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Socioenvironmental Investments: An Analysis Of Organizations From Sectors With Different Socioenvironmental Impacts

Abstract

The objective in this study was to verify whether there is a significant difference between the socioenvironmental investment indicators of organizations from sectors with different socioenvironmental impacts. The initial expectation was that organizations from distinct sectors that produce different potential impacts would behave differently regarding the investment level in socioenvironmental actions. That was the general study hypothesis. To achieve that objective, a descriptive and documentary research was undertaken through the Social Balance Sheets of 68 companies, which published it in the Ibase model in 2011, in order to identify the social and environmental investments. The data were analyzed through two statistical tests – the t test and the Kruskal Wallis test. The results indicated that no significant difference exists between the environmental investment level for companies that are considered potentially polluting and potentially non-polluting, classified according to Law 10.165 (2000). As regards the (internal and external) social investments, no significant differences were identified either between companies from distinct sectors. These results cannot be explained by the Legitimacy Theory and differ from earlier studies.

Key words: Legitimacy Theory. Socioenvironmental Investments. Social Balance Sheet.

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1. Introduction

Scientific studies have demonstrated that many companies have adhered to socially responsible behaviors due to the need to conquer, recover or preserve legitimacy towards the agents that sustain them, the so-called stakeholders.

The adoption of social and environmentally responsible practices implies the assumption of financial commitments and spending in general. Hence, when they decide to implement socially responsible practices, organizations are normally aiming for some future benefit. According to the Legitimacy theory, despite underlying economic motivations, this kind of decisions is generally adopted because they are valued and legitimated by society. Therefore, the financial sacrifice on behalf of society and/or the environment can even be one way of compensating for or mitigating the damage/impact of the activity.

Aware of this compensatory behavior and of the existence of sectors whose activities imply distinguished levels of social and environmental impact, the question is raised: Is there a significant difference between the socioenvironmental investments made by organizations from sectors with different socioenvironmental impacts? Hence, the main objective in this study is to verify whether there exists a significant difference between the socioenvironmental investment indicators of organizations from sectors with different socioenvironmental impacts.

Organizations from distinct sectors that exert different potential impacts are expected to behave differently regarding the investment level in socioenvironmental actions. That is the general study hypothesis.

Many studies prove the behavior of companies from sectors with different socioenvironmental impacts regarding the disclosure level (Hartman, Rubin & Dhanda, 2007; Rover, Murcia, Borba, & Vicente, 2008; Rizk, Dixon & Woodhead, 2008; Chen & Roberts, 2010; Pereira, Bruni & Dias Filho, 2010; Kilian & Hennigs, 2014 and others outros). Few studies, however, have investigated whether the type of activity the organizations develop influence the investment level in social and environmental issues (Ott, Alves & Flores, 2009; Machado, Machado & Santos, 2010; Machado, Machado & Murcia, 2011 and Crisóstomo, Souza & Parente, 2012). Authors recommend further research to confirm or reject the findings, in view of the exploratory nature of the first investigations. That was the inspiration for this study. It should be highlighted, however, that data from the 2011 Social Balance Sheet (SBS) were used in this study, adopting statistical techniques that differ from the other studies.

These research findings are considered useful for the academic environment because they test the application of the Legitimacy theory regarding the potential to explain corporate socioenvironmental practices, thus enriching this study area. Although without any claim on indicating whether the percentage of resources the investigated companies destine to social and environmental investments is satisfactory, it is considered that this research is socially meaningful to the extent that it offers society a parameter to measure how socially responsible some potentially polluting entities are when compared to others, whose activities attack the environment and the community in minor proportions.

To achieve the present research objectives, the sample was obtained from the group of all companies who published the Social Balance Sheet according to the Ibase model between 2001 and 2008. This excerpt was determined in function of the year Lei 10.165/2000 came into force, which establishes the National Environmental Policy, and the final year in which Ibase monitored the companies that published the Social Balance Sheet. The websites of the sample companies were consulted to survey the social and environmental investments indicators present in their Social Balance Sheets for 2011. Then, the companies were divided in different groups to verify whether any significant difference existed between the socioenvironmental investment indicators of organizations from sectors with different socioenvironmental impacts.

2. Theoretical Framework

2.1 Legitimacy Theory

In Accounting, the Legitimacy theory has been frequently used in Brazil and around the world when the theme involves social and environmental issues. This theory aims to explain the reason for certain organizational behaviors and, therefore, is highly useful to understand how companies' behave towards socioenvironmental demands.

According to Suchman (1995, p. 574), legitimacy can be defined as "a percepção generalizada de que determinadas ações são autênticas, adequadas ou necessárias em um sistema de normas, valores e crenças socialmente construídos". In line with Chen and Roberts (2010), organizations tend to conciliate (truly or apparently) their systems with this social system through the legitimation process. The theory does not clarify, however, how this process of congruence takes place.

Therefore, there are two distinct viewpoints in the literature: institutional and organizational/strategic legitimacy. According to Chen and Roberts (2010), institutional legitimacy is used to investigate the macro-structures and activities (like the capitalist economic structure and the type of government) that gained social acceptance. That would be the parameter to assess whether an organization in search of legitimacy adheres to the legitimized expectations. Within a more narrow perspective, also in accordance with Chen and Roberts (2010), the organizational legitimacy identifies the different strategies organizations in search of legitimacy can adopt, that is, it is how companies get equipped in administrative terms in the attempts to be/remain included in the social environment. This research proposes a discussion that adapts to this management view of Legitimacy theory, as it intends to verify whether the companies manage the negative socioenvironmental effect of their activities through a higher or lower level of investments of this kind. Nicholls (2010) considers organizational legitimacy as the consequence of a dynamic interaction between the macro and micro-institutional structures.

In the framework of the Legitimacy theory, as the name itself suggests, companies try to guarantee that the different stakeholders perceive their activities as legitimate (Islam & Deegan, 2008), that is, consistent with the set of values and expectations that prevail in the environment they operate in. That is the case because, according to Deegan (2002), this theory departs from the premise that there is a contract, a kind of agreement between the companies and society, which establishes the rights and duties for the parties. This contract, according to Dias Filho (2009), is constructed in function of the system of beliefs and values in force. Thus, as from the moment when society values social and environmental issues, in theory, any activity that neglects these aspects tends to be disapproved by society itself. Under such circumstances, the supposed contract is broken and, in practice, this can entail difficulties for the going concern of an organization, in function of possible social sanctions, such as resistance from consumers and suppliers, complaints in communication media, fines, etc.

According to Hartman, Rubin and Dhanda (2007) "existe uma tendência crescente de que as empresas passem a adotar posturas responsáveis perante aos impactos que possam proporcionar a estrutura social do sistema no qual seus negócios são administrados." In the study by Hassan and Ibrahim (2012), for example, it is verified that reports about the stakeholders' participation and specific environmental activities (such as waste management activities and climate changes) influence the probability of gaining an environmental award, an impact factor that affects legitimacy.

Hence, it is considered that, based on the Legitimacy theory, one may suppose that, as the organizations' legitimacy is threatened, they seek means to recover it. One possible route would be to invest in the social and environmental spheres in order to compensate for possible damage the organizational activities provoked. Thus, the company would be showing society that it adopts practices aligned with the social contract, which would lead to a recovery or strengthening of its legitimacy, reflecting in a better image and, possibly, in the achievement of competitive advantage and in the economic and financial results.

2.2 Investments and Socioenvironmental Impacts

One of the ways companies use to disseminate their socioenvironmental investments and other economic, social and environmental information is through the Social Balance Sheet (SBS), more specifically the SBS model established by the Institute for Social and Economic Analyses (Ibase). In that statement, the investments made in social responsibility are shown through three classes of indicators: internal social indicators (refer to investments in employees and their dependents, such as food, health, safety, private social services, training, etc.); external social indicators (related to investments in society, such as education, culture, sanitation, sports, leisure, etc.) and environmental indicators (refers to investments related to company operations and external programs and projects).

In an analysis of the relation between socioenvironmental responsibility investments and financial performance, Santana, Périco and Rebelatto (2006) verified that the revenues are strongly correlated with this kind of investments. These authors, however, highlight that there are other explanatory factors. Kitahara (2007) also declares that they are related, for companies operating with positive as well as with negative results. Nevertheless, the author highlights the influence of other variables in the analysis, such as the publication year of the SBS, company size and activity branch.

Based on these studies, the companies' activity can be one of the determinant factors for making social and environmental investments or not and the degree of investments.

In that sense, in a study involving organizations from the United Kingdom, Brammer, Brooks and Pavelin (2006) detected that social performance varies significantly among different sectors. The authors declare that this was expected, as some industrial sectors exert strong environmental impacts (examples are energy production, chemical products), and environmental performance may be the most important in these sectors. In other sectors, including retailing and manufacturing, the treatment the workers receive will probably be more important. For companies whose brand reputation is crucial, community work can entail a greater impact than other corporate social responsibility aspects (Brammer, Brooks, & Pavelin, 2006).

In an analysis of the behavior of the Chinese market, Kong, Liu and Dai (2012) found results that indicate a difference regarding the type of activity developed. These results suggest that the companies linked to the environment could improve their market values and gain benefits by reinforcing their environmental protection activities. Thus, they confirmed the hypothesis that, if other things remain equal, if a company linked to the environment is more engaged in environmental protection, its market value increases further.

These conceptions are ratified by Fujii, Iwata, Kaneko and Managi (2013) in their investigation of the relation between environmental performance and economic performance in Japanese manufacturing companies. The authors detected a significant positive relation between financial performance and environmental performance based on CO_2 emissions, that is, the reduction in CO_2 emissions conditions a better environmental performance and a better profitability. It is known that the CO_2 emission level is directly related with the type of activity developed, which implies that the activity branch influences the behavior and corporate environmental performance.

In this perspective, but in the Brazilian context, findings from the study by Machado, Bernardo, Pereira and Pessanha (2006) involving 179 companies show that resource seeking companies attempt to compensate for the negative impacts of their activities in their production processes, making more environmental investments than market seeking companies. This shows that the decision to invest in corporate social responsibility depends on factors like the activity sector and the type of pressure the stakeholders exerts. The study by Pereira, Bruni and Dias Filho (2010) confirms this proposition, proving that companies from environmentally sensitive industries seek further legitimacy towards their stakeholders than companies that are not considered environmentally sensitive.

To analyze the relation between the companies' environmental investments and economic performance, Ott, Alves and Flores (2009) undertook a study and proved that environmental investments influence the net revenues and operational income, but that no difference was detected among the sectors.

Machado, Machado and Santos (2010) investigated whether companies' social and environmental investments differed from sector to sector between 2005 and 2007. The authors discovered that the sectors that were most prone to high environmental investments also revealed a great environmental impact, while other sectors, like trade, are more prone to investments in their employees (internal social indicators). The sectors of industrial goods, construction and transportation and cyclic consumption were identified as the most prone to making high internal social investments. On the other hand, telecommunication and utility sectors tend towards low internal social investments. As regards external social investments, the telecommunication and utility sectors are associated with high external social investments, as opposed to the non-cyclical consumption, financial and oil and gas sectors. Concerning investments applied to the environment, the result suggests that the utility sector is associated with higher investments and the financial and telecommunication sectors with lower environmental investments.

In another study, Machado, Machado and Murcia (2011) aimed to analyze the relation between the environmental impact deriving from Brazilian companies' economic activity and their environmental investment volume. Therefore, they analyzed 205 companies who published their SBS between 2005 and 2007. The results found through the Chi-squared test and Correspondence Analysis, confirmed the existence of a relation between the abovementioned variables (impact and environmental investment) and that companies that do not cause an environmental impact are not prone to high investments in environmental issues, as opposed to potentially polluting companies. The authors explain the result found based on the Legitimacy theory and suggest that further research is needed in this sense to confirm or reject the findings, in view of the exploratory nature of this research in Brazil.

Crisóstomo, Souza and Parente (2012) confirm the above results by Machado, Machado and Murcia (2011). These authors observed that companies from sectors classified as more environmentally impacting, according to Law 10.165/2000, which sets guidelines for the National Environmental Policy, have higher environmental indicators.

The influence of the sector on the companies' environmental posture was also investigated in Rezende Dalmácio and Ribeiro (2012). Based on the studies by Arora and Cason (1996) and Banerjee (2002), the authors affirm that the "companies' activity sector also influences their environmental management, as each sector has a distinguished pollution potential (...). Therefore, each sector has a different motivation and posture in terms of environmental management." Rezende Dalmácio & Ribeiro (2012) empirically prove this assertion, detection that industrial companies presented the highest corporate governance level, as opposed to service companies. Due to the sensitive nature of their operations, Pellegrino and Lodhia (2012) observe that mining industries most strongly need to take into account environmental issues.

Thus, as mentioned, This study aims to verify whether there is a significant difference between the socioenvironmental indicators of organizations from sectors with distinguished socioenvironmental impacts, as a way of reaffirming or confronting the results found by Ott, Alves e Flores (2009, Machado, Machado e Santos (2010), Machado, Machado and Murcia (2011) and Crisóstomo, Souza and Parente (2012). In this case, SBS data from 2011 and different statistical techniques were used.

3. Methodological Procedures

3.1 The Sample and Methodological Design

According to the classification by Martins (2000), this research can be classified as an empirical-analytic study. As an empirical study, it aims to serve as an instrument to explain the phenomenon observed, and not to normalize the reality (Lopes, 2004).

The research that resulted in this paper was descriptive and used documentary procedures. The research sample was extracted from the group of all companies that published the Social Balance Sheet in line with the Ibase model between 2001 and 2008. This excerpt was determined in view of the year Law 10.165/2000 came into force, which altered Law 6.938 (1981), and the final year (2008) Ibase monitored the companies that published the Social Balance Sheet according to their guidelines. Law 10.165/2000 relates to the National Environmental Policy and, specifically in its attachment VIII, classifies potentially polluting economic activities into the categories Small, Medium and High Environmental Impact.

Next, the website www.balancosocial.com.br of the Brazilian Institute for Social and Economic Analyses (Ibase) was accessed, which until 2008 monitored the companies that published their SBS according to the Ibase model. On the website, 328 companies were observed that published the document during the time period set. Next, these companies' economic activity and registration status were verified through the website of the Brazilian Internal Revenue Service (RFB), consulting the National Economic Activity Code (CNAE) on their National Register of Legal Entities (CNPJ).

After consulting the RFB portal, 16 companies from the database had already been closed and 24 belonged to a group or were controlled by other companies already present in the database, leaving 288 companies.

To search the social and environmental investment data for the sample companies, their websites were consulted to survey the social and environmental investment indicators in the Social Balance Sheets. After this consultation, it was verified that only 68 published the Social Balance Sheet for 2011 according to the Ibase model on the company website.

Thus, after defining the research sample, the analyses were divided in two different phases to comply with the general objective of verifying whether a significant difference exists between the socioenvironmental investment indicators of organizations from sectors with different socioenvironmental impacts.

The first phase was aimed at verifying the existence of differences between the environmental investments made by companies considered potentially polluting and non-polluting companies. The second research phase was aimed at analyzing whether there is a difference in the main social investment indicators of companies from different sectors.

Therefore, the following indicators were used that are presented on the sample companies' Social Balance Sheets, classified according to Machado *et al.* (2006):

- Internal Social Indicators (ISI): food, compulsory social charges, private social services, health, occupational safety and medicine, education, culture, training and professional development, kindergarten or kindergarten aid, profit or income sharing, others.
- External Social Indicators (ESI): education, culture, health and sanitation, housing, sports, leisure and fun, kindergartens, food, fight against hunger and dietary safety, taxes, others.
- Environmental Indicators (ENVI): investments related to production/operation in the company, investments in external programs and/or projects.

Based on the premises of Legitimacy theory, supposing that companies invest in the social and environmental spheres to compensate for possible damage the organizational activities provoked, the following hypotheses were tested:

Hypothesis 1: *There is no difference in the environmental investment level between potentially polluting and non-polluting companies.*

Hypothesis 2: *There is no difference in the internal social investment level between companies active in different economic activities.*

Hypothesis 3: *There is no difference in the external social investment level between companies active in different economic activities.*

3.2 Methodological procedures for Environmental Investment Analysis

To analyze the environmental investment indicators of the sample companies, the remaining 68 companies were classified in one of the 20 potentially polluting activity categories of Law 10.165/2000, according to their CNAE, as presented in Table 1:

Table 1
Classification of companies according to Law 10.165/2000 per category and environmental impact

Category	Environmental Impact	Quantity	(%)
Extraction and Treatment of Minerals	High	3	4.00%
Iron Industry	High	1	1.33%
Mechanical Industry	Medium	2	2.67%
Electric, Electronic and Communication Industry	Medium	1	1.33%
Transportation Material Industry	Medium	2	4.00%
Paper and pulp industry	High	1	1.33%
Textile, Clothing, Footwear and Tissue Artifacts Industry	Medium	1	1.33%
Chemical Industry	High	1	1.33%
Industry of Food and Drink Products	Medium	1	1.33%
Utility services	Medium	1	1.33%
Transportation, Terminals, Deposits and Trade	High	1	1.33%
Use of Natural Resources	Medium	1	1.33%
Not Classified		52	77.33%
Total		**68**	**100%**

Source: Research Data

Next, to analyze the data concerning the existence of significant differences in environmental investments between potentially polluting companies and companies that are considered, for the sake of this research, as non-polluting because they are not classified in any of the categories listed in Law 10.165/2000, these companies were classified in two groups. The first group included the potentially polluting companies (high, medium and small impact), with 16 entities. The second group contained potentially non-polluting companies, with the 52 entities that perform economic activities not categorized in that law.

Then, based on the sample companies' Social Balance Sheets, the data needed to test the hypotheses for this research phase were consulted. Therefore, the data on the companies' environmental investments were surveyed. The indicator that represents the total environmental investments on the companies' Net Revenues was used.

To test Hypothesis 1, the t-test was used, which according to Bruni (2010), aims to test the equality of population means of two samples. Then, through this test, the existence of significant differences in the companies' mean environmental investments in both groups (potentially polluting and non-polluting) was compared.

3.3 Methodological Procedures for the Analysis of Social Investments

As the company ranking proposed in Law 10.165/2000 is aimed at classifying potentially polluting companies in different environmental impact levels, it does not consider the classification per activity of the other companies that are not considered pollutant in that law. Therefore, to analyze the social investment indicators of the companies in the sample, they were classified according to the sectorial criteria adopted by the São Paulo Stock Exchange (Bovespa):

Table 2
Classification according to Bovespa

Classification according to Bovespa	Quantity	(%)
Utilities	38	56.92%
Financial and Others	9	12.31%
Basic Materials	3	4.62%
Cyclical Consumption	1	1.54%
Oil, Gas and Biofuels	3	4.62%
Non-Cyclical Consumption	5	7.69%
Industrial Goods	5	7.69%
Information Technology	1	1.54%
Construction and Transportation	1	1.54%
Telecommunication	1	1.54%
Total	**67**	**100%**

Source: Research Data

In this stage, it should be highlighted that one of the companies that published the environmental indicators in the Social Balance Sheet did not present the social indicators in the Ibase model. Therefore, this company was eliminated for the sake of the analysis of the social indicators, leaving 67 organizations to compose the sample.

To check for differences in the social investment levels among companies with different economic activities, using the Social Balance Sheets of the sample companies, the data on the social investments were consulted, using information on the total Internal and External Social Indicators (ISI and ESI) presented as percentages on Net Revenues (NR).

To test Hypotheses 2 and 3, the Kruskal Wallis test was used for the comparison of means between groups of more than two components, which according to Bruni (2010) is aimed at testing the hypothesis that the population means of K independent samples are equal. In addition, the ISI and ESI of the companies with different economic activities were analyzed descriptively to perceive what sector invests more in the social aspects. As a statistical analysis tool, the Statistical Package for the Social Sciences (SPSS®), version 15 was used.

4. Results and Discussion

In this study, the presentation of the results was divided according to the research hypotheses. The first hypothesis was aimed at testing whether there is a difference in the environmental investment level between potentially polluting companies and non-polluting companies. The second and third hypotheses, in turn, were aimed at verifying whether there is any difference in the (internal and external) social investment level among companies from different economic activities.

4.1 Environmental Investment Analysis

The test of Hypothesis 1 was aimed at verifying whether there is a significant difference in the environmental investment level of potentially polluting and non-polluting companies. Considering the two groups of companies constituted based on Law 10.165/2000, the first presented the potentially polluting companies, totaling 16, and the second the 52 non-polluting companies. The t-test was applied to check for the existence of differences between the mean environmental investment indicators of these two groups of companies.

As the environmental investment indicator, the percentage of Total Environmental Investments on Net Revenues was considered, present in the Social Balance Sheet. Thus, after the application of the statistical test in SPSS, the result presented in Table 3.

Table 3
T-test Environmental Index

		Levene Test for equality of Variances		T-test for equality of means			
		F	Sig.	T	Df	Sig.	Difference of Means
ENVI	Equal variances	1.047	.310	0.680	66	0.499	0.0212817
	Different variances			1.220	53.337	0.228	0.0212817

Source: Elaborated by the authors

With a significance level of the t-test corresponding to 0.499 (higher than 0.05), the results indicate that there are no significant differences between the investments of potentially polluting and non-polluting companies. The result in question indicates the non-rejection of the null hypothesis of equality of means and supports the result by Ott, Alves & Flores (2009), which identified that the sectors do not present internal homogeneity characteristics with regard to the environmental investments made. Nevertheless, this finding goes against what the Legitimacy theory suggests, that is, that companies tend to make investments in the social and environmental spheres to compensate for any damage their activities provoke.

The results also go against the findings by Machado *et al.* (2006), Machado, Machado and Santos (2010), Machado, Machado and Murcia (2011), which found that sectors with a high environmental impact showed to be more prone to high environmental investments. This result does not confirm the findings of Rezende, Dalmácio & Ribeiro (2012) and Crisóstomo, Souza and Parente (2012) either, which prove that environmentally sensitive sectors have, respectively, a higher environmental governance level and higher environmental indicators.

The results found diverge from what one could expect in function of the premises of Legitimacy theory, in accordance with Pereira, Bruni and Dias Filho (2010) and earlier studies, and may be related to the small sample size and even the fact that the analysis of the environmental investment data from the Social Balance Sheet refers to only one year. The unequal proportion between the number of non-polluting (52) and potentially polluting companies (16) in the research sample should also be considered.

4.2 Analysis of Social Index

4.2.1 Analysis of Internal Social Index per activity sector

The second hypothesis tested in the research was aimed at verifying whether there is a difference in companies' level of internal social investments in different economic activity sectors. Therefore, the ranking of companies according to the São Paulo Stock Exchange (Bovespa) criteria was used.

To check whether the mean percentage of Internal Social Investments on Net Revenues is significantly different for the different company sectors, the Kruskal Wallis test was used to compare the means and descriptively analyze the data regarding the indicator (ISI) for each sector:

Table 4

Result – descriptive statistics ISI

Classification according to Bovespa	Quantity	ISI
Utilities	38	29.08%
Non-Cyclical Consumption	5	33.80%
Oil, Gas and Biofuels	3	35.67%
Industrial Goods	5	39.00%
Financial and Others	9	41.44%
Basic Materials	3	42.00%
Cyclical Consumption	1	44.00%
Information Technology	1	46.00%
Construction and Transportation	1	49.00%
Telecommunication	1	64.00%

Source: Research data

The data in Table 4 reveal that the sectors that most investment in internal social issues are Telecommunication (64%), Construction and Transportation (49%) and Information Technology (46%). It should be highlighted that this result did not take into account the amount of internal social investments made, but their proportion in relation to the companies Net Revenues for 2011. This was done to annul the effect of the organizations' heterogeneous size in the analysis. The sector with the lowest ISI was utilities. This result partially confirms the findings by Machado, Machado and Santos (2010) as, in the two studies, the utilities sector tends towards low internal social investments.

The result of the Kruskal-Wallis test for the comparison of means showed a significance of 0.514, which implied the non-rejection of the null hypothesis, that is, there are no signs of differences for the mean ISI among the different sectors. As it cannot be affirmed based on the results found that companies from different sectors with different social impacts invest in social issues to a different extent, it is considered that the Legitimacy theory cannot fully explain the result, which differs from the findings by Brammer, Brooks and Pavelin (2006) that the social performance varies among the sectors. It should be highlighted that these investments are predominantly coercive, as they mostly relate to compulsory social charges, profit or income sharing, among others, which can vary according to the specific legislation or labor conventions in each sector.

This indicator also includes the investments in employee training, which can partially justify the high rates in the Telecommunication and Construction and Transportation sectors, in view of the competition inherent in the Telecommunication branch and the need for training and appropriate safety in the Construction and Transportation sector, in function of the risk this activity entails.

4.2.2 Analysis of External Social Index per activity sector

The third hypothesis tested in the research aimed to verify whether there is a difference in the external social investment level among companies from different economic activity branches. The database was the same as for the previous analysis and the applied tests. The following results were obtained:

Table 5
Result – descriptive statistics ESI

Classification According to Bovespa	Quantity	ESI
Telecommunication	1	10.00%
Oil, Gas and Biofuels	3	14.67%
Non-Cyclical Consumption	5	20.20%
Basic Materials	3	22.33%
Financial and Others	9	24.78%
Information Technology	1	32.00%
Industrial Goods	5	33.60%
Public Utility	38	40.79%
Construction and Transportation	1	41.00%
Cyclical Consumption	1	42.00%

Source: Research Data

The data in Table 5 indicate that the sectors with the highest external social investment percentages in relation to the Net Revenues are Cyclical Consumption (42%), Construction and Transportation (41%) and Utilities (40.79%). Regarding this index, remarkably, the Telecommunication sector, which obtained the highest ISI, presented the lowest ESI (10%), partially supporting the fact that a high ISI can predominantly derive from regulatory and legal issues for the activity sector. The findings by Machado, Machado & Santos (2010) confirm the fact that the utilities sector is one of the sectors that most spend resources for the external social aspect.

The comparison of means among the different sectors by means of the Kruskal Wallist test showed a significance of 0.091, leading to the non-rejection of the null hypothesis, that is, it was confirmed that there are no significant differences for the mean ESI between the different sectors. In this case, the approximation of the significance to a value below 0.05 should also be highlighted, which could presuppose a difference in the means investments in external social actions between the different groups and reinforce a greater discrepancy between the groups in comparison with the ISI. Also in this case, the result is not aligned with the premises of the Legitimacy theory and diverges from Brammer, Brooks and Pavelin's conception (2006) that social performance varies among different sectors.

5. Final Considerations

This study was aimed at verifying whether there is a significant difference between the socioenvironmental investment indicators of organizations from sectors with different socioenvironmental impacts.

Therefore, the study was elaborated in two phases. The first was aimed at checking whether there is a difference in the investments made by potentially polluting and non-polluting companies according to Law 10.165/2000. And the second verified the existence of differences between the levels of (internal and external) social investments by the sample companies, categorized based on the Bovespa classification of economic sectors.

The data were collected from the Social Balance Sheets published by the sample companies for 2011, and analyzed through the t-test for environmental investments and the Kruskal Wallis test for social investments, due to the number of categories for analysis.

The results of the t-test indicate that there are no significant differences among the environmental investment levels for potentially polluting and non-polluting companies, a fact the Legitimacy theory cannot explain. This result is aligned with the research by Ott, Alves and Flores (2009), but not with the findings by Machado *et al.* (2006), Machado, Machado & Santos (2010), Machado, Machado and Murcia (2011), Crisóstomo, Souza and Parente (2012), Rezende, Dalmácio and Ribeiro (2012) and Pellegrino and Lodhia (2012).

The Kruskal Wallis test results also suggest that there is no difference between the internal and external social investments of companies from different sectors, whether in the telecommunication or oil, gas and fuel sectors, going against the findings by Brammer, Brooks and Pavelin (2006). Similarly, this result finds no support in the Legitimacy theory.

Based on the descriptive analysis, it was perceived that the companies from the Telecommunication, Construction and Transportation and Information Technology sectors invested a larger part of their net revenues in internal social matters than companies from other sectors, such as utilities for example. This result partially supports the results by Machado, Machado and Santos (2010).

It is highlighted that most of the investment components are established in specific laws or labor conventions for each sector. That is one possible explanation for the result found. The fact that civil construction companies invest more in this sphere does not necessarily mean that they are more socially responsible than others. It indicates a controversial issue that this branch very probably invests in training and safety, which belong to the internal social investments, because the civil construction activity entails many health and occupational risks. This fact suggests the application of distinguished tax rates to organizations in function of the potential damage deriving from their activities.

The sectors that most made external social investments in relation to the proportion of Net Revenues are Cyclical Consumption, Construction and Transportation and Utilities. These findings partially confirm the findings by Machado, Machado and Santos (2010).

The results found diverged from the initial expectation regarding the premises of the Legitimacy theory and most earlier studies. This fact can be related to the limited sample size and also to the period analyzed. The difference between the proportion of non-polluting (52) and potentially polluting companies (16) in the sample should also be considered as a research limitation.

Hence, studies are recommended that use the sustainability report according to the Global Reporting Initiative (GRI) model as a data source, in view of its large-scale use in the global context, and that use a larger period, in order to permit the use of more robust statistical techniques.

The lack of congruence between these research findings and the theory and earlier studies evidences the need for further research to clarify this question, considering the importance of the theme for the academic community, the market agents and society in the broader sense. After all, based on this kind of studies, the state can even define more appropriate tax policies, setting distinguished rates for companies that negatively affect the environment more and put too much a strain on their workers' health. Equally, this information can be used to establish more effective monitoring and surveillance mechanisms. As regards society, this kind of studies can equip the sectors that represent it to act in a more critical and organized manner, demanding actions from the Public Power and from the companies themselves that truly contribute to the common good.

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