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Impact Of Convergence To International Accounting Standards In Brazil On The Informational Content Of Accounting

Abstract
This article investigates the impact of the process of convergence to international accounting standards in Brazil on the informational content of accounting, focused on the changes in the main accounting and financial ratios and on the relevance of accounting information. For this purpose, we analyzed publicly traded nonfinancial companies, considering information for 2009, disclosed at the start of 2010 (BRGAAP – partial IFRS) and for the same year, disclosed at the start of 2011 (full IFRS). The purpose of analyzing the data for 2009 was to isolate any other influence found in the accounting statements that did not come from the alteration in accounting standards. The results indicate that the indicators Indebtedness (DEBT), Asset Turnover (AT), Gross Margin (GM), Operating Cash Flow over Total Assets (OPCFA) and Operating Cash Flow over Stockholders' Equity (OPCFE) are lower in the financial statements prepared according to full IFRS. Analysis of the informational capacity of Net Income by means of regression allowed detecting that Net Income has higher explanatory power of the behavior of stock prices under full IFRS. With respect to the informational content of Stockholders' Equity, the results indicate no significant change in explanatory power on the behavior of stock prices.

Keywords: IFRS, informational content of accounting, convergence to international accounting standards, accounting ratios.

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1. Introduction

The emergence and development of multinational companies, the growth of the international financial market and the changing behavior of investors, among other factors, have led to internationalization of economic activity, causing a need for uniform financial statements across borders. However, the interpretation and understanding of accounting information at the international level are hampered by multiple factors, including the diversity of accounting principles and rules on the preparation of financial statements in each country (Callao, Jarne & Laínez, 2007).

> As other players have been appearing, as a consequence of the evolution of business and organizations, accounting has been undergoing gradual transformation, from an ingenious system of bookkeeping and simplified financial statements to a complex system of information and evaluation, with relevant scientific, institutional and social characteristics, having the central aim of satisfying the need for information of the internal and external users with respect to the entity under analysis (Iudícibus, Martins & Carvalho, 2005, p. 11).

The conceptual structure for preparation and disclosure of accounting reports, previously called the basic conceptual structure of accounting, no longer involves just the objectives of accounting, but rather takes in the objectives of accounting reports. This change can be credited to the evolution of the economy, and the consequent expansion of the tasks performed by accounting.

According to Brazil's Accounting Pronouncements Committee (*Comitê de Pronunciamentos Contábeis* – CPC, 2011), the objective of accounting reports is to provide accounting information that is useful to actual and potential investors as well as creditors. It further stresses that accounting reports may not satisfy all the information needs of users (investors and creditors), so they need to pay heed to other information, such as on economic conditions, the political situation and the perspectives and panorama of the company and its economic sector.

Brazil's capital market has experienced strong growth over the past decade, even in moments when the American and European economies were in crisis. Although still incipient in relation to developed markets like the American, the trading volume and number of investors in Brazil has been growing rapidly. According to statistics available at the site of the BM&FBovespa (the Mercantile and Futures Exchange/ São Paulo Stock Exchange), in 2002 there were 85,249 individual (natural person) investors, while in February 2012 this number had grown to 569,826.

In this context, there is a need for accounting in a universal language, to stay abreast of the information needs of investors and creditors in an increasingly complex market without frontiers. As put by Carvalho, Lemes & Costa (2008, p. 14), "strong capital markets cannot exist without transparency and disclosure, and the mechanism par excellence of transparency and disclosure in these markets is the set of financial or accounting demonstrations." Corroborating this idea, the CPC stresses the need to use information beyond that presented in financial statements.

To overcome the accounting language barrier, more than 100 countries are engaged in the challenge or following a common standard for accounting practices. For this purpose, they are adopting the international standards issued by the International Accounting Standards Board (IASB). In Brazil, this process of convergence to international accounting standards started with the enactment of Law 11,638 in December 2007, which took effect in January 2008, requiring a gradual shift to international standards. During this process, there were conceptual modifications, changes in accounting criteria, changes in classification of transactions and inclusion of transactions previously presented off the balance sheet. The objective of the internationalization process of accounting envisioned by lawmakers, according to Lantoo & Sahlströn (2009), was to improve the transparency and comparability of accounting statements.

Considering these changes, in this article we address the following research question: What impact has the convergence to international accounting standards in Brazil had on the informational content of accounting?

To answer this question, we analyze the impact of this convergence process in Brazil on the information content of accounting, based on two perspectives: the changes caused in the main accounting and financial ratios and the alterations in the explanatory power of the accounting categories Net Income (NI) and Stockholders' Equity (SE) on stock prices in the Brazilian capital market.

To attain this overall goal, it was necessary to divide the study into two specific objectives: (i) to investigate indications of significant differences between the ratios calculated for the accounting data for 2009 (published in 2010) and for those referring to that same year (republished in 2011); and (ii) to investigate indications of a change in the explanatory power of stock prices in the Brazilian market based on the accounting information for 2009 and 2010.

2. Review of the Literature

2.1 The Internationalization Process of Accounting

The process for internationalization of accounting is the process by which counties, working together, make changes in their accounting systems to reduce divergences between them so as to make their rules compatible (Weffort, 2005). This process cannot be considered a standardization of accounting rules, but rather a harmonization. According to Niyama (2006), standardization is a process of establishing uniform criteria, without flexibility, while harmonization preserves each country's inherent particularities.

According to Santos & Calixto (2010), the adoption of International Financial Reporting Standards (IFRS) in Brazil, as in other countries, will bring benefits to firms such as greater liquidity, lower cost of capital and greater valorization and attractiveness in the market. For multinational companies, harmonization reduces the costs of maintaining different accounting systems (according to each country) and also facilitates the task of preparing consolidated financial statements, besides reducing the loss of information in the conversion of accounting standards.

On the other hand, accounting standards based more strongly on judgments can contribute to a more propitious environment for earnings management, with examples of the potential instruments for this type of manipulation being the discount rates used to bring appraisal of investments to present value and the depreciation rates based on useful lifetime of assets. However, it must be stressed that the use of judgment in accounting practice does not necessarily mean it will be abused to massage earnings (Baptista, 2009).

In Brazil, due to its code law heritage, the laws determine the accounting standards per se and governmental agencies have the power to interpret and elaborate on the basic legal framework. Therefore, the basic accounting rules come from the law and are refined and interpreted by decrees, resolutions, normative instructions, pronouncements and other regulations. In this context, the establishment of accounting rules and standards has traditionally been carried out almost entirely by the federal government, resulting in a strong connection between accounting and tax aspects (Iudícibus, 2010).

Besides the influence of the Brazilian legal system on accounting practices, the fact that the Brazilian capital market is less developed compared to many other countries also has a strong impact on the quality and relevance of the accounting information disclosed.

> In companies with few shareholders (in the Brazilian case, where in many firms the control is in the hands of a single shareholder), accounting loses its role of reducing the information asymmetry between shareholders and managers. In these firms, the majority shareholder has privileged access to the firm's management information and does not need accounting reports to orient investment decisions. (Lopes, 2002, p.77).

Lantoo & Sahlströn (2009) point out that previous studies have shown that the adoption of IFRS improves the transparency and comparability of the financial statements between companies. In general, the adoption of IFRS benefits investors especially in countries where actual and potential investors have not been the priority of the supervisory entity, such as in Brazil and several European countries. This change in priority can be seen in Brazil with the Basic Conceptual Pronouncement (R1) issued by the CPC, correlated with the Blue Book 2011 from the International Accounting Standards Board (IASB), which establishes that the objective of accounting reports is to provide information that is useful for all decisions related to the supply of funding to the firm, considering the primary users to be existing and potential investors, lenders and other creditors.

2.2 The Convergence Process in Brazil

The convergence process in Brazil was marked by two occurrences. The first was the creation of the Accounting Pronouncements Committee (CPC), by Resolution 1,055 from the Federal Accounting Board in 2005 and the enactment of Law 11,638 in 2007. However, it is necessary to mention some antecedents, such as Communication 14,259/2006 from the Brazilian Central Bank, Instruction 457/2007 from the Brazilian Securities Commission (CVM) and Circular 357/2007 from the Superintendency of Private Insurance (SUSEP). In all these cases, specific aspects were covered regarding disclosure of information in line with IFRS.

Similar to the IASB, the CPC is formed by accountants, academics and representatives of companies and financial institutions, with people drawn from the following bodies: Federal Accounting Board (CFC), Brazilian Association of Publicly Traded Companies (ABRASCA), Independent Auditors Institute of Brazil (IBRACON), Association of Capital Market Investment Analysts and Professionals (APIMEC), BM&FBovespa and the Institute for Accounting, Actuarial and Financial Research (FIPECAFI).

The second occurrence, the watershed in this convergence process, was the enactment of Law 11,638/2007, which created a series of changes in accounting practices and determined, in its Art. 177, § 5, that the rules issued by the Brazilian Securities Commission (CVM) shall be formulated in harmony with international accounting standards. That law was the result of Bill 3,741, introduced in the Chamber of Deputies (the lower house of Congress) in 2000, proposing modification of the chapter of the Law of Corporations (Law 6,404/1976) that covers accounting matters, to eliminate regulatory barriers and to align Brazilian accounting rules with international ones.

The CPC was created for the purpose of studying, preparing and issuing Technical Pronouncements on accounting procedures and information disclosure, in function of the needs for international convergence of accounting standards, centralized issuance of rules in Brazil and democratic formulation of these rules. However, that body does not have legal powers to issue accounting rules, because the Brazilian Constitution prevents governmental entities from delegating functions to private entities (Iudícibus, Martins, Gelbcke & Santos, 2010). Because of this constraint, it was agreed that the CPC would first issue the Technical Pronouncements and then the various governmental entities with authority over certain sectors or types of companies (CFC, CVM, Central Bank, regulatory agencies) would issue their own resolutions to apply the CFC's recommendations. Up to March 2012, the CPC had issued 39 Technical Pronouncements. Of these, the CVM and CFC have approved all of them, while the National Health Agency has approved 38, SUSEP 36, the National Electric Energy Agency (ANEEL) 19 and the National Land Transport Agency (ANTT) has approved 4. All of these entities have also approved the Basic Conceptual Pronouncement and the Pronouncement for Small and Medium Businesses.

The CPC has a dual mission regarding convergence:

> On one side is the universal need to integrate accounting rules to international standards; on the other is the need to allow participation in the internal debate by representatives of all actors in the Brazilian market – government, private initiative and academic institutions – through free and democratic dialog in the CPC. (Plöger, 2005).

To complement the changes in accounting practices initiated by Law 11,638/2007, Law 11,941/2009 established further changes to the Law of Corporations (Law 6,404/1976), among them that the commercial accounting and the financial statements regulated by that law cannot be modified in function of tax law or other specific legislation.

During the process of convergence, with the amendment of the Law of Corporations and the issuance of the Technical Pronouncements by the CPC, various changes were established in accounting practices, which can be classified as: (i) changes in accounting criteria; (ii) changes in classification; and (iii) inclusion of accounting for transactions presented off the balance sheet. The Appendix summarizes the main changes, especially those that have caused significant effects on the financial statements.

2.3 Empirical Evidence

With the advance of the process of convergence to international standards, various studies have been performed, particularly for the purpose of investigating the influence of the adoption of IFRS on the quality of accounting information. Below we briefly summarize some of these studies.

Bartov, Goldberg & Kim (2005), utilizing data on 417 German firms, observed greater relevance of accounting information presented according to Generally Accepted Accounting Principles in the United States (US-GAAP) and IFRS than their German counterparts. Barth, Landsman & Lang (2008), through a study of 21 countries, also observed greater relevance of accounting information prepared according to the international standards than local ones. Corroborating this finding, Morais & Curto (2009) showed that in European countries, information according to IFRS is more relevant than that in local GAAPs.

The study by Perramon & Amat (2006) indicated that the adoption of international accounting standards can influence the result of Spanish companies with different sizes and profitability levels. In turn, Hung & Subramanyam (2007) concluded that the total assets and net equity, as well as variations in equity, are more relevant according international standards that German ones. In this same line, Chalmers, Clinch & Godfrey (2009) indicated that the earnings of Australian firms became more relevant with the adoption of IFRS, but the equity value did not significantly change. On the other hand, Haller, Ernstberger & Froschhammer (2009) analyzed 103 German companies and found an increase in stockholders' equity and net income after the adoption of IFRS in 2005.

Chalmers, Clinch & Godfrey (2008) concluded that the accuracy of financial analysts' forecasts increased after the implementation of international accounting standards, indicating the improved quality of the information available to analysts. Investigating financial ratios, Miranda (2008) concluded that the adoption of IFRS can cause significant changes in the financial indicators of banks in some European countries. Lantto & Sahlström (2009), in a survey of Finnish companies, found evidence of a positive change in the main financial ratios after adoption of IFRS. In turn, Silva, Couto & Cordeiro (2009) indicated there was a significant and generally positive impact on the quality of the information in the financial reports of listed Portuguese firms after the adoption of IFRS.

Ding, Hope, Jeanjean, & Stolowy (2007) demonstrated, from studying data from 2001 on firms on 30 countries, that the absence index (the extent to which the rules on determined accounting issues present in international standards are lacking in national ones) is determined by, among other elements, the importance of the stock market and the concentration of ownership. In contrast, the divergence indicator (extent to which the rules regarding the same accounting issue differ between national and international standards) is positively associated with the level of economic development and the importance given to the accounting profession, but is limited by the importance of the stock market. They further found that a higher level of absence implies more opportunities for earnings management and reduction of the disclosure of specific information to investors, while greater divergence from international accounting standards is associated with richer information in the capital markets.

In the Brazilian context, Santos & Calixto (2010) studied the effects of the first phase of the transition to IFRS in companies listed on the BM&FBovespa, starting in 2008, and found higher profits with IFRS than with the previous rules, which might have been explained by the reduction of Brazilian accounting conservatism. Lima (2010) found that adjustments for reconciliation of net income and stockholders' equity in the transition period to IFRS were relevant for the Brazilian capital market.

Macedo, Machado & Machado (2011) observed differences in the relevance of accounting information regarding EPS (earnings per share) and BVPS (book value of equity per share) in the periods before and after the first phase of the convergence to international accounting standards in Brazil, with EPS presenting a gain and BVPS a loss in informational content. The study by Braga, Araujo, Macedo & Corrar (2011) showed there was a significant change (increase) only in the indebtedness index with the republication of the accounting statements for 2007 according to the new accounting practices adopted in Brazil.

In general, the studies that have been published so far show positive impacts of adopting IFRS. However, the findings of some studies do not corroborate these results. The work of Niskaen, Kinnunen & Kasanen (2000), examining Finnish firms, showed that the change in earnings from the local standards to IFRS did not bring a significant increase in the relevance of this accounting information. In this same line, Van der Meulen, Gaeremynck & Willekens (2007) did not find a significant difference in relevance between profits presented according to US-GAAP and IFRS for German New Market firms. In turn, the study by Vishnani & Shah (2008) showed that the new information brought by the cash flow statement due to the process of convergence to international standards in India was not relevant.

In Brazil, Grecco, Geron & Formigoni (2009) showed that the adoption of new accounting practices in 2008 brought greater conservatism to the financial statements of listed companies. Finally, Klann & Beuren (2011) concluded that although better quality was expected with the adoption of the rules from the IASB, the application of IFRS in some countries has not corresponded to this expectation, by not presenting significant differences in relation to the local standards with respect to earnings management.

To contribute to the above findings, our aim here is to analyze the impact of the adoption of IFRS no Brazil, from two perspectives: of changes in accounting information, through analysis of financial ratios calculated with information from financial statements prepared according to BRGAAP and IFRS; and the relevance of accounting information, by analyzing which set of accounting information is able to best explain stock prices – that according to BRGAAP or IFRS.

In this line, we can mention the studies of Perramon & Amat (2006), Silva, Couto & Cordeiro (2009), Haller, Ernstberger & Froschhammer (2009), Lantto & Sahlström (2009), Santos & Calixto (2010) and Braga et al. (2011), all of whom studied the impact of the adoption of IFRS by analyzing the changes in accounting information. In turn, the articles by Niskaen, Kinnunen & Kasanen (2000), Bartov, Goldberg & Kim (2005), Van der Meulen, Gaeremynck & Willekens (2007), Hung & Subramanyam (2007), Morais & Curto (2008), Barth, Landsman & Lang (2008), Morais & Curto (2009), Chalmers, Clinch & Godfrey (2009) and Macedo, Machado & Machado (2011) all analyzed the question from the standpoint of the relevance of accounting information for the capital market.

3. Methodology

This study can be characterized, according to Vergara (2010), as a descriptive and explanatory exercise, because we aim to shed light on the impact of IFRS adoption on the informational content of accounting reports by analyzing the differences in financial ratios and the relationship between this information and stock prices. Regarding the approach used, it can be classified as empirical-positivist according to the framework proposed by Martins & Theóphilo (2009), because it presents techniques for collection, treatment and analysis of quantitative data, where the scientific validation is sought by instrumental tests, levels of significance and systematization of operational definitions.

The sampling process is non-probabilistic, because we obtained our sample from a naturally restricted universe, composed of listed nonfinancial companies contained in the Economática database. The companies included in the study were those with the necessary information in each year of analysis. Because part of the analysis depended on the ratio between stock prices and the accounting information, we used a cutoff criterion according to the liquidity of the shares, considering a value of 0.01 as the minimum for inclusion of the firms in the analysis. This criterion is important in studies of this nature, in which it is considered that companies' stock prices can reflect the relevant information available in the market (hypothesis of semi-strong market efficiency). With this, the final sample was composed of 148 firms.

We collected from Economática data on earnings (net income) per share (EPS), stockholders' equity per share (BVPS), net income (NI), stockholders' equity (SE), total assets (TA), current assets (CA), long-term assets (LTA), current liabilities (CL), long-term liabilities (LTL), net revenue (NR), gross profit (GP) and operating cash flow (OCF).

Based in these data, it was possible to calculate the ratios used in the analysis. The choice of these indicators was discretionary, in light of those used in other works, such as Assaf Neto (2006), Braga (2003), Iudícibus (2008), Marques, Carneiro Junior & Kühl (2008), Matarazzo (2003), Pereira da Silva (2008) and Perez Jr. & Begalli (2002). These ratios are summarized in Figure 1.

We tried to consider financial indicators from various perspectives. Because of this, there are two indicators of capital structure, two of liquidity, one of turnover, two of margin, two of profitability and two related to cash flow.

Denomination	Acronym	Formula
Participation of Debt Capital	PCT	(PC+ELP)/AT
Indebtedness	END	(PC+ELP)/PL
General Liquidity	LG	(AC+RLP)/(PC+ELP)
Current Liquidity	LC	AC/PC
Asset Turnover	GA	RL/AT
Gross Margin	MB	LB/RL
Net Margin	ML	LL/RL
Return on Assets	RSA	LL/AT
Return on Equity	RSPL	LL/PL
Operating Cash Flow over Total Assets	FSA	FCO/AT
Operating Cash Flow over Stockholders' Equity	FSPL	FCO/PL

Figure 1. Financial Ratios Analyzed

Source: Research Data.

Besides this, to analyze the relevance of the accounting information to the capital market, we collected the price of the stock with greatest liquidity of each firm, considering the liquidity index provided by Economática. The prices were the closing quotations for April 30, 2010. We chose the last day for disclosure of the annual financial statements in Brazil based on the assumption of a semi-efficient market, whereby the impact of the accounting figures should already be incorporated into the stock prices.

This choice to consider a single date for the stock prices rather than the date each company published its financial statements is in line with orientations of other authors, who have used this same simplification, such as Lang, Raedy & Yetman (2003), Costa & Lopes (2007) and Morais & Curto (2008).

The choice of the 2009 fiscal year for analysis is justified by the fact that accounting information for this year was available both according to Brazilian GAAP (BRGAAP) and IFRS. The reason is that the obligation to apply full IFRS only applied to the 2010 fiscal year, and firms, to make the information for 2009 comparable with that for 2010 were obliged to republish the figures for 2009 in 2011 along with the financials for 2010.

The logic of the first part of the analysis was to analyze the differences between the ratios calculated from the 2009 data published in 2010 and those disclosed again in 2011. For this purpose, we tested whether the information for each ratio came from the same population. If this was confirmed by a test of equality of the means, it would indicate a statistically significant difference between the values of each ratio under each of the accounting standards considered. Operationally, we tested whether the mean of each ratio calculated with the 2009 data published in 2010 (BRGAAP) was equal to the ratio calculated with the data from 2009 as republished in 2011, or formally, H_0: *indicator(2009-2010) – indicator(2009-2011)* = 0. Hence, H_1: *indicator(2009-2010) – indicator(2009-2011)* ≠ 0.

Since the information being analyzed was from the same set of companies in two different situations, i.e., presented according to two different GAAPs, the application of difference of means tests for matched samples was indicated. According to Siegel & Castellan Jr. (2006), tests for matched samples are applied when the researcher wants to establish whether two treatments are different. In the case of the financial statements for 2009, we wanted to test whether the treatment given to the accounting information under the local standard (BRGAAP) was different from that given by the international one (IFRS), that is, if the adoption of IFRS generated a significant impact on the informational content of accounting in the specific case of the ratios under analysis.

The choice of the test for matched samples depends on the evaluation of the basis assumption that the variables (ratios) are normally distributed. To test this assumption, we used the Komolgorov-Smirnov test, at 5% significance. As shown in the analysis of the data, the financial ratios were not normally distributed. Therefore, we used the two leading nonparametric tests for the case of matched samples: the sign test and the Wilcoxon test.

For our purposes, for the sign and Wilcoxon tests, the acceptance of the H_0 would indicate that the ratios based on the accounting information for 2009 published in 2010 or republished in 2011 are equal. In turn, the rejection of H_0 would indicate there are significant differences between the ratios calculated based on the two accounting reporting standards.

In the second part of the analysis, we sought to analyze the effect of the adoption of IFRS on the informational content of the firms' financial statements. Therefore, the focus of the analysis was substantially different from the previous one. In this case our focus was to analyze if the full IFRS adoption altered the capacity of financial information (specifically EPS and BVPS) to explain stock prices in the Brazilian market, by means of regression analysis.

The analysis below is therefore divided into two parts. In the first we use only earnings (net income) per share (EPS) and in the second only book value per share (BVPS). For all the analyses we used simple linear regressions in cross-section, always with the stock price as the dependent variable and the accounting ratios, individually, as the independent (explanatory) variables. We reiterate that our focus is on whether the accounting information from 2009 published in 2010 is able to more accurately explain the behavior of the stock prices of firms in the Brazilian market than the information for that same year as republished in 2011.

Therefore, to verify individually the explanatory capacity of EPS and BVPS on the one hand and stock prices on the other, we used the following equations, based on the studies of Collins, Maydew & Weiss (1997) and Macedo, Machado, Murcia & Machado (2011):

$$p_{i,t} = \alpha_0 + \alpha_1 LLPA_{i,t} + \varepsilon_i \quad (1)$$

$$p_{i,t} = \alpha_0 + \alpha_1 PLPA_{i,t} + \varepsilon_i \quad (2)$$

Where:

- $p_{i,t}$ = Dependent variable, representing the stock price of firm *i* at time *t*;
- α_0 = Intercept;
- α_1 = Coefficient of slope for *EPS* or *BVPS*;
- *EPS* = Independent variable, obtained by dividing the net earnings shown in the income statement by the number of shares of firm *i* at time *t*;
- *BVPS* = Independent variable, obtained by dividing the stockholders' equity shown in the balance sheet by the number of shares of firm *i* at time *t*;
- ε = Random error (white noise), with normal distribution, mean zero and constant variance.

For the regression analysis, we basically considered the values of R^2, the Akaike and Schwarz information criteria and the p-values of the *F*-test (significance of R^2) and the *t*-test (significance of the angular coefficient of the independent variable).

According to Gujarati (2006), Corrar, Paulo & Dias Filho (2007) and Fávero, Belfiore, Silva & Chan (2009), analysis of R^2 reveals the explanatory power of the independent variables on the dependent variable. In turn, the Akaike and Schwarz information criteria show the goodness of fit of the model (both criteria are the lower the better type). Finally, the p-values of the *F*- and *t*-tests show if the independent variables together and individually, respectively, are statistically able to explain the behavior of the dependent variable.

For the case of the assumptions of simple regression, as indicated by Gujarati (2006), Corrar, Paulo & Dias Filho (2007) and Fávero et al. (2009), to test the normality of the residuals we used the Jarque-Bera (JB) test and to test the homoscedasticity of the residuals we used the Breusch-Pagan-Godfrey (BPG) test. According to Fávero et al. (2009), in general it is not necessary to test for autocorrelation of the residuals when working with cross-section data, as in the present study.

For the cases where we found a problem of heteroscedasticity of the residuals, we used the White test, which according to Gujarati (2006) corrects the standard errors of the coefficients, making them consistent for heteroscedasticity. To analyze the differences in the ratios, we used the SPSS 17.0 software, while to analyze the relevance of the accounting information, we used Eviews 6.0.

4. Analysis of the Results

As stated before, the analysis was carried out in two phases: (i) investigation of whether there were statistically significant differences between the ratios calculated with the 2009 information according to BRGAAP (published in 2010) and those computed with the information under full IFRS (republished in 2011); and (ii) analysis of the impact of IFRS on the information content of accounting, by examining the capacity of EPS and BVPS to explain the behavior of the stock prices.

In the former case, the first step was to calculate the mean values of each financial ratio, and in a preliminary analysis, to observe the behavior of the ratios with the information based on the two GAAPs. From the results in Tables 1 and 2, it can be seen that only Participation of Debt Capital (PDC) has a distribution tending to normal. In turn, according to the results of the nonparametric tests of the difference of means, in both cases the differences are only significant at 5% for the indicators Indebtedness, Asset Turnover, Gross Margin, Operating Cash Flow over Total Assets and Operating Cash Flow over Stockholders' Equity.

In relation to the ratios that showed a significant change due to adoption of IFRS, it can be seen that in all cases both the mean and median are lower than those obtained with data published under full IFRS, a contrary result to that found by Braga et al. (2011), who observed an increase in the debt ratio. However, the findings here are coherent with those of Haller, Ernstberger & Froschhammer (2009).

Table 1
Means and Medians of the Ratios

Ratio	Means		Medians	
	Data 09 - 10	Data 09 - 11	Data 09 - 10	Data 09 - 11
PCT	0.6043	0.5920	0.5528	0.5482
END	1.8218	1.5007	1.1760	1.1525
LG	1.2276	1.3031	0.9628	0.9772
LC	2.0201	2.0380	1.7583	1.6977
GA	0.7296	0.6827	0.5794	0.5335
MB	0.3568	0.3547	0.3256	0.3247
ML	0.0236	0.0422	0.0836	0.0949
RSA	0.0413	0.0482	0.0517	0.0531
RSPL	0.1587	0.1415	0.1392	0.1330
FSA	0.0707	0.0580	0.0835	0.0679
FSPL	0.2572	0.2095	0.1804	0.1487

Source: Research Data.

Table 2
Results of the Tests of Difference of Means of the Ratios

Indicador	p-valor		p-valor	
	Test K-S 09-10	Test K-S 09-11	Wilcoxon Test	Sign Test
PCT	0.2000	0.2000	0.1660	0.8600
END	0.0000	0.0000	0.0050	0.0430
LG	0.0000	0.0000	0.9450	0.7290
LC	0.0000	0.0000	0.0970	0.1160
GA	0.0000	0.0000	0.0000	0.0000
MB	0.0000	0.0000	0.0120	0.0150
ML	0.0000	0.0000	0.2250	0.1710
RSA	0.0000	0.0000	0.4230	0.7310
RSPL	0.0000	0.0000	0.2380	0.2250
FSA	0.0010	0.0000	0.0000	0.0000
FSPL	0.0000	0.0000	0.0000	0.0000

Source: Research Data.

Continuing, we applied regression analysis to the EPS and BVPS and the stock prices. Preliminarily, with respect to the assumptions of the regression, in all cases there was a problem of normality of the residuals, according to the results of the Jarque-Bera (JB) test, as shown in Tables 3 and 4. However, according to the central limit theorem and considering we used 148 observations, this assumption can be relaxed (Brooks, 2002). In turn, with respect to heteroscedasticity, according to the results of the Breusch-Pagan-Godfrey (BPG) test, it can be perceived that in the regressions with data from 2009 as presented in 2010, the residuals are homoscedastic. For these cases, the results are presented considering the correction of White for heteroscedasticity. In turn, in the regression with the BVPS for 2009 published in 2011, despite having a p-value for the BPG test higher than the 5% significance level, which would lead to rejection of the hypothesis of homoscedasticity of the residuals, we decided, by precaution, to present the results with application of the White correction.

Table 3
Data for EPS

Explanatory or Independent Variable	Coefficient	Standard Error*	t*	*p-value**
LLPA 09-10	1.9064	0.9274	2.0557	0.0416
C	15.1591	1.4261	10.6295	0.0000

Additional Information	Values	Additional Information	Values
R^2	0.1366	Akaike Information Criterion	7.6763
F (*p-value*)	0.0000	Schwartz Information Criterion	7.7168
Jarque-Bera (*p-value*)	0.0000	Breusch-Pagan-Godfrey (*p-value*)	0.0021

Explanatory or Independent Variable	Coefficient	Standard Error	t	*p-value*
LLPA 09-11	1.7886	0.2902	6.1629	0.0000
C	14.7092	0.9587	15.3437	0.0000

Additional Information	Values	Additional Information	Values
R^2	0.2064	Akaike Information Criterion	7.5919
F (*p-value*)	0.0000	Schwartz Information Criterion	7.6324
Jarque-Bera (*p-value*)	0.0000	Breusch-Pagan-Godfrey (*p-value*)	0.1531

* Estimated with White's correction for heteroscedasticity

Source: Research Data.

From the results shown in Table 3, it can be seen that both the EPS for 2009 presented in 2010 and that presented in 2011 are statistically significant in explaining the behavior of the share prices, since the p-value for the *F*- and *t*-tests are lower than 5%. Therefore, the null hypotheses that R^2 is different from zero and that the angular coefficient of the independent variable EPS is different from zero cannot be rejected. In other words, the profit, whether determined based on Full IFRS or not, is a good measure to explain the behavior of the stock prices of the companies in the sample.

However, a comparison of the power of EPS to explain the stock prices shows that both the value of R^2 and the values of the Akaike and Schwarz information criteria are higher than for the data presented in 2011. The reason is that the EPS data published in 2010 are able to explain 13.66% of the variation in the stock prices, while the data presented in 2011 explain 20.64% of the variation in this dependent variable. In other words, there was a significant change in the ability of profits to explain the prices of the firms' shares.

This finding is corroborated by analysis of the information criteria, because in both cases (Akaike and Schwarz) there is a reduction of the values from 2010 to 2011, which shows the greater informational capacity of EPS to explain the stock prices.

In summary, this shows that with the adoption of IFRS in Brazil, EPS gained strength in explaining the behavior of stock prices.

In turn, in relation to BVPS, the results presented in Table 4 also show that both the data published in 2010 and in 2011 are significant in explaining the behavior of the companies' stock prices. This can be observed by the p-values of the *F*- and *t*-tests, which are lower than the 5% significance level, so that the regression as a whole is significant, as well as the angular coefficient of BVPS.

Table 4
Data for BVPS

Explanatory or Independent Variable	Coefficient	Standard Error*	t*	*p-value**
PLPA 09-10	0.6569	0.1459	4.5039	0.0000
C	11.2268	1.2994	8.6768	0.0000
Additional Information	**Values**	**Additional Information**		**Values**
R^2	0.3152	Akaike Information Criterion		7.4445
F (*p-value*)	0.0000	Schwarz Information Criterion		7.4850
Jarque-Bera (*p-value*)	0.0000	Breusch-Pagan-Godfrey (*p-value*)		0.0001

Explanatory or Independent Variable	Coefficient	Standard Error*	t*	*p-value**
PLPA 09-11	0.5259	0.0779	6.7538	0.0000
C	11.5848	1.0100	11.4706	0.0000
Additional Information	**Values**	**Additional Information**		**Values**
R^2	0.3083	Akaike Information Criterion		7.4546
F (*p-value*)	0.0000	Schwarz Information Criterion		7.4951
Jarque-Bera (*p-value*)	0.0000	Breusch-Pagan-Godfrey (*p-value*)		0.0556

* Estimated with White's correction for heteroscedasticity

Source: Research Data.

However, an important difference in relation to the EPS data is that in the case of BVPS, the values of R^2 and the Akaike and Schwarz criteria are not different. With respect to the explanatory power on the behavior of stock prices of BVPS, for both the data published in 2010 and those republished in 2011, slightly over 30% of the variation of the stock prices can be explained by the variation of BVPS. In other words, despite the reduction of the explanatory power and the informational content of the data published in 2010 in comparison with that republished in 2011, this reduction does not support the affirmation of a change in the informational content of the BVPS ratio.

5. Conclusions

The aim of this study was to analyze the impact of the process of convergence to international accounting standards in Brazil on the informational content of accounting, based on two perspectives: the changes caused in the main financial ratios and the alterations in the explanatory power of accounting information, namely net income and stockholders' equity (EPS and BVPS, respectively), on share prices in the Brazilian capital market.

To achieve this objective, it was necessary to separate the analysis into two aspects: (i) verification of whether there are indications of a difference between the ratios calculated with the information for 2009 published in 2010 and that for the same year republished in 2011; (ii) verification of whether there are indications of a change in the power of EPS and BVPS to explain stock prices in the Brazilian capital market between the ratios based on the data published in 2010 and those republished in 2011.

The results indicate that the ratios Indebtedness (DEBT), Asset Turnover (AT), Gross Margin (GM), Operating Cash Flow over Total Assets (OPCFA) and Operating Cash Flow over Stockholders' Equity (OPCFE) are lower when using the data from the full IFRS financial statements. These results corroborate the findings of Santos & Calixto (2010), who detected higher profits with the adoption of IFRS, explained by the reduction of accounting conservatism. On the other hand, the results run counter to those found by Braga et al. (2011), who observed a significant increase in the debt ratio. In any event, the results are coherent with those of previous studies (Silva, Couto & Cordeiro 2009; Haller, Ernstberg & Froschhammer, 2009).

Analysis of the informational capacity of EPS by regression indicated that by applying full IFRS, this ratio's explanatory power increased. A possible explanation is that profit according to IFRS more adequately represents the economic reality of firms, so that migration to full IFRS brought alterations in the information content of profit in the sense of incorporating information already considered by investors in the formation of stock prices. These findings corroborate those of Barth, Landsman & Lang (2008), Morais & Curto (2009), Chalmers, Clinch & Godfrey (2009) and Macedo, Machado & Machado (2011).

With respect to the informational content of BVPS, the results indicate there was no significant change in its explanatory power. Hence the set of changes in the formation of shareholders' equity brought by adoption of full IFRS seems not to have been relevant in the Brazilian capital market.

A relevant limitation of this study is the fact that some of the firms already could have presented their information for 2009 according to full IFRS since the publication in 2010. Therefore, for these companies there was no difference in the financial statements published in the two years. Additionally, it was not part of the scope of this study of whether there was any alteration in the underlying numbers for 2009 published in 2011 with in comparison with those republished in 2011. We assumed that there was no significant early adhesion to full IFRS and that in general the only changes in the information republished in 2011 were due to the shift in accounting standards.

We suggest that future studies analyze the determinants of positive or negative variations in some financial ratios of each firm, to better understand the impact of the adoption of IFRS in Brazil.

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Appendix. Main Changes in Accounting Practices

Subject	Before Convergence Process	After Convergence Process	Components of the Financial Statements Potentially Affected by the Changes / Potential Effect
Conceptual structure for preparation and disclosure of financial statements	Fundamental accounting principles: entity; continuity; opportunity; recording at original value; inflation adjustment; accrual; and prudence. Attributes of accounting information: reliability, timeliness, clarity; and comparability.	Qualitative characteristics of accounting information are divided into: (a) fundamental qualitative characteristics – relevance and faithful representation; and (b) qualitative characteristics for improvement - comparability, verifiability, timeliness and understandability	Does not apply
Recoverability test	Not mentioned.	Assets cannot be accounted for at a value greater than their recoverable value. If there is evidence of depreciation, the estimated loss must be recognized.	Long-term Assets (reduction) and Net Income (reduction)
Cash Flow Statement	Statement not required.	The Cash Flow Statement became mandatory, replacing the Statement of Changes in Financial Position.	New statement
Intangible Assets	Not mentioned.	Non-corporeal assets, as long as they satisfy the criteria established in CPC 4, must be recorded as intangible assets.	Long-term Assets (increase or neutral)
Leasing	Installment payments recorded fully as expense when incurred.	Leasing classified as financial must be accounted for a financed purchase, causing the need for depreciation of the asset and the interest on the transaction. For leasing characterized as operational, the treatment remains the same.	Long-term Assets (increase) and Net Income (increase by depreciation and reduction by installment)
Subsidies and Governmental Assistance	Recognized as Capital Reserve	All subsidies must pass through the Income Statement, with differences at the moment of recognition, according to the conditions of each subsidy.	Stockholders' Equity (reduction) e Net Income (reduction)

Subject	Before Convergence Process	After Convergence Process	Components of the Financial Statements Potentially Affected by the Changes / Potential Effect
Transaction Costs and Premium on the Issuance of Securities	Subscription bonus and premium on issuance of bonds/debentures were recorded as a Capital Reserve. Transaction costs were recognized as expenses.	The transaction cost is now classified, in itemized form, in a rectification account under Capital Stock, or when applicable, in Capital Reserve to record the premium received on the issuance of new shares. Debt securities must be disclosed at net amount available for use, recognized immediately in rectification accounts and appropriated to income in function of the period of the transaction, based on the internal rate of return (IRR).	Stockholders' Equity (reduction), Capital Reserve (increase), Current Liabilities (reduction) and Net Income (increase)
Statement of Value Added	Statement not required.	Mandatory statement for listed companies and companies regulated by ANEEL (National Electric Energy Agency), ANTT (National Land Transport Agency) and ANS (National Health Agency).	New statement
Compensation in Shares/Stock Options	Was recognized in the net income, when the option was exercised.	Must be recognized as expense, measured at fair value, at the moment granted, in counterpart to the Equity Instruments Granted account under Stockholders' Equity.	Stockholders' Equity (increase or reduction)
Adjusted to Present Value	Not required.	Mandatory adjustment to present value under Long-term Assets and Long-term Liabilities, and in case of a relevant effect, also in Current Assets and Current Liabilities.	Long-term Assets (reduction), Long-term Liabilities (reduction) and Net Income (increase, in counterpart of assets, or reduction in counterpart of liabilities).
Deferred Assets	Prepaid expenses such as for construction and pre-operation, expenses to implement systems and methods and reorganization expenses were capitalized and amortized in a period of not more than 10 years.	This group was extinguished. The balances of the items that changed in classification were reclassified. The balances of items that could no longer be classified as assets could be recorded against accrued profits or losses or remain in this group until the final amortization.	Stockholders' Equity (reduction)
Revaluation of Fixed Assets	Revaluation of fixed assets was permitted, in counterpart to Revaluation Reserve.	Spontaneous revaluation was extinguished. The remaining balances in the Revaluation Reserve had to be transferred to accrued profits or losses in the proportion of the write-off of the assets to which they refer.	Stockholders' Equity (reduction)
Equity Pick-up	Relevant investments in affiliated companies over which the firm had management influence, or in which the equity stake was 20% or more of the voting capital and in controlled companies were valued by the equity method.	Investments in affiliates and other companies that are part of the same group or are under common control must be valued by the equity method.	Long-term Assets (increase or reduction) and Net Income (increase or reduction).
Properties for Investments	Recorded and carried at historic cost.	Measured initially at cost, After initial recognition, the entity can opt for the dost method or fair value method. The variations in fair value must be recognized directly in the result in the period they occur.	Current Assets (increase or reduction) e Net Income (increase or reduction)
Financial Instruments	According to Law 6,404/76, credit rights and instruments and any securities classified as investments had to be valued at acquisition cost or market value, whichever is lower.	The initial measurement of financial assets and liabilities must be at fair value. The subsequent measurement will depend on the classification of the financial instruments.	Current and Long-Term Assets (increase or reduction), Current and Long-term Liabilities (increase or reduction), Stockholders' Equity (increase or reduction) and Net Income (increase or reduction).
Initial Adoption of International Accounting Standards	Does not apply	The differences (or adjustments) resulting from the initial adoption of international standards must be recognized directly in accrued profits or losses, or be appropriated in another stockholders' equity account on the transition date.	Stockholders' Equity (increase or reduction)

Source: Data from the study.