and Ilaria Vignati: Returns in Commodities Futures Markets and Financial Speculation: A Multivariate GARCH Approach
ERM	24.2012	Alessandro Cologni and Matteo Manera: Oil Revenues, Ethnic Fragmentation and Political Transition of Authoritarian Regimes
ERM	25.2012	Sanya Carley, Sameeksha Desai and Morgan Bazilian: Energy-Based Economic Development: Mapping the Developing Country Context
ES	26.2012	Andreas Groth, Michael Ghil, Stéphane Hallegatte and Patrice Dumas: The Role of Oscillatory Modes in U.S. Business Cycles
CCSD	27.2012	Enrica De Cian and Ramiro Parrado: Technology Spillovers Embodied in International Trade: Intertemporal, Regional and Sectoral Effects in a Global CGE Framework
ERM	28.2012	Claudio Morana: The Oil Price-Macroeconomy Relationship since the Mid- 1980s: A Global Perspective
CCSD	29.2012	Katie Johnson and Margaretha Breil: Conceptualizing Urban Adaptation to Climate Change Findings from an Applied Adaptation Assessment Framework

ES	30.2012	Angelo Bencivenga, Margaretha Breil, Mariaester Cassinelli, Livio Chiarullo and Annalisa Percoco: The Possibilities for the Development of Tourism in the Appennino Lucano Val d'Agri Lagonegrese National Park: A Participative Qualitative-Quantitative Approach
CCSD	31.2012	Tim Swanson and Ben Groom: Regulating Global Biodiversity: What is the Problem?
CCSD	32.2012	J. Andrew Kelly and Herman R.J. Vollebergh: Adaptive Policy Mechanisms for Transboundary Air Pollution Regulation: Reasons and Recommendations
CCSD	33.2012	Antoine Dechezleprêtre, Richard Perkins and Eric Neumayer: Regulatory Distance and the Transfer of New Environmentally Sound Technologies: Evidence from the Automobile Sector
CCSD	34.2012	Baptiste Perrissin Fabert, Patrice Dumas and Jean-Charles Hourcade: What Social Cost of Carbon? A mapping of the Climate Debate
ERM	35.2012	Ludovico Alcorta, Morgan Bazilian, Giuseppe De Simone and Ascha Pedersen: Return on Investment from Industrial Energy Efficiency: Evidence from Developing Countries
CCSD	36.2012	Stefan P. Schleicher and Angela Köppl: Scanning for Global Greenhouse Gas Emissions Reduction Targets and their Distributions
CCSD	37.2012	Sergio Currarini and Friederike Menge: Identity, Homophily and In-Group Bias
CCSD	38.2012	Dominik Karos: Coalition Formation in Generalized Apex Games
CCSD	39.2012	Xiaodong Liu, Eleonora Patacchini, Yves Zenou and Lung-Fei Lee: Criminal Networks: Who is the Key Player?
CCSD	40.2012	Nizar Allouch: On the Private Provision of Public Goods on Networks
CCSD	41.2012	Efthymios Athanasiou and Giacomo Valletta: On Sharing the Benefits of Communication
CCSD	42.2012	Jan-Peter Siedlarek: Intermediation in Networks
CCSD	43.2012	Matthew Ranson and Robert N. Stavins: Post-Durban Climate Policy Architecture Based on Linkage of Cap-and-Trade Systems
CCSD	44.2012	Valentina Bosetti and Frédéric Ghersi: Beyond GDP: Modelling Labour Supply as a 'Free Time' Trade-off in a Multiregional Optimal Growth Model
ES	45.2012	Cesare Dosi and Michele Moretto: Procurement with Unenforceable Contract Time and the Law of Liquidated Damages
CCSD	46.2012	Melania Michetti: Modelling Land Use, Land-Use Change, and Forestry in Climate Change: A Review of Major Approaches
CCSD	47.2012	Jaime de Melo: Trade in a 'Green Growth' Development Strategy Global Scale Issues and Challenges
ERM	48.2012	ZhongXiang Zhang: Why Are the Stakes So High? Misconceptions and Misunderstandings in China's Global Quest for Energy Security
CCSD	49.2012	Corrado Di Maria, Ian Lange and Edwin van der Werf: Should We Be Worried About the Green Paradox? Announcement Effects of the Acid Rain Program
CCSD	50.2012	Caterina Cruciani, Silvio Giove, Mehmet Pinar and Matteo Sostero: Constructing the FEEM Sustainability Index: A Choquet-Integral Application
CCSD	51.2012	Francesco Nicolli and Francesco Vona: The Evolution of Renewable Energy Policy in OECD Countries: Aggregate Indicators and Determinants
CCSD	52.2012	Julie Rozenberg, Céline Guivarch, Robert Lempert and Stéphane Hallegatte: Building SSPs for Climate Policy Analysis: A Scenario Elicitation Methodology to Map the Space of Possible Future Challenges to Mitigation and Adaptation
ES	53.2012	Nicola Comincioli, Laura Poddi and Sergio Vergalli: Does Corporate Social Responsibility Affect the Performance of Firms?