

# CAUSALITY AND MULTIDIMENSIONALITY OF INTERNAL CONTROLS: IMPACT ON ORGANIZATIONS

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## **Abstract**

This study analyzes the managers' (Chief Financial Officer (CFO)) perception of impact of implementation of internal controls. It investigates the causes of adoption in the multidimensionality of internal control of the Brazilian companies traded in the New York Stock market. A survey sent to the CFOs of the 70 companies listed on the NYSE collected empirical data from these companies. The final response rate was 15.16 %. The study uses partial least squares modeling for statistical analysis to test the research question. Our empirical evidence supports the hypotheses that “the greater the level of multidimensionality of controls in an organization the lower the level of causal effects and damage to the control environment. Based on work performed, one is able to infer that overall, there is a significant relationship between causal effects on operating activities, financial reporting and compliance in relation to the multidimensionality of internal controls, thus, when there are uncommon features, depending on the level of multidimensionality special attention should be paid to the causes of adoption of controls to track risks posed to business.

**Keywords:** causality; multidimensionality; internal controls, dysfunction, COSO.

## **1. Introduction**

The organizational environment constantly suffers natural changes which could be attributed to interactions among people, whether internal or external to organizational processes. According to Kinicki and Kreitner (2006, p.51), these interactions may be considered "a socialization process in which a person learns the values, norms and required behaviour which allows him to participate as a member of an organization." Regarding changes, Birth and Reginato (2007, p.2) explains that the organizational environment is increasingly turbulent, uncertain and dynamic, and adds that there are many factors that contribute to it: "life cycle of products becoming shorter, competition, constant technological updates, globalized markets, among others (...)"

In this line of thought corporate governance came to the scene and internal control became a showpiece to minimize problems such as of information asymmetry and agency conflicts arising from this interaction. Thus, it becomes imperative for organization to have an

information system capable of enhancing managerial process by providing systemic and periodic reports towards goal congruence. Suffice it to say that, internal controls have become crucial, since they assist in identifying and mitigating the risk of possible failures in business processes, enabling existing cases to be handled in due time.

Organizational control [...] represents the means used by management to establish code of conduct to be followed by members of organizations so that they are led to effective development (BIRTH AND REGINATO P3, 2007). Whereas Pereira (2001 p.61) sees that control is meant to ensure, through a correct course of "direction" that planned results are effectively attained [...]. Nascimento Silva and Ott (2007, p.93) argues that the internal controls and procedures, have the essence, to fundamentally assure the integrity of information on all events that relate to business activities.

In light of the aforementioned, internal controls must be interpreted for this study, as all the procedures adopted by management to track problems and minimize risks so that organizations could effectively attain their objectives and provide transparent and reliable information to its stakeholders. This sort of control should be implemented at all levels of the organization, albeit existence of various dimensions among which we mention: the control environment, assessment and risk management, control activities, information and communication and monitoring.

Similarly, while these dimensions assists the implementation of the said controls we should observe that in order to excel the pillars of Corporate Governance (accountability, fairness, responsibility and transparency), naturally, limitations do exist, after all, there are collective efforts and involvement of not only top management but also all staffs linked to business activities. Thus, one problem that must be addressed by the organization is the emergence of conflicts, as explained by Kinicki and Kreitner (2006, p.277) that conflict is a process in which one party perceives that its interests are being opposed by the other party adversely affected. In this case, as interests may be usurped in such situation; conflicts may be one reason that can render ineffectiveness of internal controls, leading to losses.

Another issue relating to effectiveness of internal control is the dysfunction of the controls, i.e. excessive standardization and conformity in processes may affect the company in two ways: inhibition of employees, so that attitudes are not predictable and there is damage to the spontaneity and even creativity, or by having employees to present deviant behavior through collusion, with the aim of undermining the integrity of company assets.

In this context, multi-dimensionality becomes an important variable to be studied in this research, in order to observe the effective deployment and management control, and see whether these dimensions have impact on financial information or maybe highlighting reasons for the generation of conflict. And also, see why it causes lack of compromise or retarding the achievement of organizational goals.

### **1.1 Relevance and contribution of the Study**

This study adds to the theoretical base concerning the Brazilian companies whose stocks are traded in the *New York stock exchange*, such that it assists local researchers and the scientists at large with more abundant information about the causality of control adoption and the dimensionality of such controls in the organizations.

Social wise, a surge in reflection upon the causality of adoption and the relationships of multidimensionality of controls have been provoked by financial reporting scandals that have gained notoriety recently which in turn provoked a question in relation to the effectiveness of internal controls implemented by top management. Thus we throw more light into the necessity for creation of controls to mitigate the causes of adoption. This also collaborates with the eliminating of redundancies or outage controls which do not add value to the investors nor does it satisfy top management.

## 1.2 Problem Statement

In order to own a solid and effective internal control, therefore, an organization ought to conceive its various dimensions and monitor them concurrently, so as to take advantage of all knowledge and intellectual properties derived therein, thus maintaining a minimum level of risk. Assaf Neto (2008) affirms that in all activities of an organization, risk is constant and that recent corporate scandals show that internal controls are exposed to errors or frauds, such that all organizations long for effective controls in order to protect their assets.

At the heart of these control dimensions are the perceived causalities for adoption (in some cases appearance of dysfunctions or not) of internal controls being managed. In case the top management do not revise them periodically or that they lack preventive measures, the entity could face financial loses.

Therefore, based on the aforementioned, the following research question becomes essential: What is the relationship between the causality of adoption or dysfunction and the multidimensionality of internal controls in organizations?

## 1.3 Research Objectives and Hypothesis

The main objective of this study was to verify the level of the relationship between the dimensionality of internal controls and the causality of adoption. As secondary objective, the study identifies the cause and effects in control procedures and ascertains how this contributes to its effectiveness.

Thus, to guide this study we contemplate on the hypothesis that there is a relationship between the multidimensionality of internal controls in an organization and the causal effects of its adoption or dysfunction.

## 2. LITERATURE REVIEW

### 2.1 Internal and External Controls

Imoniana (2008, p.2) defines control as the exercise of authority over economic, financial and accounting events, implemented through operational policies and procedures in organizations in order to protect the assets of a business and assure the collection and dissemination of appropriate information, seeking to ensure that the wishes of senior management are met. Too corroborate the sayings above; Chiavenato (2003) adds that the control is something universal, inherent to all human activities, which consists of a process that directs the implementation of activities for the purpose stated beforehand in organizational planning. Additionally, by reiterating what has been said, Atkinson (2000) highlights that control is configured as an administrative tool to enable entities to obtain a good performance and achieve their goals.

Independent of organizational structure, predominantly there are two types of controls: internal controls - performed by management and external control - as practiced by the government regulation. In other words, controls that are questionable and those which are mandatory. Manzi defines internal controls of an organization as the set of policies and procedures established [...] to ensure that the inherent risks in their activities are recognized and managed properly (2008, p. 770). According to Silva Jr (2000, p. 16) internal control means, all the processes and routines, administrative or accounting, designed to make the company's: (a) employees comply and adhere to policies outlined by the top management, (b) assets have their integrity protected, (c) and operations are properly recorded in its entirety, in the books of account and fairly portrayed by the financial statements.

The internal control system has as main objectives:

a) Check and ensure the compliance to the company's policies and standards, including code

of ethics in business and professional relationships;

- b) Obtain appropriate information, reliable, quality and on timely basis, and that they are really useful for decision-making;
- c) check the veracity of reports and accounting reports, financial and operational;
- d) protect the assets of the entity, which includes property and rights;
- e) To prevent errors and fraud, in case of occurrence of same, enables discovery as soon as possible, determine its extent and correct assignments responsibilities;
- f) Serve as a tool for locating errors and waste, while promoting uniformity and correction;
- g) Record adequately the various operations, to ensure the efficient use of company resources;
- h) Encourage staff efficiency through the monitoring carried out by means of reports;
- i) ensure the legitimacy of the liabilities of the company, with the appropriate bookkeeping and control of reserves, actual and expected losses;
- j) Ensure the proper processing of transactions of the company, as well as the effective recording of all expenses incurred during the period;
- k) Allow the observance and strict enforcement of existing legislation (OLIVEIRA; PEREZ JR.; SILVA, 2009.)

The creation and use of internal controls in organizations must follow the regulation that ensures efficient procedure of transparency of financial statements. As per COSO (1992, p. 13) there is no perfect system of internal controls, due to collusion between employees, who retains control of the company's operating cycle and can indulge themselves by circumventing the system in an unlawful manner, making imperceptible control weaknesses. Ribeiro (2002, p.14) reports that in Brazil the external control of public administrative acts can be made by the Legislature with the help of the Federal Auditors. Quoted by Lima (2007), Article 71 of the Constitution of the Federative Republic of Brazil stipulates that external control is exercised with the assistance of the Federal Auditors, which shall, among other duties, assess and issue a prior opinion on the annual accounts of the President; evaluate the accounts of public officers and others responsible for public money and values, as well as those who might have caused losses or other irregularity to the treasury. In their initiative, the Congress, the Senate Technical Committee or others, inspections and examines reports from administrative units.

By comparing the internal control to external control, Ribeiro (2002, p.13) notes that external control tends to have more independence in relation to the organs of power that is being monitored. This in our understanding it tends to have a more corrective approach than of advice to the government units which in the case of internal controls are outstanding in a preventive approach.

## **2.2 Contract Theory**

The contract theory interchangeably used for agency embraces the interests of all parties to a contract in which shareholders delegate the decision-making authority to managers. As in Jensen-Meckling (1976), the agency problem occurs when managers make decisions in order to maximize his personal utility and not the wealth of all shareholders. According to Andrade and Rossetti (2007, p.85), [...] the agency conflicts in the business world can hardly be avoided for two reasons. The first, summarized in the Klein axiom, according to which there is complete agreement. This axiom is synthesized in the Jensen-Meckling, which justifies the lack of a perfect agent. Given this scenario, regulations such as of Corporate Governance and Sarbanes-Oxley Act, are designed to reduce these agency conflicts. The Sarbanes-Oxley, which was promulgated in 2002 in the aftermath of corporate scandals, has as its goal, according to Borgerth (2007, p.19) [...] establish penalties, restrain unethical procedures and in disagreement with good corporate governance practices by firms operating in the U.S. market. The ultimate goal of the law is to restore the level of confidence

in the information generated by firms and thus consolidate the efficient market theory, which guides the operation of securities markets.

According to the IBGC (Brazilian Institute of Corporate Governance) Sarbanes-Oxley is the biggest reform of the legislation of the new capital markets of the United States since the enactment of basic laws on securities in 1933 and 1934 due to the New York stock market crash in 1929. The Sarbanes-Oxley Act was presented as an element of renewal of best practices for legal compliance (compliance), provide accounts of responsible (accountability), transparency (disclosure) and sense of justice (fairness).

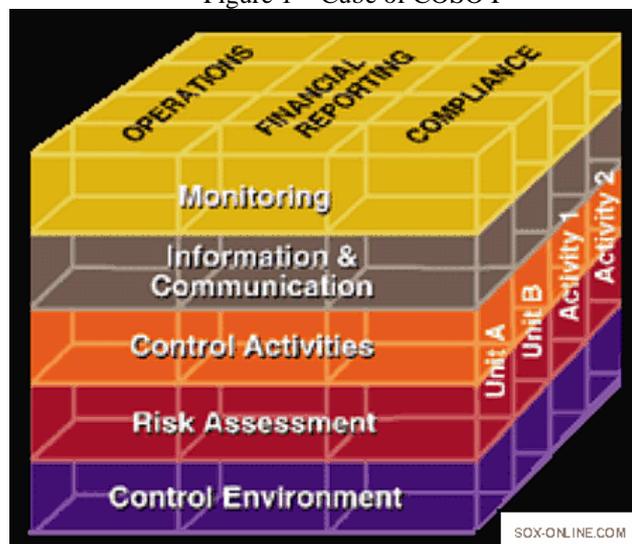
According Brogerth (2007, p.20), in order to monitor the application of the Act through to the PCAOB (Public Company Accounting Oversight Board), a private entity supervised by the SEC (Security Exchange Commission) is mandated to supervise the audit work of public companies, to protect investors' interest and promote public interest in the preparation of audit reports that are informative, accurate and independent. CVM (2005) defines corporate governance as a set of practices which aims to optimize the performance of a company to protect all stakeholders such as investors, creditors and employees, facilitating access to capital market. Punsuvo (2006 p. 24) corroborating the work of Shleifer and Vishny (1996) mentioned that , corporate governance is represented by a set of rules established by administrators for themselves or for investors to administrators in order to reduce the inefficiency of resource allocation and motivate the investor to increase investment.

According IBGC (2006, p.37), good corporate governance practices are designed to increase the value of society, facilitating their access to capital and contribute to its continuity.

### 2.3 Multidimensionality of Controls

Getting an effective internal control system means to identify and understand the dimensions of the controls and their importance in achieving the results of an organization; these dimensions are diverse and multifaceted. As one of the principal regulations, besides those already mentioned above, that helps senior management to get this understanding and mitigating the risks we have the COSO (in Portuguese, the National Commission on Fraud in Financial Reports), which, as Cosif ( 2010) corresponds to a nonprofit organization dedicated to improving financial reporting through ethics, effectiveness of internal controls and corporate governance. COSO - Committee of Sponsoring of the Treadway Commission is considered a model for standardization of internal controls that enhances management of corporate risks. In 1992, COSO published the COSO I, which is based on the perspectives of five dimensions in the organization, as shown Figure 1 below:

Figure 1 – Cube of COSO I



Source: CARVALHO NETO, 2008

In details, these dimensions are: (a) control environment - represented by the culture and consciousness of the entity's control. The control environment will be influenced by people's awareness of its technical competence, their responsibility in the organization and boundaries. The attitude of top management has a role in this element. She must make clear to his players what are the policies, procedures, Code of Ethics and Code of Conduct to be adopted; (b) assessment and risk management - represented by the identification of risks threatening the achievement of objectives and operational goals of the entity. You should evaluate what actions are necessary to mitigate the identified risks; (c) control activities - are the activities to be undertaken with the objective of reducing or managing the risks of the entity. Control activities can be classified as preventive or detective. For effective control is not enough simply to exist, one must implement them in a weighted, conscious and consistent format, let to say a control problem, which may be corrective; (d) information and communication - essential for the proper functioning of the entity's controls. Communication is the flow of information within an organization that is transmitted from the hierarchical levels above the lower hierarchical levels and vice versa. The information, internal or external, should be assessed and reported promptly to people who need them, and (e) monitoring- the process of evaluation of internal control during the course of its operation. The monitoring will verify the effectiveness and adequacy or otherwise of the entity's internal controls.

#### **2.4. Causality and adoption of Internal Control**

Causality, according to Ferreira (1999), can be defined as a quality of the relationship of cause and effect. Cause is a reason, an event, a source or motive. Considering that the principle of an organization is meeting the expectations of each stakeholder's value (COKINS 1996). Internal controls can be considered a tool to protect the company against various risks in pursuance of objectives. Assuming this as a premise, all the measures adopted by management, may be the causes of both positive and negative effects on the companies' control environments. Thus, the cause of an organization to adopt an internal control system, through an established relationship would be to achieve acceptable level of risk and assure that the management to deploy a system for identifying, measuring, monitoring and risk control. (BIS, COMMITTEE ON BANKING SUPERVISION, BASEL, 2010).

Causal attributions for both positive and negative effects on organizational performance and impact on accounting information, arising from controls can be adapted from assigned model [...] attributed due to internal and external factors (Kinicki and Kreiner, 2007, p.101).

In this context, the causes that affect the security level in a company's internal controls may be related to the environment in which it operates, or causes can be directly related to how to manage resources used by the management.

With respect to influences on the environment and resource management, this include: Marketing, Economics, Policies, Demographics and Technology. Thus, there is evidence in the quest for efficiency of internal controls, given that the lack of it can be classified as one of the causes of dysfunction.

Granger (1969) proposed a test of causality between variables, in which one seeks to find a relationship of meaning and causal correlation between two variables. Gujarati and Yoshida (2000) say that the Granger causality test aims to detect the direction of causality in the existing relationship between two variables.

This study aims to identify and measure causal relationships among them maybe determinant to produce effects on the company's internal control. In an organizational environment, the issues presented to be administered taking into consideration the company's

goals, can influence its economic performance in the market. In this context, the variable control environment backfires in the variable of performance when internal control is ineffective.

The issue of causality in the effectiveness of internal controls can also be tied to the company's culture and levels of satisfaction and personal ethics and the ethics adopted by the company. These aspects are measured subjectively, but can have adverse effects on internal controls.

Linked to efficiency is the multidimensionality of a dysfunctional control structure. The dysfunction has many aspects, which can disrupt the functioning of controls, thus limiting the scope of the goals of the organization as a whole. Oliveira (2000), says that the dysfunctions, ie, the irregularities can interfere with the goals of the organization because these disorders are confused in the environment, making even the quality of life of individuals to remain unsatisfactory. In an organization there may be two types of conflict, functional and dysfunctional. Kreitner and Kinicki (2007, p.278) functional conflict is referred to as constructive or cooperative, while the dysfunctional conflict affects organizational performance, and it is destructive.

Chiavenato (1999, p.143)" there are adaptive organizational cultures and other non-adaptive. The first being characterized by their softness and flexibility and is geared towards innovation and change. The second, by its rigidity, and is geared towards maintaining the *status quo*, that is conservatism".

Gomez and Salas (1999) says that "the degree of autonomy (discretionary character) who always have people on how to guide their behavior, and whose reduction by a rigid formalization may produce dysfunctional effects."

Talking of the side effects, too many rules, regulation and procedures adopted pursuant to order, can also be a cause of dysfunction, hampering the standard behavior of people, inhibiting creativity and even the productive capacity, which is also harmful to the company's business. Therefore, dysfunctions can be interpreted as irregularities that arise in attitudes and form of management, as well as in the working environment and behavior of each individual. Thus, the challenges for internal control today is how to adapt the values of Corporate Governance with the initial task of drawing a cognitive map of leaders and compensation style, innovation created and financial performance. This in turn integrates the payers into the company's culture, while seeking to meet existing standards without interfering with the motivation and satisfaction of their employees so as to achieve their goals efficiently. This requires the adoption of a strategic control system to meet the expectations of investors and users of financial information.

### 3. METHODOLOGY

The portmanteau of this study is descriptive-explanatory. According to Gil (1999), descriptive research aims to describe the characteristics of a given population or phenomenon or establish relationships between variables. One of its most significant features is the use of standardized techniques of data collection. Andrade (2002) points out that descriptive research is concerned with observing the facts, register them, analyze them, sort them and interpret them, and the researcher does not interfere with them. According Triviños (1987), in descriptive study the researcher requires a precise definition of techniques, methods, models and theories to guide the collection and interpretation of data, whose goal is to check the validity of scientific research. Gil (1999) notes that the explanatory research aims to identify the factors that determines or contributes to the occurrence of phenomena. Explanatory is a complex type of research, because in addition to recording, classification, analysis and interpretation of the phenomena studied, attempts to identify its determinants. Explanatory research aims to deepen the knowledge of reality, seeking the reason why things happen and therefore more subject to error (ANDRADE (2002,

p.20).

### 3.1 Method

This study followed the patterns of a qualitative and a quantitative nature of study. Concerning the qualitative characteristics, according to Bogdan and Biklen (1994, p. 47-50), we highlight: the direct source of data in the natural environment characterized by being descriptive, the data collected are in form of words or images, not numbers, the process is more important than simply outcomes or products, as has the trend of an inductive analysis. According to Godoy (1995): Depending on the nature of the problem which is being studied and the issues and objectives that guide the research, the choice of qualitative approach often becomes the most appropriate when dealing with unfamiliar problems and the research is exploratory, this research may be more appropriate. When the study is descriptive and what is sought is an understanding of the phenomenon as a whole in its complexity, it is possible that a qualitative analysis is indicated. Even when our concern intends to understand the network of social and cultural relations that are established within organizations, qualitative work can provide interesting and relevant data. In this sense, the choice of qualitative methodology is done after the problem definition and establishment of the research objectives it wants to accomplish. Demo (1995, p. 231) opined that although alternative methodologies may be easy, as one-sided policy to assist the obtainment of results, it is important to remember that no one is broader or better than the other in terms of approach. Both are equally important methodological. However, Teixeira and Pacheco (2005, p.60) characterized it by the use of quantification in both methods of collecting data and about the treatment of such data by means of statistical techniques."

The main aspects of qualitative and quantitative researches have been summarized in table 1.

**Table 1 – Aspects of Qualitative and Quantitative Researches**

Aspects	Qualitative Research	Quantitative Research
Objective	To achieve a qualitative understanding of the reasons and motivations underlying data	Quantify and generalize the sample results for the target population
Sample	The number of sample cases is small and unrepresentative	A large number of representative cases
Data Collection	Non Structured	Structured
Nature of Data	Risky and In-depth	Hard and Reliable
Research Strategy	Non Structured	Structured
Data Analysis	Non Statistical Content Analysis Discourse Analysis Grounded Theory	Quantitative Statistical
Results	Result recommended a final course of action	Result recommended a final course of action
Relationships among theory, Concepts and the Researcher	Emerging	Confirmatory
Scope of research findings	Ideographic	nomothetic
Image of the social reality	Processual and socially constructed by the researcher	Static and external to the researcher

Source: Adaptad from Bryman (2004, p. 94)

### 3.2

### Sample

The sample was drawn from the CFOs of the 70 companies listed in the NYSE, collected empirical data from these companies through a non-probabilistic approach. In this

case, the results are valid only for this group. In most cases, samples of scholarly work in the areas of management and accounting are not probabilistic, due to a combination of circumstances that limit the use of probability, including the aforementioned time constraints and cost, and the fact that the level of analysis focuses more on the organizations. (Mackenzie, 2007)

### **3.3 Research instrument**

The study was guided by a semi-structured questionnaire, constituting 33 structured questions (divided between the Pillars of the COSO: Control Environment, Risk Assessment, Information and Communication and Monitoring), with responses classified in 5 likert scales of relevance in two extremities. We also had 5 unstructured questions. The questions were made available through [www.formsite.com](http://www.formsite.com) for representatives of Brazilian companies listed in New York Stock Exchange to provide their responses. With very great difficulties in convincing the CFOs through the institutional relations give responses to the questionnaires, Copel, CSN, FIBRIA, SABESP and VALE were our respondents, which corresponds 15.16% response level.

## **4. Data Analysis and Results**

Analysis of the structured questions was assisted by SPSS - *Statistical Package for Social Science* to confirm the causality of the explanatory variables for the controls with relation to their multidimensionality. In this task, we used the Pearson correlation coefficient. Noteworthy, Stevenson (2001) states that correlation has two properties that characterize the nature of a relationship between two variables: one is its sign (+ or -) and the other is its magnitude. This coefficient, usually represented by "r", takes only values between -1 and 1 being that the closer these numbers the greater the strength of correlation of variables, which may be positive or negative correlation.

Thus, considering that the level of significance less than or equal to 0.10 (10%) as relevant for further analysis of each correlation, the significance of a test is the maximum probability of rejecting a true null hypothesis and therefore the closer to zero is the index of greater significance is the probability that the hypothesis being tested happens. Thus, we describe the relationships as follows:

### **4.1 Relationship between Control Environment**

As a matter of fact, segregation of duties indicated the level of significance correlating 87.5%, with job descriptions and specific references to the responsibilities and obligations. Also, in relation to HR policies, and number of employees, level of experience, also showed a correlation of 87.5%. As seen in Table 2, these two variables showed significant effect at 0.052 each.

The Code of Conduct of the company presented a level of correlation of 87.5%, with 0.052 significance of employee satisfaction. In other words, the Code of Conduct as well as being available to all employees at all levels of the organization should promote activities in which the employee could express their opinions and give suggestions. It is important that management listens to its employees while the company employees should reflect what the norms of the company are. Note also, that correlated with satisfaction, the question of commissions regarding the fulfillment of goals, with 85% and significance of 0.068. It is understood that the company should set deadlines for short and long term pays through commissions.

The question of the existence of committees reached the level of correlation of 93.2% and significance of 0.021 with job descriptions and salaries. It appears that the remuneration



Q 12	Pearson Correlation	,875	,919	,375	,042	,563	,563	,000	-,250	,294	,063	,869	1	,868	,332	-,250	,707	-,153	,748	,294	,913
	Sig. (2-tailed)	,052	,028	,534	,947	,324	,324	1,000	,685	,631	,920	,056		,057	,585	,685	,182	,806	,146	,631	,030
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 13	Pearson Correlation	,919	,667	,612	,068	,663	,663	,323	-,153	,480	,357	,873	,868	1	,090	-,153	,577	,167	,806	,480	,745
	Sig. (2-tailed)	,028	,219	,272	,913	,222	,222	,596	,806	,413	,555	,053	,057		,885	,806	,308	,789	,100	,413	,148
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 14	Pearson Correlation	-,147	,662	,516	,713	,590	,590	,233	,332	,405	-,221	,276	,332	,090	1	,332	,834	,090	,461	,405	,000
	Sig. (2-tailed)	,813	,223	,373	,177	,295	,295	,706	,585	,499	,721	,653	,585	,885		,585	,079	,885	,434	,499	1,000
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 15	Pearson Correlation	-,375	-,102	,375	,875	,563	,563	,791	1,000	,784	,688	,200	-,250	-,153	,332	1	,354	,868	,408	,784	-,456
	Sig. (2-tailed)	,534	,870	,534	,052	,324	,324	,111	,000	,116	,200	,747	,685	,806	,585		,559	,057	,495	,116	,440
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 16	Pearson Correlation	,354	,866	,707	,707	,884	,884	,447	,354	,693	,177	,756	,707	,577	,834	,354	1	,289	,866	,693	,387
	Sig. (2-tailed)	,559	,058	,182	,182	,047	,047	,450	,559	,194	,776	,139	,182	,308	,079	,559		,638	,058	,194	,519
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 17	Pearson Correlation	-,102	-,167	,612	,748	,663	,663	,968	,868	,881	,868	,327	-,153	,167	,090	,868	,289	1	,528	,881	-,373
	Sig. (2-tailed)	,870	,789	,272	,146	,222	,222	,007	,057	,049	,057	,591	,806	,789	,885	,057	,638		,361	,049	,537
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 18	Pearson Correlation	,612	,722	,748	,612	,953	,953	,645	,408	,854	,578	,946	,748	,806	,461	,408	,866	,528	1	,854	,497
	Sig. (2-tailed)	,272	,168	,146	,272	,012	,012	,239	,495	,065	,307	,015	,146	,100	,434	,495	,058	,361		,065	,394
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 19	Pearson Correlation	,196	,320	,784	,850	,932	,932	,930	,784	1,000	,784	,681	,294	,480	,405	,784	,693	,881	,854	1	,000
	Sig. (2-tailed)	,752	,599	,116	,068	,021	,021	,022	,116	,000	,116	,205	,631	,413	,499	,116	,194	,049	,065		1,000
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Q 20	Pearson Correlation	,913	,745	,000	-,304	,228	,228	-,289	-,456	,000	,000	,732	,913	,745	,000	-,456	,387	-,373	,497	,000	1
	Sig. (2-tailed)	,030	,148	1,000	,619	,712	,712	,638	,440	1,000	1,000	,160	,030	,148	1,000	,440	,519	,537	,394	1,000	
	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

The effective participation of members of the strategic decisions of the company, showed a correlation of 87.5% and 0.052 significance in relation to the presentation of financial statements of the company duly reviewed. This in turn revealed a correlation and significance of 91.9% from 0.028 in the matter of appointment of the Supervisory Board, in which 60% of respondents rated it as a very relevant control. The participation of Council members, also showed a correlation level of 91.3% with a significance of 0.030 for the issue of security systems of the organization are reviewed periodically by persons who are independent of the Security Administrator, we can conclude that there is a constant review of internal control systems that can ensure that only authorized persons have access and this factor should be part of the strategy.

Pertaining to Internal Audit showing that it is necessary to conduct tests to ensure the adequacy of liabilities, the level of correlation was 91.9% and significance of 0.028 with a detailed review of financial statements. Moreover, it reinforces the point that the Board of Directors, do submit questions about the financial statement and seeks independent tax advice, with a correlation of 86.6% and significance level of 0.038. The review of both the Audit Committee regarding the appropriateness of accounting policies, as well as labor contracts and benefits, showed a correlation with the level of employee satisfaction in level of correlation of 87.5%, significance 0.052 and 85% with significance of 0.068 respectively. The issue of job descriptions and wages enhancing definition of responsibilities correlates in 88.4% and significance of 0.047, with the revision of policies by the Board of Directors.

Thus, noting that there was a positive correlation of 95.3% and 0.012 for significance of specific controls that exist regarding the hiring of new employees and 93.2% correlation of 0.021 and significance to employment contracts and benefits are reviewed by management and even the Internal Audit, this requires appropriate policies and monitoring of Human Resources training team.

When hiring new employees, the Code of Conduct should be clear and comprehensive. With a correlation of 96.8% and significance of 0.007, shows that new

employees must go through guidelines on the Code of Conduct and this should primarily be available to all, with a correlation of 93% and significance of 0.022 for labor agreements are constantly reviewed.

The issue relating to the responsibility of the Audit Committee must be documented, correlated to the tone of 83.4% and of 0.079 significance to the review by the Board, or the responsibilities of the Audit Committee should be reviewed and monitored by management.

#### 4.2 Risks and Control Activities

As in able 3, with correlation level of 91.9% and a significance level of 0.028, shows the utmost relevance that procedures should be in place establishing goals related to preparation of financial statements in accordance with accounting policies that company is able to mitigate possible risks of fraud.

Table 3 - Value of Risks and Control Activities

Correlations		Question 21	Question 22	Question 23	Question 24	Question 25
Question 21	Pearson Correlation	1	,919	,748	,667	,667
	Sig. (2-tailed)		,028*	,146	,219	,219
	N	5	5	5	5	5
Question 22	Pearson Correlation	,919	1	,792	,612	,612
	Sig. (2-tailed)	,028*		,111	,272	,272
	N	5	5	5	5	5
Question 23	Pearson Correlation	,748	,792	1	,953	,953
	Sig. (2-tailed)	,146	,111		,012*	,012*
	N	5	5	5	5	5
Question 24	Pearson Correlation	,667	,612	,953	1	1,000
	Sig. (2-tailed)	,219	,272	,012*		
	N	5	5	5	5	5
Question 25	Pearson Correlation	,667	,612	,953	1,000	1
	Sig. (2-tailed)	,219	,272	,012*	0	
	N	5	5	5	5	5

\* correlation is significant for a level of 0,10 (2-tailed)

We observed a correlation level of 95.3% and a significance level of 0.012, as very important while analyzing the existence of mechanism that permits the identification of the need for changes in the control activities implemented through periodic reviews of levels of activities. This should be reported to the board, seeking a good reaction to these changes, which can have dramatic effect on the company. Additionally, considered as relevant, but not more than the others already mentioned, to obtain feedback from management and other employees of the council in this process of identification and review of control activities.

#### 4.3 Information and communication

In Table 4, it was observed that most companies felt the same degree of relevance concerning controls pertaining to attention to employee resistance to change in relation to the implementation of new systems / controls and training related to the existence of policies. Relevance was also felt while analyzing procedures related to adequate flow of information within companies and the level of correlation showing 84.5% and a significance level of 0.071. Thus, one can infer that communication *per se* holds the employees to be more oriented towards goal congruence. In this same manner he will be more open to implementation of internal changes.

Table 4 - Value of Information and Communication

Correlations		Question 26	Question 27	Question 28	Question 29	Question 30
Question 26	Pearson Correlation	1	,845	,764	,643	,598
	Sig. (2-tailed)		,071*	,133	,242	,287
	N	5	5	5	5	5
Question 27	Pearson Correlation	,845	1	,645	,845	,354
	Sig. (2-tailed)	,071*		,239	,071*	,559
	N	5	5	5	5	5
Question 28	Pearson Correlation	,764	,645	1	,218	,000
	Sig. (2-tailed)	,133	,239		,724	1,000
	N	5	5	5	5	5
Question 29	Pearson Correlation	,643	,845	,218	1	,598
	Sig. (2-tailed)	,242	,071*	,724		,287
	N	5	5	5	5	5
Question 30	Pearson Correlation	,598	,354	,000	,598	1
	Sig. (2-tailed)	,287	,559	1,000	,287	
	N	5	5	5	5	5

\* correlation is significant for a level of 0,10 (2-tailed)

Along the same line was considered relevance given to employee's resistance to change in relation to the implementation of new systems / controls and training related to the provision of information to employees about their rights and duties. With this, one can infer that the more oriented the employee is the better conditions to achieve company's goals.

#### 4.4 Monitoring

As can be seen in Table 5, with the highest correlation 90.6%, it is considered that disciplinary measures could be taken as a result of transgression of the policies and procedures for self-assessments and periodic evaluations. Where these deficiencies are related to the person directly responsible for the activity and at least one person at top management level, it points to a significance level of 0.034.

Table 5 - Value of Monitoring

Correlations		Question 31	Question 32	Question 33
Question 31	Pearson Correlation	1	,845	,906
	Sig. (2-tailed)		,071*	,034*
	N	5	5	5
Question 32	Pearson Correlation	,845	1	0,816
	Sig. (2-tailed)	,071*		,092*
	N	5	5	5
Question 33	Pearson Correlation	,906	,816	1
	Sig. (2-tailed)	,034*	,092*	
	N	5	5	5

\* correlation is significant for a level of 0,10 (2-tailed)

We noted a higher significance level of 0.092 and correlation of 81.6% between disciplinary measures as a result of violations of policies and procedures of entities and continuing process of self-assessment and periodic evaluation of internal audit, to ensure compliance. This becomes very important because in essence, it is the monitoring of internal

controls over time; monitoring should be continuous and should always be to stimulate the mechanisms of self-assessment, internal reviews and schedule of internal audits.

#### **4.5 Discussion of the qualitative aspects**

Through qualitative analysis of unstructured questions, we reached meaningful conclusions about major issues raised and points mentioned in common by participating companies. Pertaining to the first question no one argued the views of businesses regarding the activities / situations related to the lack of an effective internal control structure. Fibria mentioned that the lack of domestic policies is a major aggravating factor for the weaknesses of internal control environment of a company. Paralleling, Copel mentioned that a company with ERP information systems, probably has a modern and updated internal control with reliable and suitable environment. Sabesp justified the lack of effective internal controls in the absence of a monitoring process and validation of operational activities.

Thus, one could verify the link between these responses: for a company to have an adequate internal control environment and reliable, formalized policies and procedures must have been established, for all activities, which should be connected by a integrated system to ensure the reliability of the information. These activities and systems should be monitored periodically by the company to verify if they are being used and applied correctly. This is fully in line with the assertions in Imoniana (2008) and Imoniana and Nohara (2005). In question No. 2 there is contestation among the following dimensions: "Definition of organizational structure", "Segregation of duties," "Code of Ethics", "Style and management philosophy," Involvement of the governance team, "Policies and management practices", "Risk Assessment", "Monitoring", which were adopted by companies to mitigate the inherent risks and reliability of the financial information statements.

It appears that the extent of control by the companies most cited was the "segregation of duties", an essential point to minimize the risk of fraud as quoted by Vale. Other frequently cited dimensions were "policies and management practices" and "monitoring" by companies such as Sabesp and Vale and "risk assessment" by Copel and establishing a relationship of consistency to the answers in question 1. It may also be noted that Fibria, quoted in question 1 the fact of the absence of domestic policies relevant to weak internal control structure of a business left to quote the same as the procedure adopted by the company itself to mitigate risks errors in accounting information.

As a recapitulation, Question No. 3 addressed the following question: "What is your understanding of the importance of effective internal controls to achieve results? One could observe that companies such as Sabesp and Vale responded on the same line of reasoning that adequate and effective internal controls mitigate the inherent risks in the company. Additionally Sabesp justified that to obtain efficacy in relation to results, it is essential to identify risks involved, and later measure the appropriateness of internal controls. Moreover, Vale noted that risks associated with fraud and operational failures are examples of some key risks that directly affect the bottom line. Thus, risk management becomes very vital.

Concerning question No. 4, it was found that all companies interviewed said they had no significant weaknesses in its internal control environment. However, Vale cited some examples of common failures in internal control processes, such as unidentified risks, controls in place that does not mitigate the risk associated controls in place and not achieved as defined. Again, it is possible to identify a strong relationship between the response obtained by Vale in issue No. 4 with the answers in questions 1 and 2, since companies mentioned that the implementation of policies, appropriate standards and monitoring are essential to foment a reliability of internal control environment without major weaknesses.

As a reminder, question No. 5, asked about major changes in internal controls of companies in the last five years and what were they. Vale companies, CSN and Copel said

they had changes in their control environments in recent years. Valley has justified this change with updates occurring in the market push which allowed a leaner internal control structure. Copel already mentioned that the change in its control environment to derive the changes in sector was legislation and business environment. Moreover, CSN said its internal control structure is updated continuously with such information to meet customer needs.

Thus, we observed that each company had its control environment changed for reasons different from each other. This, notwithstanding makes one infer that perhaps the changing business environment mentioned by Copel and almost all, stimulated a change in this direction, and generally might have originated some cause of adoption of certain controls.

#### **4. Final Comments**

The aim of this study was to investigate the relationship between the causality of control and multidimensionality of controls implemented by the Brazilian companies listed on the NYSE.

One could observe that the dimensions of control implemented by the companies are positively correlated to the cause of the adoption of the internal control systems, ie, the larger the need for a reliable internal control environment are the major dimensions of control adopted by the company, the internal control environment of an enterprise will depend on the needs established by management.

Importantly, the top management plans their organizational structures and consequently the internal control framework, linking that to their objectives of compliance with strategies and detecting the possible risks that may affect the company's goals. Therefore, following the dimensions of COSO, and all the mechanisms of corporate governance we see it as imperative, the involvement of everyone, constituting knowledge that: executives, employees, the Audit Committee, Board of Directors should unit towards goal congruence.

Based on work performed one would say that there is a significant relationship between the explanatory variables of operating activities, financial reporting , and compliance over the multidimensionality of controls, that is the control environment, risk assessment, control activities, information and communication and monitoring.

Given a relatively small sample for this study, configuring limitations, and also considering the difficulties and impossibilities of access to relevant persons who consider internal control issue as sensitive data, we recommend a future research take on a larger sample, so that we can infer on their representativeness.

Finally, yet on future research studies, a suggestion could be to focus on the analysis of the causality of controls in the European Regions with that of Latin America to see if there is any relationship with the governance structures following a standard control dimension recommended by COSO.

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