# Impact of Corporate Sustainability Strategies at the Cost of Capital of Brazilian Companies

*Impacto das Estratégias de Sustentabilidade Empresarial no Custo de Capital Próprio das Empresas Brasileiras*

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## Abstract

This study explores the effect on the cost of capital in Brazilian organizations that adopted, in their business strategies, elements of Corporate Social Responsibility. The focus is on Socially Responsible Business Strategies and the cost of capital in the adoption of these strategies. The analysis was made by a regression, and as a proxy for Social Responsibility it was used the Corporate Sustainability Index. In order to estimate the cost of capital of the companies it was used the model of 3 factors of Fama and French (1993). The main results and, similarly, the main contribution of the study was the noticed that in most of the years studied, there was no significant drop in the company´s cost of capital that have adopted CSR Strategies, pointing to a neutral relationship between investing in Social Responsibility and the cost of capital.

**Keywords**: Strategies for Social Responsibility; Cost of Capital; Performance.

### Resumo

*Este estudo explora o efeito, no custo de capital próprio, das organizações brasileiras que adotaram, em suas estratégias de negócio, os elementos da responsabilidade social empresarial. O foco recai sobre estratégias empresariais socialmente responsáveis e o custo de capital próprio na adoção dessas estratégias. A análise foi feita com uma regressão e, como proxy para a Responsabilidade Social Empresarial, foi usado o Índice de Sustentabilidade Empresarial. Para a estimativa do custo de capital próprio das empresas, utilizou-se o modelo de três fatores de Fama e French (1993). Como principais resultados e, analogamente, principal contribuição do estudo, percebeu-se que, na maioria dos anos estudados, não foi significativa a queda no custo de capital próprio das empresas que adotaram Estratégias de Responsabilidade Social Empresarial, apontando para uma relação neutra entre o investimento em Responsabilidade Social e o custo de capital próprio.*

***Palavras-chave:*** *Estratégias de Responsabilidade Social; Custo de Capital Próprio; Desempenho.*

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## Introduction

Strategies that incorporate Corporate Sustainability in the market have been the subject to several studies since with the increase of the environmental problems generated by the disorderly growth, environmental scarcity and public impacts have affected the decisions of stakeholders (Figge, Hahn, Schaltegger & Wagner, 2002, p.270). Furthermore, the concept of a sustainable company culminates in business management strategies committed to social and environmental demands. However, it is understood that the adoption of these strategies can affect the economic-financial balance of the organizations (Figge et al., 2002).

Based on the importance given to corporate sustainability, this study seeks to contribute to the understanding and direction of managers on the financial impact on equity costs when companies adopt corporate sustainability strategies. In other words: "What is the impact of adopting corporate sustainability strategies on companies' own capital costs?".

The main objective of this study is to analyze the economic-financial effect in Brazilian companies that have adopted corporate social responsibility strategies, observing their impact on the capital costs of companies.

Methodologically, as a proxy for common social responsibility, the Corporate Sustainability Index (ISE) was used to reflect on the return from a portfolio composed of shares of companies with a recognized commitment to social responsibility and corporate sustainability, also to act as a promoter of good practices in the Brazilian business environment (BMF&Bovespa, 2010). In order to estimate firms' cost of capital, the three-factor model of Fama and French (1993) was used, due to its greater explanatory power in the variation of asset returns, compared to Capital Asset Pricing Model (CAPM) from Sharpe (1964). The cost of equity of the companies of the São Paulo Stock Exchange Index (Ibovespa), representing the market and the companies participating in the ISE portfolio, representing corporate social responsibility, for the period from 2005 to 2009 was estimated; which was chosen because of the ISE existence since 2005. After the estimates, a regression was made, observing whether the presence at the company or not in the ISE would affect its own cost of capital.

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As main results, it was observed that in most of the years studied, there was no significant decrease in the cost of equity of companies that are part of the ISE, pointing to a neutral relationship between the investment in corporate social responsibility and financial indicators of the firm, and the cost of equity analyzed. The result from the analysis contributes to the managers' analysis on the effect in the investment in corporate social responsibility strategies to the detriment of the economic and financial impact upon the company, which is a direct implication in the direction of strategic business decisions.

For the analysis, the study is organized in order to review the literature on business sustainability and the economic-financial performance of companies. Subsequently, the research methodology is presented, and then the results are analyzed. Finally, the final considerations are made, and the conclusion is presented.

## Literature Review

According to Magalhães and Hourneaux (2013), the definitions of terms that refer to the scope of sustainability for companies are, among others Corporate Social Responsibility or Corporate and Business Sustainability. Following Carroll (1999), Corporate Social Responsibility is related to business obligations to pursue policies, take decisions or follow lines of action that are desirable in terms of goals and benefits to society. According to Barbieri and Cajazeira (2009), the concept of a sustainable company culminates in business management committed to the demands of society. For the Ethos Instituto (Ethos, 2010):

> Corporate Social Responsibility is the form of management that is defined by the ethical and transparent relationship of the company with all the public with which it relates and by setting business goals compatible with the sustainable development of society, preserving environmental and cultural resources for generations respect for diversity and promoting the reduction of social inequalities (Ethos, 2010).

Economical performance is one of the dimensions of corporate sustainability. It is the dimension that refers to the organization's impacts on the economic conditions of its stakeholders and on the economic systems at the local, national and global level (Garcez & Hourneaux, 2013). Examining the relationships between performance and corporate social responsibility, the results show positive, neutral or negative relationships. Analyzing corporate social responsibility and performance, Margolis and

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Walsh (2003) conducted a detailed review from the literature and applied a simple feedback counting technique to analyze results in 109 studies between 1971 and 2001. Thereafter, they identified 54 studies with a positive link between corporate social responsibility performance and financial performance; 28 studies found no relation; seven studies found a negative relationship, and twenty studies reported mixed results.

The positive relationship between corporate social responsibility and performance appears in some studies. The argument is that a company that has high corporate responsibility would have fewer problems with work, and customers would be in favor of having their products. Waddock and Graves (1997), evaluating most firms in the S & P500, analyzed that corporate social responsibility would increase the firm's value by reducing the volatility of future cash flows. Ziegler, Rennings, and Schröder (2002) observed that the most important result of their econometric analysis was that the performance of the growing environmental sector has a significant positive influence on shareholder value.

Roberts and Dowling (2002) found that companies with good reputations are better able to sustain profitability over time. They also saw that employees prefer to work for reputable firms and thus would probably work more and accept lower compensation, reducing firm costs. Derwall, Guenster, Bauer, and Koedijk (2005) composed two stock portfolios that differ in characteristics related to ecoefficiency and found that the high-ranking portfolio related to good management regarding social responsibility obtained higher average returns compared to its low-ranking counterpart in the period 1995-2003.

Jo and Harjoto (2011) found that corporate social responsibility is associated with firm characteristics such as size, leverage, research and development and profitability, as well as governance characteristics, including leadership, board independence, institutional ownership, and provisions anti-takeover. As results, they saw that social responsibility positively influences the value of the firm. Enríquez and Drummond (2007) found that the positive aspects of certifications are still much more visible in the economic performance of companies than in the socioeconomic development of the surrounding communities.

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They also showed that socio-environmental certifications have a greater emphasis on ecological rather than social aspects. Similarly, Miguel, Jorge, and Canadas (2017) verified that companies with better corporate social responsibility performance have lower levels of financing constraints. Barros and Dias (2008) investigated whether the announcement of entry of a company into ISE corresponds to unusual returns to shareholders. As a result, they saw that the companies advertised as ISE participants achieved positive cumulative unusual returns in two windows near the date of the listing of the portfolio to which they belong, compared with the returns of companies in the same economic sector that do not participate in the ISE, at work, of control group.

On the negative relationship between social responsibility and financial performance, it has been argued that high corporate responsibility would result in additional costs that would put a firm at an economic disadvantage compared to others not so socially responsible. Analyzing the relationship between corporate social performance and stock returns in the UK, Brammer, Brooks, and Pavelin (2006) used indicators for the environment, staff and community activities and found that the low financial performance of firms is attributed to their good performance in the environment and on aspects of the community.

The authors had as the main result that firms with high social performance tend to achieve lower returns, while firms with the smallest possible points of corporate social responsibility have performed beyond the market. El Ghoul et al. (2011) analyzed the effect of corporate social responsibility on the cost of equity of a large sample of US firms.

The authors found that firms with a better corporate social responsibility ranking had a cheaper capital financing cost. From this, they have suggested that investing in improving responsible relationships with employees, environment, policies and product strategies contribute to reduce the firm's cost of equity. García-Sánchez and Noguera-Gámez (2017) analyzed the effect of the disclosure of integrated information on the cost of capital.

The authors used a sample of 995 firms in 27 countries and 3294 observations over the period from 2009 to 2013. The results, according to the authors, have

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confirmed that there is a negative relationship between the cost of capital and the disclosure of an integrated report. For them, reducing the cost of capital, as a result of the dissemination of an integrated report, is especially relevant for companies that need to increase their core funding. These companies have considerable problems of asymmetric information or operate in markets with limited investor protection.

On the neutral relationship between corporate social responsibility and corporate economic performance, Hamilton, Jo, and Statman (1993) found that socially responsible mutual funds do not earn excess returns and that the performance of these funds is not statistically different from the performance of conventional funds. Furthermore, Nelling and Webb (2009) found no evidence that corporate social responsibility activities affect financial performance.

## Methodology

Methodologically, as a proxy for corporate social responsibility, the Corporate Sustainability Index (ISE) was used, which aims to reflect the return on a portfolio composed of shares of companies with recognized commitment to social responsibility and corporate sustainability and to act as a promoter of good practices in the Brazilian business environment (BMF&Bovespa, 2010).

In order to estimate firms' cost of capital, the three-factor model of Fama and French (1993) was used, due to its greater explanatory power in the variation of asset returns, compared to Capital Asset Pricing Model (CAPM). Sharpe (1964). The cost of equity of the companies of the São Paulo Stock Exchange Index (Ibovespa), which represents the market and the companies participating in the ISE portfolio, representing corporate social responsibility, was estimated for the period from 2005 to 2009; which has been chosen since 2005. After the estimates, a regression was made, observing whether the presence at the company or not in the ISE would affect its cost of equity.

In order to analyze whether the cost of equity of Brazilian companies is affected by their corporate social responsibility, their cost of equity was estimated. Like Ziegler et al. (2002), this variable was estimated by the model of Fama and French (1993) and, as an explanatory variable, the inclusion or not of the company to the ISE - Corporate

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Sustainability Index, used as proxy for corporate social responsibility - as in McWilliams and Siegel (2001) and Tsoutsoura (2004).

The use of ISE is also justified in Azapagic (2004), which emphasizes that sustainable development indicators translate, in quantifiable measures, economic, environmental and social performance. For the diagnosis, most of the literature implements regression analyzes (Cochran & Wood, 1984; Mcguire; Sundgren & Schneeweis, 1988; Ziegler et al., 2002), which analyzes a long-term relationship between corporate responsibility and financial performance; however, there are other methodologies: portfolio studies, case studies, case studies.

Portfolio studies (e.g., used by Derwall et al., 2005) usually compare the performance of members with higher averages in corporate social responsibility performance with lower averages, while providing some implications for institutional investors interested in socially responsible investments.

Results are rarely applicable to the firm level. Event studies analyze the short-term, the effect of capital markets after responsible or unresponsive actions (e.g. study by Rao, 1996). Case studies are based on a single company and seek to promote corporate responsibility. Like most of the literature, a regression analysis was performed between the estimated cost of equity and the presence of companies or not in ISE.

### ISE - Corporate Sustainability Index

In order to analyze whether the cost of equity of Brazilian companies is affected by their corporate social responsibility, ISE (Corporate Sustainability Index) was used as a proxy for corporate (social) responsibility. This index, according to BM & FBovespa (2010), aims to reflect the return on a portfolio composed of shares of companies considered sustainable. These shares are selected among the most traded on the São Paulo Stock Exchange (Bovespa), in terms of liquidity, and are weighted in the portfolio by the market value of the shares available for trading. The companies that make up the index are recognized for their commitment to social responsibility and sustainability. They are considered to be socially responsible, sustainable and profitable enterprises for the investment of resources by investors.

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As a selection criterion for the ISE, the Deliberative Board of the index contracted the Center for Sustainability Studies of Fundação Getúlio Vargas (CES-FGV), which developed a questionnaire to measure the performance of the 200 most traded shares of Bovespa issuers, which starts with the concept of the triple bottom line - encompasses the evaluation of environmental, social and economic-financial information in an integrated way. According to Garcez and Hourneaux Jr. (2013), the three times bottom line presupposes strategic planning in the definition of corporate goals and actions and is guided in the triple dimension:economic, social and environmental.

As a weighting criterion, according to the BM&FBovespa (2010), securities are weighted by the respective market value - in the portfolio type - of their shares available for trading (free float), ie, shares owned by the controlling shareholder. Moreover, a company's participation in ISE may not exceed 25% (considering all types of company shares, if any) in periodic reevaluations. If this occurs, adjustments will be made to the company's weight to this limit (BM&FBovespa, 2010).

Regarding the questionnaire criterion, the index has an annual review, through the completion of the questionnaire developed by the Center for Sustainability Studies of the Getúlio Vargas Foundation (CES-FGV). This questionnaire has only objective questions, and its completion is voluntary. It evaluates companies according to the principles of the triple bottom line.

According to the BM&FBovespa (2010), the environmental, social and economic-financial dimensions were divided into four sets of criteria: policies, referring to commitment indicators; program indicators, targets and monitoring; performance; and legal compliance. On the environmental dimension, companies in the financial sector respond to a differentiated questionnaire, and the other companies are divided into "high impact" and "moderate impact" (the questionnaire for them is the same, but the weights are different).

To the principles of the triple bottom line, three more groups of indicators were added: general criteria, which examines, for example, the company's position before global agreements and if the company publishes social balance sheets; criteria

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of product nature, which questions, for example, whether the company's product causes harm and risks to consumers' health; and corporate governance criteria.

The companies' responses are analyzed by a statistical tool called "cluster analysis", which identifies groups of companies with similar performances and points out the group with the best overall performance. The companies of this group are those that make up the final portfolio of the ISE (which will have a maximum number of forty companies), after approval by the Board.

## Companies Analyzed

For the estimation of the cost of capital of companies, the three-factor model of Fama and French (1993) was used, due to its greater power of explanation in the variation of the returns of the assets, compared to CAPM - Capital Asset Pricing Model - of Sharpe (1964) (Málaga & Securato, 2004). In order to estimate the cost of equity of the companies, Economática data were used from 2005 to 2009, since the ISE was implemented as of that date and the portfolios were updated annually. Year by year, data were collected from the companies listed on the Bovespa, such as:

• share prices at closing on the last business day of June from t-1 to June of t, adjusted for earnings and dividends;

• market values for June from t-1 to June of t;

• liquidity on the June stock exchange;

• net equity for December of t-1;

• total assets data for June of t (for control variables);

• total gross debt of June of t;

• June net income of t; and

• shareholders' equity of June of t.

From that point on, financial companies were excluded because of the high level of indebtedness, normal for the sector, which influences the Index Value by Market Value (VP / VM - used to estimate Fama and French - F & F factors ), not having the same meaning as the degree of indebtedness of non-financial corporations (Fama & French, 1992).

In addition to this filter, companies with liquidity in the stock market of less than 0.001 were excluded, to compose the portfolios with shares with the least relevance to the market - at least 0.1% of the market turnover (Argolo, 2008). In addition, companies with a net worth less than zero were withdrawn, since this indicates that the company would be in a complicated financial situation, which could affect the results of the estimated factors. In addition, companies without information on shareholders' equity and without market value information for a given year were taken out from the sample. If there was a repetition of a company, due to the existence of more than one class of shares, the most liquid company stock would be chosen so that each company would be represented with only one type of stock.

After these filters were made, the stock returns were estimated. Thus, with the estimation of these returns, non-existent returns were excluded, for example, due to the absence of market value of the stock for a given month on its last business day.

Table 1 shows the result of the total number of companies analyzed for the portfolios' formation for the estimation of Fama and French factors after all filters.

**Table 1 -** Number of companies per year for portfolio composition

| Year | Total companies after filters |
|------|-------------------------------|
| 2005 | 64 |
| 2006 | 90 |
| 2007 | 115 |
| 2008 | 157 |
| 2009 | 173 |

**Source:** Data worked by the author and taken from Economática (2010).

## Formation of the Portfolios for the Estimation of the Factors of Fama and French

Using the methodology of Fama and French (1993), following Argolo (2008), which carried out a study on the practical implementation of the model of Fama and French for the calculation of the cost of equity in Brazil, nine portfolios were formed, following two main criteria:

1. value-to-market ratio of December of t-1. Thus, the company is classified as "Value" or "Growth", and the actions are ordered and divided among three groups according to this VP / VM index, being: 30% high, 40% medium and 30% low. As the balance sheet information about the companies is disclosed late, the information of the

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shareholders' equity of December of each year is used, plus the formation of the portfolio made at the end of June - this to ensure that the information was already absorbed by the market and the effects reflecting prices.

2. Market value - the company is classified by its size represented by the market value for June of the year in question. Since then, the companies have been reorganized, classified as 30% big, 40% medium and 30% small. The final portfolios were created with the shares of the three groups of Value (low, medium and high) and the shares of the three size groups (small, medium and big), totaling nine portfolios, as shown in Table 2.

Table 2 - Names and characteristics of the nine portfolios formed

| Stock Portfolio | Size | Value |
|---|---|---|
| SL | small | low |
| SM | small | medium |
| SH | small | high |
| ML | medium | low |
| MM | medium | medium |
| MH | medium | high |
| BL | big | low |
| BM | big | medium |
| BH | big | high |

Source: Argolo (2008); Fama and French (1993).

The companies were classified according to their size and value, year by year, and the rebalancing of the portfolios was done at the end of June of each year studied.

### Estimation of F & F Risk Factors

In order to estimate the risk factors, following Fama and French (1993), portfolio returns was estimated by month, year by year, weighted by the market value of the share in relation to the market value of the portfolio, as follows:

Equation 1 - Calculation of the returns of the portfolios following Fama and French (1993)

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$$R_{p,t} = \frac{\sum\limits_{i=1}^{n} VM_{i,t}(R_{i,t})}{VM_{p,t}}$$

On what:

$R_{p,t}$ = return on the portfolio p in the month t.

$R_{i,t}$ = return of stock i, belonging to the portfolio p, in the month t.

$VM_{i,t}$ = market value of sharing i at the end of the month t.

$VM_{p,t}$ = market value of the portfolio p at the end of the month t.

After estimating the portfolio returns on a month-to-month basis, the SMB (small minus big) and HML (high minus low) risk premiums were also estimated. According to Fama and French (1992 and 1993), the Size (SMB) risk premium was estimated monthly by the difference between the simple average of the monthly returns of the three big portfolios and the simple average of the monthly returns of the three portfolios small wallets. According to Fama and French (1992 and 1993), the Value Risk premium (HML) was estimated monthly by the difference between the simple average of the monthly returns of the three high portfolios and the simple average of the monthly returns of the three portfolios low portfolios. Finally, the market risk premium, which also influences the stock return, according to Fama and French (1992 and 1993), was estimated monthly by the difference between the market return and the return of the risk-free asset.

As a proxy for the market, the Stock Index - Ibovespa, available at the IpeaData website (2010), was used. This index was used because it was impossible to identify and build the true market portfolio, according to Roll (1977). As a proxy for the risk-free rate, the Interbank Deposit Certificate (CDI) was used, since, according to a study by Barros, Famá, and Silveira (2003), in the Brazilian market, the savings book returns, as well as the CDI, are consistent with the conceptualization of a pure rate of interest, with a standard deviation of negligible returns and correlation with the insignificant market.

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When the risk factor premiums were estimated, temporal regressions were made between the monthly return of each of the nine portfolios, and the monthly premium for risk factors estimated according to the previous section. Fama and French (1993) used 25 portfolios, dividing the companies into five groups by Size and five groups by Value. Due to the small number of companies, only the nine portfolios previously formed for the estimate were used. From the regressions, the coefficients and the risk factors appeared, year by year.

### Estimated Cost of Equity

In order to estimate the cost of equity for the companies analyzed, according to Argolo (2008), it was possible to locate the company in the nine portfolios and, with the respective coefficients and factors, to calculate the cost of capital applying in the multifactor model of Fama and French (1993) - requiring no further regression.

Applying the method of estimating the cost of equity through the identification of the company in the nine portfolios formed, companies with no data for shareholders' equity and / or market value (to classify the portfolios to which they belong and to estimate the cost of capital own by the model of three factors of Fama and French). If there was more than one share per company in the Ibovespa, then the most liquid stock in the stock exchange was chosen (to have only one share per company analyzed). Once this was done, companies were classified as being part of the ISE or not, through a dummy, with the number 1 (one) for those belonging to the ISE portfolio, and zero for those not belonging to the year.

The companies that were part of the ISE since 2005 were made available for this study by the Center for Sustainability Studies of the Getúlio Vargas Foundation. Some companies, for reasons of merger, acquisition and/or change of corporate name, which previously would have been separately part of the ISE, were placed only once in the sample of companies per year.

Table 3 shows the total number of companies analyzed per year after the application of the filters mentioned above.

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Table 3 - Number of companies analyzed per year

| Year | Number of companies |
|------|---------------------|
| 2005 | 40 |
| 2006 | 57 |
| 2007 | 60 |
| 2008 | 64 |
| 2009 | 66 |

Source: Data by the author and retired from CES-FGV (2010); Economática (2010).

With these data, the indices referring to Value (VP / VM) and Size (VM) of the companies were estimated, and the companies were classified in the portfolio to which they belong (SL, SM, SH, ML, MM, MH, BL, BM, BH). The coefficients of each company were then calculated according to the portfolio to which they belong and with the coefficients previously estimated, and for each company of the sample, the cost of capital was estimated by the multivariate model of Fama and French (1993). Once the mean factors and the coefficients for each company were placed, the company's cost of equity capital minus the return of the riskless asset was reached. In order to estimate only the company's cost of equity, the return of the average monthly riskless asset during the year in question was added.

In addition to this method of estimating the cost of capital by the Fama and French three-factor model (1993), that is, by locating the company in the nine portfolios and, with the respective coefficients and estimated factors, to calculate the cost of equity by applying the model of Fama and French (1993); it was also estimated the cost of equity for the same companies analyzed by performing regressions of the returns of each company month by month in relation to market premiums, SMB and HML, thus identifying the coefficients for each company, yearly, applying in the multifactorial model of Fama and French (1993), and, finally, estimating the cost of capital for each of them.

### Regression Analysis Between the Cost of Equity of the Companies and their Presence in ISE

Estimates on the cost of equity of companies were made by two methods: 1. Classifying the company in the nine portfolios analyzed and, using the coefficients and

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estimated risk factors, calculate the cost of equity of the companies year by year; and 2. Making regressions between the companies returns of shares analyzed and among the estimated risk factors, to arrive at the coefficients of each company to estimate the cost of equity. After that, year-to-year regressions were made between the estimated cost of equity (as a dependent variable) and the presence or not of ISE (as an independent variable).

## Results

Estimates on the cost of equity of companies were made by two methods:

1. Classifying the company in the nine portfolios analyzed and using the coefficients and risk factors, calculate the cost of equity in the companies year by year;

2. Making regressions between the returns in shares analyzed and among the risk factors to get at the coefficients of each company in order to estimate the cost of equity.

After that, year-to-year regressions were made between the estimated cost of equity (as a dependent variable) and the presence or not of ISE (as an independent variable).

**Table 4 -** Result of the regression between cost of equity - estimated through the classification of the companies in the analyzed portfolios - and presence in ISE

| Year | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|
| ISE coefficient | -0,0074 | -0,0052 | 0,0016 | -0,0037 | 0 |
| F of significance | 0,0030*** | 0,8653 | 0,5403 | 0,4152 | 0,9898 |

**Note:** * significant to less than 10%; ** significant to less than 5%; *** Significant less than%
**Source:** Data worked by the author (CES-FGV, 2010; Economática, 2010).

**Table 5 -** Result of the regression between cost of equity - estimated through regressions of stock returns and risk factors of Fama and French (1993) - and presence in ISE

| Year | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|
| ISE coefficient | -0,0135 | -0,0144 | -0,0111 | 0,0021 | 0,0079 |
| F of significance | 0,009*** | 0,4420 | 0,1024 | 0,8437 | 0,1656 |

**Note:** * significant to less than 10%; ** significant to less than 5%; *** Significant less than%
**Source:** Data worked by the author (CES-FGV, 2010; Economática, 2010).

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According to Orlitzky et al. (2003), the results from the studies show positive or pessimistic relations between financial performance and corporate social responsibility. A negative relationship is theorized if the investment in social or ecological policies will incur costs. Also, if it is likely to undermine the company's profitability (in the case of a valuation of the cost of equity, such a relationship would be positive, increasing the cost to the company when it invests in such policies).

A strongly positive relationship is often found in aggregate studies with measures of corporate responsibility and financial performance (Waddock & Graves, 1997; Ziegler et al., 2002). In this case, corporate responsibility is theorized in the sense of good management and improvement of the characteristics of the firm, such as competitive advantage and reputation. In this case from a study on the cost of equity of the companies, this relation would be negative, meaning that such cost would be diminished with the improvements provoked by the investments in corporate social responsibility.
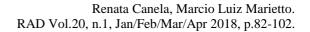
In the present study, although most of the years studied present a negative sign for the cost of equity with the presence at the company in the ISE (apparently pointing to a fall in this cost of equity), in just one year such (in both ways of estimating the cost of equity), showing that the company's presence in the ISE (or the investment in sustainability) would have little influence upon the cost of its own capital.

## Conclusion

Corporate sustainability has been the subject to several studies since with the increasing environmental problems generated by disorderly growth, stakeholders became more aware of the importance of protecting the environment, as well as the concern for economic growth and concern for society. Based on the importance given to corporate sustainability, the present study analyzed the impact of corporate social responsibility on the cost of capital of Brazilian companies listed on the São Paulo Stock Exchange for the period from 2005 to 2009.

Robinson, Kleffner, Bertels, and Arbor (2008) analyzed the relationship between corporate sustainability, reputation and value for the firm, asking whether members of a recognized US sustainability index generated value (Dow Jones

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Sustainability Index - DJSI). As a result, they found that being a member of the index raises stock prices, suggesting that the benefit of being included in the DJSI outweighs the costs associated to the application.

In the same way, this study used a recognized index for companies listed on the São Paulo Stock Exchange - ISE - Corporate Sustainability Index -, as a proxy for corporate responsibility, and the cost of equity of Ibovespa companies was estimated and the companies belonging to the ISE (by the three-factor model of Fama and French), and later regressions are made to see if corporate social responsibility affects the cost of equity.

Consequently, it was noted that in most of the years studied, the influence at the cost of equity of ISE companies was not significant, pointing to a non-influence of the investment in corporate social responsibility in the firms' financial indicators. This result is in agreement with some other studies, such as Hamilton et al. (1993), who assessed that socially responsible mutual funds do not statistically earn excess returns and that the performance of these funds is not statistically different from the performance of conventional funds.

Barros and Dias (2008), in Brazil, despite finding a positive relationship between corporate social responsibility and return to shareholders for a control group analyzed, did not find the presence of abnormal positive returns for the portfolios analyzed with the market index, concerning ISE companies. Nelling and Webb (2009) also found no evidence that corporate social responsibility activities affect financial performance.

As a limitation to the research, we can mention the formation of the market portfolio, to estimate the cost of capital by the model of Fama and French (1993), which, as in the case of CAPM, uses the market as a risk factor. According to Roll (1977), it is impossible to test CAPM due to the impossibility of identifying and constructing the true market portfolio.

So, in this study, a market index, the Ibovespa, was used to try to represent the investment opportunities available in the Brazilian market. In addition, due to the filter to compose the portfolios with shares with the least relevance to the market - at least 0.1% of the market volume and deals (Argolo, 2008) - a small number of companies

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remained to form the portfolios for estimating the cost of equity, which may also have limited research. Another limitation would be the fact that the questionnaire sent to analyze the participation or not of the company in the ISE was voluntarily answered, occurring of companies that could be in the index, were not part of it because they decided not to answer such a questionnaire.

Another factor to consider is that the index is still "new," and other studies may be done in the coming years to improve research of the subject, thus exploring the informal mechanisms linking financial performance with the corporate social responsibility to determine consistent with time.

Furthermore, more studies can be done analyzing the impact of the cost of equity of companies and relation to corporate social responsibility, including control variables in the same equation, seeking to analyze, with this, the impact on these variables in the cost of equity examined. It is also of paramount importance to examine the timing of the relationship since it would be valuable to investigate and verify how long it takes for the impact of corporate social responsibility to occur on the financial performance to be revealed. To do so, more data on corporate social responsibility would be needed.

Even so, the result from the analysis contributes for the managers to analyze the effect in the investment in the strategies of corporate social responsibility to the detriment of the economic-financial impact on the company, being this a contribution of direct implication in the direction of the strategic business decisions.

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