

Does Entrepreneurship and Corporate Social Responsibility Act as Catalyst towards Firm Performance and Brand Value?

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Abstract

This paper aims at exploring the influence of corporate social responsibility (CSR) on firm performance and brand value for the companies covered within the top list of 50 U.S. companies for Social Responsibility drawn up by the Boston College Center for Corporate Citizenship and Reputation Institute, over the period 2008-2011. Moreover, this paper attempts to relate CSR with entrepreneurship, respectively Corporate Social Entrepreneurship and Corporate Entrepreneurship. Firm performance was measured both through accounting-based (return on assets and return on equity) and market-based firm performance measures (earnings per share). Brand value was proxied through Brand Finance data. CSR was reflected through the index developed by Carroll School of Management's Center for Corporate Citizenship at Boston College in conjunction with the Reputation Institute. By employing panel data regression models, there resulted a positive and statistically significant relationship between CSR and firm performance as proxied by return on assets. However, we notice the lack of any statistically significant relationships between CSR and return on equity, as well as CSR and earnings per share. Furthermore, there was found no association between CSR and brand value.

Keywords: entrepreneurship, corporate social responsibility, firm performance, brand value, panel data regression models

1. Introduction

The increased attention of the concept of corporate social responsibility (hereinafter 'CSR') determined many scholars and researchers to study this notion both empirical and theoretical (e.g. McWilliams & Siegal, 2000; Hillman & Keim, 2001; Tsoutsoura, 2004; Porter & Kramer, 2006). CSR has a long history and it is also well known under many different concepts such as 'corporate philanthropy, corporate citizenship, business ethics, stakeholding, community involvement, corporate responsibility, socially responsible investment, sustainability, triple bottom line, corporate accountability, and corporate social performance' (Silberhorn & Warren, 2007, p. 353). The role of business is to make profit and to maximize its shareholders wealth (Friedman, 1970), to create or to increase company value not only for its shareholders, but for the society as well, in such way win-win proposition will manifest for both companies and society. And this is actually CSR - a long term business development and an innovative strategy where opportunities are ready to be discovered. Through CSR practices, including the entrepreneurship, companies benefit from competitive advantages (Porter & Kramer, 2006), increase their market share and shareholder value, enhance reputation and brand value (Schaltegger & Burritt, 2006), reduce risk and costs of operations (Heal, 2005), increase employees productivity, moral, and recruitment (Turban & Cable, 2003), differentiation within the competitive markets, consumer perception on products and services (Sen & Bhattacharya, 2001), company reputation, and corporate financial performance (Waddock & Graves, 1997; Tsoutsoura, 2004; Dumitrescu & Simionescu, 2014). These benefits are related with stakeholder satisfaction such as shareholders (or companies owners), employees, NGOs, customers, suppliers, local community, companies competitors, government, mass media, and society-at-large (Carroll, 1991).

However, nowadays companies face many challenges within very competitive markets trying to develop sustainable and renewal businesses. In the last years, many companies have adopted CSR practices on a voluntary basis to strengthen and to promote the company brand value, to increase their performance, and to benefit from other CSR advantages. The company activity footprint in a society need to be seen as a responsibility and an integral part of the business decision processes. CSR could be considered a pillar of the

company since through its practices it represents a commitment to its stakeholders, being with an ear on the ground, and with the other one on company all needs. Therefore, CSR became a guide for entrepreneurs, since entrepreneurship seeks opportunities, potential new markets, innovation, and new strategies, trying to make the most of it, thus answering withal at company and stakeholders' needs. The link between CSR and entrepreneurship became essential, as well as the CSR concept to be narrowed and to be better controlled in order not to fall into the cost trap and step more into the light the concept of CSR. In this paper, we propose the split of CSR into Corporate Social Entrepreneurship (for CSR activities) and Corporate Entrepreneurship (for strategies).

A survey made by McKinsey (2010) showed that 76% of companies executives consider that CSR positively influences their companies financial performance and shareholder value in the long run and 55% agreed that sustainability supports their companies to build a strong(er) brand (McKinsey, 2010). A company brand value represents a leverage for the competitive advantage on the market where it operates, thus allowing for the company to increase its capital and the quality or the number of trading partners. A company brand represents its uniqueness, as well as its identification on the market. By the instrumentality of CSR activities customer's loyalty toward a brand increases and reputation improves, as well as the company financial performance (Maignan et al., 1999). These benefits had been considered in many studies important key factors towards development of different CSR concepts. Researchers have tried to examine in their studies the effect of CSR on brand and failed or found inconclusive results (Torres et al., 2012). We argue that once a company integrates CSR activities in its core business strategies and is taken seriously, not as a fashion, CSR becomes a part of the company's brand, therefore increasing it.

The aim of this study is to empirically analyze the companies covered within the top list of 50 U.S. companies for Social Responsibility drawn up by the Boston College Center for Corporate Citizenship and Reputation Institute, over the period 2008-2011, by employing panel data regression models. We expect to find no relation between brand and CSR because CSR itself became part of companies brand value, but we expect to find a positive and significant relation between CSR and company performance. However, as markets evolve rapidly, we notice the fact that the stakeholder's preferences, demands, and trends as regards products and/or services are changing all the time. Thus, CSR became a valuation framework for companies being able to respond their stakeholders' needs which broaden over time, with broadening the concept of CSR. As mentioned in the literature, CSR 'has grown from a narrow and often marginalized notion into a complex and multifaceted concept' (Cochran, 2007). Although there is not yet a general accepted definition and framework of CSR, it (the CSR) 'won the battle of ideas' (Crook, 2005) and many companies have included CSR practices in their business strategies, thereby realizing the importance of it. In order to narrow CSR and to control much better CSR activities and strategies, as it was mentioned previously, we propose the split of CSR into Corporate Social Entrepreneurship (hereinafter 'CSE') for CSR activities and Corporate Entrepreneurship (hereinafter 'CE') for strategies. Therefore, this two types of concepts are addressed to entrepreneurs that make company's business strategies during which they (the companies) grow and became profitable (respectively CE) and to entrepreneurs that apply the strategies of CE and answer at stakeholders needs, requirements and also they promote company brand and add value to it (respectively CSE). In fact, from our knowledge this is the first paper that attempts this subject.

This paper continues to describe in the next section the two concepts of CSE and CE, connecting them with CSR and brand, their limitations and applicability; section 3 presents the data and the methodology of the study, whereas in section 4 the empirical results are discussed. Final section concludes the paper.

2. Literature Review

The point of tension within literature on CSR is due because of lack of a clear definition, standards, framework, and principles of CSR. Although researchers have examined CSR outcomes in many studies using different models and variables, their results were either criticized or supported by other researchers. Through all this research there has been tried to find a common ground regarding CSR methodology, framework, and definition. Even today there is not a consensus (Hopkins, 2004). Therefore, companies may well start to rise the question 'why bother?'. CSR is a commitment to its stakeholders, is a concept through which companies incorporate social and environmental issues into their business strategies, furthermore reflecting the relations with companies stakeholders on a voluntary basis. CSR became a necessary strategy and a guide also for entrepreneur to develop a sustainable and renewal business.

As mentioned earlier, stakeholders needs, demands, and trends as regards products and/or services evolve and change over time, as well as the companies need to satisfy their stakeholders. Therefore, CSR activities have

been extended on widespread agreement between companies and its stakeholders. The increase of CSR activities through which companies are trying to satisfy their stakeholders will not bring responsible changes if through these activities the needs of both companies and stakeholders will not be satisfied. CSR activities may bring benefits to the companies, but once these activities are covering extended areas and companies will try to answer them might fall into the cost trap. So that to avoid this trap, to satisfy both stakeholders and companies, and to answer each needs, we propose that CSR should be split into CSE and CE. CSE and CE are not different forms of CSR, but rather process in approaching and accelerating toward CSR journey which will advance CSR development, thus bringing it more to the light. In order to understand the importance of CSE and CE and how these links in the chain of CSR activities, there will be described one by one, alongside their use.

Dees (1998b) defined CSE as the 'innovative activity with a social purpose in either the private or nonprofit sector, or across both' and 'CSE are one special breed of leaders, and they should be recognized' because 'we need social entrepreneurs to help us find new avenues toward social improvement as we enter the next century' (Dees, 1998b). Hohnen (2007) refers to CSE as a 'radar' through which CSR is being successful because CSE has the capacity to solve complex problem, it is credible, committed to a collective purpose (Waddock & Post, 1991), builds long-term relations with clients (Leadbeater, 1997), seeks new opportunities and everlasting innovation (Dees, 1998a), and is creative (Shaw et al., 2002).

Besides, the aims of CSE are to *create social value* through innovation and entrepreneurial business models, its purpose is to comprehensive understand, prevent, and predetermine how companies can continue to operate whenever an important transformation or change occurs. The potential market for CSE is vast because of the broad variety of social needs remained unsatisfied by the existing markets and institutions. CSE generates great value when it provides the basic of the humanitarian needs (for example *medicines, provisions, helping people with special disabilities or food*, etc.) whenever the state doesn't provide these services (Smallbone et al., 2001). By means of CSE, the companies *can discover new* and efficient ways to generate *products, services, or structures* that can both satisfy the community social needs and company to achieve sustainable development. Therefore, CSE relates to philanthropic activities directed to external stakeholders such as community, environment, NGO, customers, employees, suppliers, and government. Thus, CSE *integrates continuously social and business value of the company as central principle*, communicates with stakeholders in such ways it is understood how social activities are related with their needs and interests, the key focus is on company brand value, it is fundamental for advancing CSR, and ensures that the words 'social responsibility' are translated into action.

Corporate Social Entrepreneurship are neither managers nor Corporate Entrepreneurship, they are in between in order for the company entrepreneurship to be innovative and go further than traditional managerial approach, as well as to be linked with external stakeholders. They are the external entrepreneurs as they link the company with the innovation (products and/or services) and potentially new markets through external stakeholders. CSE is with the ear on the ground, while CE is a catalyst for change, for innovation, and based on CSE social activities new business models are created or renewed. According to Zarah (1996), CE 'includes radical product innovation, risk taking, and pro-activeness [...], includes business venturing and intrapreneuring'. CE is more toward companies leverage through innovation and renewal business strategy. In the case of CE, innovation is about creating and introducing new products and/or services on the market and CSE innovation regards the external stakeholders social needs. Therefore, both of them are innovative and as Campbell (2007) said, CSR integrates social activities (CSE) in the company business operations (CE) in such (innovative) way stakeholders will not be affected. As mentioned above, CSE and CE are not different forms of CSR, they 'push' CSR to the next level of development. For CSR to step more into the light, the link between CSE and CE needs to be recognized.

Both CSE and CE, like all entrepreneurship, are about innovation, changes, identifying new ways of doing business, new strategies, but are combined on a voluntary basis (being a characteristic of CSR) with the company willingness and stakeholders economic and social needs, such that both stakeholders and company can benefit. It is a redesign entrepreneurship. As some markets became saturated and others are not yet explored or not enough explored by companies or institutions, many companies turn their attention toward corporate venture. Corporate venturing is a process through which new businesses are created in the existing markets where the company is already competing or in a new market. Innovation and corporate venturing create and introduce new products and/or services on the market, but corporate venturing implies CE effort to create new or/to rethink the strategy business model. Strategic renewal of the company business model relies on the identification of opportunities and their exploitation in such ways company value is created and a sustained competitive advantage is achieved. But, in order to manifest this fact, the company needs to have a strong relation with all its stakeholders,

especially with the external ones, to be with an ear on the ground, and with the other one on company all needs (increase company financial performance, competitive advantages, market share, create value, company brand, reputation, and image, etc). Thus, CE scope is wide in a corporation and in order to not lose control and for the company to survive, to become transparent, to succeed in an increasingly competitive market, the relation with CSE is crucial.

The CE are the internal entrepreneurs and are innovative, down to business and risk taking, they create value for the company, but they don't do legwork as CSE does through social activities with external stakeholders. CSE relation with external stakeholders is strong as mentioned above. CSE spots the trend and needs in the existing market or new market, whereas CE acts as catalyst by rethinking or changing the company strategy, innovative strategies. CE is a combination of managers and researchers of the company products and/or services portfolios. Taken together, CE and CSE can lead the company to innovative strategies, renewal business models, in such ways the company will differentiate from its competitors and will achieve sustainable development (see Figure 1).

CSR success relies on CSE which in turn depends on CE. For CSR to gain momentum, the bridge should be built between CSE and CE. Innovation drives CSE and CE. CSR with this two innovative links in the chain will move toward advanced development and will become a 'lethal weapon', furthermore generating sustained brand for the company and growth in general. Some companies have already integrated into their business strategies either CSE or CE under the label of CSR activities, whilst some of it even linked both of them to CSR. Companies like Cisco, Motorola, and Philips successfully integrated CE into their business models, while Timberland Company and Starbucks Coffee are already considered pioneers in the CSE practice (Austin & Reavis, 2002). For this reason we selected for our sample all the companies covered within the top list of 50 U.S. companies for Social Responsibility drawn up by the Boston College Center for Corporate Citizenship and Reputation Institute.

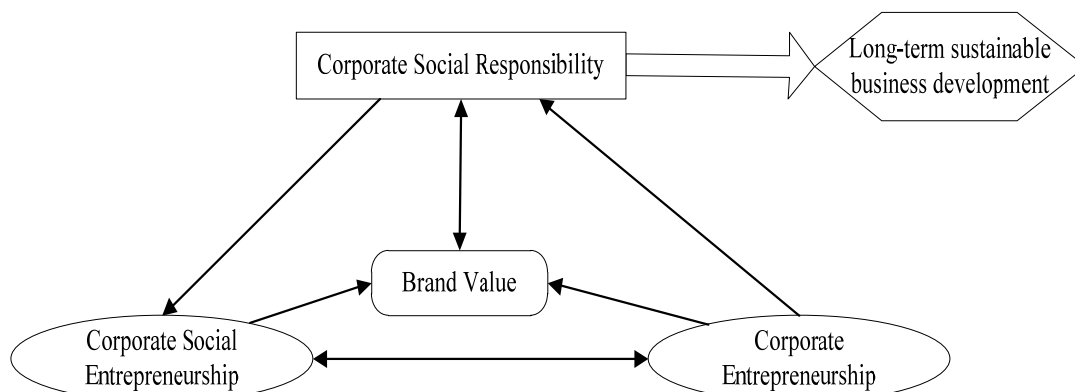


Figure 1. Corporate social responsibility, corporate social entrepreneurship and corporate entrepreneurship

Source: Authors' processing.

Therefore, as mentioned above, CSE and CE are not different forms of CSR. Taking into consideration that the key focus of CSE is company brand value, expressed into action of the words 'social responsibility' and CE focuses through innovative business and strategies on company performance, the following hypotheses are made:

H₀ There is no relation between CSR and company brand value.

H₁ There is a positive relation between CSR and company financial performance.

3. Data and Empirical Research Methods

3.1 Sample Selection and Variables' Description

Our initial dataset included all the companies covered within the top list of 50 U.S. companies for Social Responsibility drawn up by the Boston College Center for Corporate Citizenship and Reputation Institute, over the period 2008-2011, respectively 55 distinct companies. However, we dropped four companies from the primary sample due to non-listing on the New York Stock Exchange (NYSE) or on the National Association of Securities Dealers Automated Quotations (NASDAQ Stock Market). Therefore, our final sample comprises 51

companies with the following distribution: 38 companies in 2008, 45 companies in 2009, 38 companies in 2010, respectively 32 companies in 2011, summing up 153 statistical observations. Moreover, the selected companies belong to a wide range of activity sectors as follows: consumer cyclical, consumer defensive, consumer goods, financial services, healthcare, industrials, services, technology.

Table 1 provides the definitions and measurement of all the variables employed within the empirical research.

Table 1. Definitions and measurement of variables

Variables	Definition and measurement
Variables regarding firm performance	
ROA	Return on assets. The calculation is net income divided by average total assets.
ROE	Return on equity. The calculation is return on assets times financial leverage.
EPS	Earnings per share. The calculation is the difference between net income and preferred dividends divided by weighted average number of common shares outstanding.
Variables regarding brand value	
Brand	Brand value according to Brand Finance.
Variables regarding corporate social responsibility	
CSRI	Corporate Social Responsibility Index (CSRI), developed by Boston College Center for Corporate Citizenship and Reputation Institute.
Firm-level control variables	
Size	Firm size, as annual average number of employees (logarithmic values).
Lev	Leverage ratio, as total debt to total assets.
Gr	Sales growth, as the relative increase of sales from the previous year (%).
Years	Number of years since listing on the New York Stock Exchange (NYSE) or on the NASDAQ Stock Market (logarithmic values).

Source: Authors' processing.

Thus, we have selected the following categories of variables: variables regarding firm performance, variables regarding brand value, variables regarding corporate social responsibility, and firm-level control variables. Firm performance is proxied both through accounting-based (return on assets and return on equity) and market-based firm performance measures (earnings per share). In fact, Schaltegger et al. (2006) noticed that there is a little consensus about the best way to capture firm financial performance. Accordingly, accounting measures emphasize past performance, whereas market measures are forward-looking and are viewed as pointing out estimates about the net present value of expected future earnings. ROA reveals how much profit a company produces on its asset base; the better the company, the more profit it engenders as a percentage of its assets. ROE shows how much profit a firm generates on the amounts shareholders have invested in the company. EPS depicts the company's net income expressed on a per share basis, otherwise how much profit a firm has registered per share. The source of financial data is represented by the website of Morningstar, Inc., leading provider of independent investment research in North America, Europe, Australia, and Asia.

As proxy for brand value we have collected for our selected companies the values provided by Brand Finance through its website. However, there are seven companies for which we did not find data for brand value for neither year of research. Moreover, there are cross sections for which we did not gather data for brand value corresponding to all years of research due to lack of data. Founded in 1996, Brand Finance Plc is the world's leading brand valuation consultancy which give advice to strongly branded organisations on how to maximise their value through the effective management of their brands and intangible assets. Brand Finance computes brand value based on the Royalty Relief methodology which determines the value a company would be willing to pay to license its brand as if it did not own it. The previously mentioned approach assumes the estimation of the future revenue assigned to a brand and computing a royalty rate that would be charged for the use of the brand. Thus, there are passed the following steps in this process:

- Compute brand strength on a scale of 0 to 100, this score being known as the Brand Strength Index. This calculation is made by using a balanced scorecard of a number of relevant attributes such as emotional connection, financial performance and sustainability, among others;
- Establish the royalty rate range for the respective brand sectors by examining comparable licensing agreements sourced from Brand Finance's extensive database of license agreements and other online

databases;

- Compute the royalty rate by applying the brand strength score to the royalty rate range;
- Set the brand specific revenues estimating a proportion of parent company revenues attributable to each specific brand and industry sector;
- Determine forecast brand specific revenues based on a function of historic revenues, equity analyst forecasts and economic growth rates;
- Establish the implied royalty charge for use of the brand by applying the royalty rate to the forecast revenues;
- Discount post tax the forecast royalties to a net present value which represents current value of the future income attributable to the brand asset.

We gathered the values related to the Corporate Social Responsibility Index (CSRI) as proxy for CSR, developed by researchers at the Carroll School of Management's Center for Corporate Citizenship at Boston College in conjunction with the Reputation Institute. Founded in 1985, the Carroll School of Management Center for Corporate Citizenship at Boston College is a membership-based knowledge center. Besides, established by Dr. Charles Fombrun and Dr. Cees van Riel in 1997, Reputation Institute is the world's leading reputation-based advisory firm.

The CSRI ranking is determined by how the public perceives a firm as regards three dimensions: *citizenship*, the firm being a good corporate citizen which supports good causes and does not harm the environment (Does the company contribute positively to its surrounding community in a socially and environmentally responsible fashion?), *governance*, the firm being a responsibly-run firm which behaves ethically and is open and transparent in its business dealings (Is the company business run in a fair and transparent fashion? Do stakeholders associate the company with high ethical business standards?), *workplace*, the firm being an appealing place to work which treats its employees well (Are employees treated fairly and paid a decent wage? Does the company invest in developing employee skill sets and career opportunities?). The scores fall between 0-100, moreover there existing the following tiers: *excellent/top tier* (above 75), *strong/robust* (66-75), *average/moderate* (56-65), *weak/vulnerable* (45-55), *poor/lowest tier* (below 45).

Furthermore, several control variables which may influence firm performance are included in the empirical research. To account for firm size we took the annual average number of employees (logarithmic values). Firm size is an important control variable because size may affect the firm ability to undertake CSR actions. According to Crisóstomo et al. (2011), smaller companies register lower capacity of sustaining a more active behavior towards CSR relative to bigger companies that usually have more infrastructure as well as higher cash flow levels. However, as a company expands it becomes more visible and more responsible with different stakeholders' demands. Besides, size is thought to enhance a firm's ability to sustain a competitive advantage when economies of scale, economies of scope, or learning effects are present (Roberts & Dowling, 2002). The firm's risk is another factor that may influence corporate social activities. Based on previous studies (Sharfman & Fernando, 2008; El Ghoul et al., 2011) a good CSR performance lessen the cost of capital determined by the reduction of the firm's risk and a larger firm's investor base. In addition, the companies with a good CSR performance decrease information asymmetry (Dhaliwal et al., 2011; Cho et al., 2012). Company's leverage (Lev), measured by the ratio of total debt over total assets, is used as an approximation for risk. We also control for sales growth, as the relative increase of sales from the previous year since customers are more likely to purchase products of firms that employ CSR, assuming that they are aware of it, thus leading to increased sales growth (Servaes & Tamayo, 2013). Also, we will control for the age of the company measured through the number of years since it has been listed on the NYSE or on the NASDAQ Stock Market (logarithmic values) because more recently listed firms are likely to be faster-growing and perhaps more intangible asset-intensive (Black et al., 2006).

3.2 Econometric Models

In order to examine the relationship between CSR and firm performance, as well as CSR and brand value, we will employ panel data regression models. Previous researchers (Gujarati, 2003) noticed that there are several advantages of panel data over cross-section or time series data as follows: the techniques of panel data estimation can take such heterogeneity explicitly into account by allowing for individual-specific variables; panel data give 'more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency'; panel data are better suited to study the dynamics of change; panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data; panel data enables

us to study more complicated behavioral models; panel data can minimize the bias that might result if we aggregate individuals or firms into broad aggregate.

However, a panel data regression is different than a regular time-series or cross-section regression since it has a double subscript on its variables (Baltagi, 2005):

$$y_{it} = \alpha + X'_{it}\beta + u_{it} \quad i = 1, \dots, N; t = 1, \dots, T \quad (1)$$

where i emphasizes the companies from the final sample, whereas t denotes the time, respectively the period 2008-2011. Otherwise, the i subscript describes the cross-section dimension, whilst t depicts the time-series dimension. Furthermore, α is a scalar, β is $K \times 1$ and X_{it} is the i^{th} observation on K explanatory variables.

Besides, most of the panel data applications employ a one-way error component model for the disturbances, therefore considering:

$$u_{it} = \mu_i + v_{it} \quad (2)$$

where μ_i describes the unobservable individual-specific effect, whereas v_{it} depicts the remainder disturbance.

Specifically, the estimated equations are as follows:

$$\text{Firm_performance} = \text{constant}_1 + \alpha_{i1}\text{CSRI}_i + \beta_{i1}X_i + u_{i1} \quad (3)$$

$$\text{Brand_value} = \text{constant}_2 + \alpha_{i2}\text{CSRI}_i + \beta_{i2}Z_i + u_{i2} \quad (4)$$

where the variables regarding firm performance (ROA, ROE, EPS) and the variables regarding brand value (Brand) denotes the dependent variables. The term labeled 'constant' (often labeled the 'intercept') denotes the expected mean value of the measured variable when all the explanatory variables equals zero. The terms X_i and Z_i are the control variables, whilst u_{i1} and u_{i2} are error terms.

4. Empirical Results

4.1 Descriptive Statistics

Table 2 presents the descriptive statistics of all the variables covered within empirical research. We notice the fact that the mean value corresponding to CSRI is 73.8. Thus, the selected companies are in mean strong/robust as regards CSR, based on the tiers established by Carroll School of Management's Center for Corporate Citizenship at Boston College and Reputation Institute.

Table 2. Descriptive statistics

Var	Valid N	Mean	Median	Minimum	Maximum	Std.Dev.
ROA	153	8.1	7.28	-32.230	26.0	7.6
ROE	151	22.7	18.69	-213.070	107.4	30.7
EPS	153	106.0	2.19	-278.260	6215.0	705.4
CSRI	153	73.8	73.70	66.400	82.7	2.9
Brand	109	14178.7	10171.00	1421.000	45441.0	11732.1
Size	153	105001.9	79800.00	1152.000	426000.0	104340.9
Lev	153	0.6	0.62	0.111	1.5	0.2
Gr	153	0.1	0.04	-0.621	1.0	0.2
Years	151	44.3	39.00	1.000	118.0	27.9

Source: Author's computations.

Note. The description of the variables is provided in Table 1.

Table 3 reveals the correlation matrix. The Pearson product-moment correlation coefficient denotes the strength of the linear relationship between two variables. We distinguish the fact that CSRI is positively correlated with ROA ($p = .006$) and sales growth ($p = .003$), as well as negatively correlated with leverage ($p = .003$). Furthermore, brand value is positively correlated with ROA ($p = .000$), firm size ($p = .001$), and sales growth ($p = .012$). From the strength of correlation point of view, we notice the lack of very high correlations (0.90 to 1.00) or high correlations (0.70 to 0.89) between the selected variables. We remark a moderate correlation (0.50 to 0.69) between ROA and ROE ($p = .000$), but these measures of firm performance will be used as dependent variables within distinct regression models. However, the most variables are low correlated (0.30 to 0.49) or there is a little correlation (0.00 to 0.29). Therefore, the undesirable situation of collinearity or multicollinearity is lessened since the correlations among the independent variables are not strong.

Table 3. Correlation matrix

Var	ROA	ROE	EPS	CSRI	Brand	Size	Lev	Gr	Years
ROA	1	0.579 (.000)	-0.107 (.269)	0.263 (.006)	0.352 (.000)	-0.237 (.013)	-0.334 (.000)	0.373 (.000)	-0.057 (.558)
ROE	0.579 (.000)	1	-0.090 (.353)	0.104 (.282)	0.080 (.409)	-0.064 (.511)	0.302 (.001)	0.104 (.284)	0.214 (.026)
EPS	-0.107 (.269)	-0.090 (.353)	1	0.046 (.638)	-0.075 (.440)	0.139 (.151)	-0.001 (.993)	0.145 (.134)	-0.090 (.351)
CSRI	0.263 (.006)	0.104 (.282)	0.046 (.638)	1	0.103 (.285)	-0.039 (.689)	-0.283 (.003)	0.284 (.003)	-0.120 (.212)
Brand	0.352 (.000)	0.080 (.409)	-0.075 (.440)	0.103 (.285)	1	0.304 (.001)	-0.187 (.051)	0.240 (.012)	0.027 (.779)
Size	-0.237 (.013)	-0.064 (.511)	0.139 (.151)	-0.039 (.689)	0.304 (.001)	1	0.309 (.001)	-0.071 (.461)	0.152 (.114)
Lev	-0.334 (.000)	0.302 (.001)	-0.001 (.993)	-0.283 (.003)	-0.187 (.051)	0.309 (.001)	1	-0.200 (.037)	0.458 (.000)
Gr	0.373 (.000)	0.104 (.284)	0.145 (.134)	0.284 (.003)	0.240 (.012)	-0.071 (.461)	-0.200 (.037)	1	-0.091 (.345)
Years	-0.057 (.558)	0.214 (.026)	-0.090 (.351)	-0.120 (.212)	0.027 (.779)	0.152 (.114)	0.458 (.000)	-0.091 (.345)	1

Source: Author's computations.

Note. The description of the variables is provided in Table 1. Marked correlations are significant at $p < .05000$. N=109 (Casewise deletion of missing data).

4.2 Regression Results

Table 4 reports the results of panel data regression models. The first estimated model have ROA as dependent variable, being found a positive relationship between CSRI and ROA.

Table 4. Regression results

Independent Var → Dependent Var ↓	ROA	ROE	EPS	Brand
Constant	-17.40457 (-1.154562)	-68.17449 (-0.996039)	-1458.267 (-0.926010)	-26163.18 (-0.838203)
CSRI	0.395239[†] (1.969247)	1.135169 (1.242439)	2.627972 (0.125339)	-55.78258 (-0.146442)
Size	0.176391 (0.365768)	-0.942685 (-0.423568)	130.4983[*] (2.590355)	4469.997^{***} (3.813887)
Lev	-14.42659^{***} (-5.251102)	10.58938 (0.794129)	191.4177 (0.666950)	-16209.89^{**} (-2.729273)
Gr	7.599944[†] (2.539634)	13.32854 (0.980754)	270.6689 (0.865812)	14070.09[†] (2.328787)
Years	0.060041^{**} (2.730063)	0.235979[*] (2.367619)	-4.488104[†] (-1.953509)	48.41771 (1.186501)
F-stat	10.51357^{***}	2.213614[†]	1.958129[†]	5.346289^{***}
R-sq	0.266075	0.071839	0.063251	0.206052
Adj R-sq	0.240767	0.039386	0.030949	0.167511
DW stat	0.748000	1.654632	0.141268	0.325983
VIF	1.362537	1.077399	1.067522	1.259528
N	151	149	151	109

Source: Authors' computations.

Note. The description of the variables is provided in Table 1. [†] $p < 0.10$. ^{*} $p < 0.05$. ^{**} $p < 0.01$. ^{***} $p < 0.001$. The t-statistic for each coefficient is reported in parentheses.

The coefficient for CSRI is 0.395239, being statistically significant at 10% ($p < 0.10$). Therefore, by holding all other factors constant, a 1% increase in CSRI will lead to a 39.5239% increase in ROA.

The F-stat is the ratio of the explained variability, as reflected by R-squared and the unexplained variability, as reflected by 1-R-squared, each divided by the corresponding degrees of freedom. Also, the F-test is employed as a test of all of the regression coefficients jointly being 0. An ANOVA-F test is employed in order to test the overall fit of the linear regression model. Therefore, we acknowledge that the F-test is statistically significant, which means that the first model is statistically significant ($p < 0.001$). The adjusted R-squared compares the explanatory power of regression models that comprise different numbers of explanatory variables. Adjusted R-squared is used to compensate for the addition of variables to the model. Unadjusted R-squared will increase, but will never decrease, as more explanatory variables are included in the regression model, even when extra variables do insignificant to support explain the dependent variable. In fact, adjusted R-squared is corrected for the number of independent variables in the model. Moreover, the adjusted R-squared can be negative, and its value will always be less than or equal to that of R-squared. The adjusted R-squared of 0.240767 means that approximately 24.0767% of the variance of ROA is accounted for by the model.

The second and the third panel data regression models have ROE and EPS as dependent variable, but there was not established any statistically significant relationship between CSRI and firm performance. However, these econometric models are statistically significant for $p < 0.10$. Also, the explanatory power of these regression models is reduced: approximately 3.9386% of the variance of ROE is accounted for by the model, whilst 3.0949% of the variance of EPS is accounted for by the model. The fourth model has brand value as dependent variable. However, even if the model is statistically significant for $p < 0.001$, we notice the lack of any statistically significant relationship between CSRI and brand value. Howsoever, approximately 16.7511% of the variance of brand value is accounted for by the model.

As regards the statistical significance of the control variables, the results out of Table 4 provide support for a positive relationship between firm size and EPS (the third model), as well as between firm size and brand value (the fourth model), supporting the view that bigger companies tend to invest more in CSR, thus registering increased CSRI and increased brand value. Also, there was found a negative relationship between leverage and ROA (the first model), as well as between leverage and brand value (the fourth model). In addition, sales growth positively influences ROA (first model) and brand value (the fourth model). As regards the number of years since listing on the NYSE or on the NASDAQ Stock Market, we notice a mixed association with firm performance: positive association with ROA (the first model) and ROE (the second model), whilst negative association with EPS (the third model). However, the adjusted R-squared is quite low which means that about 76% of the dependent variable cannot be explained by the first model, 96% by the second model, 97% by the third model, and 84% by the fourth model.

Moreover, we performed the Durbin Watson test (DW stat) in order to capture the potential autocorrelation in the residuals out of the statistical regression analysis. The DW stat is always between 0 and 4: a value of 2 means that there is no autocorrelation in the selected sample; values approaching 0 indicate positive autocorrelation, whereas values toward 4 indicate negative autocorrelation. Therefore, only within the second model the DW stat is near 2, reflecting the lack of autocorrelation. In fact, the presence of autocorrelation emphasizes that the rest of the estimated models are missing a useful predictor variable or that it should include a time series component, such as a trend or a seasonal indicator.

Table 5. Centered variance inflation factors

Independent Var → Dependent Var ↓	ROA	ROE	EPS	Brand
CSRI	1.114538	1.121249	1.114538	1.156983
Size	1.097524	1.119266	1.097524	1.069415
Lev	1.282322	1.251444	1.282322	1.425994
Gr	1.166202	1.158603	1.166202	1.106509
Years	1.261303	1.234013	1.261303	1.271809

Source: Authors' computations.

Note. The description of the variables is provided in Table 1.

We used the centered variance inflation factor (VIF) as an indicator of multicollinearity, reported in Table 5. VIF is computed as $1/(1-R\text{-squared})$. There is recommended a maximum VIF value of 5 (Rogerson, 2001) or even 4 (Pan & Jackson, 2008). The results shows a value of VIF near 1 fact which means the lack of multicollinearity.

5. Concluding Remarks

Since several companies, successfully integrated either corporate social entrepreneurship or corporate entrepreneurship through CSR activities into their business models, the current research examined the relationship between CSR and brand value, as well as CSR and firm performance, for the companies covered within the top list of 50 U.S. companies for Social Responsibility drawn up by the Boston College Center for Corporate Citizenship and Reputation Institute, over the period 2008-2011. Our results revealed no statistically significant relationship between CSR and brand value, thus reinforcing the conclusions of Torres et al. (2012). Therefore, for our selected companies that implemented CSR activities could become difficult to determine whether CSR influences brand value or vice-versa.

Furthermore, we found a positive and statistically significant relationship between CSR and firm performance as measured through return on assets (ROA). Thus, our results are in line with previous studies which also found a positive association between CSR and firm performance (Waddock & Graves, 1997; Tsoutsoura, 2004; Dumitrescu & Simionescu, 2014).

Further research should be employed to deeply understand the relation between CSR and entrepreneurship, respectively the bridge between corporate social entrepreneurship and corporate entrepreneurship in the chain of CSR activities.

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