# Relationships between Corporate Social Responsibility and Financial Performance: What is the Causality?

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## Abstract

This study examines the causal relationships between the various dimensions of corporate social responsibility (human resources, human rights in the workplace, societal commitment, respect for the environment, market behavior and governance) and financial performance (return on equity, return on assets, market to book ratio). It is based on a sample of 329 listed companies in three geographical areas (the United States, Europe and the Asia-Pacific region) for the years 2009 and 2010. Linear regression analysis and the Granger causality test were used to examine the causal relationships between social responsibility and financial performance. The results show not only that greater social responsibility does not result in better financial performance, but also that financial performance negatively impacts corporate social responsibility.

## 1. Introduction

Over the last thirty years, a considerable number of empirical studies have sought to identify a link between the corporate social responsibility and financial performance of companies. According Margolis and Walsh (2003), 122 empirical studies were published in the period 1971-2001, beginning with Narver (1971). Moreover recent literature demonstrates that the topic is still relevant (Bingham, Dyer Jr., Smith, & Adams, 2011; Perrini, Russo, Tencati, & Vurro, 2011; Baird, Geylani & Roberts, 2012; Barnett & Salomon, 2012).

There are essentially two types of empirical studies of the relationship between corporate social responsibility and financial performance. The first uses the event study methodology to assess the short-term financial impact (abnormal returns) when firms engage in socially responsible (or irresponsible) acts. The results of these studies are mixed. Wright and Ferris (1997) highlight a negative relationship between corporate social responsibility and financial performance. On the other hand, Posnikoff (1997) reports a positive relationship, while Teoh, Welch, and Wazzan (1999) do not find any significant relationship. Still others (discussed by McWilliams & Siegel, 2001) reach divergent conclusions on the relationship between corporate social responsibility and financial profitability in the short term. The second type of study examines the relationship between

corporate social responsibility and long-term measures of financial performance, using accounting or financial indicators of profitability. These studies have also produced mixed results. Cochran and Wood (1984) identify a positive relationship between social responsibility and accounting performance after taking into account the age of assets. Aupperle, Carroll, and Hatfield (1985) do not detect any significant relationship between corporate social responsibility and return on assets adjusted for the company's risk level, nor do Makni, Francoeur, and Bellavance (2009). On the other hand, Waddock and Graves (1997) found a significant positive relationship between a corporate social responsibility index and a performance measure such as return on assets over a one year period. Work using profitability measures based on stock market performance has also had ambivalent results. Vance (1975) extended the observation period from six months to three years and concluded that there was a negative relationship between corporate social responsibility and financial performance, which refuted earlier research by Moskowitz (1972). Alexander and Buchholz (1978) improved the Vance analysis by evaluating the performance of a group of market shares, adjusted for the level of risk, producing an inconclusive result. For their part, Makni *et al*. (2009) observed a negative impact of corporate social responsibility on stock market performance, as did Baird *et al*., (2012).

However, recent work (Elsayed & Paton, 2005; McWilliams & Siegel, 2001) highlights many biases and problems found in these approaches, amongst which we highlight: misspecification (endogeneity) of variables; omitted variables in profitability determinants; limited data (small samples, old data) that only relate to one country or continent; cross-sectional analyzes that are invalid with heterogeneous companies; problems in corporate social responsibility measures and financial performance. Another important issue is the direction of causality between corporate social responsibility and financial performance: Does better social performance lead to better financial performance, or on the contrary, is good financial performance a prerequisite for good corporate social responsibility?

The research carried out here specifically addresses the causal relationship between a company's social responsibility and its financial performance. It develops a statistical methodology based on the Granger causality test (in this respect it extends the study by Makni *et al*. (2009). It contributes to current knowledge at several levels. First, it maintains an extended concept of corporate social responsibility that is inherently multi-dimensional. It includes not only dimensions relating to human resources and human and social rights in the workplace, but also quality of governance, societal commitment, respect for the environment and market behavior. It also takes an international approach; it is based on a broad and homogenous sample of listed companies, representing three geographical areas (Europe, the United States, and the Asia-Pacific region). In this respect, it draws on data from the database developed by the social rating agency Vigeo, which is the benchmark in the domain. Moreover, it takes into account the influence of industrial sector by classifying companies into six major sectors of activity. Furthermore it captures performance based on accounting (return on equity and return on assets) and market (market to book ratio) indicators. Finally, on a practical level, it provides answers to two important managerial questions: is improved financial performance a prerequisite for the implementation of a socially responsible policy? And concomitantly, is such a policy likely to contribute to improved profits?

The article is organized as follows: Section 2 presents the theoretical framework and hypotheses. Section 3 outlines the methodology. Section 4 presents the results and section 5 offers a discussion of these results.


## 2. Theoretical Framework

It is necessary both to define precisely what is meant by corporate social responsibility and to study its impact on the financial performance of the company.

## 2.1. Corporate Social Responsibility: Definition

As far back as 1953, Bowen thought it was mandatory for companies to meet all the expectations of society. Between the company and the societal point of view, his was clearly that of society, and his concern was the maximization of social welfare rather than the profitability of the company.

Since then, numerous definitions of corporate social responsibility have been proposed. Among the most important are those of Friedman (1962), Jones (1980), Wood (1991, 1994), McWilliams and Siegel (2001) or Margolis and Walsh (2003).

The idea behind all of them is that companies must voluntarily develop responsible citizenship (both in economic and social terms) by integrating economic, social, societal, and environmental concerns into their activities and relationships with stakeholders (employees, customers, suppliers, local authorities, non-governmental organizations, the broader environment, etc.). The concept of corporate social responsibility promotes a comprehensive and multidimensional idea of performance that is not simply economic and financial. It is a qualitative requirement for the sustainable management of the company and redefines its standards and values. Nevertheless, at the same time we must not lose sight of the fact that, "the meaning of social responsibility can be understood only through the interaction of three principles: legitimacy, public responsibility and managerial discretion, these three principles resulting in three levels of analysis: institutional, organizational and individual" (Wood, 1991).

Research on the subject emphasizes that the concept has two dimensions, both positive and negative: positive, in the sense that socially responsible companies are those that actively seek to contribute to the betterment of society; negative, insofar as they seek to limit actions that can have a negative impact on society (e.g. negative environmental externalities) (Ambec & Lanoie, 2007).

The decomposition of corporate social responsibility into several dimensions can help to better understand the concept. Although in the abundant empirical literature, recent work has consistently tended to focus on a particular dimension of corporate social responsibility policy (UNEPFI and MERCER, 2007), Margolis, Elfenbein, and Walsh (2007) decomposed corporate social responsibility strategies into nine categories: charitable contributions, corporate policies, environmental performance, revealed misdeeds, transparency, self-reported social performance, observers' perceptions, third-party audits, and screened mutual funds. These latter four categories reflect the different approaches that researchers have taken to capture corporate social responsibility policy, which reflects a very broad notion of stakeholder protection.

A synthesis of the various measures of social performance is provided by Wood (2010) whose model is considered by many authors to be the benchmark, "one of the most influential helpful parsimonious, and yet comprehensive conceptualizations of CSP" (Orlitzky, Schmidt, & Rynes, 2003). Wood (1991) defined Corporate Social Performance as "a business organization's configuration of principles of social responsibility, process of social responsiveness and policies programs and observable outcomes as they relate to the firm's societal relationships" and identified a number of measures: multidimensional measures of social performance (KLD, ARESE, Vigeo ratings, etc.), measures related to the structural principles of social performance (governance, stakeholder expectations, etc.), measures related to the process of social performance (management practices benefiting stakeholders) and measures of the impact of social performance (environmental impact, the behavior of stakeholders, reputation effects, etc.).

## 2.2. The Link between Corporate Social Responsibility and Financial Performance

Rather than focus on the nature and characteristics of the company developing a socially responsible policy, the main theoretical axis chosen by the authors over the past thirty years has been to try to justify the impact of corporate social responsibility on financial performance. Preston

and O'Bannon (1997) analyze this reasoning and offer six hypotheses for the different causalities between profit and corporate social responsibility. Gomez (2001) adds a seventh, that of neutrality due to the interplay between moderating and intermediate variables. This is summarized in the table shown below.

**Table 1**. Theoretical links between corporate social responsability and financial performance

| Direction of causality | Positive | Neutral | Negative |
|---|---|---|---|
| **Corporate social responsibility → financial performance** | Social Impact Hypothesis (Freeman, 1984) | Moderating and Intermediary Variables Hypothesis (Ullman, 1985; Waddock & Graves, 1997) | Trade-off Hypothesis (Friedman, 1962, 1970; Vance, 1975) |
| **Financial performance → corporate social responsibility** | Slack Resources Hypothesis (Waddock & Graves, 1997) | | Managerial Opportunism Hypothesis (Preston & O'Bannon, 1997) |
| **Corporate social responsibility ↔ financial performance** | Positive Synergy (Waddock & Graves, 1997) | | Negative Synergy (Preston & O'Bannon, 1997) |

**Source:** Adapted and extended from Preston and O'Bannon (1997) and Gomez (2001)

The Social Impact Hypothesis is based on the theory of stakeholders who expect corporate social responsibility to have a positive impact on financial performance (Freeman, 1984). Meeting the expectations and demands of very diverse stakeholders – shareholders, employees, customers, suppliers, the environment, the community, society, etc. – contributes to improving the performance of the company (Perrini *et al*., 2011). In addition, it tends to improve the reputation of the company, which has a positive impact on financial performance. Conversely, stakeholder disappointment may have a negative impact by increasing perceived risk and therefore the cost of capital (Cornell & Shapiro, 1987). In the same vein, Jensen (2002) argues that spending to improve social performance should increase the market value of the firm over the long term.

The Trade-off Hypothesis, derived from the neoclassical theory of the firm, makes reference to the thesis of Friedman (1962, 1970) which postulates that corporate social responsibility has a negative effect on financial performance in that it creates additional costs that reduce profitability and competitiveness (Aupperle *et al*., 1985). Similarly, Balabanis, Philipps, and Lyall (1998) suggest that investments in corporate social responsibility decrease funding allocated to other economic activities that are more profitable. Vance (1975) highlights a negative relationship between share price and a clear demonstration of socially responsible activities.

The Slack Resources Hypothesis assumes that low-risk firms are more committed than others to socially responsible activities. They have a stable profitability model and can therefore invest in social activities (Roberts, 1992).

The Managerial Opportunism Hypothesis argues that senior management pursues their own interests at the expense of shareholders and other stakeholders. When financial performance is good, managers reduce social spending in order to maximize their own short-term personal gains. Conversely, when financial performance declines they may try to compensate for disappointing results by engaging in ostentatious social programs (Preston & O'Bannon, 1997).

The Positive Synergy Hypothesis argues that high levels of corporate social responsibility lead to an improvement in financial performance (like the Social Impact Hypothesis), which makes it possible to reinvest in socially responsible actions (like the Slack Resources Hypothesis). This creates a simultaneous and interactive relationship between corporate social responsibility and financial performance forming a virtuous circle (Waddock & Graves, 1997).

The Negative Synergy Hypothesis suggests that high levels of corporate social responsibility lead to poorer financial performance, which consequently limits socially responsible investments. There is a simultaneous and interactive relationship between corporate social responsibility and financial performance, forming a vicious circle.

The Neutrality Hypothesis assumes the existence of a random link between corporate social responsibility and financial performance (Ullmann, 1985). Existing correlations are the result of intermediate variables acting in an unpredictable manner, but which make it possible to link the two constants. Similarly, Waddock and Graves (1997) underline those methodological problems in the operationalization of corporate social responsibility variables contribute to hiding this link.

The results of empirical studies on the nature of the relationship between corporate social responsibility and financial performance are mixed.

Many studies find a positive relationship. Allouche and Laroche (2005) identified 82 studies, of which 75 showed a positive relationship, a trend that has since been confirmed (Waddock & Graves, 1997; Griffin & Mahon, 1997; Preston & O'Bannon, 1997; Verschoor, 1998; Stanwick & Stanwick, 1998; McWilliams & Siegel, 2001; Moore, 2001; Orlitzky *et al*., 2003; Margolis & Walsh, 2003; Wu, 2006). Some of these studies refined the analysis showing that the influence is positive only in some sectors (Baird *et al*., 2012). Others found a U-shaped relationship: Barnett and Salomon (2012) demonstrated that firms with poor social performance had a better level of financial performance than those with moderate social performance, and that firms with a good level of social performance had the best level of financial performance.

It should be noted that few studies show a negative correlation. Out of 27 studies reviewed, Margolis and Walsh (2003) found only eight. The study by Makni *et al*. (2009) was based on a sample of 179 listed Canadian firms, and verified the trade-off hypothesis and the negative synergy hypothesis. Their results indicated that corporate social responsibility leads to a decrease in profits and shareholder wealth – at least in the short term.

Moreover, several studies do not establish any link between the two dimensions (Aupperle *et al*., 1985; Fogler & Nutt, 1975; Freedman & Jaggi, 1986; Graves & Waddock, 1999; McWilliams & Siegel, 2001). Some authors argue that the costs incurred offset any profits generated, leading to equilibrium (McWilliams & Siegel, 2001). Others consider that the links are so complex that they cannot be direct (Waddock & Graves, 1997) and yet others argue that the link is weak or even non-existent (Alexander & Buchholz 1978; Cochran & Wood, 1984; Balabanis *et al*., 1998; Mahoney & Roberts, 2004).

## 2.3. Conceptual Model and Hypothesis

The research carried out here uses the Granger causality test and makes the following hypothesis:

> **H1:** *A greater (lesser) level of social responsibility Granger-causes better (poorer) financial performance.*

Namely the Positive Synergy Hypothesis argues that high levels of corporate social responsibility lead to an improvement in financial performance, which makes it possible to reinvest in socially responsible actions (Waddock & Graves, 1997). This creates a simultaneous and positive interactive relationship between corporate social responsibility and financial performance.

In order to analyze corporate social responsibility in greater depth, it is examined both globally and in its various dimensions. Our model examines the diverse expectations of stakeholders that firms attempt to satisfy, in terms of international instruments related to six domains, namely: human resources, human rights in the workplace, corporate governance, community commitment, environment and market behavior. Financial performance is, in turn, evaluated on the basis of two accounting indicators (return on assets and return on equity) and a stock market indicator (market to book ratio). Other explanatory and control variables (debt levels, risk, shareholder structure, size and sector of activity) are integrated in order to take into account other factors that may influence the link between the corporate social responsibility and financial performance of companies. These factors are outlined in the methodology.
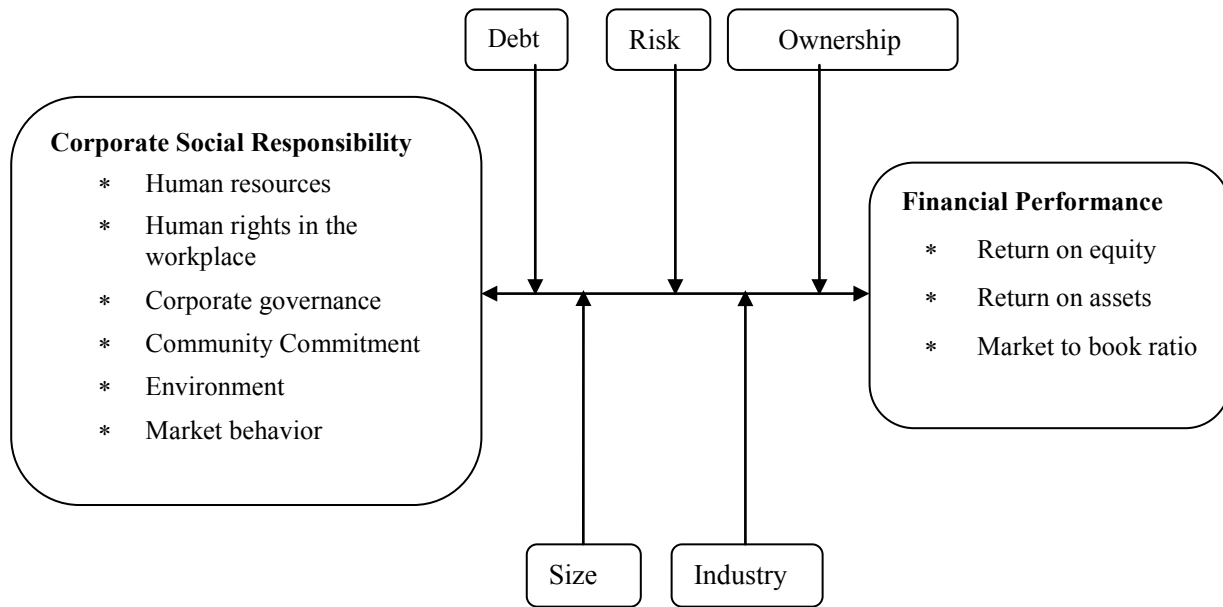


**Figure 1.** Conceptual model

# 3. Empirical Research

In the Results section, summarize the collected data and the analysis performed on those data relevant to the discourse that is to follow. Report the data in sufficient detail to justify the methodology consisted of measuring a sample of 329 listed companies in three geographical areas (Europe, the United States, and the Asia-Pacific region), in order to analyze the Granger-cause relationship between corporate social responsibility and financial performance based on data from 2009 and 2010. Next we present the sampling method, the operationalization of variables and the statistical methodology.

## 3.1. Samples

The study was based on data from Vigeo's database. This social rating agency was created in 2002 and was founded by Nicole Notat. Vigeo provides its partners with robust mechanisms for decision making and tools dedicated to operational management. This agency provides socially responsible investment analyses to investors and asset managers in European, Asian and North American companies to assist them in choosing their portfolios. It also conducts social responsibility audits that provide decision-making assistance to the managers of companies or local authorities. Its

analysis methods are fully compatible with the ISO 26000 Guidelines for Social Responsibility, which adopts a definition of social responsibility that draws upon the idea of 'respect for international standards of behaviour'. Vigeo's ratings take into account all of the standard's recommendations. The Vigeo methodology is based on a body of universally accepted objectives set by international organizations (the United Nations, the International Labor Organization, the OECD), which are binding on companies. The analysis concerns six dimensions of activity (human resources, human rights in the workplace, governance, social commitment, environment, and market behavior) that are created from a total of 38 generic criteria. These criteria are evaluated according to 200 action principles that enable an assessment of managerial systems. Each criterion is weighted according to its sectorial relevance. For each of the 35 sectors analysed, the challenges are contextualized and weighted according to the degree of exposure of stakeholders and the risks or the competitive advantage they offer the company. Moreover, for each of the 38 generic criteria, Vigeo examines in detail:

- Policies: business strategy, management processes, and the relevance of commitments based on a review of the content of stated policies and the extent to which they are adopted within the company;

- Deployment: the efficiency of policy implementation based on an examination of the resources made available, budgets and scope of application;

- Results: the performance achieved based on an analysis of quantitative performance indicators together with any complaints or disputes with stakeholders.

With these aims in mind, Vigeo uses multiple, traceable sources of information. Analysts first consult all publicly available documents (annual reports, sustainability reports, press releases, etc.), and contact the company for additional information. They then collect data from stakeholders (actors and observers on the ground, such as trade unions, NGOs and international organizations) to cross-check with information obtained from companies. They evaluate more than 250 indicators for each business, which make it possible to provide information and alerts on corporate commitments, performance and risks on an ongoing basis.

The Vigeo database holds details of 1,800 listed companies spread over three geographical areas (Europe, the United States, and the Asia-Pacific region) which have been the subject of at least one social rating since 1999.

The overall sample had several limitations:

- The initial aim was to conduct a longitudinal study from the late 1990s until 2010. The unavailability of ratings for the entire period for all companies thwarted that ambition. Vigeo does not systematically rate all companies on an annual basis, with the result that several years may elapse between two ratings (between 18 and 24 months on average). In order to eliminate any bias due to the irregularity of ratings, and thus ensure data consistency, only companies that received a social rating in 2009 and 2010 were retained for analysis.

- Banks, credit institutions, finance companies, insurance companies, holding companies and real estate companies were withdrawn due to their particular financial characteristics.

- Other companies, for which missing data precluded a satisfactory analysis, were also removed.

These limitations led to a final sample of 329 companies.

## 3.2. Variables

Next we present social responsibility and its various constituent dimensions, financial performance and control variables.

### 3.2.1. *Social Responsibility*

One of the major contributions of this research is that it takes into account the various dimensions of social responsibility, in contrast to other studies that prefer a holistic approach or focus on one dimension in particular.

***Human Resources***

This area assesses ongoing improvements in industrial relations, employment relations and working conditions.

***Human Rights in the Workplace***

This dimension concerns respect for freedom of association, the promotion of collective bargaining, non-discrimination and equality, and the elimination of prohibited forms of work (child labor, forced labor). It also relates to the prevention of inhuman or degrading treatment such as sexual harassment, and the protection of privacy and personal data.

***Corporate Governance***

This dimension focuses on the efficiency and integrity of governance, which refers to the independence and effectiveness of the Board as well as the effectiveness and efficiency of audit and control mechanisms. In particular it evaluates the risks of social responsibility, the rights of (particularly) minority shareholders, and transparency and rationality in executive compensation.

***Community Commitment***

This dimension assesses the effectiveness and integration of managerial commitment, the company's contribution to the social and economic development of the local area and its human communities, specific commitments to manage the societal impact of products and services and finally, the transparent and collaborative contribution to causes of general interest.

***Environment***

This area focuses on the protection, safeguarding, and prevention of damage to the environment, and the establishment of a suitable management strategy for eco-design, biodiversity protection and sensible control of environmental impacts throughout the life cycle of products or services.

***Market Behavior***

This area evaluates not only the rights and interests of customers, but also the integration of social and environmental standards into the selection of suppliers and the entire supply chain, respect for competition rules and effective anti-corruption measures.

Each of the six domains is rated on a standardized scale 0–10 point scale. The scale is organized into four discriminant hierarchical levels that determine the company's level of commitment to its social responsibility and the management of associated risks.

A score of 0 means that the company's involvement in social responsibility is very low and that management of the associated risks is poor or very poor. A score of 30 indicates that a process has been initiated, and that risk management is low to moderate. A score of 65 means that the company has a firm commitment to social responsibility and there is a reasonable guarantee of risk management. Finally, a score of 100 demonstrates an advanced commitment to the promotion of social responsibility objectives.

**Table 2.** Framework for interpreting Vigeo scores

| Points | Level of company's corporate social responsibility commitment and management of associated risks |
|--------|--------------------------------------------------------------------------------------------------|
| 0 | Little evidence of commitment<br>→ Poor to very poor guarantee of risk management |
| 30 | Commitment initiated<br>→ Poor to moderate guarantee of risk management |
| 65 | Confirmed commitment<br>→ Reasonable guarantee of risk management |
| 100 | Mature commitment<br>→ Social responsibility objective actively promoted |

### 3.2.2. *Financial Performance*

Three financial variables were selected and integrated into the various models. Two concerned company accounting and one related to the stock market.

The rate of return on assets and the rate of return on equity are the performance measures most commonly used in studies of the relationship between corporate social responsibility and financial performance (Waddock & Graves, 1997; Griffin & Mahon, 1997; Preston & O'Bannon, 1997). Return on assets was measured by the annual net profit/average total assets ratio and return on equity by the net profit after preferred dividends/average total equity ratio for the previous two years.

A stock market variable was also taken into account. This is another constant in studies carried out to measure the link between corporate social responsibility and financial performance. It can take different forms: yield on securities (Vance, 1975), the Beta (Alexander & Buchholz, 1978; Aupperle *et al*., 1985; Balabanis *et al*., 1998), the book-to-market ratio and Tobin's Q ratio (Cavaco & Crifo, 2009). In this study, the stock market variable was assessed by an indicator of anticipated value creation, reflecting the stock market value of equity relative to the accounting value of these assets.

### 3.2.3. *Control Variables*

Several control variables were taken into account. Various researchers, notably Baird *et al*. (2012), following Griffin and Mahon (1997) and Waddock and Graves (1997), argue that the relationship between corporate social responsibility and financial performance depends on interactions between many factors, in particular the specific capabilities of the company and the industrial context. In this study we decided to evaluate the impact of shareholder structure, financial variables, company size, and sector of activity.

**The Family Nature of the Business**

It is important take into account the nature of the business – familial or non-family – insofar as it may have a positive impact on both the level of social responsibility (Dyer Jr. & Whetten, 2006; Bingham *et al*., 2011), and financial performance (Anderson & Reeb, 2003; Sraer & Thesmar, 2007). A family business can be considered as a business in which a shareholder group, united by family ties, holds a significant portion of the capital and voting rights, and exerts an effective influence on managerial decisions. Whether this influence is direct – the family is directly involved

in the management of the company or indirect – the family selects managers or has the power to remove the existing management, the culture of the family and that of the business are in close and symbiotic interaction. We used a binary variable to distinguish family and non-family firms on the basis of the shareholder structure and family involvement in management; however with the addition of some nuances to their criteria, which are consistent with our selected definition of a family business. We have considered a family business as meeting one of the following three conditions:

- a family group owns more than 50% of capital and holds an absolute majority of voting rights within the general assembly, whether it exercises direct managerial functions or not;

- a family group holds a relative majority of the capital and voting rights within the general assembly, whether it exercises direct managerial functions or not;

- a family group, despite holding only a minority share of the capital and voting rights, has a direct or indirect influence on the management of the company.

These criteria make it possible to initially divide companies into two categories: family businesses and non-family businesses.

The qualification of a business as family or a non-family business involves a detailed analysis of the shareholder structure, the composition of the Board of Directors and governing bodies, found in financial databases provided by Osiris (BvDEP) and Infinancials, two international financial databases

**Financial Variables**

A variable representing the level of financial debt was included. This may have an influence on corporate governance by limiting the resources available to managers in the context of the free cash flow theory (Jensen, 1986). It is measured by the net debt/shareholder equity ratio.

Systematic risk, a determining factor in financial performance (Fama & French, 1993), was also included.

**Company Size and Sector of Activity**

The effects of size and sector of activity is necessary to have a comparative view of business performance.

The size variable indicates the degree of "humanization" of the company. This concerns the influence of the proximity (or conversely, hierarchical distance) created by the growth of the company on the attention paid by managers to the various human problems that characterize corporate social responsibility. The size variable was operationalized by the logarithm of the total workforce.

Sector of activity was another control variable. Business performance should be evaluated relatively, depending on the health of the sector to which they belong, and the financial flexibility it offers them. Moreover, the environment shapes responses to stakeholder demands (Griffin & Mahon, 1997; Baird *et al*. 2012). Firms in the sample were grouped into six categories, based on their Standard Industrial Classification (SIC) code: agriculture, forestry, fishing and mining (industry 1), construction (industry 2), manufacturing (industry 3), transportation and public utilities (industry 4), trade (industry 5), and services, (industry 6). A dichotomous variable was constructed for each of these industries.

Accounting and stock market data were collected from the Infinancials database, which holds international financial data and corporate financial reports. Table 3 summarizes the variables used in this study.

**Table 3.** Variables used in the study

| |
|---|
| **Corporate Social Responsibility** |
| **Social responsibility - overall performance** |
| Scores from 0-100 |
| **Human resources** |
| Scores from 0-100 |
| **Human rights in the workplace** |
| Scores from 0-100 |
| **Corporate governance** |
| Scores from 0-100 |
| **Community commitment** |
| Scores from 0-100 |
| **Respect for the environment** |
| Scores from 0-100 |
| **Market behavior** |
| Scores from 0-100 |
| **Financial performance** |
| **Return on equity** |
| Net profit after preferred dividends / average total equity for the last two years (in %) |
| **Return on assets** |
| Net profit / average total assets for the year (in %) |
| **Market to book ratio** |
| Market capitalization/shareholder funds |
| **Control variables** |
| **Family-type business** |
| Binary variable (0 = non-family business, family business = 1) |
| **Financial debt** |
| Net debt / shareholder equity |
| **Beta (Risk)** |
| **Company size** |
| Natural logarithm of total assets |
| **Industry** |
| **Industry1: Agriculture, Forestry, Fishing, Mining (SIC Codes 01-14)** |
| Binary variable |
| **Industry2: Construction (SIC Codes 15-17)** |
| Binary variable |
| **Industry3: Manufacturing (SIC Codes 20-39)** |
| Binary variable |
| **Industry4: Transportation & Public Utilities (SIC codes 40-49)** |
| Binary variable |
| **Industry5: Trade (SIC Codes 50-59)** |
| Binary variable |
| **Industry6: Services (SIC codes 70-89)** |
| Binary variable |

## 3.3. Statistical Analysis

Linear regression analysis and the Granger causality test (Granger, 1969) were implemented to examine the causal relationships between social responsibility and financial performance (see also Makni *et al*., 2009). The Granger test determines whether a variable *x* "Granger-causes" a variable *y* by observing the extent to which past values of *y* explain its current value. It then sees if the estimate is improved by taking into account lagged values of the variable *x*. *Y* can be considered "Granger-caused" if the *x* variable is determinant in the estimate of *y*, or if the coefficients of the lagged values of the variable *x* are significantly different from zero. Although the method has been subject to criticism (Jacobs, Leamer, & Ward, 1979), especially given its sensitivity to misspecification, we nevertheless decided to use it because of its usefulness in determining causal relationships between two variables.

Two sets of causal type models were implemented.

*Model 1:*

$$CSR_{i,2010} = \alpha_0 + \alpha_1 CSR_{i,2009} + \alpha_2 FP_{i,2009} + \sum_{j=1}^{J} \gamma_j C_{ij} + \varepsilon_{1i}, \qquad i = 1,\ldots, N$$

*Model 2:*

$$EFP_{i,2010} = \beta_0 + \beta_1 FP_{i,2009} + \beta_2 CSR_{i,2009} + \sum_{j=1}^{J} \delta_j C_{ij} + \varepsilon_{2i}, , \qquad i = 1,\ldots, N$$

In model 1, $CSR_{i,2010}$ and $CSR_{i,2009}$ represent scores for the various dimensions of social responsibility (human resources, human rights in the workplace, governance, community involvement, environment, and market behavior) for the years 2009 and 2010 for each firm *i* in the sample. If the coefficient $\alpha_2$ is significantly different from zero, then it is possible to conclude that financial performance in 2009 "Granger-causes" corporate social responsibility in 2010.

In model 2, $FP_{i,2010}$ and $FP_{i,2009}$ represent the various financial performance indicators (return on equity, return on assets, market to book) for the years 2009 and 2010 for each firm *i* in the sample. If the $\beta_2$ coefficient is significantly different from zero, then it is possible to conclude that corporate social responsibility in 2009 "Granger-causes" the financial performance of the company in 2010.

Control variables are the same in both models. $C_{ij}$ is the *j*th control variable for firm *i*, where *j* = 1, ..., J, and $\varepsilon_{1i}$ and $\varepsilon_{2i}$ are uncorrelated error terms.

These are least-squares linear regressions calculated using SPSS software, which made it possible to test models 1 and 2. Granger causality tests were performed using EViews software.

# 4. Results

The presentation of descriptive statistics is followed by explanatory analyzes.

## 4.1. Descriptive Statistics

Table 4 presents descriptive statistics for all variables used in the study, and the main characteristics of the sample in terms of sector of activity and geographical location.

**Table 4.** Descriptive statistics

| | Min | Max | Mean | Standard deviation |
|---|---|---|---|---|
| **Corporate social responsibility** | | | | |
| Social responsibility 2010 | 15 | 67 | 38.83 | 10.03 |
| Social responsibility 2009 | 8 | 65 | 36.50 | 11.39 |
| Human resources 2010 | 3 | 71 | 29.62 | 15.15 |
| Human resources 2009 | 0 | 71 | 26.85 | 16.12 |
| Human rights in the work place 2010 | 7 | 83 | 43.04 | 12.78 |
| Human rights in the work place 2009 | 3 | 83 | 40.16 | 13.81 |
| Corporate governance 2010 | 4 | 84 | 49.16 | 12.46 |
| Corporate governance 2009 | 2 | 81 | 46.91 | 15.12 |
| Community commitment 2010 | 0 | 88 | 42.83 | 17.39 |
| Community commitment 2009 | 0 | 88 | 40.29 | 19.50 |
| Environment 2010 | 0 | 72 | 33.62 | 16.70 |
| Environment 2009 | 0 | 71 | 29.65 | 17.03 |
| Market behavior 2010 | 14 | 76 | 43.45 | 11.15 |
| Market behavior 2009 | 4 | 75 | 41.48 | 12.51 |
| **Financial performance** | | | | |
| Return on assets 2010 | -5.77 | 35.25 | 6.89 | 6.10 |
| Return on assets 2009 | -19.53 | 35.05 | 4.85 | 7.20 |
| Return on equity 2010 | -17.81 | 157.43 | 18.19 | 19.01 |
| Return on equity 2009 | -90.91 | 354.03 | 13.79 | 27.61 |
| Market to book 2010 | 0.40 | 30.10 | 2.92 | 2.75 |
| Market to book 2009 | 0.40 | 21.80 | 2.92 | 2.82 |
| **Control variables** | | | | |
| Debt 2009 | -1.23 | 7.7 | 0.48 | 0.95 |
| Risk 2009 | 0.16 | 2.12 | 0.98 | 0.34 |
| Size 2009 | 5.43 | 8.88 | 3.7 | 0.60 |
| **Industries** | **n** | **%** | | |
| Agriculture, Forestry, Fishing, Mining | 40 | 12.16 | | |
| Construction | 19 | 5.77 | | |
| Manufacturing | 130 | 39.51 | | |
| Transportation & Public Utilities | 41 | 12.46 | | |
| Trade | 40 | 12.16 | | |
| Services | 59 | 17.93 | | |
| **Geographic area** | **n** | **%** | | |
| Europe | 161 | 48.93 | | |
| North America | 135 | 41.03 | | |
| Asia Pacific | 33 | 10.03 | | |

**Table 5.** Pearson correlation coefficients between 2009 and 2010 variables

| | Social responsibility 2010 | Human resources 2010 | Human rights 2010 | Corporate governance 2010 | Community commitment 2010 | Environment 2010 | Market behavior 2010 | Return on equity 2010 | Return on assets 2010 | Market to book 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Social responsibility 2009** | 0.834*** | 0.673** | 0.571** | 0.387** | 0.656** | 0.676** | 0.607** | 0.038 | -0.048 | -0.088 |
| **Human resources 2009** | 0.734** | 0.822*** | 0.561** | 0.110* | 0.430** | 0.584** | 0.489** | -0.048 | -0.173** | -0.142** |
| **Human rights 2009** | 0.627** | 0.568** | 0.697*** | 0.158** | 0.401** | 0.460** | 0.501** | -0.08 | -0.099† | -0.097† |
| **Corporate governance 2009** | 0.248** | -0.03 | 0.065 | 0.763*** | 0.168** | 0.032 | 0.147** | 0.101† | 0.120* | 0.085 |
| **Community commitment 2009** | 0.607** | 0.437** | 0.406** | 0.255** | 0.723*** | 0.504** | 0.438** | 0.096† | 0.053 | -0.030 |
| **Environment 2009** | 0.823** | 0.681** | 0.485** | 0.202** | 0.545** | 0.848*** | 0.542** | 0.027 | -0.101† | -0.114* |
| **Market behavior 2009** | 0.593** | 0.468** | 0.448** | 0.196** | 0.404** | 0.423** | 0.657*** | -0.023 | -0.040 | -0.130* |
| **Return on equity 2009** | -0.01 | -0.107† | -0.011 | 0.037 | 0.043 | 0.041 | -0.035 | 0.553*** | 0.373** | 0.562** |
| **Return on assets 2009** | -0.094† | -0.205** | -0.020 | 0.006 | -0.019 | -0.081 | -0.066 | 0.417** | 0.594*** | 0.439** |
| **Market to book 2009** | -0.093† | -0.159** | -0.049 | 0.067 | -0.07 | -0.103† | -0.78 | 0.775** | 0.546** | 0.881*** |
| **Debt 2009** | 0.053 | 0.093† | 0.017 | -0.035 | 0.054 | 0.028 | 0.06 | 0.182** | -0.185** | 0.124* |
| **Risk 2009** | -0.051 | 0.013 | -0.019 | 0.107† | -0.054 | -0.120* | 0.051 | -0.219** | -0.197** | -0.177** |
| **Size 2009** | 0.356 | 0.311** | 0.261** | 0.04 | 0.301** | 0.335** | 0.253** | -0.107† | -0.205** | -0.216** |

† p .10
* p .05
** p .01
***p .001

In terms of the Vigeo grid, the results show that the sampled companies are characterized by an intermediate level of social responsibility, with an average score of 36.50 in 2009 and 38.83 in 2010. This indicates that a process has been initiated. However these numbers are far from the score of 60 which would indicate a firm commitment to social responsibility. It should be noted that while the highest scores relate to governance, the lowest relate to respect for the environment (scores of 29.65 and 33.62 in 2009 and 2010) and, most importantly human resources (respective scores of 26.85 and 29.62).

The companies sampled satisfactorily represent the various sectors: industrial companies form the majority (nearly 40%), followed by business services (nearly 18%) and, in equal proportions, agricultural and mining companies, and transport and trade. Moreover, all three geographical areas are represented in the final sample: European companies account for nearly half, followed by companies based in the United States (more than a third), and finally companies in the Asia-Pacific region.

Table 5 shows the Pearson correlation coefficients between 2009 and 2010 variables. It is very clear that there are strong correlations, between social responsibility scores in 2009 and 2010, and between the three measures of financial performance in 2009 and 2010. It is also interesting to note the strong negative correlation between the human resources dimension and indicators of profitability and market value creation.

## 4.2. Regression Analyzes

Two sets of tests were performed; the first on the overall social responsibility score, and the second on the various constitutive dimensions of social responsibility.

### 4.2.1. *The Relationship between Overall Social Responsibility and Financial Performance*

Tables 6, 7 and 8 show the results of regression analyzes and Granger causality tests between the overall social responsibility score and each of the three measures of financial performance (return on equity, return on assets and market to book ratio). The various variables were integrated in line with models 1 and 2 outlined above, with the exception of the industry 3 variable given the collinearity between variables. The goodness of fit of the models is very satisfactory. The control variables have little effect on the dependent variables. Adjusted $R^2$ coefficients and F tests are high, but this is due mainly to the first lag of the dependent variable

In the context of model 1, regression analyzes show that all three measures of financial performance had a negative impact on the overall social responsibility score in 2010. It should also be noted that business risk (risk 2009) has a negative impact on the same variable but there is no evidence of an influence of shareholder structure, debt levels, and size or activity sector.

Using model 2, tests showed that the overall social responsibility score had no statistically significant impact on accounting measures of financial performance (return on equity and return on assets), but did have a negative, statistically significant, impact on stock market performance (market to book). It should also be noted that the size of the company has a negative and significant effect on accounting performance (return on equity 2010 and return on assets 2010), but no significant effect on the creation of shareholder value (market to book 2010). While debt levels have a significant and positive effect on profitability (return on equity 2010), belonging to the construction sector (industry 2) has a negative effect on both economic profitability (return on assets 2010) and equity (return on equity 2010), and belonging to the transport sector has a negative effect on the creation of shareholder value (market to book 2010). The lack of influence of shareholder structure must again be emphasized.

For their part, Granger causality tests indicated a unidirectional relationship between financial performance and the overall social responsibility score. On the one hand, financial performance (measured solely by return on assets) negatively Granger-caused overall corporate social responsibility in the sample (the probability of falsely rejecting the null hypothesis is less than 1%). On the other hand it is not possible to conclude that overall social responsibility in 2009 Granger-caused the financial performance of sampled companies.

**Table 6.** Regression analysis: Granger causality tests between overall corporate social responsibility score and financial profitability

| | Dependent variables | | | | | | |
| | Social responsibility 2010 (N=329) | | | Return on equity 2010 (N=329) | | | |
| Independent variables | Coefficient | t | p-value | Coefficient | t | p-value | VIF |
|---|---|---|---|---|---|---|---|
| CONSTANT | 13.889** | 3.496 | .001 | 48.881*** | 4.349 | .000 | |
| Social responsibility 2009 | .849*** | 24.990 | .000 | -.046 | .915 | .361 | 1.285 |
| Return on equity 2009 | -.081* | -2.468 | .014 | .492*** | 10.099 | .000 | 1.186 |
| Debt 2009 | .012 | 0.382 | .702 | .170*** | 3.588 | .000 | 1.125 |
| Risk 2009 | -.079* | -2.248 | .025 | -.094† | -1.793 | .074 | 1.359 |
| Size 2009 | .003 | .088 | .930 | -.151** | -2.834 | .005 | 1.425 |
| Family business | -.024 | -.769 | .442 | .055 | 1.190 | .235 | 1.077 |
| Industry1 | -.030 | -.862 | .390 | -.005 | -.105 | .916 | 1.333 |
| Industry2 | -.038 | -1.179 | .239 | -.117* | -2.466 | .014 | 1.128 |
| Industry4 | .062† | 1.820 | .070 | -.094† | -1.841 | .067 | 1.307 |
| Industry5 | -.020 | -.607 | .545 | -.003 | -.069 | .945 | 1.234 |
| Industry6 | .009 | .280 | .779 | -.058 | -1.146 | .253 | 1.277 |
| F | 72.499*** | | | 16.591*** | | | |
| R² | .716 | | | .365 | | | |
| Adjusted R² | .706 | | | .343 | | | |

† p .10
* p .05
** p .01
*** p .001

Pairwise Granger Causality Tests

| Null Hypothesis: | F-Statistic | Prob. |
|---|---|---|
| Return on equity 2009 does not Granger Cause Social responsibility 2010 | 0.22137 | 0.8015 |
| Social responsibility 2009 does not Granger Cause Return on equity 2010 | 0.83289 | 0.4357 |

**Table 7.** Regression analysis: Granger causality tests between overall corporate social responsibility score and economic profitability

| | Dependent variables | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | Social responsibility 2010 (N=329) | | | Return on assets 2010 (N=329) | | | |
| Independent variables | Coefficient | t | p-value | Coefficient | t | p-value | VIF |
| CONSTANT | 14.772*** | 3.721 | .000 | 16.593*** | 4.736 | .000 | |
| Social responsibility 2009 | .839*** | 24.872 | .000 | .038 | .774 | .439 | 1.286 |
| Return on assets 2009 | -.109*** | -3.231 | .001 | .568*** | 11.645 | .000 | 1.275 |
| Family business | -.022 | -.725 | .469 | .036 | .809 | .419 | 1.073 |
| Debt 2009 | -.014 | -.461 | .645 | -.039 | -.856 | .393 | 1.110 |
| Risk 2009 | -.089* | -2.534 | .012 | -.014 | -.273 | .785 | 1.378 |
| Size 2009 | .006 | .169 | .866 | -.172*** | -3.343 | .001 | 1.425 |
| Industry1 | -.042 | -1.216 | .225 | .047 | .924 | .356 | 1.367 |
| Industry2 | -.045 | -1.411 | .159 | -.108* | -2.343 | .020 | 1.138 |
| Industry4 | .052 | 1.501 | .134 | -.079 | -1.586 | .114 | 1.337 |
| Industry5 | -.023 | -.694 | .488 | -.003 | -.062 | .951 | 1.234 |
| Industry6 | -.002 | -.065 | .948 | -.013 | -.274 | .784 | 1.295 |
| F | 73.862*** | | | 19.936*** | | | |
| $R^2$ | .719 | | | .409 | | | |
| Adjusted $R^2$ | .710 | | | .388 | | | |

† p .10
* p .05
** p .01
** p .001

Pairwise Granger Causality Test

| Null Hypothesis: | F-Statistic | Prob. |
| --- | --- | --- |
| Return on assets 2009 does not Granger Cause Social responsibility 2010 | 0.00266 | 0.9973 |
| Social responsibility 2009 does not Granger Cause return on assets 2010 | 0.16697 | 0.8463 |

**Table 8**. Regression analysis: Granger causality tests between overall corporate social responsibility score and creation of market value

| Independent variables | Dependent variables | | | | | | VIF |
| | Social responsibility 2010 (N=329) | | | Market to book 2010 (N=329) | | | |
| | Coefficient | T | p-value | Coefficient | t | p-value | |
|---|---|---|---|---|---|---|---|
| CONSTANT | 16.051*** | 3.810 | .000 | 1.607 | 1.613 | .108 | |
| Social responsibility 2009 | .848*** | 24.932 | .000 | -.059* | -2.003 | .046 | 1.284 |
| Market to book 2009 | -.075* | -2.273 | .024 | .864*** | 30.406 | .000 | 1.211 |
| Family business | -.018 | -.581 | .562 | -.023 | -.865 | .388 | 1.071 |
| Debt 2009 | .017 | .522 | .602 | .010 | .363 | .717 | 1.163 |
| Risk 2009 | -.073* | -2.113 | .035 | .018 | .619 | .536 | 1.327 |
| Size 2009 | -.014 | -.374 | .709 | -.015 | -.464 | .643 | 1.494 |
| Industry1 | -.020 | -.591 | .555 | -.083** | -2.783 | .006 | 1.320 |
| Industry2 | -.046 | -1.432 | .153 | -.051† | -1.840 | .067 | 1.159 |
| Industry4 | .064* | 1.864 | .063 | -.062* | -2.097 | .037 | 1.305 |
| Industry5 | -.022 | -.663 | .508 | -.012 | -.429 | .668 | 1.234 |
| Industry6 | .008 | .229 | .819 | -.068* | -2.332 | .020 | 1.279 |
| F | 72.208*** | | | 107.493*** | | | |
| $R^2$ | .715 | | | .789 | | | |
| Adjusted $R^2$ | .705 | | | .781 | | | |

† p .10
* p .05
** p .01
** p .001

Pairwise Granger Causality Tests

| Null Hypothesis: | F-Statisti | Prob. |
|---|---|---|
| Market to book 2009 does not Granger Cause Social resposibility 2010 | 0.33006 | 0.7191 |
| Social responsability 2009 does not Granger Cause Market to book   2010 | 0.60393 | 0.5473 |

### 4.2.2. *Relationships between Social Responsibility Dimensions and Financial Performance*

Previous analyzes have revealed the negative influence of the various dimensions of financial performance on the overall social responsibility score. Tests of the six dimensions of social responsibility demonstrated a negative impact on two of them: human resources (human resources 2010) and the environment (environment 2010), although these two scores do not have a reciprocal negative impact on financial performance. As the causal relationship between these two dimensions of social responsibility and financial performance is unidirectional and Granger tests do not appear significant, table 9 (below) only shows the results of regression analyzes.

**Table 9.** Regression analysis: Impact of financial performance
on human resources and environment dimensions

| Independent variables | Dependent variables | | | | | |
|---|---|---|---|---|---|---|
| | Human resources 2010 (N=329) | | | Environment 2010 (N=329) | | |
| CONSTANT | 17.502** | 18.522** | 22.123** | 25.938*** | 26.655*** | 29.523*** |
| | (2.793) | (2.960) | (3.361) | (4.091) | (4.217) | (4.439) |
| Return on equity 2009 | -.059† | | | -.049 | | |
| | (-1.739) | | | (-1.628) | | |
| Return on assets 2009 | | -.090* | | | -.072* | |
| | | (-2.548) | | | (-2.334) | |
| Market to book 2009 | | | -.087* | | | -.066* |
| | | | (-2.552) | | | (-2.207) |
| Human resources 2009 | .837*** | .826*** | .840*** | | | |
| | (23.996) | (23.451) | (24.295) | | | |
| Environment 2009 | | | | .894*** | .885*** | .892*** |
| | | | | (28.182) | (28.027) | (28.276) |
| Family business | -.015 | -.014 | -.011 | .033 | .034 | .036 |
| | (-.469) | (.669) | (-.346) | (1.143) | (1.185) | (1.277) |
| Debt 2009 | .021 | .000 | .032 | -.010 | -.027 | -.002 |
| | (.624) | (.007) | (.951) | -.344 | (-.940) | (-.070) |
| Risk 2009 | -.075* | -.085* | -.079* | -.113** | -.122** | -.115** |
| | (-2.078) | (-2.352) | (-2.228) | (-3.547) | (-3.792) | (-3.663) |
| Size 2009 | -.028 | -.025 | -.049 | -.069* | -.065† | -.083* |
| | (-.792) | (-.704) | (-1.355) | (-2.054) | (-1.960) | (-2.433) |
| Industry1 | .006 | -.007 | .013 | -.034 | -.042 | -.028 |
| | (.153) | (-.181) | (.373) | (-1.074) | (-1.336) | (-.895) |
| Industry2 | -.046 | -.052 | -.058† | -.002 | -.007 | -.011 |
| | (-1.404) | (-1.575) | (-1.750) | (-.081) | (-.232) | (-.373) |
| Industry4 | .069* | .058 | .065* | .032 | .025 | .029 |
| | (1.941) | (1.629) | (1.850) | (1.039) | (0.807) | (.958) |
| Industry5 | -.048 | -.051 | -.050 | -.036 | -.038 | -.037 |
| | (-1.393) | (-1.489) | (-1.447) | (-1.172) | (-1.235) | (-1.221) |
| Industry6 | -.047 | -.058 | -.049 | .114** | .106** | .112** |
| | (-1.324) | (-1.640) | (-1.397) | (3.674) | (3.403) | (3.622) |
| F | 65.671*** | 66.695*** | 66.700*** | 91.610*** | 92.664*** | 92.447*** |
| $R^2$ | .695 | .698 | .698 | .761 | .763 | .762 |
| *Adjusted $R^2$* | .684 | .688 | .688 | .752 | .755 | .754 |

† p .10,      * p .05,      ** p .01,      ** p .001

**Table 10.** Regression analysis: Impact of social responsibility dimensions on creating shareholder value

| Independent variables | Dependent variable Market to book 2010 (N=329) | | | | | |
|---|---|---|---|---|---|---|
| CONSTANT | 1.585 | 1.685† | 2.076* | 1.597 | 1.708 | 1.901† |
| | (1.579) | (1.713) | (2.092) | (1.615) | (1.640) | (1.950) |
| Human resources 2009 | -.053† | | | | | |
| | (-1.826) | | | | | |
| Human rights 2009 | | -.068* | | | | |
| | | (-2.388) | | | | |
| Corporate governance 2009 | | | -.017 | | | |
| | | | (-.612) | | | |
| Community commitment 2009 | | | | -.067* | | |
| | | | | (-2.393) | | |
| Environment 2009 | | | | | -.025 | |
| | | | | | (-.830) | |
| Market behavior 2009 | | | | | | -.070* |
| | | | | | | (-2.519) |
| Market to book 2009 | .861*** | .862*** | .864*** | .867*** | .863*** | .859*** |
| | (30.245) | (30.441) | (30.099) | (30.529) | (30.211) | (30.330) |
| Family business | -.019 | -.024 | -.025 | -.019 | -.022 | -.018 |
| | (-.726) | (-.916) | (-.922) | (-.699) | (-.815) | (-.680) |
| Debt 2009 | .013 | .015 | .010 | .012 | .010 | .009 |
| | (.477) | (.532) | (.347) | (.425) | (.365) | (.308) |
| Risk 2009 | .020 | .025 | .017 | .011 | .016 | .020 |
| | (.667) | (.833) | (.561) | (.357) | (.528) | (.686) |
| Size 2009 | -.023 | -.017 | -.041 | -.017 | -.030 | -.019 |
| | (-.742) | (-.576) | (-1.427) | (-.579) | (-.930) | (.656) |
| Industry1 | -.083** | -.086** | -.075* | -.078** | -.077** | -.085** |
| | (-2.796) | (-2.901) | (-2.516) | (-2.641) | (-2.592) | (-2.873) |
| Industry2 | -.048† | -.055** | -.053† | -.051† | -0.049† | -.056* |
| | (-1.707) | (-1.976) | (-1.887) | (-1.883) | (-1.760) | (-2.002) |
| Industry4 | -.059† | -.066* | -.053† | -.062* | -.051† | -.067* |
| | (-2.003) | (-2.243) | (-1.807) | (-2.122) | (-1.754) | (-2.269) |
| Industry5 | -.017 | -.018 | -.011 | -.010 | -.013 | -.014 |
| | (-0.577) | (-.611) | (-0.381) | (-.342) | (-.450) | (-0.482) |
| Industry6 | -.076** | -.064* | -.070* | -.065* | -.071* | -.074* |
| | (-2.603) | (-2.206) | (-2.390) | (-2.239) | (-2.408) | (-2.528) |
| F | 107.206*** | 108.211*** | 105.949*** | 108.222*** | 106.083*** | 108.485*** |
| $R^2$ | .788 | 0.790 | .786 | .790 | .786 | .790 |
| Adjusted $R^2$ | .781 | 0.782 | .779 | .782 | .779 | .783 |

† p .10,     * p .05,     ** p .01,     ** p .001

It emerges from these tests that return on equity (return on equity 2009) did not have an influence at the 5% level but at the 10% level. On the other hand, profitability (return on assets 2009) and the creation of shareholder value (market to book 2009) did have a negative impact (on the human and environmental dimensions in 2010. Level of risk (risk 2009) also had a negative influence on the human resources dimension (human resources 2010), and on the environment dimension (environment 2010). Size also had a negative impact (size 2009) on the same dimensions. Conversely, belonging to the services sector (industry 6) had a positive influence on respect for the environment. On the other hand, neither shareholder structure nor debt levels exert any more influence than the overall social responsibility score.

Furthermore, the previous analyzes of the overall social responsibility score highlighted not only the lack of influence on financial performance measured using accounting indicators (return on equity 2010 and return on assets 2010), but also a negative, statistically significant, influence on the creation of market value (market to book 2010). Table 10 shows the impact of the various dimensions of social responsibility on the latter variable. Adjusted $R^2$ coefficients vary between 0.779 and 0.783, and the goodness of fit of the models is very high (F ranging between 105.949 and 108.485).

The results indicate that three dimensions of social responsibility have a negative impact on the creation of market value (market to book 2010): human and social rights in the workplace (2009), community commitment (2009) and market behavior (2009). At the same time it should be noted that there is a negative impact resulting from membership of the agriculture, forestry and mining (Industry 1) and the services sector (Industry 6) on stock market performance, and a less marked effect of the transport sector (Industry 4). Conversely, shareholder structure, level of debt, and risk exert no more influence than size.

In the light of the tests carried out, and the conclusions that have emerged from the selected time frame, hypothesis H1, "A greater (lesser) level of social responsibility Granger-causes better (poorer) financial performance" is rejected.


# 5. Discussion

This study seems to confirm the Managerial Opportunism Hypothesis identified by Preston and O'Bannon (1997) which postulates that corporate social responsibility has a negative influence on financial performance. In this sense, it contradicts the hypothesis of a virtuous circle, i.e. there is a positive relationship and mutual reinforcement between financial performance and social responsibility (Waddock & Graves, 1997). Empirically, it downplays the trend identified by literature reviews that have highlighted a positive relationship between corporate social responsibility and financial performance (Griffin & Mahon, 1997; Margolis & Walsh, 2003; Orlitzky *et al*., 2003). It also negates research emphasizing the neutrality of the relationship, such as that conducted by Mahoney and Roberts (2004), while at the same time confirming one of the results highlighted by Makni *et al*. (2009) who found that better social performance Granger-caused poorer stock market performance; a negative impact that was also noted in the study by Baird *et al*. 2012.

Managers seem to be pursuing their own interests at the expense of other stakeholders, not only shareholders but also employees. In the presence of strong financial performance, managers may be tempted to cut social spending to maximize their personal benefits. Maximization of their short-term utility function may lead to indexing their remuneration on profit rather than incur new social expenses. Conversely, when financial performance weakens, managers are likely to compensate for poor financial results with eye-catching social programs.

It is interesting to observe, furthermore, that financial performance has a particularly negative impact on two dimensions of social responsibility: human resources, which aims to continuously improve industrial relations, employment relations and working conditions; and environment, which evaluates the extent of environmental protection and management of the environmental impact of the company's activities. In this respect, the results are consistent with the conclusions of Makni *et al*. (2009).

The dimensions of human rights in the workplace, corporate governance, societal commitment, and market behavior are not, for their part, affected. This finding, which highlights a differentiation in the societal behavior of companies, will no doubt strengthen the managerial opportunism hypothesis as it can be argued that these four dimensions fall under a legislative and regulatory framework that is more restrictive than for the first two dimensions. This is the case for the dimension of human rights in the workplace, which promotes respect for freedom of association; non-discrimination and the promotion of equality; the elimination of prohibited forms of work such as child labor; sexual harassment; and the protection of personal data. It is also the case for the governance dimension, which encompasses the operation of internal boards and committees; the efficiency of audit and control mechanisms; and respect for the rights of shareholders. Such issues have been part of a growing global movement towards increasingly strict controls.

The same interpretation may be applied to the societal commitment dimension, which promotes the management of the societal impacts of products and services and is increasingly controlled, and the stock market behavior dimension, which assesses the account taken of the rights and interests of customers, the integration of social and environmental standards into the selection of suppliers, and respect for competition rules. In these two latter dimensions, the behavior of companies is quite tightly constrained and management has little discretion. In contrast, there is no doubt that the human resources and environment dimensions rely more on a voluntary commitment from companies, in contrast to restrictive measures dictated by opportunistic considerations.

Another result is that the study supports the Managerial Opportunism Hypothesis, while at the same time providing partial confirmation of the Trade-Off Hypothesis (Friedman, 1962, 1970; Vance 1975), or the Negative Synergy Hypothesis to the extent that there is, for some dimensions of social responsibility and some performance indicators, a negative causal relationship. corporate social responsibility does not seem to influence either the profitability of assets, or financial profitability in any way, but it does seem to have a statistically significant negative impact on the creation of shareholder value. It appears that the market does not look favorably upon socially-oriented actions undertaken by businesses, which are assumed to not contribute to the objective of maximizing shareholder value. For their part, managers have an opportunistic interest in reducing societal costs in order to maximize the share price and, consequently, their remuneration that is indexed to stock market performance in the form of shares or stock options. An interesting parallel can be drawn with restructuring plans and staff redundancies where the positive effects on market price are ambivalent (Palmon, Sun, & Tang, 1997). Finally, another explanation may shed light on the observed negative relationship between social responsibility and financial performance. Baird *et al*. (2012) argue that managerial opportunism may in effect be considered as a form of idiosyncratic corporate risk, resulting in a higher required rate of return and a lower share price. In this case, all other things being equal, socially responsible firms are more risky than others (Baird *et al*., 2012).

More fundamentally, the results raise questions about the changes that must be made in corporate social responsibility – as described by Porter and Kraemer (2011) – towards greater "shared value". They argue that social responsibility is the result, at best, of external obligations imposed by civil society, the media, and government; and at worst, opportunistic behavior by companies undertaken for the purposes of corporate communication. Such companies find themselves accused of failing society, and in a context of severe economic crisis their reputation is damaged and their legitimacy

weakened. This leads government to impose, under pressure from non-governmental organizations and consumers, measures that weaken (notably) competitiveness and growth. Porter and Kraemer (2011) argue that companies, rather than paying taxes on their negative externalities should instead "internalize" these effects. This is achieved by setting, beyond strategic goals, objectives in terms of human development, the well-being of the local population, and the protection of nature. This implies taking the needs of stakeholders seriously and forming alliances with the various local actors. They argue that the challenge is not to protect the environment in which businesses operate, but that businesses, through gaining the respect and esteem of their partners, should enhance their competitiveness. In doing so, companies create economic value by creating social value. There is no doubt that this is the key to a new virtuous circle that can reinvent capitalism.

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