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# Impact of the Convergence Process to International Financial Reporting Standards on the Value Relevance of Financial Information

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## Abstract
Law 11.638/07 marked the start of a series of changes in the laws that regulate Brazilian accounting practices. The main reason for these changes is the convergence process of local with international accounting standards. As a result of Law 11.638/07, the legal precedent was established to achieve convergence. In that context, the aim of this study is to analyze the impact of the convergence process with international accounting standards on the relevance of financial information, based on data for 2007, without and with the alterations Law 11.638/07 introduced and according to the CPC Pronouncements, applicable as from 2008 onwards. Therefore, a value relevance study is used, applying regression analysis to annual stock price information (dependent variable) and net profit per share (NPPS) and net equity per share (NEPS) as independent variables. The main results show that financial information on NPPS and NEPS for 2007, with and without the legal alterations, are relevant for the capital market. A comparison between both regressions used in the analysis, however, shows an information gain for financial information that includes the changes introduced in the first phase of the accounting convergence process with the international standards.

**Key Words**: Relevance of Financial information; Convergence with International Accounting Standards; Law 11.638/07; CPC Pronouncements.

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## 1. INTRODUCTION

As a result of the international convergence process of accounting standards, the adoption of the IFRS in Brazil entailed changes in the regulatory financial framework through the enactment of Law 11.638/07 (BRASIL, 2007) and Pronouncements issued by the Accounting Pronouncements Committee. Deriving from this enactment, Law 6.404/76 (BRASIL, 1976) determines that the standards issued by the Brazilian Securities Commissions (CVM) should be elaborated in compliance with international accounting standards.

In this environment of changes, it is important for accountants, regulators and investors in general to know whether the adoption of the IFRS influences the information that is made available. In addition, it is important to add to literature that investigates the impacts of the adoption of the IFRS in different contexts (countries and cultures), whether changes in recognition and measurement forms can cause changes in the association between asset prices and financial information and, consequently, in the relevance of this information for the capital market. That is so because, since the first studies by Ball and Brown (1968) and Beaver (1968), the discussion on what factors contribute or reduce the relevance of financial information is essential for the standardization of accounting practices.

In that context, the aim of this study is to analyze the impact of the convergence process with international accounting standards on the relevance of financial information, based on data for 2007 without and with the changes introduced through Law 11.638/07 (BRASIL, 2007) and the CPC Pronouncements, applicable as from 2008.

Thus, the following question represents the research problem: What is the impact of Law11.638/07 (BRASIL, 2007) and the CPC Pronouncements, applicable as from 2008, on the relevance of financial information?

The use of information for 2007 is justified, as some companies resubmitted the statements for 2007 in the statements presented for 2008, including the adjustments determined in Law 11.638/07 (BRASIL, 2007) and the CPC Pronouncements applicable as from 2008. Thus, in general, the only difference between the information presented at the start of 2008 and resubmitted at the start of 2009 was caused by the convergence process with the international accounting standards. Hence, a satisfactory analysis of the cause-and-effect relation can be established, as practically all other influences would be under control, justifying any alteration solely by the changes introduced through the new legislation. It should be highlighted, therefore, that this effect cannot be isolated with the same degree of quality for any subsequent period.

This kind of studies is relevant as they show accounting users the extent to which the changes resulting from the convergence process with international accounting standards truly influence financial information, producing elements and support for these users to acknowledge these impacts in their decision processes based on the financial statements.

## 2. THE ACCOUNTING CONVERGENCE PROCESS IN BRAZIL

According to Iudícibus, Martins e Gelbcke (2009), the most relevant changes resulting from the internationalization process of accounting standards refer to the primacy of substance over form. This characteristic is illustrated by situations in which accounting practices are guided by principles and by the aim of disseminating the economic substance of transactions. In that sense, the transition is not easy, as Accounting professionals need analytic skills and judgment.

These aspects are not explicit in the laws that are promoting changes in the regulatory framework of Brazilian accounting but, when considering the nature of the standards that are being adopted, this philosophical change should permeate the entire accounting standard convergence process.

In this study, the changes are analyzed that were valid for 2008, in view of the goal of comparing the relevance of financial statement information for 2007 without and with the changed standards.

In 2009, many companies adapted the financial statements for 2007, published in 2008 for the sake of comparison.

Thus, aspects will be discussed about the disclosure and measuring of financial statement elements that were altered and that may influence the information quality for 2007, the period under analysis.

Law 11.638/07 (BRASIL, 2007) also alters Law 6.385/76 (BRASIL, 1976) in the accounting standard convergence process. In this case, the law included the possibility of cooperation agreements between regulators like CVM and the Brazilian Central Bank and organizations aimed at studying and disseminating accounting and auditing principles and standards.

This organization is the Accounting Pronouncements Committee (CPC), established in CFC Resolution 1.055/05 (CFC, 2005). In force as from 2008, the CPC issued a conceptual pronouncement and 14 technical pronouncements, approved through CVM deliberations, which define the validity of the pronouncements. The pronouncements issued until 2008 and the CVM deliberations that approved them are displayed in Figure 1. The only CPC that did not come into force in 2008 was CPC 11, which only came into force in 2010.

| Technical Pronouncement | CVM Deliberation |
|---|---|
| Basic Conceptual Pronouncement | 539/08 |
| CPC 01 – Impairment of Assets | 527/07 |
| CPC 02 – Effects of Changes in Foreign Exchange Rates | 534/08 |
| CPC 03 – Statement of Cash Flows | 547/08 |
| CPC 04 – Intangible Assets | 553/08 |
| CPC 05 – Related Party Disclosures | 560/08 |
| CPC 06 – Leases | 554/08 |
| CPC 07 – Accounting for Government Grants and Disclosure of Government Assistance | 555/08 |
| CPC 08 – Transaction Costs and Premiums on the Issue of Securities | 556/08 |
| CPC 09 – Statement of Value Added | 557/08 |
| CPC 10 – Share-Based Payment | 562/08 |
| CPC 11 – Insurance Contracts | 563/08 |
| CPC 12 – Present Value Adjustment | 564/08 |
| CPC 13 – Initial Adoption of Law 11.638/07 and MP 449/08 | 565/08 |
| CPC 14 – Financial Instruments: Recognition, Measurement and Disclosure | 566/08[(1)] |

(1) Revoked by CVM Deliberation 604, issued on November 19th 2009

**Figure 1: Pronouncements issued until 2008**

Source: CPC Pronouncements and Braga et al. (2010)

CPC 13 released companies from the obligation to resubmit their financial statements for 2007 for the sake of comparison, with two alternative routes to change to the new accounting practices:

- Start on January 1st 2008 or End on December 31st 2007; and/or
- Option to resubmit comparative financial statements, with start date on January 1st 2007 or end date on December 31st 2006.

In the second case, the changes Law 11.638/07 and the CPC pronouncements brought about should be implemented as from January 1st 2007, considering their effects on accounting measures and disclosures for 2007. Some aspects can be highlighted in terms of recognition and measuring criteria:

a) measurement of financial instrument;
b) valuation of corporate investments;
c) recognition of items in fixed assets;
d) recognition of items in intangible assets;
e) non-recognition of items in deferred assets;
f) recognition of premium in the issue of debentures as revenue;
g) recognition of share issue expenditures in net equity;
h) recognition of governmental donations and funding as revenue;
i) impossibility to revalue fixed asset items; and
j) present value adjustment of asset and long-term liability elements.

The changes in these recognition and measuring criteria are briefly discussed and analyzed in Figure 2, based on the determinations of Laws 6.404/76 and 11.638/07 and the CPC Pronouncements, compulsory for 2008 and optional for 2007:

| | |
|---|---|
| **Measurement of financial instruments** | Investments held until due date: measured at original value plus yield. Financial assets and liabilities for negotiation: measured at fair value, with recognition of variations in the income statement. Financial assets available for sale: measured at fair value, with recognition of variations in equity (equity valuation adjustments). Financial statement components potentially affected by these changes: investments (current or non-current assets); net equity; financial revenues or expenses. |
| **Corporate investment valuation** | Change in the definition of associate. The application range of the equity accounting method was extended. Based on these changes, there may be investments that used to be valued at the cost method and are now subject to the equity method and vice-versa. Exchange rate variations deriving from foreign investments should be registered in a specific equity account. Financial statement components potentially affected by these changes: investments (non-current assets); equity income; net equity. |
| **Recognition of items in fixed assets** | As a result of the changes, intangible items that may be figuring under fixed assets have to be included under intangible assets. In addition, leases should be recognized as assets, as they involve a transfer of benefits, risks and control. The existence of a non-recoverable part in the book value of the fixed assets (and any other assets) should be analyzed. The criteria used to determine the estimated economic useful life and to calculate depreciation should be revised and adjusted. Financial statement components potentially affected by these changes: fixed assets (non-current assets); depreciation expense; financial expense (due to the changed treatment of leases); profit reserves (due to adjustments in previous years). |
| **Recognition of items in intangible assets** | As a result of the changes, intangible assets that may figure in other groups (fixed or deferred assets) and comply with certain criteria should be registered under intangible assets. Financial statement components potentially affected by these changes: intangible assets (non-current assets). |
| **Non-recognition of items in deferred assets** | This account group was extinguished in MP 449/08. Existing balances should be reclassified (if possible), written off against accumulated profits or losses or held until full amortization. Financial statement components potentially affected by these changes: deferred assets (non-current assets); profit reserves (because of adjustments in previous years). |
| **Recognition of premium in the issue of debentures as revenue** | This item is no longer directly recognized under equity as a capital reserve and starts to be considered as revenue and appropriated to the income according to the debt terms. Financial statement components potentially affected by these changes: financial revenues or expenses. |
| **Recognition of share issue expenditures in net equity** | This item is no longer directly recognized under income and is included as a rectifying account of the capital group under equity. Financial statement components potentially affected by these changes: net equity; income (due to the reversal of share issue expenditures). |

| | |
|---|---|
| **Recognition of governmental donations and funding as revenue** | This item is no longer directly recognized under equity as a capital reserve and starts to be considered as revenue and appropriated to the income as it complies with the criteria for recognition. Financial statement components potentially affected by these changes: revenue from donations and funding (or tax incentives); net equity. |
| **Impossibility to revalue fixed asset items** | The legal determination that permitted the revaluation of asset elements was revoked. The existing balances in the revaluation reserve could be held until their actual realization or reversed until the end of the period when Law 11.638/07 came into force. Financial statement components potentially affected by these changes: fixed assets (non-current assets); net equity. |
| **Present value adjustment of long-term asset and liability elements** | As a result of the changes, the asset elements deriving from long-term operations and the liabilities, charges and risks classified under long-term liabilities will be adjusted at their present value, while the remainder is only adjusted in case of any relevant effect. Financial statement components potentially affected by these changes: long-term realizable assets (non-current assets); liabilities (non-current); financial revenues or expenses. |

**Figure 2: Changes in accounting measuring and recognition criteria**

Source: Law 6.404/76, Law 11.638/07, CPC Pronouncements and Braga et al. (2010)

Important changes in the measuring and recognition of financial statements elements were reported above. Nevertheless, besides measuring and recognition aspects, other changes were made, like corporations' adoption of the Statement of Value Added (SVA). The above aspects were focused on though, as these can influence the financial values applied in the present analysis model. Finally, it is highlighted that other changes were introduced after 2008, when new CPCs were issued.

## 3. VALUE RELEVANCE: THE RELEVANCE OF FINANCIAL INFORMATION

In a bibliographic survey on capital market research, Kothari (2001) highlights the following as the main forerunners in value relevance research: Ball and Brown (1968) and Beaver (1968).

Ball and Brown (1968) related accounting components with companies' market value. These authors researched on abnormal accounting income and stock value, evidencing that profit announcements are of informative value to the market, with gradual adjustments in abnormal returns. This fact signals that the market does not fully anticipate all information.

Beaver (1968), then, investigated the information contents of accounting components like profit, evaluating the market's reaction to financial disclosure and to the volatility of abnormal returns. The results showed that the market, and more specifically price volatility, reacts to financial information disclosure.

In general, the aim in value relevance research is to assess the relation between financial information and market values. The initial view was limited to evaluating how financial figures are related to stock behavior. In this initial approach, Ball and Brown (1968) developed techniques to measure the impact of financial information.

Holthausen and Watts (2001) define Value Relevance Literature as empirical studies that investigate the relation between market values (or their changes) and accounting figures and are aimed at valuing and providing a better based for the valuation of these figures and/or accounting standards' effects. The same authors comment on the multiple functions of financial reports, including non-valuation functions, with important implications for financial reports.

Holthausen and Watts (2001) criticize the fact that value relevance research does not provide the necessary support for accounting regulators' decisions. Barth, Beaver and Landsman (2001) consider that the research is not conditioned by this objective, as the investors are not the sole information users.

In both studies, it is clear that the aim in this kind of research is to provide evidence on how accounting components are related to stock prices (companies' market value).

Holthausen and Watts (2001) classify value relevance studies in three categories, although the same study can figure in more than one category:

i) Relative association studies, which compare the association between stock market values (or changes in these values) with alternative measurement forms, like an existing and proposed accounting standard. These studies normally compare the $R^2$ of regression models, in which the accounting standard with the highest $R^2$ is evaluated as the most relevant;

ii) Incremental association studies, which investigate whether the accounting component under analysis is useful to explain values or returns over time, in which the inclusion of other variables is important. A value is considered relevant if its investigated regression coefficient is significantly different from zero; and

iii) Marginal information content studies, which investigate whether a certain value adds information power to investors with regard to available information. Event study methods are typically used, in which the researchers are interested in evaluating whether the availability of a certain piece of information is associated with asset value changes (price reactions), in which reactions are considered as evidence of relevance.

According to Barth, Beaver and Landsman (2001), value relevance studies adopt specific objectives and alternative hypotheses on the relevance and reliability of accounting figures. Different evaluation forms may exist but, typically, companies' (stock) market values are used. Tests are aimed at evaluating the coefficients on the accounting figures used and which were estimated in regression models. The authors cite some study types:

i) Evaluation of specific accounting component coefficients, in which the rejection of the null hypothesis evidences the significance of the coefficients.

ii) Evaluation of whether recognized accounting value coefficients differ from other values that could also be recognized in the financial reports under different accounting practices. The rejection of the null hypothesis evidences that differences in recognition forms are relevant.

iii) Evaluation whether accounting value coefficients differ from their theoretical coefficient of the valuation models. The rejection of the null hypothesis evidences flaws in the model's proposed characteristics for the variables to be measured.

In view of the classifications and definitions addressed, basically, three objectives of value relevance studies can be highlighted: i) to test the relevance of financial information in relation to stock prices; ii) to test the relevance of specific financial information, which can support investors' decisions; and iii) to suggest and contribute to the development of valuation and monitoring models.

According to Holthausen and Watts (2001), the theories underlying value relevance studies normally take two forms: i) direct valuation theory and ii) inputs-to-equity-valuation theory. In the first case, the accounting income or net equity is valued to measure the stock market value and its changes, with a strong association between the accounting measure and the stock measure. In the second form, the idea is to provide information for use in company valuation models used by investors, whose associations between accounting values and companies' stock market value are expected, but only incrementally.

Holthausen and Watts (2001) highlight that most value relevance research is not aimed at questioning whether the book value of equity or income should represent an estimate of the market value, but whether a significant relation exists between these two pieces of financial information and companies' stock prices in the capital market.

In the classification by Holthausen and Watts (2001), this study can be classified under *relative association studies*. Important contributions of this type of study can be listed.

Harris, Lang and Moller (1994) compared the relevance of financial information recognized and measured by German and American companies, considering that the German accounting system focuses on capital preservation, creditor protection and a facilitated taxation process. The association between stock returns and accounting gains was analyzed over long periods, considering annual data. The study indicates that the accounting gains of German corporations are relevant, that the consolidated data have greater explanatory power and that alignment with American practices brings about insignificant changes.

Dhaliwal, Subramanyam and Trezevant (1999) assessed the relative relevance of comprehensive income and net income to explain stock return performance. No evidence was found of a greater association between comprehensive income with stock returns and values, nor of greater cash flow prediction ability.

In the context of non-American companies listed on the American capital market that adapted their information to American standards, Amir, Harris and Venuti (1993) investigated whether information differences were significant and influenced the association with these companies' stock values. The authors concluded that the reconciliations add to the relevance of the domestic information.

In Brazil, studies were developed to analyze financial information relevance, based on the relation between stock prices and accounting components. The work by Lopes (2001) is a reference point in this kind of research, using Ohlson's Model in the interpretation of financial information.

## 4. VALUE RELEVANCE STUDIES IN A CONTEXT OF DIFFERENT ACCOUNTING OR ACCOUNTING CONVERGENCE PRACTICES

In a study of Finnish companies, Niskaen, Kinnunen and Kasanen (2000) indicated that income changes due to the transformation of the domestic accounting standard to international standards did not entail any significant relevance gains for financial information.

Using data from 417 companies according to the German accounting standards, US-GAAP and IFRS, Bartov, Goldberg and Kim (2005) indicated greater relevance of financial information under US-GAAP and IFRS when compared with the German accounting standards. In line with these results, Hung and Subramanyam (2007) concluded that, like variations in income and net equity, total assets and equity were more relevant according to the international than the German standards.

In a study of Brazilian companies with American Depositary Receipts (ADRs), Costa and Lopes (2007) analyzed net income and net equity variables between 1999 and 2003. Using Ohlson's model, it was concluded that: i) information elaborated under the Brazilian standards is relevant; ii) information under US-GAAP issued in June are more or less relevant than information issued in April; and iii) equity adjustments made according to US-GAAP are relevant for the Brazilian capital market.

In a study in Portugal, Morais and Curto (2008) concluded that the adoption of IASB standards reduced information relevance. Barth, Landsman and Lang (2008) presented research evidence, considering companies from 21 countries, that the adoption of international standards improved the relevance of financial information in comparison with the adoption of local standards.

Including financial analysts' forecasts, Chalmers, Clinch and Godfrey (2008) evaluated significant alterations in the precision level of forecasts before and after the adoption of the international standards. The research indicates that the accuracy of the forecasts increased after the implementation of the accounting standards, without signs of increased information relevance levels for analysts' evaluations.

Chalmers, Clinch and Godfrey (2009) investigated changes in the relevance of income and equity values for investors, in the context of the gradual adoption of IFRS in Australian companies. The research was based on the period from 1990 to 2007, where the adoption of the IFRS starts in an intermediary period. The results indicate that the Australian companies' income values gained relevance through the adoption of the IFRS, but the equity value did not change significantly. This study suggests that, even for countries with strong investor protection and high-quality accounting principles, the adoption of the IFRS can significantly interfere in associations between financial information and market value.

Morais and Curto (2009) concluded that information issued according to the international standards (IAS/IFRS) were more relevant that information issued according to local standards in European countries, supporting the results found by Barth, Landsman and Lang (2008).

In Malaysia, Kadri, Aziz and Ibrahim (2009) demonstrated that the change in accounting standards to the IFRS signaled the relevance of accounting information, as opposed to studies before the adoption of the international standards in the country, concluding that accounting information lacks relevance.

## 5. METHOD

According to Vergara (2009), this research can be characterized as descriptive and explanatory, considering efforts to present the characteristics of financial information (in this case its relevance), in 2007, through the analysis of the relation between this information and stock price behavior. In line with Martins and Theóphilo (2009), the approach used is characterized as empirical-positivist, as it presents clearly quantitative data collection, treatment and analysis techniques, in which attempts are made to validate scientific evidence through instrument tests, significance levels and the systemization of operational definitions.

The target population comprises non-financial corporations listed on the São Paulo Stock Exchange (Bovespa) who voluntarily resubmitted their financial statements for 2007 in 2009, containing the accounting criteria changes defined in Law 11.638/07 and CPC Pronouncements for the sake of comparison. Among the companies that resubmitted these statements, financial and insurance companies and holdings were excluded. The financial statements were collected on the Bovespa website through the Divulgação Externa (DivExt) system. The final target population consists of 75 companies. Due to the unavailability of stock market information, however, the final sample includes 55 companies (more than 70% of the target population), which were part of the analysis.

Sample companies' information on Net Income (NI) and Net Equity (NE) were collected from the financial statements, related to the year 2007. In addition, information on stock prices and the number of stocks was obtained from Economática®.

For the stock price, the price of the company's most liquid stock was considered on April 30th 2008. To select the most liquid stock, three factors were considered simultaneously (number of trades, number of stocks traded and monetary volume traded), as these always point towards the same choice. As for the number of stocks used to find information on Net Income per share (NIPS) and Net Equity per Share (NEPS), information was considered on December 31st 2007.

As mentioned earlier, for the sake of analysis, only 2007 was considered, as this is the sole period in which the effects of Law 11.638/07 and the CPC Pronouncements can be isolated, applicable as from 2008 onwards. Information whose sole difference is due to the change in accounting criteria defined in these laws can only be obtained for 2007.

The regressions (using before-and-after data on the first phase of the convergence process with international accounting standards) developed for the sake of value relevance analysis consider variables commonly found in this kind of studies, aimed at analyzing the relevance of financial information in an environment of changing standards. The econometric model used to measure the existing relation between stock prices and financial information was based on the work by Collins, Maydew and Weiss (1997) and Chalmers, Clinch and Godfrey (2009).

Thus, the analysis is divided in two parts, each related to a specific situation: with and without the changes established in the legislation that regulated the accounting convergence process with the international standards. For all analyses, multiple linear regressions were used, always adopting the price as the dependent variable and the combined financial information (NIPS and NEPS) as independent variables.

The analytic focus on the comparison between two information sets should be highlighted, with a view to verifying which of both (without and with the changes established in the convergence process with international accounting standards) is more involved in price formation. In that sense, if information with the changes is more relevant, this may indicate that the market was already considering these changes informally in price formation.

To check the value relevance of the financial information, the following equation was used:

$$p_i = \alpha_0 + \alpha_1 NIPS_i + \alpha_2 NEPS_i + \varepsilon_i \tag{1}$$

Where:
$p_i$ = Dependent variable, equivalent to the stock price of company *i*;
$\alpha_0$ = Intercept;
$\alpha_1$ = Angle of inclination to NIPS;
$\alpha_2$ = Angle of inclination to NEPS;
$NIPS_i$ = Independent variable, obtained by dividing the net income (NI) taken from the income statement by the number of stocks in company *i*;
$NEPS_i$ = Independent variable, obtained by dividing the net equity (NE) taken from the balance sheet by the number of stocks in company *i*;
BP pelo número de ações da empresa *i*;
ε = Random error (white noise) with normal distribution, zero mean and constant variance.

According to Corrar, Paulo and Dias Filho (2007), regression analysis basically involves the determination of a function that describes or explains the behavior of the dependent variable, based on the values of one (simple regression) or more (multiple regression) independent variables. To estimate this function, Gujarati (2006) adds, different methods can be used, the most common of which, used in the present study, is the Ordinary Least Squares (OLS) method.

In line with Fávero et al. (2009), however, to accept the estimated function, the regression determination coefficient ($R^2$) and the coefficients of the independent variables need to be tested. To test the model as a whole, as highlighted in Gujarati (2006) and Corrar, Paulo and Dias Filho (2007), an F-test is applied, which departs from the null hypothesis ($H_0$) that $R^2$ is equal to zero. In order to accept the regression, this $H_0$ needs to be rejected. To test the independent variables' coefficients, Gujarati (2006) and Corrar, Paulo and Dias Filho (2007) add, a *t*-test is applied, which departs from the null hypothesis ($H_0$) that the coefficients are null (equal to zero). In the same way as in the previous test, to include a variable in the model that describes or explains the independent variable's behavior, this $H_0$ needs to be rejected. In both cases, the p-value of the test needs to be inferior to the significance level, set at 1% in this study.

Besides the F and *t*-tests, for the sake of a regression analysis, in accordance with Fávero et al. (2009), Corrar, Paulo and Dias Filho (2007) and Gujarati (2006), its premises need to be tested, which are: normality of residues, homoscedasticity of residues, self-correlation of residues and multicollinearity of independent variables. In other words, with a view to the acceptance of a regression model, the distribution of residues needs to be normal, its variance needs to be constant and the residues cannot be correlated. In addition, the independent (regressor) variables cannot be correlated. In this study, the tests of all premises were applied to all regressions. The tests used are described next.

To test for normality, Jarque-Bera's test (JB) was used which, according to Gujarati (2006), is a test that jointly tests the skewness (S=0) and kurtosis (K=3) test of regression residues' distribution. For homoscedasticity, the Breusch-Pagan-Godfrey test was used which, according to Gujarati (2006), involves testing the hypothesis that the variances of the errors (residues) are the same. For multicollinearity, variance inflation factor (VIF) statistics was used which, according to Fávero et al. (2009), measures the extent to which the variance in each estimated regression coefficient increases due to the multicollinearity. For the regression to be acceptance, the VIF needs to be inferior to ten.

Finally, for self-correlation, Durbin-Watson's (DW) test was used which, according to Gujarati (2006), is the most applied test to detect the self-correlation of residues. DW statistics will be included merely for illustrative purposes as, according to Fávero et al. (2009), talking about self-correlation makes no sense when cross-sectional data are used, like in the present research.

Except for VIF, which was processed in SPSS 16.0, all tests and regression analyses were developed in Eviews 6.0. For cases of heteroscedasticity problems, Newey-West's correction was used which, according to Gujarati (2006), corrects coefficients' standard errors, making them consistent for heteroscedasticity.

The comparative analysis of the regression equations' results for the data before and after the changes resulting from the first phase of the convergence process with international accounting standards is primarily developed by comparing the adjusted $R^2$, in order to check the impact of these changes on the relevance level of the financial information. In addition, Akaike (AIC) and Schwarz (SIC) information criteria were also used which, according to Fávero et al. (2009), serve to choose between competing models. For AIC as well as SIC, the best model will display the lowest values.

## 6. ANALYSIS OF RESULTS

Using Eviews 6.0 and SPSS 16.0, results were obtained for the regressions presented earlier, as well as for the tests needed. For all analyses, significance was set at 1%. In Table 1, the regression results are displayed in view of the original data, that is, before the changes. Table 2 displays the regression results for the data that were resubmitted voluntarily in 2009.

The results in Table 1 reveal an adjusted $R^2$ of 0.6908, significant at 1%, which shows that NIPS and NEPS variations explain for 69.08% of price variations. Even if preliminarily, this shows the explanatory power of the companies' stock price behavior in the capital market based on the variables NIPS and NEPS, without considering legal changes.

**Table 1: Relevance of NIPS and NEPS without legal changes**

| Explanatory or Independent Variable | Coefficient | Standard Error | *t* | *p-value* |
|---|---|---|---|---|
| NIPS | 4,2277 | 0,6826 | 6,1938 | 0,0000 |
| NEPS | 0,5991 | 0,0984 | 6,0872 | 0,0000 |
| C | 7,7166 | 1,8001 | 4,2853 | 0,0001 |
| **Additional Information** | Values | **Additional Information** | | **Values** |
| $R^2$ | 0,7022 | F (stat.) | | 61,3120 |
| Adjusted $R^2$ | 0,6908 | F (*p-value*) | | 0,0000 |
| Jarque-Bera (stat.) | 2,0989 | Breusch-Pagan-Godfrey (F stat.) | | 19,3018 |
| Jarque-Bera (*p-value*) | 0,3501 | Breusch-Pagan-Godfrey (*p-value*) | | 0,0000 |
| Durbin-Watson (DW) | 2,0875 | VIF (NIPS and NEPS) | | 44,8740 |
| AIC | 7,7362 | SIC | | 7,8457 |

In addition, both independent variables are significant, as the two *p-values* in the *t*-test remain inferior to 1%. Also, the regression does not present any normality problems for the residues (*p-value* of Jarque-Bera test > 1%).

The regression does show heteroscedasticity problems for the residues at 1%. This means that the $H_0$ of constant variance in the errors is not accepted. Because of this heteroscedasticity problem, the standard errors, *t*-test and its *p-value* have already been estimated with Newey-West's correction.

Therefore, in view of the above, the financial information on the NIPS and NEPS for 2007 is significant to the capital market when analyzing the data before the changes deriving from the first phase of the convergence process with the international accounting standards.

The analysis of Table 2 reveals that the regression of stock prices against NIPS and NEPS, considering the information that was resubmitted and including the accounting criteria changes defined in Law 11.638/07 and the CPC Pronouncements, applicable as from 2008, has an adjusted $R^2$ of 0.7276, significant at 1% (*p-value* of the F-test). This means that 72.76% of the price variation is explained by the variation in NIPS and NEPS, showing the explanatory power of the NIPS and NEPS variables in view of legal changes.

**Table 2: Relevance of NIPS and NEPS with legal changes**

| Explanatory or Independent Variable | Coefficient | Standard Error | *t* | *p-value* |
|---|---|---|---|---|
| NIPS | 3,9601 | 0,4859 | 8,1505 | 0,0000 |
| NEPS | 0,5607 | 0,0700 | 8,0100 | 0,0000 |
| C | 7,8893 | 1,3995 | 5,6371 | 0,0000 |
| **Additional Information** | **Values** | **Additional Information** | | **Values** |
| $R^2$ | 0,7377 | F (stat.) | | 73,1328 |
| $R^2$ ajustado | 0,7276 | F (*p-value*) | | 0,0000 |
| Jarque-Bera (stat.) | 1,4359 | Breusch-Pagan-Godfrey (F stat.) | | 8,6842 |
| Jarque-Bera (*p-value*) | 0,4878 | Breusch-Pagan-Godfrey (*p-value*) | | 0,0006 |
| Durbin-Watson (DW) | 2,2740 | VIF (NIPS and NEPS) | | 37,6250 |
| AIC | 7,6092 | SIC | | 7,7187 |

In addition, the coefficients of both variables are significant, as appointed by the *p-values* of the *t*-tests, inferior to 1%. It can be observed that the regression does not show any normality problems either for the residues (*p-value* of the Jarque-Bera test > 1%).

Again, however, the regression revealed heteroscedasticity problems of the residues at 1% (p-value of the Breusch-Pagan-Godfrey test < 1%). Thus, as $H_0$ about the constant variance of the residues cannot be accepted, the standard errors, t-test and its p-value have already been estimated with Newey-West's correction.

Hence, in view of the above, the financial information on the NIPS and NEPS for 2007 is also significant to the capital market, even when analyzing the data after the changes deriving from the first phase of the convergence process with the international accounting standards.

For these two regressions, VIF > 10, which would generate an unacceptable multicollinearity situation. According to Fávero et al. (2009), the high level of collinearity between the independent variables does not necessarily produce bad or weak estimators and its presence does not mean that the model has problems, although its existence ends up leading to an increase in error terms.

Therefore, Corrar, Paulo and Dias Filho (2007) and Gujarati (2006) emphasize that the main characteristic of regressions with multicollinearity problems is a high $R^2$, but few significant variables, exactly because of the very large error term. In other words, the errors of the independent variables' coefficients are large, entailing significance problems (difference from zero).

That is not the case in this study though, as all coefficients of the independent variables (NIPS and NEPS) are significant in both cases. Hence, despite the high VIF, the expected impact of multicollinearity on the significance of the explanatory variables' coefficients is not observed.

In addition, according to Gujarati (2006), even if the level of multicollinearity is very high, like in the case of the two regressions developed in this study, if the other premises (normality and homoscedasticity of the residues) are attended to or corrected, the estimators obtained through the application of the OLS method will still have the properties needed to be the best unbiased linear estimators.

Gujarati (2006) and Fávero et al. (2009) highlight that the multicollinearity problem may be related to the combination of the theoretical relation between the variables (which is naturally expected for this article, as a strong relation of NI and NE is expected) and the relation among the data that are being used, caused by the sampling adopted. It is unfeasible for the present study to correct these problems, as the only possible analysis period is the year 2007, and the companies used are the ones that voluntarily submitted the information needed for the study.

Hence, despite the VIF's multicollinearity problem, the analyses developed can be considered valid, based on the information obtained through the regression.

In view of the finding that financial information without and with the adjustments deriving from the first phase of the convergence process with international accounting standards is relevant to the capital market, it should be analyzed whether the change enhanced the financial statements' information, more specifically the net income and net equity.

At first, the adjusted $R^2$ of the two regressions can be compared (Tables 1 and 2). This reveals a slightly higher coefficient for the information with the changes (72.76%) than for the information without the changes (69.08%) established in Law 11.638/07 and the CPC Pronouncements, applicable as from 2008. This shows an increase in the explanatory power of the stock price behavior according to NIPS and NEPS. In other words, the information disclosed in 2009 only (related to the resubmission of the statements for 2007) contains more elements the market takes into account. The AIC and SIC analyses support this, as both cases reveal lower regression coefficients when considering the information that incorporated the changes.

## 7. FINAL CONSIDERATIONS

This study aimed to investigate the impact of the convergence process with international accounting standards in Brazil through the value relevance analysis of financial information, mainly NI and NE, based on data for 2007 without and with the changes introduced through Law 11.638/07 and the CPC Pronouncements applicable as from 2008.

The main results show that the financial information on NIPS and NEPS for 2007, without and with the legal changes, is relevant to the capital market. A comparison between both regressions used in the analysis, however, shows that the financial information with the changes introduced in the first phase of the convergence process with the international standards brought about an information gain.

It is important to highlight that Table 2, which summarizes the aspects changed as a result of Law 11.638/07 (BRASIL, 2007) and the CPC Pronouncements, applicable as from 2008, shows that practically all items direct or indirectly influence NI and NE. Thus, considering these two items only, the analysis can be considered significant in a study about the impact of the first phase in the convergence process with international accounting standards on the relevance of financial information. Hence, it is concluded that these changes brought about information gains for the financial statements with regard to the stock price formation in the capital market.

The financial statements' gains in information contents may be associated with the introduction of new measurement and accounting disclosure criteria. These new criteria tend to bring financial information closer to the company's economic reality, breaking the paradigm that it represents a "merely accounting" figure. In addition, the improved quantitative and qualitative disclosure is highlighted.

This reflects an interesting situation from the perspective of financial information use by the capital market. These conclusions point towards the fact that the capital market was already considering/reflecting (as the prices refer to 2008) information that was not available in accounting figures yet, as the new information, considered more relevant, was only disclosed in 2009. This entails additional relevance for the changes the convergence process with the international accounting standards brought about, as the results indicate a situation as if the market already adjusted the NI and NE by itself to improve this information, as these adjustments were related to the changes established in Law 11.638/07 (BRASIL, 2007) and the CPC Pronouncements, applicable as from 2008.

In general, the present study results support the findings of Bartov, Goldberg and Kim (2005); Hung and Subramanyam (2007); Barth, Landsman and Lang (2008); Chalmers, Clinch and Godfrey (2008); Chalmers, Clinch and Godfrey (2009); Morais and Curto (2009) and Kadri, Aziz and Ibrahim (2009), and go against the results of Niskaen, Kinnunen and Kasanen (2000) and Morais and Curto (2008), as observations revealed that the convergence process with international accounting standards enhanced the financial information relevance.

One important study limitation that was not controlled is that some bias resulting from the Theory of Disclosure may be influencing the results, as the companies voluntarily presented the data. In principle, however, this effect cannot be observed in the differences between information without and with the changes as, in several companies, a drop in NE and/or NI is observed, against a rise in several others.

Finally, it should be highlighted that this kind of studies is needed, that is, efforts are needed to understand and map the impact of the accounting convergence process with international standards in Brazil, whether through value relevance analysis or any other perspective on the problem. That is so because it is important for accountant, regulators and investors in general to know whether the adoption of the IFRS influences the information accounting makes available. In addition, it is important to add data on the effects of this adoption in Brazil to literature that investigates its impacts in different contexts, countries and cultures.

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