Social Disclosure and Cost of Equity in Public Companies in Brazil*

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ABSTRACT

This study aims to analyze the relationship between the level of social disclosure and the cost of equity in public companies in Brazil. The hypothesis is that external social programs promoted or supported by a company increase the organization's reputation, compensate for externalities and bring economic benefits through the negative relationship with the cost of equity. To test this hypothesis, social responsibility reports of 83 companies listed on the São Paulo Stock, Mercantile and Futures Exchanges (Bolsa de Valores, Mercadorias e Futuros de São Paulo - BM&FBovespa) from the period 2005-2009 were collected and analyzed. A composite index of 13 indicators was used to evaluate the social disclosure level of the companies analyzed. The cost of equity was risk-adjusted using the capital asset-pricing model (CAPM) and regression tested using panel data with cross-sectional fixed effects. The results show a negative relationship between the cost of equity and level of social disclosure, indicating that the Brazilian stock market has a semi-strong form of market efficiency.

Keywords: Social disclosure. Cost of equity. External social programs. Brazilian companies. Market efficiency.

1 INTRODUCTION

The search for greater acceptance and recognition by society and investors leads enterprises to perform a number of actions to become more transparent and to promote economic and sustainable development. The negative impacts of corporate actions are mitigated by a combination of alternative solutions in the corporation's operational processes and programs that seek to offset the negative impacts generated in the local community. These solutions are known as social programs.

Social programs are an alternative for companies in search of greater acceptance by providing compensation for the generation of externalities and by promoting an image associated with actions that may be considered socially responsible (Baron, 2001; Orlitzky & Benjamin, 2001; Heal, 2004; Mcwilliams, Siegel, & Wright, 2006; Udayasankar, 2008). It may be inferred, therefore, that such actions should at least in part help companies to fulfill their contract with society, also known as the social contract (Ramanathan, 1976), and thus to achieve greater acceptability not only in the local community but also in terms of the potential consumers of the companies.

However, it is important to note that the realization of social programs is beyond the scope of the objective function for which companies were created (Sternberg, 1999), which, in turn, can generate uncertainty regarding how resources allocated by investors are being managed (Hillman & Keim, 2001; Brigham, Gapenski, & Ehrhard, 2001). Peliano et al. (2002, 2006) confirm this scenario in indicating that most Brazilian companies do not have any systems that assess the impact of their social actions, nor do they show any desire to identify the relationship of these actions with their strategic objectives or provide an individual budget for these actions. Machado Filho and Zylbersztajn (2003) found for a sample of Brazilian companies that such companies now perform these actions to reduce reputational risk[1], although they lack a systematic method for evaluating the performance of the social activities developed or the value generated by such activities. These results thus corroborate the results of Peliano et al. (2002, 2006) in identifying that the choice of action has no relationship with the strategic objectives of the company, and there are no structures, either formal or informal, that give adequate support to the implementation of social responsibility or monitoring.

Note that companies, although gradually increasing the amount of resources invested into social programs and becoming increasingly preoccupied with performing such actions, still need to put better planning and monitoring in place for the actions they purport to perform or finance. This niche is where monitoring and control

mechanisms should serve as instruments for reducing uncertainty, in particular, the process of accountability that, from the perspective of foreign investors, can be accomplished through accounting reports.

Social disclosure serves as a communication channel between the company and community, disclosing the social responsibility initiatives undertaken, both internal and external. For Williams (1980), Riahi-Belkaoui and Korpik (1988), Epstein and Freedman (1994) and Gray, Javad, Power and Sinclair (2001), social disclosure is defined as an instrument of dialogue and relationship between the company and society, including factors of an internal, ethical and discretionary nature, which are voluntary actions. According to Orlitzky and Benjamin (2001), Jensen (2001) and Saiia, Carroll and Buchholtz (2003), corporate social responsibility actions and consequently their disclosure in social reports are important items to consider in business strategy because they serve as tools for improving organizational image.

According to research by KPMG, there is a growing number of companies concerned with the disclosure of their social actions through company reporting. Of all the companies surveyed in 2005, a total of 50% included accountability practices for their social actions. This figure reached 80% in 2008 (KPMG International, 2008).

In Brazil, actions are reported using social accounting, based on the Brazilian Institute of Social and Economic Analyses (Instituto Brasileiro de Análises Sociais e Econômicas - IBASE) initiatives introduced in the second half of the 1990s. Social accounting is a mechanism used by companies to make their intentions and commitments public, seeking transparency in their actions in the exercise of corporate social responsibility by presenting qualitative and quantitative information (Zarpelon, 2006).

According to IBASE, "the idea of social accounting is to qualitatively and quantitatively demonstrate the role played by enterprises at a social level, both internally and in their role in the community" (IBASE, 2012). The corporate sustainability report, corporate social accounting, social report and social-environmental report are other names used by organizations, experts and scholars for the means of disclosure of information about the organization's situation in relation to social and environmental issues (Oliveira, 2008).

According to Pires and Silveira (2008), the disclosure of information of a social nature entails a reallocation of accounting as organizations seek to meet the needs of society. Organizations are aware that in addition to being profitable and acting in a socially and environmentally responsible manner, there is a need to pass these values to stakeholders; therefore, companies seek

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[1] The authors work with the idea that companies undertaking social responsibility activities can gain reputational capital, leveraging business opportunities, reducing potential risks of their conduct in the market and preserving or generating increased value for the company. In this context, reputational risk is related to the fact that the company lives with factors, internal and (or) external, that may harm the image of the organization.

to provide economic and financial information as well as information associated with their social and environmental actions. This information can be added to traditional accounting reports (balance sheet, statement of income, explanatory notes and management report, etc.) and/or disclosed in specific reports (statement of added value, social accounting, environmental report, etc.). Moreover, as Borba and Nazario (2003) note, traditional financial statements could and should include traditional information of a social and environmental nature because this information may impact the organization's assets and financial and economic situation.

Considering this scenario, it appears that the disclosure of social actions has played or may play a strategic role in organizations because such actions depict not only the company's vision of social responsibility but also, and most importantly, how the programs that the company has developed or financed contribute to the development of society. Accordingly, for companies to survive in the long term, they should incorporate practices that take into account the interests of society or stakeholders (e.g., Jensen, 2001; Saiia, Carroll, & Buchholtz, 2003; Smith, Adhikari, & Tondkar, 2005).

From the perspective of accountability, social disclosure benefits a company because investors have more information about the company activities, which provides greater reliability for the market, creating a virtuous cycle (e.g., Anderson & Frankle, 1980; Gray, Javad, Power, & Sinclair, 2001; Poddi & Vergalli, 2009). However, this assumption has not been sufficiently investigated, nor does it mesh comfortably with academic research. Richardson and Welker (2001) found that the market receives information regarding social responsibility in a positive way once the company guarantees the performance and profitability expected in the period.

Riahi-Belkaoui and Karpik (1988) and Riahi-Belkaoui (2004) argue that as companies increase the volume and quality of information, including that of a social nature, uncertainties regarding the use of business resources tend to decrease, causing greater investor confidence, who by allocating resources are willing to charge a lower premium for capital risk when investing in companies considered to be more transparent. Silva and Quelhas (2006), Poddi and Vergalli (2009) and Dhaliwal, Li, Tsang and Yang (2011) found that the cost of equity is lower for companies that participate in funds considered socially responsible or those evidencing

their social practices. This situation is likely to occur in stock markets that are considered efficient because investors include all publicly available information in the value of the asset, as is the case of markets classified as having semi-strong efficiency (Fama, 1970). However, in the case of the Brazilian stock market, one cannot say that this market is classified as having semi-strong efficiency or that social programs and accountability regarding such programs are seen as instruments for reducing externalities.

Given that social actions have received increased attention from organizations, in aspects related to resource allocation and in seeking improvements in their disclosure practices, the general goal of this study is to analyze the relationship between the level of social disclosure and the cost of equity in public companies in Brazil.

The study is justified not only by the importance of social disclosure itself but also by the lack of research seeking to understand the effects of social disclosure, particularly those relating external social programs to the cost of equity in Brazilian companies. In seeking to identify evidence of a negative relationship between social disclosure and cost of equity in Brazilian companies, this work may also help to evaluate the perception of the stock market regarding managers' behavior in their discretionary actions.

Studies are still scarce on this theme (e.g., Richardson & Welker, 2001; Orlitzky & Benjamin, 2001; Poddi & Vergalli, 2009; Dhaliwal, Li, Tsang, & Yang, 2011; Reverte, 2012; Ng & Rezaee, 2012), particularly in emerging markets (e.g., Rover & Murcia, 2010; Gana & Dakhlaoui, 2011). This research therefore moves beyond previous studies in that it specifically examines the effect of the disclosure of external social programs on the cost of equity. This approach is relevant because such programs do not have a direct relationship with the company's operating activities, which could be construed as a misuse of economic and financial resources (e.g., Carr & Outhwaite, 2009).

In addition, if a negative relationship between the level of social disclosure of external social programs and the cost of equity is found, this result would indicate that such actions can help to counteract the negative effects of an organization's operational activity (externalities) by improving the company's reputation (Zylbersztajn Machado Filho, 2003).

2 THEORETICAL BASIS

The social costs inherent in business activities can be borne by the organization itself (private costs) or "transferred" to society (externalities). Due to legal requirements, some of these costs fall to the company. However, there are other potential costs, such as external social programs, that the company has the discretion to pay or not. If the com-

pany chooses to pay for external social programs, conflicts between the company and society are expected to be avoided or at least minimized, which provides benefits such as reduced risk, improved relations with regulators, increased productivity and lower cost of capital (e.g., Heal, 2004).

Social disclosure is the route used by organizations

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to bring relevant information about their social programs to market. According to Richardson and Welker (2001), there are two reasons why companies adopting social disclosure should benefit from a lower cost of equity: first, greater social disclosure makes it possible to reduce transaction costs with investors, resulting in greater market liquidity and greater demand for the company's shares (Diamond and Verrecchia, 1991), and second, greater social disclosure can reduce the estimation or uncertainty risk regarding the distribution of company stock returns (Clarkson, Guedes, & Thompson, 1996). Greater transparency via social disclosure therefore reduces information asymmetry between company and investors, which increases the demand for company shares by improving perceived risk and reducing share volatility.

However, different perceptions of performing or promoting social programs and the controversial results of studies to date have led to a great variety of opinions on how companies should behave. According to Jensen et al. (1972, p. 339), the "social program is a plan of action, an experiment introduced into society for the purpose of producing a change in the status of the society or some of its members". From this perspective, social programs are seen as instruments that seek to offset the externalities caused by operating activities (Heal, 2004), which, in turn, allows society to evaluate the company from a perspective that is not related the company's operating activities. This process means that the company can gain greater acceptance from those who are negatively impacted by its activities (Orlitzky & Benjamin, 2001).

However, for Coase (1960), the fact that companies cause externalities as a result of operations they conduct that are within legal parameters is, by itself, reason enough for the companies not to have to bear additional costs of their activities because to do so would be harmful to business activity. These additional costs, which are transaction costs, are not needed and ultimately reduce the company's competitiveness (Coase, 1937). For Wink Jr., Sheng, and Eid Jr. (2011), market imperfections (that is, transaction costs) have been the subject of intense debate in the economics field since the second half of the 1920s. While for Arrow (1969), transaction costs are the costs of the operating system of the economy, for Furubotn and Richter (1997), transaction costs are those resulting from the creation, operation, maintenance and modification of institutions.

Given this ambiguity, many studies on the exercise of accounting have been developed to seek answers regarding the role of accounting as an instrument of communication between companies and external users (Jensen et al., 1972; Estes, 1972). For Ramanathan (1976), the role of corporate social accounting, conducted through social disclosure reports, is to go beyond providing information about social responsibility actions taken by the company or serving as a tool in the relationship between business and society and should also contain useful information characterized

by aspects such as company a) goals, b) policies, programs and performance and c) contributions to social objectives. It is therefore expected that social reports possessing such characteristics may contribute to the decision-making of the external user and also provide proper accountability of resource allocation.

Within this background, the question of the impact of such actions taken by companies pervades accounting research, and research has therefore been conducted (e.g., Anderson & Frankle, 1980; Cochran & Wood, 1984; Riahi-Belkaoui & Karpik, 1988; Waddock & Graves, 1997) considering actions taken by businesses on society in terms of the action's impact and their cost/benefit, combining financial and social variables. Few studies have sought to understand these effects based on the cost of funding, especially in regard to emerging markets, such as Brazil. One of the first studies on the subject was conducted by Richardson and Welker (2001), who found a positive relationship between the cost of capital and increased social disclosure. Orlitzky and Benjamin (2001) found evidence that social disclosure has a negative relationship with the cost of equity as estimated by the capital asset-pricing model (CAPM). Dhaliwal et al. (2011), in a time-series analysis of 15 years with a sample of 213 U.S. companies, also presented evidence that the level of social disclosure, when tested in conjunction with other variables, has a negative relationship with the cost of capital of those companies. However, this pattern has only occurred in companies with a high level of social disclosure. In a sample of Spanish firms, Reverte (2012) found that in organizations that had greater social disclosure, there was a negative relationship with the cost of equity, particularly in companies categorized as being in sectors sensitive to the environment.

The study by Ng and Rezaee (2012) demonstrates that not only does the voluntary disclosure of this information have a negative relationship with the cost of equity and third-party capital but also the firms that voluntarily disclose this information have greater coverage by analysts, corroborating the findings of Dhaliwal et al. (2011). Rover and Murcia (2010) analyzed the 100 largest non-financial Brazilian firms in the period 2006-2008 and found that the level of voluntary disclosure, which included social information, was associated with a higher cost of capital. However, it is not possible to draw conclusions from this study about the effect caused by social information alone because social information was analyzed together with other voluntary information. Aligned with Rover and Murcia's (2010) results, in a sample of Tunisian companies, Gana and Dakhlaoui (2011) concluded that the cost of equity is higher in firms that have a higher level of disclosure, while the cost of funding is lower in those with a lower level of disclosure. The results of these studies demonstrate the need for better research and understanding of the effects of such information because they counter the more recent results found in markets that

are considered developed (e.g., Dhaliwal et al., 2011; Reverte, 2012).

In general, the studies mentioned depart from the efficient market hypothesis (EMH) according to which, under ideal conditions, the market value of an asset (share) reflects all available information (Fama, 1970). In this scenario, Scott (2009) believes that market efficiency should encourage businesses to provide full disclosure, with companies readily securing and pursuing both quantity and quality of information to be shown.

With regard to the development of social disclosure, the hypothesis underlying this action is that social programs are instruments that compensate for a company's externalities, promoting an improvement in corporate image and hence having a negative relationship with the cost of funding (Richardson, Welker, & Hutchinson, 1999; Heal, 2004; McWilliams, Siegel, & Wright, 2006).

Based on this perspective, this paper analyzes the behavior of the level of social disclosure and the cost of equity in the Brazilian market, and the hypothesis to be tested in the study can be defined as follows:

H_1 - There is a negative relationship between social disclosure and the cost of equity for public companies in Brazil.

3   METHODOLOGY

The initial sample comprising the object of study is formed by companies listed on the BM&FBovespa. Considering the underlying purpose of the research, which is to evaluate social disclosure concerning discretionary actions that impact the community, companies owning or sponsoring social programs in the period 2005-2009 were identified.

Stock-market liquidity data in the period December 2005 to December 2009, provided by the Economática® system, was used as a filter for company selection. This filter was used because the aim of the present study is to evaluate social disclosure in relation to the cost of equity, consisting primarily of market variables, and the behavior of stocks with low market liquidity could distort the results because the prices of these assets would not reflect normal pricing, causing bias in the estimate of the cost of equity. The criterion adopted to select companies was therefore a liquidity indicator exceeding 0.001. In addition, the occurrence of mergers was ascertained by reading annual reports, and these companies were eliminated from the study because of the substantial changes resulting from their patrimonial structures.

Due to the restrictions adopted, the sample used to perform the empirical study comprised 83 companies, participating in 18 of the 20 sectors classified in the Economática® system.

The level of social disclosure was measured using an index of 13 indicators that evaluates social information relating to external social programs, based on the studies of Ramanathan (1976), Haydel (1989), and Hammond and Miles (2004). This social disclosure index aims to evaluate information of a social nature, specifically discretionary actions undertaken by enterprises through social programs in the community. The focus on this type of information is especially useful because it seeks to identify the behavior of the manager in establishing parameters and accountability regarding the allocation of resources in social programs, as observed in Table 1.

Table 1   *Indicators of social disclosure index*

Dimension	Drivers	Highlighted items
Past Information	Evaluation (Ramanathan, 1976)	VAR001 - relationship of social programs to company values
	Evaluation (Ramanathan, 1976)	VAR002 - assessment of local needs for social programs
	Measurement (Ramanathan, 1976)	VAR005 - description of objectives and goals for social programs
	Measurement (Ramanathan, 1976)	VAR006 - financial resources allocated to social programs
	Measurement (Ramanathan, 1976)	VAR007 - economic and/or financial value of human resources involved in volunteer programs
	Measurement (Ramanathan, 1976)	VAR008 - economic and/or financial value of material resources allocated to social programs
	Measurement (Ramanathan, 1976)	VAR009 - social results obtained in social programs
	Standard of reports (Ramanathan, 1976)	VAR011 - distribution of added value
Prospects for future actions	Evaluation (Ramanathan, 1976)	VAR003 - description of aspects to improve social outcomes achieved in social programs
	Evaluation (Ramanathan, 1976)	VAR004 - description of future and ongoing social programs
	Measurement (Ramanathan, 1976)	VAR010 - projection of future cash flows of resource allocation in social programs
Accessibility	Standard of reports (Ramanathan, 1976)	VAR012 - availability of social responsibility reports
	Standard of reports (Ramanathan, 1976)	VAR013 - frequency of disclosure of social responsibility reports

Social disclosure Index

Company social responsibility reports sampled in the period from 2005 to 2009 formed the basis for the evaluation of social disclosure performed using content analysis (Bardin, 1977), classifying the information according to level from "restricted" (lowest level of information) to "low", "medium" or "high" (highest level of information). These levels can be characterized as follows:

a) Restricted: social disclosure is classified in this category if the company does not disclose the information evaluated by the proposed item;

b)   Low: social disclosure is classified in this category if the company discloses the information evaluated by the proposed item but does not do so according to the social program or activity area, i.e., the information is disclosed generally, using expressions such as "social programs" or "social action";

c) Medium: social disclosure is classified in this category if the company discloses the information evaluated by the proposed item, specifying it by area or by some social programs;

d)   High: social disclosure is classified in this category if the company discloses the information evaluated by the proposed item analytically, i.e., there is information on each social program; the characteristic of this information is greater accuracy and range, e.g., specifying "project x ...".

To test the proposed hypothesis (H_1), an econometric model was specified in panel form as per Equation (1):

$$Y_{it} = \alpha + \gamma X_{it} + \delta' Z_{it} + u_{it} \qquad \boxed{1}$$

where Y_{it} is the cost of equity variable; α is the regression constant; γ is the coefficient associated with X_{it}, which is the social disclosure variable, based on the social disclosure index, which represents the level of social disclosure in annual reports of the evaluated companies (dimensions: information from the past, prospects for future actions and accessibility); u_{it} is the random error of the regression, where $u_{it} \sim N(0, \sigma^2)$; δ is a 6 x 1 column vector of coefficients of the control variables; and Z_{it} is a 6 x 1 column vector of control variables, with the following components:

1) company size measured by (a) the natural logarithm of the total assets and (b) the natural logarithm of the operating revenue;

2) the ratio between book and market value, the purpose of which is to measure accounting conservatism; this indicator was obtained from the Econo-

mática® system;

3) list (L), a binary variable that evaluates whether the company (1) participates in funds characterized as socially responsible or (0) does not participate;

4) internationalization (I), a binary variable that evaluates whether (1) the company has issued shares outside its country of origin (NYSE, Nasdaq or Latibex) or (0) if shares issued are restricted to the national market in the case of BM&FBovespa;

5) effect of the change in corporate law (E), in which the mandatory adoption of International Financial Reporting Standards (IFRS) for Brazilian companies should promote changes in company results compared to the period prior to the IFRS enactment. For this factor, a binary variable was used that classified the period before 2008 as (0) and the period from 2008 onward as (1);

6) leverage (A), represented by the ratio of the total financial debt to the equity at the end of each year.

As is common practice, control variables were included in the model to provide greater robustness to the results because although these variables are not the object of this study, the dependent variable (the cost of capital) may be influenced by them. The control variables used were based on previous studies, such as those of Richardson and Welker (2001), Alencar and Lopes (2005), Costi and Soares (2008), Fama and French (1992), Becchetti, Ciciretti and Hasan (2009) and Rover and Murcia (2010).

3.1 Calculating Cost of Equity

The cost of equity is the return that an investor requires to allocate resources to the assets (shares) of a particular company, represented by a rate of return necessarily higher than an investment considered risk free (Rf), and risk-adjusted to the company, measured by the beta coefficient (β). The calculation of this term is risk-adjusted using CAPM as originally proposed by Sharpe (1964) and Lintner (1965).

According to Silveira, Barros, and Fama (2002), with respect to the risk-free rate needed to calculate the cost of equity by CAPM, in Brazil, there are two rates that satisfy the theoretical definition of this rate: the Interbank Deposit Certificate (Certificado de Depósito Interbancário - CDI) and the Savings Account return (Caderneta de Poupança). The CDI was chosen for this study. Bovespa was used as a reference portfolio to calculate market return.

4   REGRESSION ANALYSIS OF PANEL DATA: LEVEL OF SOCIAL DISCLOSURE AND COST OF EQUITY

This section presents the results of the regression analysis in panel to confirm or refute the research hypothesis. A correlation matrix between the studied variables was created to identify possible high collineari-

ty that could cause problems in the model estimation, given that the X'X matrix could become quasi-singular (Kennedy, 2008.)

Table 2		*Cross-correlation matrix between the studied variables*						
VARIABLES[2]	**SDISC**	**CAPM**	**FUNDS**	**INTER**	**CORLAW**	**SIZ$_1$**	**SIZ$_2$**	**BM**	**LEV**
SDISC	1.00								
CAPM	0.02	1.00							
FUNDS	0.49	0.012	1.00						
INTER	0.44	0.04	0.26	1.00					
CORLAW	0.06	-0.29	0.029	-0.01	1.00				
SIZ$_1$	0.64	0.01	0.47	0.55	0.07	1.00			
SIZ$_2$	0.62	0.02	0.39	0.62	0.07	0.91	1.00		
BM	0.07	0.09	0.09	-0.05	-0.08	-0.03	0.03	1.00	
LEV	0.11	-0.04	0.15	-0.01	0.06	0.27	0.17	0.59	1.00

As expected, the variables representing firm size—assets and revenues—are positively correlated to each other above 0.8 (0.9063), which indicates a situation of collinearity.

A regression with panel data can be calculated using random effects or fixed effects. Initially, the model was calculated using random effects, and the Hausman test was used to identify whether this method is the most appropriate for calculating the model. The results of the test are presented in Table 3.

Table 3		*Hausman test for panel data with cross-sectional random effects*

Test result	**χ² Statistic**	**Degrees of Freedom**	**p-value**
Cross-sectional random effects	16.050473	7	0.0247

The result of the Hausman test suggests rejection of the null hypothesis for estimation of the model in a panel with random effects, indicating that the estimation should be performed with fixed effects. According to Baltagi (2008), model estimation in a panel with fixed effects can be performed in three ways: a) the angular coefficients are constant, but the intercept varies among individuals; b) the angular coefficients are constant, but the intercept varies between individuals and time; or c) all coefficients vary among individuals. The form in which the angular coefficient remained constant but the intercept varied among the studied companies provided the best fit to the model. According to the author cited above, this approach respects the "heterogeneity" of each company; that is, in the model estimation, the effect of the level of social disclosure on the cost of equity is different for each company, meaning that a model exists for each company.

The standard error of the coefficients was calculated using White's covariance matrix because the model showed evidence of heteroskedasticity according to the Bartlett test (p-value < 0.0000), Levene test (p-value < 0.0003) and Brown-Forsythe test (p-value < 0.0819), only to 10%.

The estimation of the regression model with panel data was therefore performed with cross-sectional fixed effects with constant angular coefficients, varia-

tion of the intercept among the companies and a robust standard error calculated by White's covariance matrix, consistent with heteroskedasticity. The results of this estimation are shown in Table 4.

Table 4		*Results of the regression estimation in a panel with cross-sectional fixed effects**		

Variable	**Coefficient**	**Standard error**	***t* Statistic**	**Prob.**
SDISC	-0.003824	0.001818	-2.103226	0.0360
INTER	-0.101739	0.016790	-6.059681	0.0000
CORLAW	-0.226861	0.018612	-12.18897	0.0000
SIZ$_1$	0.375762	0.087867	4.276472	0.0000
SIZ$_2$	-0.198691	0.061634	-3.223735	0.0014
BM	0.058011	0.008853	6.552619	0.0000
LEV	-0.033917	0.006176	-5.491779	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
	Weighted Statistics			
R-squared	0.388949	Mean dependent var		0.200311
Adjusted R-squared	0.205221	S.D. dependent var		0.458635
S.E. of regression	0.408875	Sum squared resid		49.48493
F-statistic	0.000000			

* For space reasons, sectional fixed-effects values associated with each sample company are not shown.

** Corrected using the White heteroskedasticity matrix

Initially, the model coefficients are jointly significant, considering the results of the F test (p < 0.01). Of note in the model is the fact that the variables representing size—SIZ$_1$ and SIZ$_2$—are significant together and with inverted signs (SIZ$_1$ has a positive sign, and SIZ$_2$ has a negative sign). As already mentioned, these variables are strongly positively correlated with one another (p > 0.9), which could indicate problems of collinearity. However, the fact that the coefficients are highly correlated is "sufficient, but not necessary, for the existence of multicollinearity" (Gujarati, 2006, p. 290), and the analysis of the variables included in the model through a "high partial correlation may be ineffective due to different multicollinearity patterns" (Gujarati, 2006, p. 290). Because collinearity between these variables is

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[2] SIZ$_1$ - size variable measured by total assets; SIZ$_2$ - size variable measured by total operating revenue.

possible, it is necessary to ascertain whether problems arising from collinearity are found in this regression, which are mainly the following: a) the t ratio of one or more coefficients tends to be statistically insignificant, and b) the general measure of fit, R^2 is high, i.e., above 0.8 (Kennedy, 2008).

Analyzing the t ratio of all the coefficients together, including SIZ_1 and SIZ_2, the model has a better fit, given that all the variables have a probability p-value < 0.05. In addition, the SIZ_1 and SIZ_2 variables were estimated separately. In the estimation of the SIZ_1 variable, the result is positive and significant at 5%, and the social disclosure variable has a negative sign that is significant at 10%. In the estimation of the SIZ_2 variable, the result is positive and not significant at 5%, and the social disclosure variable has a negative sign that is significant at the 10% level. As noted, the sign of the social disclosure variable did not change when SIZ_1 and SIZ_2 were calculated separately.

With the joint estimation of SIZ_1 and SIZ_2, the model has a better fit because the coefficients become more representative. This result is opposite to that suggested to result from multicollinearity. As for R^2, the result (0.389) is below the level suggested for the existence of multicollinearity, which is 0.8 (Kennedy, 2008). The results therefore suggest that there is no multicollinearity between the variables SIZ_1 and SIZ_2.

The sign of SIZ_1 is positive, contrary to the initial expectation. This result implies that firms with more assets require greater effort to achieve the expected return on investment, which may mean that more assets could be an indicator of risk in a market evaluation. Conversely, SIZ_2, which is represented by the total operating revenues, tends to represent a measure of efficient use of resources because the combination of higher revenues with lower assets leads to a higher return for the investor.

Regarding the normality of residuals, the Jarque-Bera test was performed for each equation, obtaining a p-value > 0.05 for all the companies, which resulted in the non-rejection of the null hypothesis of normality of the residuals.

Box and Pierce's Q test was performed to check for the existence of autocorrelation, as shown below.

Table 5	Box and Pierce autocorrelation of residuals test			
	AC	PAC	Est. Q	Prob.
1	-0.364	-0.364	1.1574	0.282
2	0.033	-0.115	1.1699	0.557
3	-0.299	-0.383	2.7381	0.434
4	0.130	-0.184	3.3315	0.504

Based on the data presented, the Q-test results do not indicate rejection of the null hypothesis of non-existence of autocorrelation of the residuals (all the p-values are greater than 0.05).

Finally, to identify whether the series are stationary, the unit root tests of Levin, Lin and Chut (p-value < 0.00), Im, Pesaran and Shin (p-value < 0.00), ADF-Fisher (p-value < 0.00) and PP-Fisher (p-value < 0.00) were performed on the series involved in the regression, leading to a rejection of the null hypothesis, indicating the absence of unit roots, i.e., the series are stationary.

Based on the tests performed and the results, the calculated model shows robustness and supports the central hypothesis of the study, indicating that there is a relationship between the level of social disclosure and the cost of equity for public companies in Brazil and that this relationship is negative.

The following is a summary of the expected results in relation to the findings.

Table 6	Summary of the signs of the variable coefficients (expected versus observed)		
	Expected coefficient sign	Observed coefficient sign	Sig
Social Disclosure (SDISC)	negative	negative	Yes **
Internationalization (INTER)	negative	negative	Yes *
Effect of change in corporate law (CORLAW)	unanticipated	negative	Yes *
Size - assets (SIZ_1)	negative	positive	Yes *
Size - operating income (SIZ_2)	negative	negative	Yes *
Ratio of book to market value (BM)	positive	positive	Yes *
Leverage (LEV)	positive	negative	Yes *
List - companies listed in socially responsible funds	negative	excluded	No

* Significant at 1%
** Significant at 5%

4.1 Discussion of the Results.

Before commenting in more detail on the results presented in Table 6, it should be emphasized that the model presented was calculated with the social disclosure index considered contemporaneous to the cost of capital. Other specifications were estimated, for example, where the social disclosure variable lagged by one period relative to the cost of capital, under the uncorroborated hypothesis that social information would impact the dependent variable after its disclosure.

Regarding the results obtained, contrary to initial expectations, the observed sign of the leverage varia-

ble is negative. One possible explanation for this result may be the fact that firms with higher debt have greater coverage by analysts, which, in turn, requires greater transparency of management actions and accountability. This result does not corroborate previous studies, such as those of Richardson and Welker (2001) and Rover and Murcia (2010).

Another result that stands out is the fact that the size variable, when based on the natural logarithm of total assets, has a positive sign, indicating that firms with larger assets are required to make greater risk-adjusted returns, whereas when size is measured by the level of operating revenues, the variable has a negative sign; i.e., the stocks of companies with higher revenues are consistent with a lower demand for risk-adjusted return. This result is consistent with those presented by Dhaliwal et al. (2011) and Rover and Murcia (2010), who observed that the size variable, measured by the total assets, had a positive relationship with the cost of capital.

The dummy variable, which represents the effects of corporate law, had a highly significant coefficient when inserted in the model, showing that the changes introduced by Laws nos. 11,638/2007 and 11,941/2009 impacted the organizations' economic results as well as market perceptions of cost of equity pricing. This result indicates that it is necessary to include the dummy variable in econometric models that use time series to mitigate any distortions.

Regarding the internationalization variable, applicable to companies seeking to raise funds via international stock exchanges, the result achieved is consistent with previous studies (Stulz, 1999; Bruni, 2002; Alencar, 2005; Rover & Murcia, 2010), indicating that such businesses, in seeking such markets, would be perceived as organizations with better management practices, including those concerning disclosure, which, in turn, decreases the risk perceived by the financial markets.

The list variable, which represents companies listed in socially responsible funds, was not significant and therefore was excluded from the final model, and the model calculated without this variable presented a better fit. In a way, this result was not expected, given that one of the determining factors for companies improving their level of social disclosure would be the fact that they are listed in socially responsible funds. This result contradicts those of Silva and Quelhas (2006) for the Brazilian market because it does not recognize that companies listed in socially responsible funds would have a positive image, enabling them to raise funds at a lower cost than those that are not listed.

Regarding the social disclosure variable, it should be noted initially that there is a tendency to improve the quality of such information: during the observed period (2005-2009), the number of companies classified as high-level disclosure rose from 17 (20.99%) to 22 (26.51%), whereas the number of companies classified as low-level disclosure fell from 25 (30.86%) to

21 (25.30%.) This trend demonstrates the interest and commitment of companies toward greater transparency in their management actions, with respect to the planning, execution and control of social programs, thus confirming the research conducted by KPMG International (2008).

In addition, as mentioned by Ramanathan (1976), companies are apparently using social reporting as a way to improve the quality of their reporting, bringing useful information to those reports, such as a) objectives of social programs, b) policies to support social programs and c) performance of and contributions made by social programs. These actions ultimately lead to conflicts of interest being counterbalanced (Ramanathan, 1976) and cause a reduction in the cost of funding, as noted by Richardson, Welker, and Hutchinson (1999), Riahi-Belkaoui (2004), Gray et al. (2001) and Heal (2004).

It is hoped that such actions create a virtuous circle because a company, in taking advantage of social programs as a means of offsetting externalities in society (Hammond & Miles, 2004; McWilliams et al., 2006), could reduce its reputational risk (Jensen, 2001; Machado Filho & Zylbersztayn 2003; Saiia et al., 2003).

This behavior becomes more relevant when one considers the increase in the inflow of foreign funds into the country during the last decade (Lima Jr. & Jayme Jr., 2008) and the average number of daily transactions involving the stock market seen on BM&FBovespa, which increased from just over 550 million dollars in 2005 to 2.43 billion dollars in 2009 (BM&FBovespa, 2011).

This environment of greater stock-market development and the important role of social information places greater responsibility on those generating social responsibility reports, including accounting professionals.

Regarding the present results, it should be noted that apparently information relating to social programs was captured by the market even before it was released: the relevant coefficients were contemporaneously significant, i.e., at the base date of the social responsibility report and not at the date of disclosure. This pattern indicates that there was efficient coverage by the market of management decisions about social programs not only at the time the information was disclosed but also throughout the year, rewarding the long-term behavior of companies that had a greater level of social disclosure insofar as they were able to acquire resources at lower rates.

This situation corroborates the findings of McWilliams, Siegel and Wright (2006), who commented on the need for mechanisms that direct the manager to have a standard of resource allocation, which provides a way for the market to predict the actions that will be undertaken in anticipation of the disclosure.

Furthermore, the fact that the market anticipates and prices the social information contained in the reports indicates the existence in the Brazilian market of the semi-strong version of the market-efficiency hypo-

thesis (Fama, 1970), corroborating previous studies of this market (Belo & Brasil, 2006; Lima & Terra, 2004; Sarlo Neto, 2004).

This finding is important regarding the care that organizations must take in their accountability, especially regarding social responsibility because the absence of such information or a low level of its disclosure may lead to higher costs of funding.

Regarding the information analyzed, the companies in general want their participation in or support of social programs to remain transparent in terms of their goals and achievements, seeking over time to create behavior that allows the financial markets to anticipate the dissemination of information and to price it.

Thus, although resources are allocated to activities that are beyond the scope of the operational activity of

the company, this behavior apparently does not diminish the company's competitiveness, as noted by Coase (1960) and Friedman (1970). These actions are considered to form a policy of long-term strategy (Jensen, 2001; Saiia, Carroll, & Bulchholtz, 2003), which in turn can lead analysts to identify such companies as investment opportunities (Ioannou & Serafim, 2009).

Finally, it appears that companies seeking improvements in the quality of their social disclosure meet not only the natural obligation to account for resources invested by third parties (Covello, 1996) but also the obligation to fulfill their economic contract (Carroll, 1979), by generating profits, and their social contract (Ramanathan, 1976) through achievement or promotion of social programs.

5 CONCLUSIONS

This study aimed to analyze the relationship between the level of social disclosure and cost of equity in public companies in Brazil using an index of 13 indicators, based on the studies of Ramanathan (1976), Haydel (1989) and Hammond and Miles (2004), whose goal was to assess the nature of social information within the realm of discretionary actions undertaken by enterprises through social programs in the community.

The research hypothesis - that there is a negative relationship between the level of social disclosure and the cost of equity in public companies in Brazil - was corroborated in that the social disclosure variable had a significant coefficient, and its direction was opposite to that of the cost of equity.

The results show that social information is taken up by the market and influences stock prices, corroborating the semi-strong version of market efficiency, which refers to the incorporation of stock pricing and consequently to the return on available information (past and present) in efficient form.

In addition to pricing available information (past and present), the market is anticipatory in pricing the cost of

capital; the variables were contemporaneously significant, i.e., on the base date of the social report, indicating that companies seeking to offset their externalities via social programs must do so in a way that sustains their actions in the long term, given that analysts follow the decisions made over time.

This trend has important implications regarding the importance of social information and the need to develop social reporting as an accountability tool because in Brazil there are no valid tools for guiding either the developers or the external users regarding the quality of such information.

This study's main contribution to the literature is the empirical demonstration that the market takes social disclosure into account when pricing the shares of companies. This demonstration was based on an indicator that only evaluated social disclosure relating to external social programs.

Suggestions for future work include the development of research based on event study to identify whether the financial market reacts in advance to social disclosure because this relation was significant in the cross-section for the present study.

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