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# ANALYSIS OF THE EVOLUTION OF THE ADHESION OF FIRMS TO THE CORPORATE SUSTAINABILITY INDEX (ISE)

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## **ABSTRACT**

Under the frameworks of the Voluntary Disclosure and Stakeholder Theories, this work aims to analyze the evolution, the adhesion and the continuity of firms in the Corporate Sustainability Index (ISE) of B3. Based on a content analysis of the ISE questionnaire applied to the candidate firms and a descriptive analysis of the number of firms present in the ISE from 2005 to 2015, together with tests of the difference of proportions, one can observe a growing interest of Brazilian firms to be listed on the ISE. The analysis was based on all 72 firms that have already composed the ISE portfolio. Results show a growing interest of firms to integrate the ISE index given the annual increase in the number of firms. The findings indicate a significant proportion of firms that remain in the ISE portfolio in consecutive years. Similarly, the proportion of firms that allow making public the content of their questionnaire is also significant. In addition, it is important to highlight the dimensions of the ISE questionnaire which inquires about firm policies beyond the typical social dimension of Corporate Social Responsibility, i.e. the social dimension. In fact, the ISE index comprises strongly the Corporate Governance and Economic dimensions of CSR.

**Keywords**: Corporate Social Responsibility; Sustainability; Corporate Sustainability Index; Adherence; Disclosure of questionnaires.

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### 1 INTRODUCTION

Firms have come to be evaluated not only for their financial performance but also for non-financial indicators and by how they relate themselves to a broad range of stakeholders as predicted by the Stakeholder Theory (FREEMAN; PHILLIPS, 2002; FREEMAN; WICKS; PARMAR, 2004; MCVEA; FREEMAN, 2005), in addition to the three traditional ones articulated by Agency Theory - shareholder, manager and creditor - (JENSEN; MECKLING, 1976). Researches on strategy have proposed that there is a set of new pressures on firms, related to their actions in the context of community/society and not only as creators of wealth for its shareholders. This reality has led firms to integrate social and sustainability concerns into their strategic planning, starting from the implementation of the philosophical concept of sustainable development, promoting sustainability for motivations associated with the legitimization of their actions, reputation, and visibility (FREEMAN; WICKS; PARMAR, 2004; GALAN, 2006; COCHRAN, 2007; FARIA; SAUERBRONN, 2008; EUGÉNIO, 2010; TILLING; TILT, 2010; REAST et al., 2013; CRISÓSTOMO; FREIRE, 2015).

Social Responsibility and Sustainability have been investigated from different perspectives. Conceptual issues, importance, evolution, and motivations of the organizations to undertake such actions are highlighted (COCHRAN, 2007; DAHLSRUD, 2008; WILLIAMS; AGUILERA, 2008). The search for determinants of Social Responsibility and Sustainability has found evidence associated with institutional factors as well as organizations attributes, notably the firm performance in different markets (MARGOLIS; WALSH, 2001; BAUGHN; BODIE; MCINTOSH, 2007; DOH et al., 2010; CRISÓSTOMO; FREIRE; VASCONCELLOS, 2011).

Research about the degree of activity of Social Responsibility and Sustainability of the firms has adopted a wide range of metrics that make it possible to evaluate the social performance of organizations in different sectors and in different markets (ORLITZKY; SCHMIDT; RYNES, 2003). In this context, the issue of information disclosure seems relevant, as it has been pointed out in the literature as important for transparency issues and in order to enable external evaluation (ADAMS, 2008; NASCIMENTO et al., 2009; BOUTEN et al., 2011).

Voluntary disclosure of information combined with the flexibility of formats used for their disclosure has contributed to the existence of different metrics. In this context, the performance, of external entities specializing in disclosure and evaluation metrics such as the Global Reporting Initiative (GRI) and market entities, emerges. These entities collect data from firms and develop indicators of Social Responsibility and Sustainability [1]. In this same line of action, we can consider the investment funds that invest in socially responsible firms as well as the market indices that evaluate firms under the Social Responsibility and Sustainability (ORSATO et al., 2015). These entities have also served as intermediary assessment institutions for the market (STATMAN, 2006; DOH; HOWTON; HOWTON, SIEGEL, 2010). In the twenty-first century, market indices have emerged with portfolios composed of firms that present higher standards of Social Responsibility and Sustainability according to published criteria. This is the case of the Dow Jones Sustainability Index (DJSI), 1999, from the New York Stock Exchange which portfolio includes the firms considered as having the greatest capacity to create shareholder value in the long run, considering economic, environmental and social aspects (MYNHARDT; MAKARENKO; PLASTUN, 2017). In Brazil, the Corporate Sustainability Index (ISE), 2005, from B3 (Brasil, Bolsa, Balcão), has been presented as a relevant index, especially for firms that invest and disclose their actions of Social Responsibility and Sustainability, given the positive promotion that has been made of ISE and the growing number of firms that have been claiming to be part of the ISE portfolio each year (BM&FBOVESPA, 2016).

The importance of Social Responsibility and Sustainability indexes has raised the following research question: Is there interest of firms to disclose their degree of concern with Social Responsibility and Sustainability through market indexes? The objective of this study is to analyze, based on the evaluation of the adherence to the Corporate Sustainability Index (ISE) and the persistence of firm presence in the index, as well as the voluntary disclosure of questionnaire responses, and actions related to Social Responsibility and Sustainability through the presence in the ISE.

For a sample composed of all 72 firms that have already been in ISE for at least one year in the period 2005-2015, results indicate a growing interest of the firms to participate in the index and to remain in it. There is also a growing trend to disclose the contents of the questionnaires answered by the firms.

The article is structured into 5 sections beyond this introduction. Section 2 presents a context about Corporate Social Responsibility and Sustainability and the Corporate Sustainability Index (ISE). Section 3 presents the methodology used. Section 4 reports the analysis of the research results and section 5 presents the final considerations.

## 2 CORPORATE SOCIAL RESPONSIBILITY AND SUSTAIN-ABILITY

#### 2.1 Conceptual aspects

The book Social Responsibilities of the Businessman written by Howard R. Bowen, in 1953, pioneered in addressing the theme of corporate social responsibility (CARROLL, 1999). In recent decades, concepts such as Corporate Social Responsibility (CSR), Corporate Governance, Environmental Management, Sustainability and Sustainable Development incorporate into the organizational scenario, perhaps due to social pressures to advances in the legal and institutional environment (WOOD, 1991; COCHRAN, 2007). Despite conceptual divergences, there seems to be an intersection regarding the attitude of organizational responsibility and awareness towards stakeholders and the environment (COCHRAN, 2007; DAHLSRUD, 2008; MILANI et al., 2012).

Research has advanced in different conceptual approaches on CSR, with a list of dimensions considered as components of Corporate Social Responsibility (DAHLSRUD, 2008): environment, social, economic and stakeholder dimension. These dimensions make CSR something more than just corporate philanthropy. While philanthropy is focused on social actions that target the outside public, CSR encompasses concerns with the three traditional stakeholders articulated under the Agency Theory - shareholder, manager, creditors - (JENSEN; MECKLING, 1976) and another set of stakeholders that also interact with the firm as proposed by the Stakeholder approach (FREEMAN; PHILLIPS, 2002; FREEMAN et al., 2012), such as employees, suppliers, customers, community, government, as well as the environment.

Conceptual proposals for CSR allude to the ethical conduct of the firm and its concern with sustainable development that takes the form of effective actions associated with sustainability. Strategic commitment to CSR and sustainability is an important sign from the firm. Although related, CSR and sustainability present distinctions (VAN MARREWIJK; WERRE, 2003; CALDELLI; PARMIGIANI, 2004). Under the social approach, CSR is the firm's willingness to act responsibly before a large group of stakeholders with whom it relates in a direct and/or indirect manner, who benefit from its social actions. The structuring of CSR actions aims to meet the expectations of different stakeholders, which is rather complex since many of them have no direct relationship with the firm (SHRIVASTAVA, 1995; DAHLSRUD, 2008). Sustainability concern, in turn, is associated with

the adoption of a philosophical concept of sustainable development (social, environmental and economic dimensions) in its decision-making process, in a strategic and continuous way, based on ethical standards. In this sense, sustainability concerns are directly associated with the interests of shareholders, managers, and creditors given that they are related firm longstanding. The concept of corporate sustainability transcends the issue of business continuity and is linked to the planet sustainability and firm compromise with future generations (SCHWARTZ; CARROLL, 2008; LAMARCHE; RUBINSTEIN, 2012). Therefore, there is a synergy between the philosophical concept of sustainable development adopted, its integration with the core business of the entity that is the CSR, and the continuity of these elements providing sustainability (BRAGA; SILVA; SANTOS, 2015).

#### 2.2 Disclosure of CSR and Sustainability

The disclosure of CSR actions and the importance of sustainability for the firm have been studied under different theoretical approaches that are not mutually exclusive. Voluntary Disclosure Theory proposes that managers and/or firms use discretionary power in disclosing corporate information and deciding on the degree of disclosure (VERRECCHIA, 2001; RUFINO; MACHADO, 2015). In this context, managers have the power to decide on the disclosure of additional not required nonfinancial information that may be useful in the firm evaluation process and its future prospects. Under this theoretical framework, it is suggested that there may be a trend to disclose what is favorable to the firm, such as CSR (SUTANTOPUTRA, 2009). This type of disclosure with marketing purposes is widely criticized by researchers, and many evaluation criteria in this area have instituted auditing procedures to achieve market reliability. Under the Legitimacy Theory, a firm is subject to social contracts through which it proposes to comply with socially desired actions by society (PATTEN, 1991; BEBBINGTON; LARRINAGA-GONZÁLEZ; MONE-VA-ABADÍA, 2008; EUGÉNIO, 2010; PLETSCH et al., 2014). Such actions of social benefit also bring a return to the firm in terms of legitimizing its actions and favoring its continuity, and its disclosure is an important instrument that the firm has in this legitimation process (DEEGAN, 2002). The Legitimacy Theory has gained importance in explaining CSR disclosure at the same time that the need to expand research in developing countries has been pointed out as relevant considering that in these markets domestic stakeholders are less powerful and external ones (investors and external consumers, the international press) become more relevant together with the State regulatory role (ALI; FRYNAS; MAHMOOD, 2017; ALI et al., 2018). The Stakeholder approach is also a socio-political theory that proposes explanatory models of the relationship between the firm and its broad spectrum of stakeholders. This theory suggests that a firm that gives importance to social and/or sustainability aspects will seek to establish relationships of trust with all its stakeholders, based on loyal and fair relations, and will respect these stakeholders and the environment (HARRISON; BOSSE; PHILLIPS, 2010; FREEMAN; RUSCONI; SIGNORI, STRUDLER, 2012; BROWN; FORSTER, 2013; TULLBERG, 2013). Institutional Theory predicts that the legal and institutional environment in which the organization is inserted, composed of a complex set of stakeholders, exerts influence on it, being able to influence its policies and its information disclosure (DIMAGGIO; POWELL, 1983; BRAMMER; JACKSON; MATTEN, 2012). According to this proposal, CSR disclosure will also be directly influenced by the legal environment that can establish rules for it, such as its obligation or not, or even the reporting guidelines.

These theoretical approaches attempt to explain the firm's behavior regarding its CSR action and concern for sustainability, as well as the disclosure of the firm's performance, in a certain way forcing it to go beyond the legal requirements and thus be perceived as responsible actors in

its various performances (GJØLBERG, 2009). In general, research has found results in the sense that the disclosure of CSR actions is relevant to firm value (CLARKSON et al., 2013; PLUMLEE et al., 2015).

Literature has documented evidence of corporate attributes, as well as exogenous factors, which contribute to the intensity of firm CSR actions, concern for sustainability, and the level of disclosure of both, from the perspective of different theoretical approaches. Corroborating with the propositions of the Institutional Theory, there are results indicating that in fact, the legal and institutional environment has some influence on the degree of attention given by the firm to CSR actions and the concern with its sustainability, as well as its dissemination. Notably, the role of government and regulatory institutions stands out. (BAUGHN; BODIE; MCINTOSH, 2007; WILLIAMS; AGUILERA, 2008; DOBERS; HALME, 2009; ALON et al., 2010). In addition, the action of civil society organizations such as trade unions, NGOs, investors, and customers, stands out also with evidence documented on it, which can press for improvements in the institutional environment as well as influence firm CSR actions and its disclosure (MAIGNAN, 2001; FREEMAN; WICKS; PARMAR, 2004; BAUGHN; BODIE; MCINTOSH, 2007; WILLIAMS; AGUILERA, 2008; DE LOS RÍOS BERJILLOS et al., 2012). Firm legitimacy issues and its concern with reputation and image have also been considered to be able to motivate firm CSR actions and concern about sustainability. Literature has proposed that the concern with reputation and legitimation, together with characteristics of ownership structure, are possible factors that interfere in CSR policy (ROBERTSON, 2009; SEE, 2009; CRISÓSTOMO; FREIRE, 2015; BARAIBAR-DIEZ; SOTORRÍO, 2018).

Under distincts approaches, disclosure is an important topic, especially in markets that increasingly require transparency and information disclosure so that there can be an adequate assessment of the firm in its environment. The ways of disseminating firm information about CSR actions and sustainability are diverse. Firms can provide information on CSR separately (Sustainability Report) or in conjunction with the financial report thus composing an integrated report (GAMERSCHLAG; MÖLLER; VERBEETEN, 2011; BARTH et al., 2017). In Brazil, we highlight the publications of the Management Report, the Value Added Statement (DVA) and the Social Balance Sheet (Ibase model). The amount of metrics for CSR measurement and sustainability has been expanded, despite the absence of formal and mandatory disclosure (TSCHOPP; HUEFNER, 2015).

#### 2.3 Corporate Sustainability Index (ISE) and hypotheses

Indices for CSR and sustainability have been created in line with the growing concern about socially responsible investments. These indices are designed with the objective of transmitting to interested parties the degree of firm concern with CSR and sustainability in order to facilitate the process of external evaluation by firm stakeholders as well as the comparison of firms (SKILLIUS; WENNBERG, 1998; STATMAN, 2006; ORSATO; GARCIA; MENDES-DA-SILVA; SIMONETTI, MONZONI, 2015).

Brazilian market, following the model of other countries, created in 2004 the Corporate Sustainability Index (ISE/CSI) (BM&FBOVESPA, 2016). The ISE was created by B3 (BM&FBovespa), with the support of several institutions (IBGC; GVces; Ethos Institute; ABRAPP; APIMEC; Anbid; IBASE, Ministry of Environment), being the fourth indicator of this nature in the world and the first one in Latin America, evaluating firm concerns on the three pillars of sustainability (social, economic and environmental) (COLARES et al., 2012).

The Corporate Sustainability Index is a theoretical portfolio of 40 firms at the most, chosen among the most frequently trade in the market and the best evaluated in terms of CSR and sustainability in the year preceding the portfolio composition. This evaluation of the firm is

carried out through a process conducted by the Deliberative Council of the Corporate Sustainability Index (CISE) in firms that meet certain conditions (BM&FBOVESPA, 2012; 2015): (i) be among the 200 most traded firms in the last 12 months, (ii) have been traded in at least 50% of the market sessions in the same period, (iii) comply with the sustainability criteria endorsed by the ISE. Firms that meet these requirements voluntarily respond to a questionnaire incorporating seven dimensions (DANTAS et al., 2016; ORIDE; MYSZCZUK, 2017): Overall Dimension, Product Nature Dimension, Corporate Governance Dimension, Economic-Financial Dimension, Environmental Dimension, Social Dimension, and Climate Change Dimension.

Regarding the environmental dimension, the questionnaires are differentiated by groups of economic sectors, aiming to consider the specificities of each sector in relation to their environmental impacts. Each dimension has a weight of 100 and is subdivided into criteria with specific weights defined by the relevance of the topic in the current context of corporate management and the demands of society, with a focus on management practices and performance. The questionnaire is composed of objective questions. The set of questionnaires is analyzed identifying groups of firms with similar social performance, pointing out the group with the best overall performance. The firms in this group make up the ISE final portfolio, which is composed of a maximum number of 40 firms. The ISE portfolio is considered from the first working day of January to the last working day of December.

The presence in ISE gives positive visibility to the firm. This presence is an efficient and highly visible form that the firm has to demonstrate its degree of concern with social and sustainability issues that support its goal of legitimizing its business practices (DEEGAN, 2002). The reality of being in the ISE signals to firm stakeholders a high-level of commitment to CSR and sustainability issues. Such positive visibility makes ISE attractive for firms that seek high reputational standards as well as to legitimize their actions against society. As proposed by the Legitimacy Theory, firms tend to have this interest, which would be a strong factor of interest for composing the ISE. The voluntary character of the ISE selection process is also relevant because the market knows about the willingness of firms to participate in the competitive process of ISE and, thus, firms that are there would be those which, *a priori*, have undertaken CSR actions and are interested in disclosing them. This is a typical situation of voluntary participation in a process that has the potential to contribute to firm legitimacy since it involves a detailed evaluation of firm socio-environmental actions with the disclosure (optionally) of the content of their questionnaires. Thus, there arises a combination of Voluntary Disclosure Theory and Legitimacy Theory, which has its importance on the disclosure of documented CSR (MICHAELS; GRÜNING, 2018).

This set of factors motivates the proposition that the interest to appear in ISE has been increasing since its inception. This attractiveness of ISE as an instrument of disclosure with a high visibility power for the firm with positive repercussions for its reputation, image and legitimacy supports the following hypothesis:

Hypothesis 1: Firms are persistent in remaining in the ISE index.

In addition, the firm can add to this visibility obtained by being in the ISE an additional element, which is the public availability of its answers to the ISE questionnaire. This was permitted to firms from 2012. The ISE Deliberative Board has permitted the firms that were chosen to compose the ISE the public availability of their responses to the ISE questionnaire (BM&FBOVESPA, 2015). The ISE Deliberative Board argued that it was meeting the growing demand from the market and society for more transparency on CSR actions and corporate sustainability. This situation is related to the Stakeholder approach when there is a supposed demand for this information by the market

and society. On the other hand, it is also seen a direct relationship with voluntary disclosure and the propensity to release favorable news (VERRECCHIA, 2001; RUFINO; MACHADO, 2015), since the firm is comfortable in knowing that the information will only be disclosed if it comes to be successful in composing the index. The fact is that when the firm makes such disclosure, it adds a positive aspect to its image. Therefore, the firm tends to be interested in publicizing the questionnaire content since this will be positive to its image and that the disclosure will be conditioned to its classification among those that will compose the index. This argument motivates the proposition of the hypothesis of adhesion to the voluntary disclosure of the questionnaire in the following terms:

Hypothesis 2: Firms are adopting, on an ongoing basis, the practice of allowing the disclosure of their answers to the ISE annual questionnaires.

### 3 RESEARCH METHODOLOGY

The sample analyzed is made up of all 72 (seventy-two) firms that have already been listed in the Corporate Sustainability Index (ISE) over the period 2005-2015, in at least one year. This period allows evaluating the persistence of firms to be listed in the ISE as well as the disclosure of the questionnaire that was provided to firms from 2012.

#### 3.2 Methodology

This research is classified as quantitative, on the approach, considering that the data are organized, tabulated and subject to calculation of statistical measures of central tendency and dispersion in addition to tests of significance (RICHARDISON, 1999; MARTINS; THEÓPHILO, 2009).

The adopted methods were: bibliographical and documentary research, using the questionnaires published by the firms. A detailed analysis of the ISE questionnaire was carried out since its first edition in 2005. Data collection was done using the content analysis technique and data analysis began with a descriptive analysis that allows us to evaluate the panorama of the firms that have already been present in the ISE portfolio, of their sectors, and the evolution of the adhesion to the ISE by the group of firms using graphs and tables (RICHARDISON, 1999).

The assessment of the persistence of firms in maintaining themselves in the ISE portfolio, as well as the disclosure of their questionnaire responses was performed by descriptive analysis and reinforced by tests on the difference of proportions. The persistence test is done by applying a non-parametric method used in research on persistence performance of investment funds (BROWN; GOETZMANN, 1995; MALKIEL, 1995; CIRIACO FERNÁNDEZ; SANTAMARÍA AQUILUÉ, 2005). The method consists of the annual observation of all the firms that composed the ISE portfolio, registering their status of being present or not in the ISE each year, from 2005 to 2015. Thus, it is possible to verify the presence of the firm in the ISE in consecutive periods. The observation of firm presence in two consecutive periods allows the elaboration of a contingency table that contains the number of occurrences every two consecutive periods of the possible situations of firm presence in the ISE index: (i) the firm was at ISE in the past period and it is in the current period (EE), (ii) the firm was not at ISE in the past period and it is not in the current period (NN), (iii) firm was at ISE in the past period and it is not in the current period (EN) and (iv) firm was not at ISE in the past period and it is in the current period (NE). The hypothesis of persistence is accepted if the number of observations that indicate repetition of the situation (EE and NN) is significantly higher than the number of observations that indicate a change of situation regarding the ISE (EN and NE).

To calculate the relation among firm persistence combinations there has been performed a test based on the *Cross-Product Ratio* (CPR) exhibited in Equação 1.

$$CPR = \frac{(EE * NN)}{(EN * NE)} \tag{1}$$

CPR value greater than 1 (one) indicates the predominance of firms observed in repetited situation (EE and NN) in relation to the frequency of change of situation, suggesting that there is a persistence of firm situation, while the value of CPR below 1 (one) indicates the predominance of change in firm situation (EN or NE), thus discarding the hypothesis of persistence. The verification of the statistical significance of CPR is done with the application of a Z test (BROWN; GOETZMANN, 1995; MALKIEL, 1995; CIRIACO FERNÁNDEZ; SANTAMARÍA AQUILUÉ, 2005). The Z statistic (Equation 2), under the null hypothesis of absence of persistence, follows a standard Normal distribution.

$$Z = \frac{Ln (CPR)}{\sigma [Ln (CPR)]} \rightarrow N (0,1)$$
 (2)

$$Ln (CPR) = Ln \left[ \frac{EE * NN}{EN * NE} \right]$$

$$\sigma[Ln(CPR)] = \sqrt{\frac{1}{EE} + \frac{1}{NN} + \frac{1}{NE} + \frac{1}{EN}}$$

In addition, in order to allow reinforcement and robustness of the results, a chi-square test was applied ( $\chi^2$ ), in which  $\chi^2$  was calculated according to Equation 3, following relevant previous literature (KAHN; RUDD, 1995; AGARWAL; NAIK, 2000; HUIJ; VERBEEK, 2007).

$$X^{2} = \left[\frac{(EE - d_{1})^{2}}{d_{1}}\right] + \left[\frac{(EN - d_{2})^{2}}{d_{2}}\right] + \left[\frac{(NE - d_{3})^{2}}{d_{3}}\right] + \left[\frac{(NN - d_{4})^{2}}{d_{4}}\right]$$
(3)

In which:

$$d_1 = \frac{(EE + EN) * (EE + NE)}{n}$$

$$d_2 = \frac{(EE + EN) * (EN + NN)}{n}$$

$$d_3 = \frac{(NE + NN) * (EE + NE)}{n}$$

$$d_4 = \frac{(NE + NN) * (EN + NN)}{n}$$

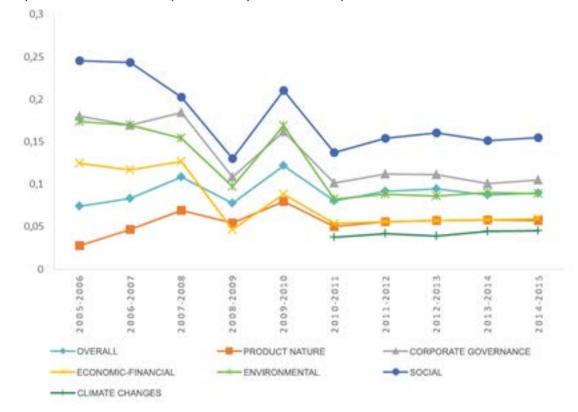
$$n = EE + EN + NE + NN$$

Regarding the hypothesis about the persistence of questionnaire disclosure by firms that composed the ISE portfolio since 2012, the same methodology was adopted. The method is based on the annual observation of all firms that allowed the disclosure of their questionnaires, registering their status of allowing or not such disclosure in each year, in the period from 2012 to 2015. In this way, it is possible to verify the disclosure situation of firm questionnaire in consecutive periods, which allows the elaboration of a contingency table that contains the number of occurrences every two consecutive periods of the possible situations of the firm: (i) firm disclosed in the past period and disclose in the current period (AA), (ii) firm did not disclose in the past period and does not disclose in the current period (NN), (iii) firm did not disclose in the past period and disclose in the current period (NA) and (iv) firm did not disclose in the past period and discloses in the current period (NA).

## 4 RESULTS

The analysis of the composition of the ISE questionnaire is relevant to know the dimensions of CSR and sustainability that are under assessment in the ISE selection process, and in what proportion these dimensions are being considered (section 2.3): Overall Dimension, Product Nature Dimension, Corporate Governance Dimension, Economic-Financial Dimension, Environmental Dimension, Social Dimension and Climate Change Dimension. An annual evaluation of the proportion of each dimension was carried out in the questionnaire applied by the ISE Deliberative Board from its inception in 2005 until 2015.

Graph 1 shows the distribution of the ISE survey questions by dimension. Note that the Climate Change dimension was incorporated into the questionnaire from 2010-2011, still giving more relevance to the issue of the relationship of the firm with the environment. As can be observed, there is a relative maintenance of the proportion of the dimensions in the questionnaire, mainly from 2011. The Social Dimension is the most representative one in the questionnaire, being contemplated by 24% of it in the first year (2005-2006) and reaching approximately 15% in 2014-2015. In turn, the Product Nature Dimension grew during the same period, from 2.7% to over 5% in 2014-2015. It is important to mention the importance of the Corporate Governance Dimension, which represents approximately 10% of the questionnaire, the second largest dimension contemplated by the ISE questionnaire, demonstrating the importance given to Corporate Governance. Next, we find the General and Environmental dimensions, individually composing almost 9% of the questionnaire. The Economic-Financial Dimension occupies approximately 5.8% of the questionnaire, which corresponds to a proportion equivalent to the Product Nature from 2008-2009. Finally, the Climate Change Dimension, whose evaluation was initiated in the questionnaire 2010-2011, had its presence in the questionnaire elevated from 3.7% in the first year to 4.5% in 2015.



Graph 1 - Distribution of the ISE questionnaire by dimension in the period 2005-2015

Source: Research data.

Graph 2 shows the evolution of the number of firms invited to participate in the ISE through the submission of the questionnaire, the evolution of the number of respondent firms, and the number of firms approved. It is observed that, over the period 2005-2015, there was a relevant increase in the number of firms invited due to the goal of greater publicizing of the ISE. However, there was a slight decrease in the number of respondent firms, which can be explained by the recognition of possible low competitive potential by the firm when taking into account the questions presented to them in the questionnaire. Regarding the number of firms that compose the portfolio, it is observed that there was growth, reaching the limit of 40 in 2014, which is maintained in 2015.

200
180
160
140
120
100
80
60
40
20
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Graph 2 - Evolution of firm adhesion to the ISE in the period 2005-2015

Source: Research data.

Table 1 shows the distribution of the number of firms, stratified by economic sector, that have participated in the ISE portfolio for at least one year. We can observe that firms from all sectors of the economy in Brazil have already participated in the ISE, which demonstrates its importance as a channel for disseminating the degree of CSR and sustainability that, in fact, seems to be arising firm interest. Basic Materials sector (Steel and Metallurgy, Pulp and Paper, Petrochemicals and Mineral Metals) is the most frequent in the composition of the ISE (23.61%). Public Utility sector (Electric Power, Water and Sanitation, and Gas) occupies the second largest proportion of firms that have already participated in the ISE (19.44%). Both sectors, Basic Materials and Public Utility, are considered by Law 10.165/2000 as having a high environmental impact, which may generate greater pressure for these firms to be more concerned with CSR and sustainability disclosure of (CRISÓSTOMO; SOUZA; PARENTE, 2012; VIANA JUNIOR; CRISÓSTOMO, 2017). In addition to this higher pressure for socio-environmental actions, firms from sectors that are potentially aggressive to the environment may be more motivated to seek legitimation for their activities (HEATH; LEE, 2016), in which the presence in the ISE can constitute an important instrument in this sense.

Table 1 - Distribution of frequency of the sectors that have already composed the ISE in the period 2005-2015

Sector	Number of observations	Percentage
Industrial Goods	4	5.56%
Construction and Transportation	7	9.72%
Cyclic Consumption	5	6.94%
Non Cyclic Consumption	7	9.72%
Financial and Others	12	16.67%
Basic Materials	17	23.61%
Oil, Gas and Biofuels	1	1.39%
Telecommunications	5	6.94%
Public utility	14	19.44%
Total	72	100.00%

Source: Research data.

Table 2 shows the frequency distribution of the number of times a firm was part of ISE portfolio in the period 2005-2015. It is observed that 19.44% of the firms were included in the ISE in only one year. This means that the vast majority of firms, 80.56%, have figured in the index in 2 or more years. Among the firms that were already listed in the ISE, 48.61% of them were in the index in 5 years or more. These results are a strong indication of an increase in the number of firms that have remained in the ISE in consecutive years, a fact that is a strong signal of interest of firms in remaining in the ISE portfolio. Figuring in the ISE signals firm concern with social and environmental issues and the presence in the index in consecutive years can contribute to transmitting to the market the high degree of concern with these issues and the possible consistency of the firm in its CSR and sustainability policy.

Table 2 - Frequency distribution of the number of times the firm composed the ISE in the period 2005-2015

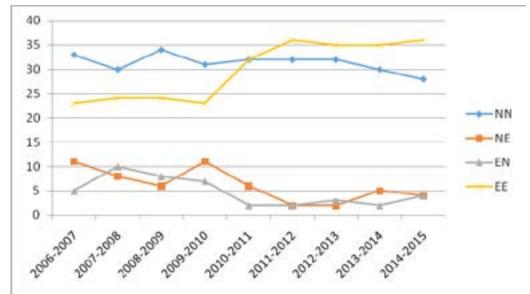
N times in ISE	Number of firms that appeared N times in ISE	%
1	<b>14</b> (ACESITA, AM INOX, ARCELOR, B2W DIGITAL, BELGO MINEIRA, COPESUL, JSL, LOCALIZA, LOJAS AMERICANAS, LOJAS RENNER, ODONTOPREV, OI, TAM, USIMINAS)	19.44
2	<b>11</b> (ALL AMER LAT, ANHANGUERA, CIELO, FLEURY, GOL, INDS ROMI, KLABIN, PETROBRAS, SADIA, SUZANO PETRO, VIVO)	15.28
3	6 (ARACRUZ, CELESC, IOCHP-MAXION, REDECARD, TELEFONICA BRASIL, UNIBANCO)	8.33
4	6 (COPASA, ECORODOVIAS, ITAUBANCO, PERDIGAO, ULTRAPAR, VCP)	8.33
5	<b>6</b> (BIC BANCO, DASA, SANTANDER BR, TELEMAR, VALE, WEG)	8.33
6	5 (BRF SA, EVEN, FIBRIA, ITAUUNIBANCO, SUL AMERICA)	6.94
7	3 (CCR SA, DURATEX, TIM PART S/A)	4.17
8	<b>5</b> (AES TIETE, CESP, ITAUSA, LIGHT SA, SABESP)	6.94
9	<b>8</b> (COELCE, COPEL, ELETROBRAS, EMBRAER, ENERGIAS BR (EDP), GERDAU, GERDAU MET, SUZANO PAPEL)	11.11
10	<b>8</b> (AES ELETROPAULO, BCO BRASIL, BRADESCO, BRASKEM, CEMIG, CPFL ENERGIA, NATURA, TRACTEBEL)	11.11
Total	72	100.00

Note: N indicates the number of times the firm has composed the ISE portfolio.

Source: Research data.

As reported in the section on methodological aspects of this research, we evaluated the persistence of the firm in the composition of the ISE portfolio. Graph 3 shows the evolution of the situations of firms regarding their presence in the ISE in two consecutive periods as mentioned in section 3.2: (i) firm was at ISE in the past period and it is in the current period (EE), (ii) firm was not at ISE in the past period and it is not in the current period (NN), (iii) firm was at ISE in the past period and it is not in the current period and it is in the past period and it is in the current period (NE).

We can observe that the number of firms that did not adhere to the index for two consecutive years (NN) decreased from 33 cases in 2006-2007 to 28 in 2014-2015. On the other hand, there was an increase in the number of firms that remained in the index for two consecutive years (EE), reaching 36 in 2014-2015. This result is a strong indication of the high interest of firms in remaining in ISE.



Graph 3 - Persistence of firms in remaining in the ISE portfolio

Note: NN = firm was not at ISE in the past period and it is not in the current period; EE = firm was at ISE in the past period and it is in the current period; EN = firm was at ISE in the past period and it is not in the current period; NE = firm was at ISE not in the past period and it is in the current period.

Source: Research data.

In addition to the descriptive analysis, a difference-of-proportions test was also applied, as presented in section 3.2. To perform the test, the number of situations of each firm in two consecutive years is observed and the contingency table is generated with the count of the number of situations for two consecutive periods (Table 3).

Table 3 - Frequency of situations of presence in ISE in 2 consecutive years

	_	Situation of the firm in the current year		
		Firm is not at ISE (N)	Firm is at ISE (E)	
Situation of the firm in the previous year	Firm is not at ISE (N)	282 (NN)	43 (NE)	
	Firm is at ISE (E)	55 (EN)	268 (EE)	

Source: Research data.

Based on the contingency table we calculate the Cross Product Ratio (CPR) and the Z and  $\chi 2$  test statistics. The Z-test was significant (z=15.7, p-value = 0.000), indicating that in fact there is a difference of proportion in the situation of firms regarding the presence in the ISE portfolio, as suggested in Hypothesis 1, in which the proportions of situations of repetition of the situation are higher. This result is also confirmed by the  $\chi 2$  test ( $\chi 2=315.7$ , p-value = 0.000). We can observe the high proportion of situations that correspond to the presence in the index in consecutive years (EE), a total of 268, approximately 41.4% of the occurrences, and the proportion of situations corresponding to the absence in the index in consecutive years (NN), approximately 43.5% of occurrences. The situation of permanence in the index in two consecutive years (41.4%) is, in fact, relevant because it demonstrates the interest of the firm in remaining in the index when making efforts in search of a better standard of CSR.

This result converges with the argument of Hypothesis 1 that advocates an interest of firms in being present and remaining in the ISE portfolio due to possible benefits arising from this presence, such as: the transmission to the group of stakeholders of the message that firm has a high standard of social and environmental concern in response to the demands of these (MCVEA; FREEMAN, 2005), the positive visibility that favors the legitimating firm interests (DEEGAN, 2002), and the fact of voluntarily participating in the selection process and voluntarily appearing in the index that works as a process of voluntary disclosure of the degree of concern with socio-environmental issues. Therefore, the interest for legitimization obtained through participation in a process that allows the voluntary disclosure of the level of attention given by the firm to socio-environmental issues shows that, in fact, there seems to be a combination of Voluntary Disclosure Theory and Legitimacy Theory as considered in the literature (MICHAELS; GRÜNING, 2018). The possible presence of a possible "lock-in" effect as a stimulator of the permanence of the firm in the ISE also deserves to be mentioned, since the firm when leaving the index can transmit a negative message about its efforts related to social and environmental actions what the firm must want to avoid (ORSATO; GARCIA; MENDES-DA-SILVA; SIMONETTI, MONZONI, 2015).

The other important aspect evaluated is associated with the issue of permission from the firm to disclose the content of their responses to the ISE questionnaire. Evaluating the firm interest in making these responses public is an indication of progress in the interest in disclosure of such information, which may be a sign of a search for improvement in image and reputation as well as the legitimation of firm activities. Table 4 shows the number of firms that authorized the release of their responses and their respective proportions from 2012 to 2015. In 2012, 8 out of the 38 (21.05%) firms that constituted the portfolio of that year authorized the disclosure of their questionnaires. This number increased to 37.84% in 2013, 55% in 2014 and stood out in 2015 with 85%, which is a strong sign of a trend towards the dissemination of the questionnaires and consequently improving firm transparency.

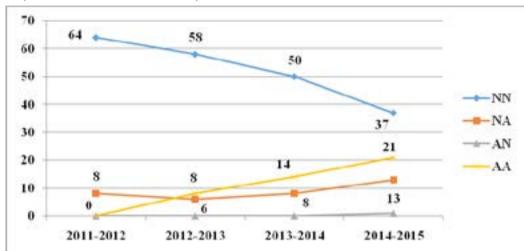
Table 4 - Proportion of firms that authorized the disclosure of ISE questionnaire, 2012-2015

	Year of disclosure authorization				
	2012	2013	2014	2015	
Firms that compose ISE	38	37	40	40	
Firms that composed the ISE and author- ized disclosure of the questionnaire	8 (21,05%)	14 (37,84%)	22 (55%)	34 (85%)	

Source: Research data.

Graph 4 shows the evolution of firms situations regarding the authorization of making public their answers to the ISE questionnaire in consecutive periods, by the firms that compose the ISE, as mentioned in section 3.2: (i) firm authorized the disclosure in the past period and authorizes in the current period (AA), (ii) firm did not authorize in the past period and does not authorize in the current period (NN), (iii) firm authorized in the past period and does not authorize in the current period (AN) and (iv) firm did not authorize in the past period and authorizes in the current period (NA). We can observe that the number of firms that do not authorize the questionnaire for two consecutive years (NN) decreased from 58 in the biennium 2012-2013 to 37 in the period 2014-2015. However, there was a significant increase in the situation of authorization of making questionnaire public in two consecutive years (AA) that starts with 8 firms in the biennium 2012-2013 and reaches 21 in the period 2014-2015. This increase in the frequency of firm that authorize making the

content of questionnaires public in consecutive years is another strong indication of the trend for a broader dissemination of social and environmental actions and more transparency, something that has been highlighted as relevant by the International Accounting Standards.



Graph 4 - Persistence of disclosure of questionnaires answered in the ISE

Note: NN = firm did not authorize disclosure of the questionnaire in the past period and does not authorize in the current period; NA = firm did not authorize in the past period and authorizes in the current period; AN = firm authorized in the past period and does not authorize in the current period; AA = firm authorized in the past period and authorizes in the current period.

Source: Research data.

In addition to this descriptive analysis, a test for the difference in proportion was performed, as presented in section 3.2. To calculate the test statistic a contingency table that contains the count of the number of firm authorization situations regarding making the firm questionnaire public for two consecutive years was composed (Table 5). The biennials 2012-2013, 2013-2014 and 2014-2015 were considered since the first authorization was only made in 2012. This is the reason for the number of situations AA (firm authorized the disclosure in the past period and authorizes in the current period) correspond to zero in Graph 4 in the 2011-2012 biennium since in 2011 there was no such disclosure.

Table 5 - Frequency of authorization situations for publicizing the ISE questionnaire in consecutive years

Situation of publicizing the responses of the firm

		to the questionnaire in the current year			
		Firm does not authorize (N)	Firm authorizes (A)		
Situation of publicizing the questionnaire in the	Firm did not authorize (N)	145 (NN)	27 (NA)		
previous year	Firm authorized (A)	1 (AN)	43 (AA)		
Courses Doorande data					

Source: Research data.

Based on this contingency table (Table 5) the Cross Product Ratio (CPR) is calculated. The z-test was significant (z = 5.27, p-value = 0.000), indicating that in fact there is a difference of proportion in the situation of firms regarding the authorization to make firm responses to the questionnaire public, with higher proportions of maintenance situations with respect to disclosure. This result is also confirmed by the  $\chi 2$  test ( $\chi 2 = 107.63$ , p-value = 0.000). It is verified that there is a high proportion of situations that correspond to the authorization of publicizing the questionnaire in consecutive years (AA), a total of 43, and the proportion of situations corre-

sponding to non-publicizing authorization (NN) (145). This high absence of authorization in two consecutive years is due to the fact that there is a large contingent of firms that participated in the ISE index a few times. In this way, it is observed that, in fact, there is a higher level of repetition of the publicizing authorization of the questionnaire compared to the situation of change of position of the firm with respect to this permission, as proposed by Hypothesis 2.

The possibility of allowing making the content of firm questionnaire public during the period of the research is an additional mechanism that firms have to demonstrate more transparency in their conduct regarding the concern with social and environmental actions. Allowing the publicizing of firm questionnaire constitutes an important voluntary disclosure action that firms may use in order to obtain legitimacy and improve their image as socially responsible firms. By disclosing such information, these firms will be carrying out an additional disclosure action that may be in the direction of meeting the demands of their stakeholders for more information, as provided by the Stakeholder approach (VERRECCHIA, 2001; RUFINO; MACHADO, 2015).

## 5 FINAL CONSIDERATIONS

The importance of sustainability for the firm and disclosure of CSR actions have been approached from different theoretical frameworks. This research analyzes the Corporate Sustainability Index (ISE) and the adhesion of firm to the index based on a construction on the proposals of the Stakeholder approach, Legitimacy Theory and Theory of Voluntary Disclosure, which seek to explain the firm behavior in relation to its CSR policy and the respective disclosure of actions developed in this area.

This study aims to analyze, based on the evaluation of the adherence to the Corporate Sustainability Index (ISE) and the persistence of firm presence in the ISE index, as well as the voluntary disclosure of firm responses to the questionnaires, firms interest to disclose their strategy and actions related to Social Responsibility and Sustainability through the presence at ISE. To achieve this goal, an ISE questionnaire is analyzed by measuring the proportion of the dimensions it addresses. The study analyzes the adhesion and persistence of firms in the Corporate Sustainability Index (ISE) and the level of firms persistence in allowing making their questionnaires public.

The analysis of the ISE questionnaire that is sent to the firms allows observing that seven dimensions of action of the firm are contemplated, which are: Overall Dimension, Product Nature Dimension, Corporate Governance Dimension, Economic-Financial Dimension, Environmental Dimension, Social Dimension and Climate Change Dimension. This range of dimensions shows the complexity involved in this evaluation. As for the distribution of questions by dimension, there is a higher proportion of questions relating to the social dimension, followed by the corporate governance dimension. The relevance given to the Corporate Governance dimension shows the importance given to this issue, which is closely associated with the business continuity and the economic-financial dimension that also has a high proportion in the questionnaire.

The results indicate that, in fact, there was an increase in adhesion to the Corporate Sustainability Index and in the number of firms that compose the index in consecutive years, signaling the interest in staying there. These numbers are strong indications of the growing firm interest in integrating the ISE portfolio as predicted by Hypothesis 1. Regarding the persistence of the dissemination of firm responses to the ISE questionnaire, the results show that there was also an increase in the publicizing permission corresponding to what is suggested by Hypothesis 2. The proportion of firms that authorize the release of their responses jumped from 21.05% in 2012 to 85% in 2015, indicating a strong trend towards making answers to questionnaires public.

These findings show that, in fact, it seems that firms are interested in participating in

ISE index. Such interest can be seen as a way for the firm to demonstrate that it is concerned with the relationship with a broad spectrum of stakeholders as predicted by the Stakeholder approach. When the firm composes the ISE index, it is signaling that it has a high degree of concern among firm stakeholders, who are contemplated in the seven dimensions of the ISE questionnaire. At the same time, when the firm wants to demonstrate this concern, it may also be considering ISE as an important tool for improving its image and reputation, and for legitimizing its actions, which is associated with the proposal of the Legitimacy Theory of firm actions. Finally, the voluntary nature of the entire ISE participation process is associated with the propositions of the Voluntary Disclosure Theory that predicts the interest of the firm in disseminating positive news, which helps its process of legitimation and image improvement. In the case of the ISE, this seems to be a singular opportunity, since the firm will only have positive exposure when it appears in the index, and there is no disclosure about it if it fails to compose the index. Despite possible limitations in such complex evaluation process, it is positive to have indexes such as the ISE, which can be a driver of firms social and environmental concern. The evidence of high firm persistence in composing the index, as well as the disclosure of questionnaires, is already a positive effect due to its implementation.

Finding evidence that there is a persistence of firms that are included in ISE and that firms tend to make the content of their ISE application questionnaires public, the study contributes to the CSR literature under the theoretical frameworks of Legitimation Theory, Voluntary Disclosure, and Stakeholder. For academics, the results, in addition to supporting these theoretical approaches, are also added to those that analyze market indices as external CSR assessment instruments that have observed increasing importance. From the perspective of society, the research presents the contribution of exposing the assessment process of ISE firms, while showing that there are strong signs that firms are competing strongly to be listed in the index, which requires an effective improvement in the socio-environmental action, which may have a positive impact on society as a whole.

As a perspective of future works, we mention the development of qualitative and quantitative research on the content of the questionnaires disclosed exploring the degree of social and environmental concern of the firm by specific dimension. Another possibility of work that is envisioned is the joint evaluation of socio-environmental indicators in order to verify if firms are able to obtain good performance in different socioenvironmental evaluation indices or if there is a distortion between them.

#### NOTE

[1] Examples of organizations working in this area are MSCI ESG Research (https://www.msci.com/research/esg-research) and Calvert Investments (http://www.calvert.com). The Stock Exchanges that begin to act in this direction can also be listed there.

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