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The Enigmatic Impact of Corporate Social Responsibilities on the Economic Performance of Brazilian Companies

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The financial implication of the adoption of corporate social responsibility (CSR) practices is still an obscure field of study, because studies suggest controversial results. Thus, this research aimed to examine the relationship CSR and economic performance of the companies of corporate sustainability index (ISE) of mercantile and futures exchange of São Paulo stock exchange (BM&FBOVESPA). The amount of companies allowing online access to their responses of the ISE questionnaire determined the sample of this research. Thus, for the study period from 2011 to 2012, it has been possible to access the responses of 12 companies, composing the overall sample of this research. The results of the regression analysis allow to statistically assert that for the sample used, environmental performance (EP) contributes to improving economic performance, measured by all financial metrics used: return on equity (ROE), return on assets (ROA), and net profit (NP). Statistically, it is only possible to say that social performance (SP) contributes to improving NP. In terms of market metrics, none of the null hypothesis was rejected, i.e., in any cases, it has been possible to affirm, on a statistical base, that SP and EP contribute to improving the market value (MV) and systematic risk. Thus, it is understood that the stakeholder theory has potential to explain the Brazilian situation regarding the aspects of CSR and financial ones under the accounting and the shareholder theory explains this relation, when viewed with the aid of market measurements.

Keywords: corporate social responsibility (CSR), stakeholder theory, social performance (SP), environmental performance (EP)

Introduction

The role of corporations in a dimension beyond its traditional objectives is being discussed, i.e., seeking the generation of wealth as usual, prompt customer service, ethical treatment towards employees, and respect to

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the environment and to the whole community.

Understanding this relationship between companies and stakeholders, the implication to consider the interest beyond the partners/shareholders and specifically the impact of adopting corporate social responsibility (CSR) is still an exciting challenge. This is because, while some studies have documented a positive relationship (Wabda, 2008; Lourenço, Branco, Curto, & Eugénio, 2012; Lo, Yeung, & Cheng, 2012), other studies have shown a negative one (Jaggi & Freedman, 1992; Wagner, Van Phu, Azomahou, & Wehrmeyer, 2002).

Taking this controversial reality, the instrumental aspect of stakeholder theory that underlines this study explains that attitudes relating CSR will be positively reflected in financial performance.

In order to address this flaw, this scenario that reflects a real current phenomenon with future implications that this research was based on the following question: What is the relationship between CSR and the economic performance of companies participating in the corporate sustainability index (ISE) of mercantile and futures exchange of São Paulo stock exchange (BM&FBOVESPA)? Thus, it has been aimed to verify the relationship between CSR and economic performance of companies participating in the ISE portfolio of BM&FBOVESPA.

This research is justified, because the previous researches still show very divergent and inconclusive findings. One of the biggest criticisms of such research is regarding the inconsistency of the chosen proxy to measure social and environmental performance (SP and EP). As a way to get around this challenge, this research considers SP and EP, from ISE parameters. Thus, the effort to create this measurement is a differential of this work regarding previous ones that had similar objectives and thus, justifies the research effort.

This study provides additional evidence on the value relevance of non-financial information. Besides, all this discussion focuses on the Brazilian market that is a growing market, with increasing visibility in the international sphere. This investigation also provides additional empirical evidences on the occurrence, nature, and significance of the relationship between CSR and financial performance of companies, as well as the potential of the stakeholder theory to explain the Brazilian reality regarding CSR aspects.

Theoretical Referential and Hypotheses

The survival and longevity of organizations for Clarkson (1995) is related to the ability of managers to satisfy those belonging to each stakeholder group. Under the view of this author, the focus of attitudes and organizational results is no longer exclusively the owner/shareholder and shall have a wider scope, reaching the most diverse interested parts.

The benefit of considering the stakeholders interests in organizational decisions is not yet a consensus in the corporate and academic environment. Thus, one can manage an organization and study them under the assumption that there is only one objective function for the enterprise, maximizing shareholders return, or from the perspective that the company has other functions not only being profitable to their owners.

The first case is explained/predicted by the shareholder theory, also known as the theory of maximizing shareholder's wealth, which is quite traditional, being predominant for over a century (Sundaram & Inkpen, 2001), because it fits perfectly the capitalist economic system. This adjustment takes place, since the basic requirement for decision making, in accordance with the aforementioned theory, is the maximization of the company value. From this maximization, other stakeholders would be positively impacted through jobs generation and increases in tax collection by the government, which then, yes, would be converted to social benefits (Friedman, 1970; Sundaram & Inkpen, 2001). In this area, Friedman (1970) prevailed the idea that engaging in CSR activities diverts resources away from owners that could be used in intern projects with

considerable added value, whose direct consequences would be the financial return to shareholders, by others, thus there is a breach of contract caused by disregarding the principal interest (profit).

In this context, the discussion of organizations from the point of view of the stakeholder theory, whose emergence dates from the mid-80s, according to Freeman and McVea (2001), is inserted.

The idea of stakeholder designed by Freeman and McVea (2001) suggests that managers should not plan and implement processes that meet a group of interests (shareholders) at the expense of other groups participating in the business. To this end, authors highlight the need of having a management in an attempt to integrate the expectations of shareholders, employees, clients, suppliers, communities, and other groups that in some way impact the long-term success of the company. Thus, the stakeholder approach emphasizes the active management of business, relationships, and the promotion of common interests (Freeman & McVea, 2001).

The study of the stakeholder theory, according to Donaldson and Preston (1995), can be conducted from three different and complementary approaches. The authors highlight the descriptive, instrumental, and normative aspects of the stakeholder theory. The instrumental approach seeks to establish a cause and effect relationship, considering the interests of stakeholders and the corporate performance. This investigation falls within the instrumental approach, since it seeks to verify the relationship between CSR and economic performance of companies participating in the ISE portfolio of BM&FBOVESPA.

CSR was initially defined by Carroll (1999), considered to be its greater precursor, as the obligations of executives with business decisions making, these would have underlying premises, policies, and action lines aligned with the values and objectives of society. Carroll (1999) proposed that the underlying issue of CSR is that obligations are not limited to the economic and legal nature, also reaching social aspects.

By analyzing the relationship between environmental and economic performance in European paper industry, Wagner et al. (2002), come to the conclusion, by the technique of simultaneous equations, that there is a negative relationship between the two concerned performances.

In a study applied to the banking sector, Campillo, Sánchez, and Garcia (2013) analyzed the relationship between CSR and financial performance (ROA and ROE) and the results suggested a negative interactive relationship.

Lo et al. (2012) presented empirical evidences on the impact of adopting environmental management system (EMS) in the financial performance of the fashion and textile industries. Authors highlighted the real impacts of this adoption on the financial performance of the company, which has not yet been explored. A study of events with 56 companies was conducted and the findings appoint that with the adoption of ISO 14000, the most popular EMS improves the profitability of the fashion and textile industries, for a period of three years. Thus, in this study, whether profitability is impacted by CSR has also been tested, the following null hypotheses having been considered:

H0a: SP does not contribute to improving the return on equity (ROE) of companies composing the ISE portfolio of BM&FBOVESPA;

H0a': EP does not contribute to improving the ROE of companies' part of the ISE portfolio of BM&FBOVESPA;

H0b: Social EP does not contribute to improving the return on assets (ROA) of companies' part of the ISE portfolio of BM&FBOVESPA;

H0b': EP does not contribute to improving the ROA of companies' part of the ISE portfolio of BM&FBOVESPA.

The research of Borba (2005) investigates the causal sequence and the direction (positive and negative) of the relationship between CSR and financial performance variables. Most of the models results were unable to certify the absence of a statistically significant relationship between SP and corporate financial performance, and when analyzing financial performance from accounting data, the existence of a positive relationship between the two ways of performance has been attested in some analysis periods, which aligns with stakeholder management and the consequent plus on the result. However, the causal relationship among the variables was unclear. The relationship among SP, EP, and the net profit (NP) of enterprises has also been tested, in order to do the following hypotheses formulated:

H0c: Social development does not contribute to improving the NP of companies' part of the ISE portfolio of BM&FBOVESPA;

H0c': Environmental development does not contribute to improving the NP of companies' part of the ISE portfolio of BM&FBOVESPA.

Focusing on the American scene, Lourenço et al. (2012) found that the performance of corporate sustainability has explanatory power over the companies' market value (MV), however, there is a differentiation regarding the market behavior depending on the size/profitability of the company.

Wabda (2008) sought to present empirical evidence in the Egyptian reality that engagement with corporate environmental responsibility influences the MV of companies. To this end, the author had a sample of 156 firms, defined the MV (Tobin's Q) as dependent variable, and the environmental responsibility as independent variable, whose worked proxy was the presence or absence of ISO 14000 international certification. Through a regression, it has been concluded that the company environmental responsibility determines Tobin's Q, i.e., the Egyptian market compensated companies which cared about the environment.

In order to analyze the positive and negative impacts of CSR activities of organizations and company value (long-term performance), Kang, Lee, and Huh (2010) conducted a survey. Summarizing the results, it has been found that hotels and restaurants had a positive impact of CSR activities on the company value measured by the price-earnings ratio and Tobin's Q, while they did not show any significant positive or negative impact on profitability (ROA and ROE).

Niitsu (2012) investigated whether environmental protection practices of companies are rewarded by the market. In order to do that, authors analyzed the largest organizations in terms of MV, listed on the BM&FBOVESPA. The study proves that EP does not influence the financial performance of companies.

Montabon, Melnyk, Sroufe, and Calantone (2000) investigated the impact of the ISO 14000 certification in corporate performance. The authors indicate an important point of the study that, generally, EMSs are not seen as having a positive impact on key strategic dimensions of performance: delivery time, costs, and quality. So this practice does not favor the competitive position of companies in the market and does not improve the potential for external sales.

From the studies that investigated the relationship between CSR and MV, the following hypotheses have been formulated:

H0d: Social development does not contribute to improving the MV (market capitalization (MC)) of companies' part of the ISE portfolio of BM&FBOVESPA;

H0d': Environmental development does not contribute to improving the MV (MC) of companies' part of the ISE portfolio of BM&FBOVESPA;

H0e: Social development does not contribute to improving the MV (Tobin's Q) of companies' part of the

ISE portfolio of BM&FBOVESPA;

H0e': Environmental development does not contribute to improving the MV (Tobin's Q) of companies' part of the ISE portfolio of BM&FBOVESPA.

As a proxy of the MV of companies, the MC has been used, until then it has not been used in previous studies. It is the MV of companies issuing shares, i.e., the sum of the value of all shares of companies, that are traded on the stock exchange. The other chosen proxy for MV was Tobin's Q, already widely used in literature as can be seen in the described works.

In a study to investigate whether CSR mitigates or contributes to the risk of fall in the stock price, Kim, H. Li, and S. Li (2014) found that, if socially responsible companies are committed to a high standard of transparency, they would have less risk of falling, however, if the motivation to engage in CSR is to cover bad news and divert the shareholders choices, then CSR will be associated with greater risks of falling. Results indicate that CSR has a dampening effect on the risk of falling stock prices. From this framework, the following hypotheses were developed:

H0f: Social development contributes to improving non-diversifiable risk of companies' part of the ISE portfolio of BM&FBOVESPA;

H0f': Environmental development contributes to improving non-diversifiable risk of companies' part of the ISE portfolio of BM&FBOVESPA.

It is noteworthy that the expectation of this study, according to the theoretical framework, is that the raised null hypotheses are rejected, thus confirming a positive relationship between CSR and financial performance.

Research Method

The objective of this research was verifying the relation between CSR and economic-financial performance of companies taking part in the ISE portfolio of BM&FBOVESPA. The population of this investigation comprehends Brazilian companies' part of the portfolio composed by the ISE of BM&FBOVESPA during the years of 2011 and 2012.

The determining factor to investigate companies listed in the ISE was the fact that those companies answer, every year, a questionnaire as a selection criteria to be part of the mentioned index. This questionnaire is composed by seven dimensions: (i) universal; (ii) product nature; (iii) corporate governance; (iv) economic-financial; (v) environmental; (vi) social; and (vii) climate changes. For each one of those dimensions, there is a specific criterion about performance. From this criterion, it has been possible to measure the performance of the dimensions used in this work (environmental and social). The questionnaires answered by each company, allowing the divulgation of answers, are available, by period, in the ISE website. Thus, the sample was composed by the following companies, as shown in Table 1.

Table 1

Sample Composition (Analysis Period From 2011 to 2012)

AES Tietê S.A.	Bank, Industry e Trade	Road Concession Company (CCR)—Anhanguera-Bandeirantes
Bank of Brazil	Energy Company of Ceara (Coelce)	Road Concession Company (CCR)—Rodonorte
Edp-Bandeirantes	Road Concession Company (CCR)—Presidente Dutra	Eletropaulo Electricity Metropolitan São Paulo S.A.
Edp-Espírito Santo Centrais Elétricas	Road Concession Company (CCR)—Oeste de São Paulo	Natura S.A.

The companies which are part of economic groups were analyzed on a consolidated basis.

Measurement of SP

In this stage, the social dimension of the questionnaire used for composition of 2011 and 2012 portfolios has been downloaded. The social dimension of this questionnaire involves four great criteria: (i) politics, (ii) management, (iii) performance, and (iv) legal compliance. As in this study, the measurement of SP was necessary, only criterion (iii) performance has been used, which comprises four indicators: (i) diversity and equity; (ii) hiring of outsourced workers; (iii) supplier management, and (iv) resolution of demands from customers and consumers. Each one of those indicators comprehends a variety of questions.

One point has been awarded for each measure selected by the company, so that if all measures were selected, then the optimum value to be obtained would be four, but the real value obtained by the company depends on the answer given (amount of measures selected). At the end of all questions, the real value obtained by the company in each one of the questions has been accounted and the sum was calculated. This sum divided by the optimum score (maximum score that the company could get, considering the whole questionnaire) multiplied by 100, represents the performance score of each company. As the ISE questionnaire is reviewed every year, the optimum score is specific for each year. Having the template, the download of the answered questionnaires has been made and the SP of each company was measured according to the created template.

Measurement of EP

Regarding the environmental aspect, ISE creates questionnaires differentiated by groups of companies. Because it is important to consider the peculiarities of each sector regarding its interaction with the environment, since the impact of a paper and cellulose industry is different from the one of a financial institution, for instance.

Thus, a download of the environmental dimension of the questionnaire of each one of the groups for 2011 and 2012 has been made. The environmental dimension of this questionnaire involves four great criteria: (i) politics, (ii) management, (iii) performance, and (iv) legal compliance. Each one of those criteria is composed by a number of indicators that unfold in several questions. As in this study, it was needed to calculate the EP, only criterion (iii) performance has been used. Indicators related to this criterion change a little, according to the group in which the company belongs, as explained above and so do the annual reviews of questionnaires. Generally there are four indicators: (i) use of environmental resources, (ii) emissions and residues, (iii) emissions and critical residues, and (iv) environmental insurance.

Thus, an analysis on criterion (iii) has been made, about the EP, in order to create an optimum template for each one of the questions. For each question, an optimum value has been attributed. The company answering all questions in the most satisfactory way would get the maximum score. When not, the real values obtained of each question were added and divided by the total optimum value and then multiplied by 100, in order to find the EP score of the company. Having the template, the answered questionnaires have been downloaded and the EP of each company was measured, according to the template created for each one of the groups.

Collection of Economic-Financial Data

The SP and EP of 2011 have been related with financial data of 2012 and SP and EP of 2012 with financial data of 2013.

For collecting the economic-financial data, a query on the accounting statements of the companies was made using the BM&FBOVESPA and also the Economática software. The economic-financial variables,

considered in this study, are divided in accounting ones and market ones. The accounting measurements were: ROE, ROA, and NP; the market ones were: MV measured by MC and Tobin's Q and non-diversifiable risk (beta).

Tobin's Q has been calculated, according to the approximate and simplified model of Chung and Pruitt (1994):

$$Q = MVS + D/TA$$

where MVS is MV of shares negotiated in the stock exchange (action price × quantity of shares); D is short-term debt minus the more liquid net assets plus the higher value of long-term debt, which is defined as:

$$D = BVCL - BVCA + BVI + BVLTD$$

where BVCL is book value of current liabilities; BVCA is book value of current assets; BVI is book value of inventories; BVLTD is book value of long-term debt; and TA is total assets of the company.

Data have been tabulated and analyzed by statistical software SPSS test-version 20.0.

Procedures for Data Analysis

For data analysis, those were submitted to a multiple linear regression analysis, which is a statistical technique able to fulfill the desired goal, since according to Gujarati (2006), it is a technique for verifying the relation among a dependent variable and two or more independent variables.

As in this study, there are six variables to be predicted and six econometric models have been used. Each one considering the following dependent variables: ROA, ROE, and NP as accounting indexes and MV (MC), MV (Tobin's Q), and risk (beta) as market variables. The scores of SP, EP, and the size were treated as independent variables in all models. Inserting those variables in the model of multiple regression, the following model was found:

$$ROA = \beta_0 + \beta_1 SP + \beta_2 EP + \beta_3 TA + \varepsilon$$

Where ROA is return on assets (for the other models consider: ROE, NP, MV (MC and Tobin's Q), and risk (beta); β_0 is intercept; β_1, β_2, and β_3 are angular coefficients; TA is total assets (size); and ε is error.

The performance of multiple linear regression for treating the data requires the fulfillment of some assumptions. For this reason, some care has been taken, as indicated by Field (2009). The independent variables were quantitative with nonzero variance and the dependent variables were quantitative, continuous, and not limited. The normality of residues from dependent variables has been: tested by Kolmogorov-Smirnov's test; correlations by zero-order correlations, "partial", and "in parts"; and collinearity by tolerance, variance inflation factor (VIF), and index of condition and proportion of variances, besides analysis of residues. Generally, it is possible to assert that there were no serious problems of multi-collinearity in the base.

The Effects of Modeling Variables

Hypothesis testing H1 (ROE). Hypothesis "a" refers to the contribution of SP and EP to improving the financial performance, measured by ROE.

$$\text{Model: ROE 2012} = \text{SP 2011} + \text{EP 2011} + \text{Size 2011} + \varepsilon \text{ (period 2011/2012)}$$

At first, the predictive power of the proposed model has been evaluated regarding the measurement of the influence of SP and EP. It has been possible to find that the proposed model of SP and EP explains 82.6% (R^2 adjusted) of the ROE variability. Although *F*-test of variance analysis (ANOVA) has not appointed for the global significance of predictors at the level of 5%, *t*-test had significance for the variable EP. Thus, it has been possible to note that as one unity of EP is increased, ROE increased by approximately 0.03 unities, in average, and

this is a significant positive relation, since the value of *p* (0.038) was lower than 0.05. SP establishes a negative relation, in other words, while SP increases one unity, ROE falls in average 0.005, however, it is not possible to assert, statistically, that this is a significant relation (*p*-value = 0.566), according to Table 2.

As for the magnitude of standardized coefficients, it is possible to note that EP is the most important variable for the model, confirming the findings now described.

Model 1: ROE 2013 = SP 2012 + EP 2012 + Size 2012+ ε (period 2012/2013)

Table 2

Estimate of Parameters, Standard Error and Hypothesis Testing—ROE 2012

Model		Unstandardized coefficients		Standardized coefficients	*T*	*p*-value
		B	Standard error	Beta		
1	(Constant)	-0.909	0.423		-2.146	0.165
	AT 2011	-1.246E-010	0.000	-0.171	-0.745	0.534
	DS 2011	-0.005	0.007	-0.156	-0.682	0.566
	DA 2011	0.027	0.005	0.934	4.970	0.038

Analyzing the period of 2012-2013, the predictive capacity of the model has been also verified, by means of the determination coefficient, which indicated that 19.2% of ROE variation is explained by the proposed model. According to *F*-test of the ANOVA, it has not been possible to assert the global significance of predictors at the level of 5%. Analyzing the coefficients individually, it follows that: SP has a positive relation with ROE, by rising SP in one unity, ROE raises in average 0.014 unities, however, it is not possible to assert the statistical significance of this relation, as demonstrated by Table 3.

Table 3

Estimate of Parameters, Standard Error and Hypothesis Testing—ROE 2013

Model		Unstandardized coefficients		Standardized coefficients	*T*	*p*-value
		B	Standard error	Beta		
1	(Constant)	-1.131	0.555		-2.038	0.072
	AT 2012	3.308E-010	0.000	0.426	1.302	0.225
	DS 2012	0.014	0.008	0.494	1.702	0.123
	DA 2012	0.015	0.007	0.641	2.105	0.065

Confirming the tendency of the previous year, supposing a raise EP of one unity, ROE is improved in average by 0.015 unities, thus EP continues to be positively related with ROE, however for the period being analyzed, *p*-value positioned in a region of difficult decision (*p*-value = 0.065), because it was slighter higher than 0.05. Analyzing the relative importance of the standardized coefficients for the model, independent of measurement scale, the importance of the variables for the model are similar, however, EP has a slightly higher coefficient.

Analyzing the two periods, it is not possible to assert the possible existing relation between SP and economic-financial performance, measured by ROE, since the nature of this relation diverged on both periods and none of the was statistically significant, leading to reject hypothesis H0a. Kang et al. (2010) also did not find relation between CSR and ROE, confirming those results. However, CSR measurement used by those authors includes social and environmental aspects. Regarding the EP, statistically, there are indications that it contributes to improving the ROE, in other words, the economical financial performance, thus leading to reject

hypothesis H0a'. This result corroborates with findings of Niitsu (2012) that EP explains the variation of financial performance.

Hypothesis testing H2 (ROA). Hypothesis "b" refers to the contribution of SP and EP to improving financial performance, measured by ROA.

Model 2: ROA 2012 = SP 2011 + EP 2011 + Size 2011+ ε (period 2011/2012)

It has been possible to find that 39.1% of ROA performance is explained by the three independent variables together.

Analyzing the influence of parameters, it has been possible to perceive that the nature of the relation between SP and ROA is inverse, in other words, this one falls in average 0.003 unities at each increase of one unity in SP, according to data from Table 4.

Table 4

Estimate of Parameters, Standard Error and Hypothesis Testing—ROA 2012

Model		Unstandardized coefficients		Standardized coefficients	*T*	*p*-value
		B	Standard error	Beta		
2	(Constant)	-0.193	0.309		-0.623	0.597
	AT 2011	-1.447E-010	0.000	-0.507	-1.184	0.358
	DS 2011	-0.003	0.005	-0.228	-0.532	0.648
	DA 2011	0.008	0.004	0.721	2.050	0.177

In the case of EP, at each unity added in EP, ROA also increase in average by 0.008 unities. However, none of those relations have statistical significance, since their *p*-values were higher than 0.05. Due to the measurement scale of variables, the standardized coefficients should also be analyzed, in order to verify the magnitude with which they contribute for the model. In this specific case, EP continues to be the most important one for the model.

Model 3: ROA 2013 = SP 2012 + EP 2012 + Size 2012+ ε (period 2012/2013)

Testing the influence of SP and EP over the ROA of 2013, a coefficient of determination (R^2 adjusted) of 0.274 has been verified, meaning that 27.4% of the ROA variability is explained by the set of independent variables.

By the specific analysis of parameters, presented in Table 5, it has been possible to perceive that, differently from the previous result, the nature of the relation between SP and ROA was configured as positive. This means that this one raises 0.004 unities in average, at each increase of one unity in SP. It is worth to highlight that this relation is not significant statistically speaking. In the case of EP, at each unity increased in EP, an increase in ROA of 0.06 unities in average is observed, this being a statistically significant relation at the level of 5%, which is corroborated with the reading of the standardized coefficient, indicating that EP is the most important independent variable for the model.

Table 5

Estimate of Parameters, Standard Error and Hypothesis Testing—ROA 2013

Model		Unstandardized coefficients		Standardized coefficients	*T*	*p*-value
		B	Standard error	Beta		
3	(Constant)	-0.398	0.188		-2.111	0.064
	AT 2012	5.221E-011	0.000	0.188	0.605	0.560
	DS 2012	0.004	0.003	0.371	1.349	0.210
	DA 2012	0.006	0.002	0.694	2.403	0.040

In face of results, it is noted that it is not possible to assert the existing relation between SP and economic-financial performance, measured by ROA, since the nature of this relation was divergent and none of them was statistically significant, which implies that hypothesis H0b is not rejectied. Kang et al. (2010) have not found relation between CSR and ROA, confirming those results, however, the measurement of CSR used by the authors includes social and environmental aspects. Campillo et al. (2013) despite using expenses with social work as a measurement of RSC, had a divergent result from this study, because it proves negative the relation between CSR and ROA. Regarding the EP, it is possible to say that it contributes to improving the financial performance, using as proxy the ROA, since in both periods, the nature of the relation was positive and in one of them, its significance can be corroborated. This way, it is possible to reject hypothesis H0b'. Lo et al. (2012) also corroborated this relation.

Hypothesis testing H3 (NP). Hypothesis "c" refers to the contribution of SP and EP to improving financial performance, measured by NP.

Model 4: NP 2012 = SP 2011 + EP 2011 + Size 2011+ ε (period 2011/2012)

As NP values are high, when compared to SP and EP, a problem of scale was created. For that reason, it has been necessary to divide this variable by 1.000, for the hypothesis testing, not implying in differences on the result.

Evaluating the predictive power of the proposed model to measure the influence of SP and EP on NP, it has been verified that 99.6% of NP variability may be explained by TA, SP, and EP. *F*-statistic of ANOVA is significant, demonstrating that at least one of the predictors is important for the model (*p*-value: 0.002) as shown in Table 6.

Table 6

Estimate of Parameters, Standard Error and Hypothesis Testing—NP 2012

Model		Unstandardized coefficients		Standardized coefficients	*T*	*p*-value
		B	Standard error	Beta		
4	(Constant)	-1,134.502569	1,150.525785		-0.986	0.428
	AT 2011	0.000013	0.000	0.988	29.067	0.001
	DS 2011	-12.820014	19.963093	-0.022	-0.642	0.587
	DA 2011	39.294839	14.833533	0.074	2.649	0.118

Estimating the parameters, it has been possible to detect a relative relation between SP and NP and a positive relation between EP and NP. For each unity that SP increases, NP decreases in average 0.012 unities and for each unity of EP, NP increases in average 0.039 points. However, it has not been possible to assert the statistical significance of those relations. The standardized coefficient of control variable (TA) is much higher than the other independent variables, demonstrating to be the most important one for the model being analyzed.

Model 5: NP 2013 = SP 2012 + EP 2012 + Size 2012+ ε (period 2012/2013)

Again, as a procedure to eliminate the problem of scale, the division of NP by 1.000 has also been adopted.

Evaluating the predictive capacity of the model, it has been detected that 80.7% (R^2 adjusted) of NP variability is explained by the proposed model, according to data of Table 7.

This high level of explanation of the determination coefficient is ratified by ANOVA, because it demonstrates that at least one of the independent variables are important for the model (*p*-value: 0.00).

Table 7

Estimate of Parameters, Standard Error and Hypothesis Testing—NP 2013

Model		Unstandardized coefficients		Standardized coefficients	*T*	*p*-value
		B	Standard error	Beta		
5	(Constant)	-17,433.001	5,811.785		-3.000	0.015
	AT 2012	1.876E-005	0.000	1.129	7.047	0.000
	DS 2012	225.462	84.389	0.379	2.672	0.026
	DA 2012	159.326	74.424	0.319	2.141	0.061

The estimate of individualized parameters indicates that SP and EP are positively related with financial performance, from the perspective of NP. The relations presented may even be asserted as statistically significant, because *p*-values were 0.026 and 0.061. The last one positioned in a zone of difficult decision.

It has been found that SP contributed to improving the economic-financial performance measured by NP, taking as the basis the result of 2012/2013 period, which was statistically significant. In the case of EP, it is possible to statistically infer that it contributes to improving NP. Thus, it is possible to reject the pair of hypothesis H0c. It is understood that this finding is explained by the stakeholder theory.

Hypothesis testing H4 (VM-CB). Hypothesis "d" refers to the contribution of SP and EP to improving financial performance, measured by MC as a proxy of MV.

Model 6: MV 2012 = SP 2011 + EP 2011 + Size 2011+ ε (period 2011/2012)

Due to the high values of MV, a problem of scale has been created. Thus, it has been opted to divide each one of the values by 1.000. It has been possible to find that the proposed model of SP and EP explains 79.5% (R^2 adjusted) of MV-MC variability. By means of ANOVA, it has been possible to find that at least one of the independent variables is considered to be statistically important for the model, due to *p*-value equal to 0.025, as presented in Table 8.

Table 8

Estimate of Parameters, Standard Error and Hypothesis Testing—MV (MC) 2012

Model		Unstandardized coefficients		Standardized coefficients	*t*	*p*-value
		B	Standard error	Beta		
6	(Constant)	-11,987.940	29,479.761		-0.407	0.705
	AT 2011	6.301E-005	0.000	0.796	4.138	0.014
	DS 2011	-601.621	464.696	-0.257	-1.295	0.265
	DA 2011	907.610	517.376	0.312	1.754	0.154

As for the relation established between SP, EP, and economic-financial performance, once again it has been found that there is a negative relation between SP and economic-financial performance and a positive one in the case of EP, however, there is no way to statistically assert the significance of such relations.

Model 7: MV 2013 = SP 2012 + EP 2012 + Size 2012+ ε (period 2012/2013)

The values were divided by 1,000,000, due to the problem of scale caused by their high values regarding SP and EP.

The coefficient of determination indicates that the independent variables of the model explain 50.4% (R^2 adjusted) of MV-MC variability. By means of ANOVA, it has been possible to find that at least one of the independent variables is considered as statistically important for the model, due to the *p*-value, 0.025, being under 0.05.

As for the relation established between SP and economic-financial support, once more it has been found that there is a negative relation and in this case statistically significant (*p*-value: 0.013). These results corroborate the reading for the standardized coefficients that SP is the most important variable for the model. EP is positively related to financial performance, measured by MC, however, according to data from Table 9, there is no way to statistically assert the significance of this relation (*p*-value: 0.958).

Table 9

Estimate of Parameters, Standard Error and Hypothesis Testing—MV (MC) 2013

Model		Unstandardized coefficients		Standardized coefficients	*t*	*p*-value
		B	Standard error	Beta		
7	(Constant)	173,944.915	98,718.560		1.762	0.112
	AT 2012	3.227E-005	0.000	0.183	0.714	0.493
	DS 2012	-4,458.134	1,433.424	-0.707	-3.110	0.013
	DA 2012	68.112	1,264.169	0.013	0.054	0.958

Source: Research data in 2014.

In face of those results, it is possible to decide about not rejecting hypothesis H0d, since SP does not contribute to improving MV, even demonstrating the relation as statistically significant in the second period of analysis. As for EP, it is possible to see that it is positively related with MV, but there are not enough evidence sustaining the rejection of H0d'. Thus, those findings when compared to the ones of Lourenço et al. (2012) are divergent, because the authors assert that the performance of corporate sustainability explains the market value of companies.

Hypothesis testing H5 (Tobins's Q). Hypothesis "e" refers to the contribution of SP and EP to improving MV, measured by Tobin's Q.

Model 8: Tobin's Q 2012 = SP 2011 + EP 2011 + Size 2011+ ε (period 2011/2012)

It has been possible to find out that the proposed model, presented in Table 10 of SP and EP explains 19.6% (R^2 adjusted) of MV variability (TOBIN'S Q). When financial performance is considered, measured by Tobin's Q, the nature of the relations remains: It relates negatively with SP and positively with AP, however, there is no way to assert the statistical significance of those mentioned relations because of *p*-values higher than 0.05.

Table 10

Estimate of Parameters, Standard Error and Hypothesis Testing—VM-Tobin's Q 2012

Model		Unstandardized coefficients		Standardized coefficients	*t*	*p*-value
		B	Standard error	Beta		
8	(Constant)	-1.760	7.384		-0.238	0.823
	AT 2011	-5.108E-009	0.000	-0.510	-1.339	0.252
	DS 2011	-0.161	0.116	-0.544	-1.383	0.239
	DA 2011	0.214	0.130	0.582	1.654	0.173

The coefficients show that increasing one unity of SP, the MV, measured by Tobin's Q, regresses in average 0.16 unities and raising one unity of EP, Tobin's Q increases in average 0.2 unities. The standardized values have approximately the same magnitude, indicating that the variables have similar levels of relevance.

Model 9: Tobin's Q 2013 = SP 2012 + EP 2012 + Size 2012+ ε (period 2012/2013)

The proposed model explains only 5.3% (R^2 adjusted) of market value variability measured by Tobin's Q, as Table 11 demonstrates.

Table 11

Estimate of Parameters, Standard Error And Hypothesis Testing—VM-Tobin's Q 2013

Model		Unstandardized coefficients		Standardized coefficients	*t*	*p*-value
		B	Standard error	Beta		
9	(Constant)	-2.205	2.675		-0.824	0.431
	AT 2012	-2.774E-010	0.000	-0.080	-0.226	0.826
	DS 2012	0.016	0.039	0.128	0.407	0.694
	DA 2012	0.050	0.034	0.480	1.455	0.180

In this case, both SP and EP are positively related with market value (Tobin's Q), however, those relations are not statistically significant and the most important variable for the model is EP.

Taking as reference, both periods being analyzed, EP remains positively related with Tobin's Q and SP has conflicting behavior. It is important to highlight that it has not been possible to statistically assert any of the relations. Thus, the pair of hypothesis H0e is not rejected, what is not explained by the stakeholder theory. Kang et al. (2010) had similar results when considering air companies. Wabda's study (2008) diverged from that one, since it evidences that CSR determinates the market value measured by Tobin's Q.

Hypothesis Testing H6 (Beta). Hypothesis "f" refers to the contribution of SP and EP to improving MV, measured by non-diversifiable risk.

Model 10: Beta 2012 = SP 2011 + EP 2011 + Size 2011+ ε (period 2011/2012)

The predictive capacity of the proposed model to measure the influence of SP and EP of 2011, on risk, measured by beta of 2012 was 23.3% (R^2 adjusted), according to data from Table 12

Table 12

Estimate of Parameters, Standard Error and Hypothesis Testing—Beta 2012

Model		Unstandardized coefficients		Standardized coefficients	*t*	*p*-value
		B	Standard error	Beta		
10	(Constant)	1.831	1.340		1.366	0.244
	AT 2011	1.012E-009	0.000	0.543	1.461	0.218
	DS 2011	0.023	0.021	0.413	1.076	0.342
	DA 2011	-0.041	0.024	-0.599	-1.741	0.157

When economic and financial performance, measured by risk, is considered, the nature of relations is reversed: As SP increases (1 unity), beta also increases in average 0.02 unities. When EP increases (1 unity), beta decreases in average 0.04 unities. In other words, EP contributes to improving risk, but SP doesn't, corroborating previous findings. However, it is not possible to infer the statistical significance of those relations, as pointed by *p*-values.

Model 11: Beta 2013 = SP 2012 + EP 2012 + Size 2012+ ε (period 2012/2013)

The explanation of BETA by the independent variables has been found to be negligible.

Analyzing the non-standardized coefficients presented in Table 13, it has been found that as SP increases (1 unity), beta also increases (0.07); when EP increases (1 unity), beta decreases in 0.033 unities. In other words, EP contributes to improving risk, while SP does not, corroborating most of the previous finding.

However, it is not possible to infer the statistical significance of those relation, as pointed by *p*-values. Besides, it is important to highlight that due to the measurement scales, the independent variables considered have similar magnitudes regarding the model.

Table 13

Estimate of Parameters, Standard Error and Hypothesis Testing—Beta 2013

Model		Unstandardized coefficients		Standardized Coefficients	*t*	*p*-value
		B	Standard Error	Beta		
11	(Constant)	0.267	4.263		0.063	0.951
	AT 2012	5.746E-010	0.000	0.110	0.294	0.775
	DS 2012	0.074	0.062	0.398	1.203	0.260
	DA 2012	-0.033	0.055	-0.211	-0.609	0.558

Analyzing both periods, it is perceptible that EP contributes to improving risk, while SP does not contributes positively. However, it has not been possible to find those relations statistically, leading to not reject the pair of hypothesis H0f. This verification finds theoretical support in the shareholder theory. However, Kim et al. (2014) went against this study, confirming that CSR attenuates risk.

For all tested models, correlations of zero-order, trivial, and partial had not declined abruptly, indicating that all variables are important for the models. The rates of tolerance, all above 60%, demonstrate that there are no problems of multi-collinearity. VIF also confirms absence of multi-collinearity in the independent variables of the model, since their values were near 1. By collinearity diagnosis, the indexes of condition and proportion of variances have been observed, ratifying the absence of multi-collinearity problems in the model.

Synthetically, it is possible to conclude that CSR, measured by EP, contributes to improving the economic-financial performance, measured by ROE, ROA, and NP. When measured by SP, this one contributes only to improving NP. Considering the economic-financial performance, from market metrics, it is not possible to suppose, statistically, that CSR contributes to improving them.

Conclusions

Results allow to assert, statistically, that for the used sample, EP contributes to improving the economic-financial performance, measured by all accounting metrics used: ROE, ROA, and NP. Statistically, it is only possible to assert that SP contributes to improving NP. When economic-financial performance is measured from market metrics, neither of the null hypothesis raised was rejected, in other words, in any of the cases, it has been possible to assert, at the level of statistical significance of 5%, that SP and EP contribute to improving the MV and systemic risk. This result is in line with the findings of Borba (2005).

This result appoints to an important discussion that the market has not been influenced by social and environmental corporate information, reinforcing the conception of inefficiency of the Brazilian market. However, accounting is emerging as a major concern in trying to integrate social and economic aspects to the routines of organizations, thus giving its collaboration, while science, for the sustainable development. Therefore, the need is latent that accounting professionals, in the figure of professional bodies (Federal Accounting Council and Regional Accounting Councils), discuss in depth the theme in order to consolidate, within the category, the importance of CSR practices for contemporary organization, the impact of those practices in the financial performance, and the role of accountability in this scenario, of identifying, measuring, and evidencing information in line with demands from their users. This idea is based on perceptions from

Hopwood and Miller (1994) that accounting practices are not neutral.

Thus, it is understood that this research contributed to the academy, corporations, and society as a whole, because the value of non-financial information has been empirically verified, specifically the ones of social and environmental nature in Brazilian environment. Besides, this investigation also provides additional empiric evidences about the occurrence, nature, and significance of the relation between CSR and financial performance of companies, as well as about the potential of the stakeholder theory in explaining Brazilian reality, regarding CSR and financial aspects from the perspective of accountability and stakeholder theory in explaining this relation, when visualized with the help of market metrics.

The sample size of this study is a much reduced one, therefore, the results evidenced here are restricted to the investigated companies. Another limitation of the study is about the period of analysis, under five years, which was defined because of data availability.

In face of that, it is suggested that new researches are performed, so that the theme continues in evolution and so, one day it will be possible to categorically assert the relation. Until then, mysterious between CSR and economic-financial performance will be it measured by accounting or market metrics. As a growing tendency of companies, which are part of the ISE portfolio, allowing access to the annual questionnaire has been verified, it is recommended to replicate this research, when the access to answers from a larger number of companies will be possible.

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