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Voluntary disclosure in the context of convergence with International Accounting Standards in Brazil

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Abstract

Purpose – The purpose of this paper is to verify the influence of the convergence process to International Financial Reporting Standards on the voluntary disclosure of listed Brazilian companies.

Design/methodology/approach – A voluntary disclosure metric was designed and collected from a random sample of 66 companies registered as active in BM&FBovespa during the 2005-2012 period. For the hypothesis test it was used panel data regressions with random effects.

Findings – The convergence process to International Financial Reporting Standards is presented as an exogenous factor that affected positively and significantly voluntary disclosure in the analyzed period. It leads to the complementary rationale between mandatory disclosure and the voluntary disclosure.

Originality/value – The study presents a new metric for measuring the voluntary disclosure level, with the potential to understand the nature of the relationship between this and the mandatory disclosure. In the Brazilian capital market context, governed by the stakeholder model, convergence to International Financial Reporting Standards induced an increase on voluntary disclosure quality.

Keywords – Voluntary disclosure; Mandatory disclosure; International Financial Reporting Standards

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1 Introduction

From 2005, countries of European Union and other continents had to adopt a set of international accounting standards, known as International Financial Reporting Standards (IFRS). The International Accounting Standards Board (IASB) fully assumed in 2001 the responsibility for setting these standards in order to create common accounting principles, understandable and enforceable globally. Added to this, the possibility of these standards to improve the quality of the mandatory information provided by the companies in the capital markets (Ball, 2006; Barth, Landsman, & Lang (2008).

In Brazil, unlike other countries, the convergence process took place in distinct and successive stages. The first stage, which was characterized as a transition period, began in 2008 after the institution of the Accounting Pronouncements Committee (APC), amendment to the Law 6404/76 and institution of the taxation transitory regime. The second one started in 2010, which required the companies to fully adopt new accounting standards.

Beyer, Cohen, Lys and Walter (2010) and Scott (2012) refers to IFRS as being exogenous aspects that introduce deterministic changes in accounting choices made by companies. These rules, in modifying the content and dissemination of business practices, make it increasingly difficult to distinguish what derives from mandatory disclosure and what constitutes discretionary and idiosyncratic corporate acts.

The nature of the relationship between the mandatory disclosure and voluntary disclosure is ambiguous and may be seen as complementary or substitute. Verrecchia (1983, 1990) suggests that the reduction in uncertainty related to the market value of assets due to the increase in the quality of mandatory disclosure reduces the net benefits in providing additional information. Dye (1985) argues that the application of accounting standards of high quality also reduce the level of voluntary disclosure. In short, quality of the mandatory disclosure would present potential to reduce the information disclosed voluntarily, featuring the substitution effect.

Contrary to this approach, mandatory disclosure may play the role of enhancing the reliability of voluntary disclosure, i.e. transmit verifiable information to investors (Lundholm, 2003). This is because companies would need to find mechanisms to convince market participants about the credibility of information provided voluntarily (Dye, 1986). To Dechow, Ge and Schrand (2010) the voluntary disclosure decisions are endogenous and partially determined by the quality of the mandatory information produced. In this sense, the improvement of quality in mandatory disclosure would increase voluntary disclosure, allowing for the complementary effect.

The Brazilian capital market presents certain characteristics that distinguish it from developed markets, such as weak enforcement, governed by stakeholder model, high volatility, government influence and ownership concentration in the presence of pyramidal structures (Silveira, Leal Barros, & Carvalhal-da-Silva, 2009; Lopes & Alencar, 2010). Thus, we may conjecture that the process of change in accounting standards, a result of convergence to international standards, submitted Brazilian companies to a new mandatory disclosure requirements regime that may have significantly altered the level of voluntary disclosure. In this perspective, the objective of this paper is to verify the influence of convergence to International Accounting Standards on the voluntary disclosure of Brazilian companies listed on the BM&FBovespa. The sample period of data covered eight fiscal years. This frame of time is characterized by representation of three years before the beginning of convergence process (2005-2007), two years for the partial convergence (2008-2009) and three years for full convergence (2010-2012).

The convergence process to International Accounting Standards in Brazil prompted researchers to address issues related to (i) capital market reaction to key events of this process, (ii) the level of compliance to new practices and their

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determinants, and (iii) the economic incentives (see Lima, Lima, Carvalho, & Lima, 2010; Mapurunga, Ponte, Coelho, & Meneses, 2011; Maia, Formigoni, & Silva, 2012; Silva, 2013; Santos, Ponte, & Mapurunga, 2014). Nevertheless, these studies have focused on mandatory disclosure of properties without addressing its possible impact on voluntary disclosure. The exception is the recent investigation published by Almeida and Rodrigues (2015), which investigated the effects of convergence, tracking analysts and dual listing on voluntary disclosure of economic, financial, organizational, social and environmental information. Although this paper deals with the same topic, the theoretical basis, methodological trajectory of research and interpretation of results is distinguished due to the typical characteristics of the sample and the way it was designed the instrument for measuring the voluntary disclosure level.

The study presents a new metric for measuring the voluntary disclosure level. This instrument was designed on the basis of certain voluntary disclosure items which were, over time, replaced by mandatory requirements, such as information related to corporate business segments, risk factors, remuneration, government grants, among others. This is an important motivation for this study because the existing metrics did not capture the changes in the nature of disclosure, from voluntary to mandatory, as result from convergence process and the requirement of the Brazilian Securities Commission (CVM) to the dissemination of the Reference Form Report.

The metric is presented as an innovation to capture the voluntary disclosure, with potential to understand the nature of the relationship between this and the mandatory disclosure. As a theoretical contribution, the results present significant evidence that in the Brazilian capital market the convergence process to International Financial Reporting Standards may have induced an increase in voluntary disclosure quality.

2 Theoretical framework

2.1 The role of mandatory disclosure to voluntary disclosure

Mandatory and voluntary disclosures are two channels for corporate disclosure through which information is spread to market. Under the logic of regulation, voluntary disclosure is one that exceeds that recommended by rule or law and it represents a choice by managers. To Depoers (2000), while compulsory disclosure represents everything that is legal and statutory for disclosure, voluntary disclosure aims to increase the visibility and value of the company with regard to target users. This view, according to Gibbins, Richardson and Waterhouse (1990), suggests that voluntary disclosure can be described as a strategic business behavior.

Voluntary disclosure is seen as being motivated primarily by its effects on the perception of the company's value in capital market (Verrecchia, 1983; Diamond & Verrecchia, 1991; Healy & Palepu, 2001). Thus, companies increase the level of voluntary disclosure in order to reduce the information asymmetry and thus take advantages of the benefits associated with greater stock liquidity and lower cost of capital (Leuz&Verrecchia, 2000; Botosan, 2004, 2006; Lima, 2009; Lopes & Alencar, 2010).There are also factors that explain differences in the voluntary disclosure level among companies, many of which related to specific features. In Brazilian capital market, Murcia and Santos (2012) found that industry, control of origin, profitability, leverage and external audit significantly influence voluntary disclosure. On the other hand, company size, corporate governance and concentration of ownership control were not significant to have impact on it.

Seminal developed studies by Grossman (1981) and Milgrom (1981) are among those that provide the basis for the construction of the theory of full disclosure. These studies show, under the adverse selection argument Akerlof (1970), that managers are driven by the market to fully disclose the private information they have. Subsequent studies such as Verrecchia (1983, 1990), Dye (1985, 1986, 1998), Wagenhofer (1990), Kim and Verrecchia (1994), Dye and Sridhar (1995), Fischer and Verrecchia (2004), among others, demonstrate a variety of voluntary disclosure settings that reveal partial disclosure strategies for managers.

Theoretical models of partial disclosure provide for the extension of the voluntary disclosure depends on the trade-off between the benefits from a reduction of asymmetric information and proprietary costs. To explain why companies do not disclose all the information they have to the market, these models consider the costs of development and presentation of information and the way market participants can interpret the disclosure or its absence (Beyer et al., 2010). Such models, if considered together, predict that benefits of disclosure typically lead to voluntary disclosure, but not of all kinds of information.

Leuz and Verrecchia (2000) provide an interesting discussion about the importance of commitment disclosure compared to voluntary disclosure. If voluntary disclosure can be reversed, this may not necessarily represent a disclosure commitment in the future. This is because the distinction between commitment and voluntary disclosure, is that the first involves the company decision on what to disclose before knowing the content, i.e., a decision ex ante, whereas the latter is a decision ex post that the company does after observing the content.

Lang and Lundholm (1993) suggest that, in a context of low quality of mandatory disclosure, voluntary information would not be assessed as credible by investors. Einhorn (2005) demonstrated that required disclosure changes the trade-off between costs and benefits of voluntary disclosure due to the reduction which it causes on the levels of information asymmetry. Francis, Nanda and Olsson (2008) argue that voluntary disclosure increases only when there is an increase in mandatory information quality. Still, it depends on how market interprets the absence of additional information. In other words, an improvement on mandatory disclosure quality, results in increased voluntary disclosure, which is denominated as complementary effect.

Another strand of the literature highlights that an increase in the quality of mandatory disclosure would reduce voluntary disclosure because the private information before transmitted voluntarily, shall be directly reflected in mandatory disclosure reports (Verrecchia 1983, 1990; Jung & Kwong, 1988). Similarly, assuming that there is a fixed amount of information that managers are willing to disclose, Dye (1985) points out that the application of high quality accounting standards might reduce voluntary disclosure. When quality is particularly high, managers tend to not disclose voluntarily, because much of the information asymmetry has been mitigated by the disclosure required by law.

Mandatory disclosure may be a determining factor for the voluntary disclosure strategies, as well as the overall level of disclosure of companies in the capital markets. However, these antagonistic conceptions complementarity and substitution reveal the complexity of determining and evaluating the effects of disclosure on the capital market. Therefore, differences in the understanding of the relationship between voluntary disclosure and mandatory depend on the nature of the externality generated by what is disclosed, whether real or financial externality.

It seems reasonable to conjecture that some information is more likely to have real effects on cash flow than others (Dye, 1990). The disclosure of earnings forecasts, marginal costs and profitability of an industry segment intuitively lead to potential real effects, which may jeopardize a company's competitiveness. Under the same reasoning, Leuz and Wysocki (2008) state that the real externalities of corporate disclosure are related to consumer trends, technologies and operating practices, and can reach even companies that are not competitors. In contrast, they suggest that disclosure of interest expense, depreciation and provision for losses on doubtful accounts, are unlikely to reveal proprietary data and hence is information that companies subject only to the financial externalities.

2.2 Convergence to international accounting standards in Brazil

The convergence process to international accounting standards allowed Brazil participating in a global system that is intended to improve the quality of accounting information and, consequently, lead companies to take advantage of benefits such as reducing the cost of capital own, greater stock liquidity, reduced analyst forecast errors. Regarding this context of change in accounting standards, researchers sought to examine the quality of implementation, exploring the economic consequences, the level of compliance and adherence regarding required disclosure and factors that might explain differences in the level of disclosure among companies.

Lima et al. (2010) found that (i) largest companies, (ii) the most exposed companies to the international market and (iii) those most in need of funding were more likely to adopt the new accounting provisions in the first year of transition (2008-2009) when the law exempts immediate adoption of certain practices. Finally, when examining the effects of convergence on market liquidity and the cost of capital, they found that market liquidity has improved, but it reduction in the cost of statistically significant capital was not observed. Silva (2013), to evaluate the period of convergence which succeeded the transition, found that there was a reduction in earnings management and the cost of capital, while conditional conservatism, value relevance and timeliness of the information increased. This evidence, according to his analysis, demonstrate the increased information quality through application of new accounting practices adopted by companies.

For compliance of disclosure required by accounting standards, attributes such as the size of the company, external audit firms, internationalization level of corporate governance and debt, seem to influence significantly higher levels of mandatory disclosure (Mapurunga et al., 2011; Maia, Formigoni, & Silva, 2014). Nevertheless, even in the full adoption period, companies still showed low levels of compliance, as noted Santos, Pontes and Mapurunga (2014) evaluated 638 mandatory disclosure items, arranged in 28 accounting pronouncements.

The adoption of IFRS has also rekindled the debate concerning the influence of mandatory disclosure in voluntary disclosure. These investigations, though incipient, assumed that changes in accounting standards would be able to change companies' voluntary disclosure levels. Over the 2006-2013 period, Almeida and Rodrigues (2015) examined the effect of convergence on voluntary disclosure of Brazilian companies and, in particular, on those with longer follow-up of financial analysts and issuers of American Depositary Receipts (ADRs). For the level of voluntary disclosure, a checklist containing 38 items of financial, economic, organizational, social and environmental information was developed. For companies with cross listing, the influence was positive with statistical significance for the three dissemination models (general, economic and financial, organizational, social and environmental).

In short, from the perspective of the advantages and disadvantages of adopting a uniform set of accounting standards were developed research at the national level that have focused on the analysis of the effects of convergence on mandatory disclosure. Although it has been documented substantial differences in behavior, those investigations allow expose that standards by themselves cannot completely eliminate the differences in disclosure between companies. They point also to the difficulty in assessing changes in the content of the information

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disclosed and to separate the potential impact of convergence of other competing factors. When the analysis rests on the influence of mandatory disclosure in voluntary disclosure, the change in accounting standards development seems to elucidate the presence of the complementary effect between them.

3 Methodology and data

3.1 Construction of a voluntary disclosure index

Voluntary disclosure content depends on the economic context of a country, and especially the regulatory characteristics of the capital market in which financial reports are made. Considering this approach, Botosan (2004) points out those different measures were created to better explore what underlies the objective of research or to take into account specificity of the analysis context.

The metrics developed by Alencar (2007), Lima (2007) and Murcia (2009), which were designed from national and international references and applied in the context of Brazilian capital market, contributed to the definition of content of voluntary disclosure index proposed in this research. In addition, disclosure requirements have been expanded beyond those contemplated by those authors.

The informational content of the metric is arranged into four categories: (1) Market overview (2) Corporate strategy, (3) Economic and financial performance, and (4) Operational aspects, presented in Figure 1. Although they are very broad, this content expressed the researchers' intention related to the nature of voluntary items that constitute the metric.

Market View	**Corporate strategy**	**Economic and financial performance**	**Operational aspects**
Information related to the perception of management concerning the dynamics of economic environment, competition and regulation of the market in which the company operates.	Information related to the explanation of corporate strategy for creating of *value* to shareholders based on the objectives, plans or goals. It includes risk management strategy and organizational structure as well as information about the alignment structures of interest, such as corporate governance and incentive system for executives.	Economic and financial analysis of indicators used to monitor the corporate financial performance. Therefore, it includes parameters such as cost of capital, economic value added and results by segments or business units.	Information about the actions taken by management to execute its strategy. It discloses the description of operational activities as well as information on innovation, brand development, training of intellectual capital and relationships with customers and supply chain management.

Figure 1. Categories of voluntary disclosure index

The metric favors the economic and financial information content, although much of the information disclosed by companies, especially those on a voluntary basis, have social-environmental approach. This position stems from the difficulty of evaluating the disclosure of social and environmental information for each case, because they are possibly being disclosed due to specific characteristics of the companies, such as those arising from the performance segment and specific industry regulation.

After defined the disclosure content for each of the categories, it was identified the elements that hold their voluntary nature for the whole period covered by this research. This restriction is due to the interest in capturing the persistence and stability of the whole disclosures of which endogenously would have been defined by companies of the sample. The result was a metric that comprises 27 voluntary disclosure items, presented in Figure 2.

Market view		
1	a, c	Competitive analysis
2	a, c	Market share
3	d	Assessment of major economic trends market
4	d	Government influence on the company activities
Corporate strategy		
5	a, c	Plans and corporate objectives
6	d	Alignment of company activities with the stated objectives
7	a, c	Prospect of new investments
8	a, c	Sales forecasts
9	a, c	Earnings forecasts
10	a, c	Cash flow forecasts
Economic and financial performance		
11	a	Variation in the inventories of goods for sale, inputs or finished products
12	a	Variation in the level of receivables
13	a	Variation in the volume of sales
14	a	Variation in the level of administrative and commercial expenses
15	a	Variation in the level of operational earnings
16	a, b, c	Variation in the cost of goods sold, the products manufactured or services provided
17	a, c	Financial effect from the raising of short and long-term third-party resources
18	a, c	Financial effect from the application of own resources
19	c	Performance of common and preferred shares
20	a, b, c	Global indicators (EVA, EBITDA, MVA)
21	b	Cost of equity
Operational aspects		
22	c	Current production compared to the installed capacity
23	c	Operational efficiency measures
24	a, c	Dependence of technology, suppliers, customers and labor
25	a, c	Investments and divestments
26	a, c	Resources invested in human capital management
27	a, c	Resources invested in education projects, culture and social development

Figure 2. Items that make up the voluntary disclosure index
Note. Items are from Alencar (2007)[a], Lima (2007)[b], Murcia (2009)[c] and for researchers[d].

The replacement of the Annual Information Form Report (IAN) by the Reference Form Report, required by the Instruction 480/09 of CVM, changed the nature of some items which in the past were considered voluntary disclosure (Instrução Normativa CVM n. 480, 2009). The item II of article 21 of this Instruction establishes the requirement for completing the Reference Form Report for listed companies from 2009. In comparison to IAN Report, the nature, volume and detail of information to be provided to the CVM through the Reference Form increased, especially those related to exposure of (i) risk factors, (ii) content for review of the management, with emphasis on debt and funding sources, and (iii) executive compensation. Added to this, the Cash Flow Statement, Statement of Value Added, segment information, government grants, among others, which have become mandatory disclosure requirements. For these reasons, such contents were not included.

The compilation of voluntary disclosure items in annual reports is a key point for the formation of disclosure indexes. Leuz and Wysocki (2008) indicate that, during the process of development of a specific disclosure metric, the researcher needs to consider that voluntary disclosure tends to be presented in narrative form by companies. The Content Analysis technique was conducted during the operationalization of the data collection. To make the collection process of voluntary disclosure index (VDI) more accurate and reliable, it was previously defined the scope of each metric item, explaining the informational content that hoped to find. In general, it was sought to capture the propensity of management of each company to describe more forcefully their actions on the information reported to external users. Specifically for items 11 to 18 of the metric, it was expected that this description include, at least, the previous three years. The units of analysis were the sentences in context, and if any judgment could present more than one classification, it was assessed as greater emphasis on sentence; tables and graphs (monetary or non-monetary) were interpreted as sentences.

The coding scheme of each item of the metric was carried out by the alignment of the exposure to the content of the sentences in the text, as: (i) Missing data: 0 (zero) point when no information is presented on the item of question; (ii) Declarative information: one (1) point when only qualitative information is presented purely in descriptive terms; and, (iii) Declarative information and quantitative (monetary and non-monetary): two (2) points if the information is presented in a declarative way and expressed in numbers of financial and non-financial nature. The method applied on VDI mapping explores the fact that some companies better detail their information, evaluating both descriptive attributes and quantitative information, of what is disclosed without considering a specific user, but the details of information.

According to the coding scheme adopted, companies could obtain an absolute individual score range from 0 to 54 points, at most (27 items x 2). The absolute score of each company, in each year, was divided by the absolute possible score, resulting in an index with values varying between 0 and 1. The closer to 1, the better voluntary disclosure by companies.

To check the internal reliability of VDI, it was used Cronbach's Alpha, which was 0.81 for the years 2011 and 2012; 0.83 for the years 2005, 2009 and 2010 and 0.84 for the years 2006, 2007 and 2008. Cronbach's alpha indicated internal consistency of the instrument without excluding items of the metric.

To data collection, it was accessed the Management Report for the years 2005-2012, the IAN Report for the years 2005-2008 and the Reference Form Report for the years 2009-2012. These reports are comparable among companies, have consistency of presentation and are subject to a uniform presentation framework. The decision by which documents to consider was guided by the understanding that the voluntary disclosure policy comprises a stable set of disclosure practices, as asserted by Francis, Nanda and Olsson (2008). Records with the compiled data to audit the accuracy of the information are archived with the researchers.

3.2 Characteristics of the sample

Researches employing disclosure indexes require an intensive manual collection of data and are feasible only for small samples. Due to the time frame and the need to manually evaluate the voluntary disclosure of companies, the analysis was conducted on a random sample of 66 companies with active registration at BM&FBovespa during the 2005-2012 period (Table 1), obtained by calculating the minimum size for finite populations, with 5% significance and 10% of error.

Table 1
Sample selection

Criteria	Companies	%
Companies with active registration and canceled	664	100
(-) Companies without active registration from 2005 to 2012	(416)	63
Companies with active registration from 2005 to 2012	248	100
(-) Exclusions	(40)	16
Population research	208	100
(=) Final sample	66	32

Companies listed on the BM&FBovespa are distributed in the Economática® over 20 different industries, of which 14 are present in the sample. When a single company represents the industry, it was decided to group in Miscellaneous (Figure 3). Electricity, Steel and Metallurgy are the most representative industries, totaling 30% of the sample as a whole.

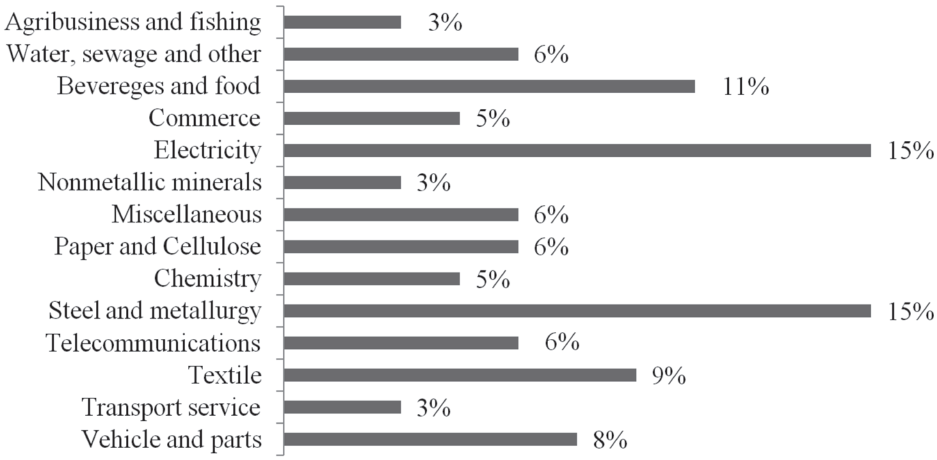

Figure 3. Distribution of the sample by industry

Taking as reference the listing segment in BM&FBovespa, listed companies in the traditional market predominated along the sample, with 60.6% in 2005 and 56.06% in 2012. Comparatively, in 2005 10.5% of the sample was listed as Novo Mercado, reaching 19.7% in 2012.

3.3 Hypothesis, variables e model

International Accounting Standards have been proposed as a way to improve the quality of financial information and make companies more transparency for investors (Ball, 2006). In this sense, convergence, being an exogenous event, creates an attractive setting for analysis of relationship between voluntary and mandatory disclosure, such as analyzed by LaBruslerie and Gabteni (2012), Balakrishnan, Li and Yang (2012) and Almeida and Rodrigues (2015).

According to Dye (1986), Einhorn (2005) and Francis, Nanda and Olsson (2008) the increase in compulsory disclosure quality would increase the likelihood of voluntary disclosure. In this direction, the test hypothesis predicts that:

> **H1:** *The variation in the voluntary disclosure index is positively and significantly influenced by exogenous change resulting from convergence to International Accounting Standards.*

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Yet other variables may also positively influence corporate voluntary disclosure, such as leverage in the capital structure (Depoers, 2000, Lima, 2009; Murcia & Santos, 2012); potential for profitability (Wallace & Naser, 1995; Dye, 2001); growth opportunity (Lopes & Alencar 2010; Murcia & Santos, 2012; Almeida and Rodrigues, 2015); liquidity of stock (Leuz & Verrecchia, 2000; Almeida & Rodrigues, 2015); corporate size (Wallace & Naser, 1995; Depoers, 2000; Leuz & Wysocki, 2008); corporate governance (Silveira et al. 2009; Murcia & Santos, 2012); and industry regulation (Murcia & Santos, 2012). Nevertheless, companies with high ownership concentration may have reduced interest in the provision of information to the market, because a communication policy, even if restricted, meets a significant part of demand of shareholders (Leuz, 2006; Lopes & Alencar, 2010; Murcia & Santos, 2012; Almeida & Rodrigues, 2015).

Equation 1 comprises the general model used for the statistical tests to explain how the voluntary disclosure is affected by mandatory disclosure.

$$VDI_{i,t}= \alpha_0 + \alpha_1 IFRS_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 CON_{i,t} + \alpha_6 GROWTH_{i,t} + \boldsymbol{\alpha}_7 LIQ_{i,t} + \alpha_8 LIST_{i,t} + \alpha 9INDi_{,t} + \boldsymbol{\epsilon}_{i,t} \quad (1)$$

where: $VDI_{i,t}$ is the voluntary disclosures score; $IFRS_{i,t}$ is the dichotomous variable to characterize periods of convergence; $SIZE_{i,t}$ is the control variable for corporate size obtained through natural logarithm of total assets; $ROA_{i,t}$ is the control variable that measures the company's profitability obtained by the profit ratio before interest and taxes and average total assets; $LEV_{i,t}$ is the control variable that measures the corporate leverage obtained through the ratio of liabilities and total assets; $CON_{i,t}$ is the control variable for ownership concentration obtained by the percentage of common shares of the controlling shareholder ownership and, in specific cases, the sum of the percentage ownership of common shares of the shareholders attending the shareholders' agreement; $GROWTH_{i,t}$ is the control variable for growth opportunities of companies obtained by varying the current revenue between *t* and *t-1*; $LIQ_{i,t}$ is the control variable for liquidity of stocks obtained in Economática® **data system;** $LIST_{i,t}$ is the control variable that takes value of 1 for firms with different levels of corporate governance in BM&FBovespa and zero otherwise; $IND_{i,t}$ is the control variable for industry regulation that takes value equal to 1 for regulated companies and zero otherwise; $\boldsymbol{\epsilon}_{i,t}$ is the error term.

4 Presentation and analysis of results

4.1 Descriptive analysis of voluntary disclosure index (VDI)

The voluntary disclosure index increased over the period (Table 2), ranging around 25% between 2005 and 2012. This improvement also can be determined by observing the evolution of the first and third quartile. Only nine companies presented voluntary disclosure index above 0.7 and predominantly from 2009. Five companies presented indexes below 0.1 for at least three consecutive years. For the most part of the companies, it was not observed consistency in disclosure of items, that is, companies disclose certain information in one year and in other not.

Table 2
Descriptive statistics of voluntary disclosure index

Descriptive	Time series								
	2005	2006	2007	2008	2009	2010	2011	2012	2005-2012
Mean	0.39	0.38	0.39	0.39	0.47	0.48	0.47	0.48	0.43
Standard deviation	0.17	0.17	0.17	0.18	0.17	0.18	0.16	0.16	0.17
Variation coefficient	0.44	0.46	0.45	0.45	0.35	0.35	0.34	0.33	0.41
Minimum	0.00	0.00	0.00	0.00	1.85	1.85	1.85	1.85	0.00
First quartile	0.25	0.25	0.24	0.25	0.37	0.40	0.40	0.41	0.31
Median	0.39	0.39	0.41	0.43	0.50	0.50	0.49	0.50	0.46
Third quartile	0.52	0.50	0.50	0.50	0.58	0.58	0.59	0.51	0.59
Maximum	0.74	0.74	0.70	0.72	0.78	0.83	0.76	0.78	0.83
Number of observations	66	66	66	66	66	66	66	66	528

The variation coefficient presents low heterogeneity, with decreasing dispersion over time. In the first four years, the VDI was below 0.40. The year 2009 marks the passage of VDI to the level of 0.47, higher than the average for the entire period of analysis. In the years 2005 to 2008 and from 2010 to 2012, on average, companies reported weak positive trend in information disclosure.

One explanation is that the year of 2009 could have signalized not only the effects of the last period of partial convergence, but the effects of the replacement of disclosure related to economic and financial information reported in IAN Form report by Reference Form Report. This new form of corporate communication differs from IAN Report for exposing a more broadly content and similar to the prospectus drawn up by companies in the IPO occasion. Although some parts of the Reference Form Report are mandatory, there are those in which the details of information tends to be discretionary, such as the Boards' comments and Corporate activities, in which it was possible to identify voluntary nature of information in the analysis period.

Similar to what is observed in this study, Garbrech (2013) reported an increase in voluntary disclosure in 2009 when he investigated the influence of corporate governance in the cost of equity in Brazilian companies from 2007 to 2010. He explained that the considerable improvement in disclosure in 2009 was due to the replacement of the IAN Form Report. However, it is difficult to decide whether this increase was due to changes in mandatory disclosure requirements, or may be explained by a historical development and idiosyncratic of corporations, or by both factors.

The changes in accounting regulation in Brazil may have led companies to take greater commitment to voluntary disclosure in terms of content and extent. Leuz and Verrecchia (2000), when they establish comparisons among different accounting standards also found empirically that German companies increased their levels of disclosure after voluntarily migrate to International Accounting Standards (IAS) or American accounting standards. They explain that convergence to IAS represented a substantial increase in the commitment of companies in terms of disclosure. This is because companies could provide the information required by IAS in their reports, which did not occur before.

It was found that for all categories of metrics there are items that are more publicized and items that are passed over on disclosure. Perhaps this is because, in general, companies still have some objection to disclose information associated to sales projections, earnings and cash flow (items 8, 9 and 10 respectively), the cost of equity (item 21) and current production compared to installed capacity (item 22). With the exception of items 8 and 22, which refer to sales

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projections and current production compared to installed capacity, the remaining items remained in zero level of disclosure or close to it in the period. Low adherence of companies to disclose projections had already been observed by Alencar (2007). For this researcher, a possible explanation is that disclosure of these items is perceived by companies as something that compromises their competitive position in the market.

This logic does not ignore the potential effects of real externalities in companies (Dye, 1990; Leuz & Wysocki, 2008) and does not contradict the assertion Dye (2001), that companies tend to disclose the information to them more favorable. Furthermore, as conjectured by Einhorn (2005), the complementarity between voluntary and mandatory disclosure may not be monotonic, that is, at some point the benefit of providing additional information starts to decrease.

The disclosure in the year 2012 compared to other years, overlaps for most of items. For the whole period, the improvement in disclosure was more perceptible for items 16 to 18, which deal with the costs, the financial effect from the capture of debts, from the application of own resources and the behavior of value of shares. On the other hand, the disclosure related to technological dependence of labor, suppliers and customers (item 25), was the item that presented the biggest decrease, from 0.87 in 2005 to 0.79 in 2012.

The corporate voluntary disclosure content tends to provide further explanation of financial results achieved and about the perception of administration associated to the dynamics of the economic environment. This may have been a reaction to regulatory change, because convergence process has changed many of forms of measurement and of disclosure of the assets, but also due to the economic conditions of the 2008 crisis. In 2010 and 2011 there was a change in the informational approach. Companies that did not disclosure information related to their corporate strategies started to do it, but without quantitative emphasis (Figure 4). However, in 2012 this approach of disclosure was reversed, with percentage close to the practiced between 2005 and 2009. It is believed that companies availed the time of crisis to change their strategies and accordingly informed the investors about the changes that have been or would be implemented.

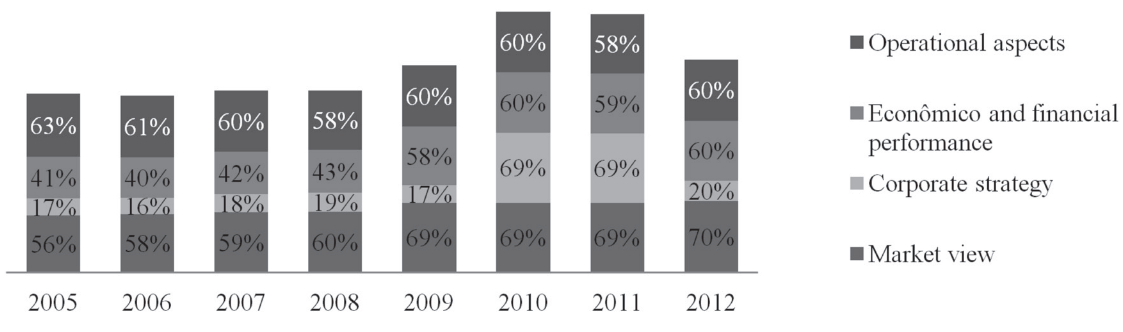

Figure 4. Informational approach

Virtually it was not detected changes in the percentage of companies that disclose information about the operational aspects for the entire period, unlike what happened with the other categories. This fact seems to indicate that, on average, companies have defined a disclosure policy for this category, which was not sensitive to economic conditions and, even, affected by changes in mandatory disclosure requirements.

The importance given by companies to the disclosure of information in each category can vary depending on its competitive advantages and its beliefs about how users interpret what is disclosed. As example, detailed information on investments in research and development has a more significant strategic attribute for information technology companies than for mining companies. Information related to market share may not make much sense to investors in energy and utility markets in general, but it may have importance to investors in the consumer goods market. Considering that companies are the same in the eight reporting periods, it is difficult to infer that these aspects may have influenced the level of disclosure change, but may be an explanation to the weak disclosure of some items of the metric.

4.2 Result of hypothesis test

In the correlation Spearman matrix, the dependent variable (VDI) and the variable referred to the pre-convergence period (2005-2007), presented negatively correlated with a coefficient of -0.205 and statistical significance of 0.10. There was no correlation between VDI and the partial convergence period (2008-2009), but the correlation became positive with a coefficient of 0.206 and significant and statistical significance of 0.10 with the full convergence period (2010-2012). It was not identified multicollinearity problems. The inflation factor of variance (FIV) indicated the lowest with 1.116 for the variable ROA and the highest of 4.118 for the IFRS_FULL. Table 3 presents the results of the hypothesis test, which were developed for two models.

Table 3
Results of the regressions in panel data of aleatory effects

Variables	Expected sign	Model 1		Model 2	
IFRS_PAR	+	0.0796***	(6.1440)		
IFRS_FULL	+	0.0805***	(5.5370)	0.0805***	(5.5370)
SIZE	+	0.0240***	(2.8660)	0.0240***	(2.8660)
ROA	+	-0.0124	(-0.2650)	-0.0124	(-0.2650)
LEV	+	-0.0185*	(-1.8740)	-0.0185*	(-1.8740)
CON	-	-0.0000	(-0.2912)	-0.0000	(-0.2912)
GROWTH	+	-0.0035	(-0.3258)	-0.0035	(-0.3258)
LIQ	+	0.0621***	(4.7230)	0.0621***	(4.7230)
LIST	+	0.0553**	(2.3370)	0.0553**	(2.3370)
IND	+	0.0998***	(3.1560)	0.0998***	(3.1560)
Constant	+/-	-0.0122	(-0.1044)	-0.0122	(-0.1044)
D_TIME		YES		YES	
Observations				528	
Within				0.0047	
Between				0.0121	
corr (y,yhat)^2				0.4639	
Diagnostics in panel data					
Chow test		F (64,448) = 20.1194 com p-value 0.0000			
Breusch-Pagantest		LM = 847.261 com p-value 0.0000			
Hausman test		H = 13.0441 com p-value 0.5231			

Note. IFRS_PAR = dichotomous variable to identify the period of partial convergence period of 2008-2009; IFRS_FULL = dichotomous variable to identify the full convergence period of 2010-2012. Control variables: SIZE = Firm size; LEV = debt; ROA = return on assets; CON = ownership concentration; GROWTH = growth opportunity; LIQ = liquidity of stocks; LIST = differentiated levels of corporate governance of BM&FBovespa; IND = industry regulation; D_TIME = variable for each year. *, **, *** significance level in 10%, 5% e 1%, respectively. In parenthesis, results of z test.

The models sought to capture the influence of convergence in variation of the voluntary disclosure index. In the first model, the dichotomous variables for the period of IFRS_PAR and IFRS_FULL convergence showed a positive and statistically significant relationship (0.01) with the dependent variable VDI. This positive relationship is maintained in the second model with the same level of statistical significance when only the period of full convergence (2010-2012) is compared to the previous period. These results allow to infer that voluntary disclosure was positively influenced by exogenous change due to the convergence process, independently, if during the transition or after its completion.

Positive relationship between IFRS and voluntary disclosure was also observed by LaBruslerie and Gabteni (2012) to investigate French firms from 2003 to 2008, pre and post IFRS adoption. In Brazilian context, Almeida and Rodrigues (2015) found, when examined the effect of convergence on voluntary disclosure, positive and significant influence in companies with dual listing American Depositary Receipts.

In model 1, only the year 2008 (D_TIME) was statistically significant (-0.0799***). As the coefficient is negative, this relationship is explained by the fact that companies this year are adapting to the changes arising from the convergence, when the legislation exempted companies from the immediate adoption of accounting pronouncements. Therefore, companies have taken in the first year of convergence a posture that, compared to other years, seems to indicate that they are withholding information. This may reveal that in adjusting stage, the technical level is still not qualified to meet the new demands, or the companies took this stance for still not glimpse the unfolding of the subprime crisis. This may reveal that in adjusting stage, the technical level is still not qualified to meet the new demands or the companies took this stance because they still had not glimpsed the unfolding of the subprime crisis.

In model 2, only the year 2009 (D_TIME) showed a statistically significant coefficient (0.0796***) and positive sign. As reported in the descriptive analysis of the dependent variable (VDI), while disclosure, on average, in 2008 was similar to the three previous years, in 2009 the voluntary disclosure was higher than the average for the entire period. In 2009, it seems that companies actually started to make arrangements to suit the full convergence and to meet requirements of CVM as the completion and availability of the Reference Form Report. Consequently, this movement made that in subsequent years (2010-2012) companies does not changed, on average, the disclosure index, thus observing stable levels of voluntary disclosure.

The explanatory variables used to control the effects of convergence, although collaborate for increased disclosure, failed to disfigure the influence of the convergence process. The variables related to company size, liquidity of shares, and adherence to different levels of corporate governance of BM&FBovespa and industry regulation were statistically significant and positively influenced the voluntary disclosure index in the period. This is consistent to theoretical assumptions and some empirical evidence on the determinants of voluntary disclosure in Brazil.

The large companies have greater visibility and attract the attention of analysts and the government, so they become more sensitive to political costs. Thus, they tend to be concerned with the presentation of information to external users, consuming resources of structure (systems, consulting, hours of work) for compliance with existing standards and regulations (Depoers, 2000; Leuz & Verrecchia, 2000; Leuz & Wysochi, 2008; Lopes & Alencar, 2010). The provision of information to the market reduces the information asymmetry (Leuz & Verrecchia, 2000) and, consequently, leads to a significant and positive relationship between liquidity and voluntary disclosure.

Companies with different levels of corporate governance of BM&FBovespa (Level I, II and Novo Mercado) also contributed to the increase of voluntary disclosure, although not be predominant companies with these characteristics in the sample research. It is understood that companies used this mechanism to demonstrate to investors that are reliable and to exercise voluntary disclosure with idiosyncratic purposes (Silveira et al., 2009). The variable IND is statistically significant showing that companies which belong to regulated industries (24 companies, 66 companies in the sample) have a positive differential in the voluntary disclosure level if compared to other companies. Murcia and Santos (2012) also documented positive relationship between voluntary disclosure and companies in the electricity sector.

In Brazil, the government, through regulatory agencies, influences the economic decisions of businesses, many of which, listed on the stock exchange. It also, provides through the Economic Development National Bank Financial and Social (BNDES), credit for long-term investments to companies. In this sense, in the Brazilian capital market, governed by the stakeholder model (Silveira et al., 2009; Lopes & Alencar, 2010), the Government is one of the market participants who wields considerable monitoring of compliance with regulations, which reinforces the presumption that acts of regulation are indexers of credibility and verifiability of voluntary information, as discussed by Lang and Lundholm (1993) and Francis, Nanda, and Olsson (2008).

It is understood that the findings resulting from the analysis of hypothesis test, in general, are in line with the idea that mandatory disclosure requirements interfere on voluntary disclosure, in this case, raising it. Thus, it is possible to think in terms of the complementarity effect between mandatory and voluntary disclosure in the Brazilian capital market.

5 Conclusions

This study showed that voluntary disclosure in Brazil was affected positively and significantly by the mandatory disclosure in the process of convergence to international accounting standards. Although it is necessary to explore other incentives, it is possible to think in terms of the complementary effect (Einhorn, 2005; Francis, Nanda, & Olsson, 2008), when the convergence process is presented as a mechanism that increased the quality of mandatory disclosure and addressed credibility the content of voluntary disclosure. In a context of low information quality, as exposed by Lung and Lundholm (1993) and Francis, Nanda and Olsson (2008), voluntary disclosure will not be evaluated as trusted. Therefore, depending on the specificities of the Brazilian capital market compared to more developed markets, the complementary effect seems to be quite appropriate for the interpretation of the corporate voluntary disclosure practices in the period.

The metric of voluntary disclosure, considered as one of the contributions of this study, was adapted to the context of research and the items replaced by mandatory disclosure requirements were not considered. This methodological procedure contributed to the analysis of the influence of mandatory on voluntary disclosure because this tool captures the persistence and stability of the information voluntarily disclosed over time.

Descriptive analysis of the voluntary disclosure index showed that, over time, companies gradually increased the percentage of items voluntarily disclosed, yet the average increment was more perceptible in 2009. It is believed these results may reflect, in part, the efforts made by corporations in terms of "reorganization" and "knowhow" for the preparation and presentation of financial reports in order to meet accounting standards and the Reference Form Report. Thus, the experience in 2008 and the imminent full convergence in 2010 may have led the company to revise its disclosure policy. Consequently, the incremental content of disclosure has been expanded in 2009, making it reached a certain conformation in following years.

One cannot deny the possible impact of the subprime crisis, triggered in 2008, of the informational approach on disclosure index. In

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the early years of the post-crisis, the information disclosed by the companies were directed to explain the results achieved, restricted to financial performance and perception of the administration on the dynamics of the economic environment. It seems that companies tried to offset a bigger exposure and protect your image by raising voluntary disclosure even because convergence has changed many of forms of measurement and disclosure of assets.

During the data collection it was revealed that, few companies have adopted provide information for most items of the metric as voluntary disclosure strategy. It seems that companies have structured a form of weak communication, as was observed during the codification process that prevailed the general disclosure, i.e., without emphasis on the company's business characteristics and repeated from one year to another. Some companies have published, including the "drafts" of the Management Report, because it was observed in the documents accessed marks of correction where are excluded and replaced only some informative items, for example, reference values and holding the same explanation. Therefore, the presence of voluntary disclosure of information is not sufficient to characterize the level of transparency and accountability of companies.

A wide disclosure but low informational content may not be of value to market participants. Inaccurate and incomplete information cause the external user has impaired their ability to make decisions, because the usefulness of the information becomes questionable for the proper diagnosis of company's financial position. Thus, the improvement observed in the level of voluntary disclosure may have occurred in terms of presence of content, but not necessarily, in terms of quality of the disclosure.

It is noted that, in the context of this research, the perceived increase in the voluntary disclosure level is not a direct increase indicator of its quality, only that the International Accounting Standards meant that companies would raise the level of voluntary disclosure in terms of presence and detail of the information content in relation to what was previously practiced. Therefore, the interpretation requires caution.

It is known that the quality of disclosure has distressed researchers due to the difficulty of obtaining more appropriate measures. As highlighted by Dechow and Schrand (2004, p. 2) due to the existence of multiple uses and users of accounting information, the desired "quality" becomes just a fleeting and elusive concept because it may have different meanings for different users the financial statements. In part, the quality of disclosure can be characterized by the relevance of the information that is provided. However, the limits of informational relevance are determined by the perception of those who produce and those who use the information for decision-making. This aspect is important insofar as the content selected to make the disclosure metric has not been validated, for example, by Delphi technique. It seems, therefore, that there are issues to be discussed.

The findings and arguments outlined in this research are subject to the limitations of context of analysis. This opens the possibility for future research to explore the informational relationship of interdependence, which can substantially contribute to further discussions, because most parte of models presented in the literature on voluntary disclosure does not consider explicitly the influence of accounting regulation by presuming that the decision to voluntary disclosure is not affected by exogenous factors. Also as suggested, researchers can evaluate the behavior of voluntary disclosure in subsequent years the period that was investigated in order to explore other incentives and better understand the corporate communication policy in the context of Brazilian capital market.

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1. Definition of research problem	√	√
2. Development of hypotheses or research questions (empirical studies)	√	√
3. Development of theoretical propositions (theoretical Work)		
4. Theoretical foundation/ Literature review	√	
5. Definition of methodological procedures	√	√
6. Data collection	√	
7. Statistical analysis	√	
8. Analysis and interpretation of data	√	√
9. Critical revision of the manuscript		√
10. Manuscript Writing	√	