

IFRS Adoption And Earnings Management In Brazilian Publicly Traded Companies

Abstract

In 2007, Brazil adopted the International Financial Reporting Standards (IFRS). Studies involving publicly traded companies in different countries around the world indicate that these new standards tend to improve the information quality and make it more comparable and transparent. This study was aimed at verifying any changes in the earnings management levels after 2010 and whether this happened in function of the full adoption of the IFRS by the Brazilian publicly traded companies (except for financial institutions). The data were extracted from the three-monthly financial statements of the databases from Economática and the Brazilian Securities Commission for the period from 2006 till 2011. To achieve the research objectives, two tests were applied. The first showed that the average discretionary accruals, calculated through the Modified Jones Model, were lower after 2010. Next, the regression analysis was elaborated, using panel data with Newey-West's correction. The results did not confirm the hypothesis that the adoption of the IFRS affected the earnings management level in the period under analysis, but showed that the size and indebtedness significantly explain the discretionary accruals, independently of the adoption of the IFRS. The results suggest that larger companies with a large proportion of own capital tend to produce higher quality reports, independently of the adoption of the IFRS.

Key words: Earnings management. Discretionary accruals. Adoption of IFRS.

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1. Introduction

Brazilian publicly traded companies started to publish their financial statements according to the International Financial Reporting Standards (IFRS), through the Accounting Pronouncements Committee (CPC). This adaptation includes the Brazilian national and international companies into a global standard. These recent rules for accountants determine new accounting treatment choices, which can affect the earnings management levels.

The managers can use accounting choices for their own benefit which, when aligning these choices with the companies' interest, also bring gains and increased value for the organization. Fields, Lys and Vincent (2001, p. 260) consider that "earnings management as occurring when managers exercise their discretion over the accounting numbers with or without restrictions. Such discretion can be either firm value maximizing or opportunistic".

Therefore, the accounting practices move forward in accordance with the objective of the agent or principal. From the owner's side, there is the attempt to maximize the company value and, hence, accounting choices are made to minimize the firm's transaction costs. On the other hand, the managers use accounting practices to maximize their own interests, that is, opportunistic practices (Coelho & Lopes, 2007). The latter happens when the interests of the principal and agent are not aligned.

Healy (1996) believes that managers sometimes act for the company's benefit and sometimes for their own. Some companies try to minimize the taxable income to pay fewer taxes; in others, practices are adopted to increase the profits, with a view to achieving the established targets and the market analysts' expectations, so as to receive the bonus for this performance. Hence, there are various forms and incentives for opportunistic practices, on behalf of the stockholders, the managers or both parties' interests.

According to Lopes (2002), earnings management through opportunistic attitudes can negatively affect the accounting information users. One possible form of losses, according to Paulo (2007, p. 46), is that "the investors do not have reliable information to help them in the decision, the analysts estimate earnings erroneously and the credit institutions do not actually perceive the risks" (authors' translation).

As a result of biased and easily manageable accounting, the information users do not trust the disclosures, and this situation hampers the development of the capital market, as only the managers possess the information that truly represents the company's economic and financial reality, instead of the range of investors, analysts, creditors and users in general.

The objective of accounting is to reduce the information asymmetry, decrease the agency problems and contribute to the development of the capital market. This information asymmetry exists when one of the parties in a transaction has more information than the other. In that case, the administrators and often the controlling shareholders have more information than the external users and minority shareholders.

According to Tendeloo and Vanstraelen (2005), the adoption of the IFRS sends a positive signal to the market, indicating the increased quality of the financial statements and greater transparency.

Another point in favor of the implementation of the IFRS is the argument by Jeanjean and Stolowy (2008, p. 481) that a shared standard makes it easier to compare the financial statements among companies from different countries. This improves the efficacy of international funds and enhances the capital market efficiency, reducing the companies' cost of capital.

Therefore, due to the fact that many companies are increasingly present in different nations, there is a need for financial information comparability and this entails a trend towards global convergence of the financial statements. Thus, it can facilitate the information users' analysis, as the standards are the same independently of the country they are disseminated in.

Hence, increased quality and transparency, in combination with greater comparability of the financial statements, leads to a consequent reduction in information asymmetry. Thus, the adoption of the IFRS is expected to have a downward influence on the companies' EM.

Dechow, Ge and Schrand (2010) elaborated a study in which they reviewed the proxies to determine earnings quality (EQ)¹. More than 300 studies were investigated; one of the proxies with the EM which, when practiced, reduces the information quality. Accrual models were used to calculate the management and, consequently, to define the EQ as well.

According to Barth, Landsman and Lang (2008), the high quality of earnings presents less EM. In the study, the accounting quality (AQ)² was calculated. For this purpose, EM, value relevance and timely loss recognition were used in comparison with the adoption of the international standards. The authors found that, in general, disclosure in IFRS increases the AQ.

Thus, as the international standards influence the quality of financial information (Barth, Landsman & Lang, 2008), and considering that one of the variables used to define the earnings quality is the EM (Dechow, Ge & Schrand, 2010), the research problem investigated in this study is: **did the Earnings Management levels in publicly traded companies in Brazil change and did this happen in function of the adoption of the International Financial Reporting Standards?**

This international standard partially came into force in Brazil through Federal Law 11.638 (2007), which extends financial statement elaboration and disclosure determinations to large companies, and through Provisional Measure 449 (2008) (currently transformed into Law 11.941 (2009), which altered Law 6.404 (1976). The IFRS also came into force in Brazil through the publication of the technical accounting pronouncements elaborated by the Accounting Pronouncements Committee (CPC)³, created by the Federal Accounting Council in 2005. In 2010, the Brazilian accounting standard lined up with the international standard through the full adoption of the IFRS. It is important for the academy and the market to develop a study that analyzes the impacts of this new standard on the quality and transparency of financial information disclosure, as its understanding supports the companies' economic and financial analysis. According to Dechow, Ge, Schrand (2010), the studies undertaken to verify the impacts of the regulatory change on the quality level of profit information use the EM level as a measuring indicator, as well as the study by Kohlbeck and Warrfield (2010). Thus, analyzing the signs of EM in the financial statements before and after the adherence to the IFRS is a way to understand the impacts on the disclosure quality.

Almeida (2010, p. 106) did not identify studies that show the actual effect of this normative change. Therefore, it is fundamental to undertake studies in order to understand the impacts of this legal landmark in Brazil.

The objective of this research is to verify whether the earnings management levels change after 2010 and whether this happened in function of the Brazilian publicly traded companies' full adoption of the IFRS.

The problem was treated through an empirical research, using statistical instruments to treat the data. The sample of Brazilian publicly treated companies was collected from Economática and the Brazilian Securities Commission (CVM) between 2006 and 2011. The Modified Jones Model (Dechow, Sloan & Sweeney, 1995) was applied as a proxy for the discretionary accruals. First, it was verified whether the discretionary accrual levels changed after 2010, when the Brazilian companies fully adopted the IFRS. Next, the discretionary accruals variable and four other control variables were included in the Model by McNichols and Wilson (1988), which was adapted in this study to verify whether the adoption of the IFRS provoked changes in the discretionary accruals. The statistical technique employed was panel data regression.

The study has been structured as follows: in part two, the theoretical framework is presented, including the studies that relate EM with IFRS, Brazilian peculiarities and the research hypothesis. In part three, the method is discussed, divided in three parts: methodological procedures adopted in the study with the description of the model used; next, the variables employed; and finally the sample composition. In part four, the research results are presented. Finally, part five contains the final considerations.

1 Term used in the international references to define the quality of earnings.

2 Term used in the international references to define the accounting quality.

3 The committee consists of representatives from the Associação Brasileira das Companhias Abertas (Abrasca), Associação dos Analistas e Profissionais de Investimento do Mercado de Capitais (Apimec), Bolsa de Valores e Mercadorias e Futuros (BM&FBOVESPA), Conselho Federal de Contabilidade (CFC), Fundação Instituto de Pesquisas Contábeis, Atuariais e Financeiras (Fipecafi) and Instituto dos Auditores Independentes do Brasil (Ibracon).

2. Theoretical Framework

2.1 Agency Theory

The main reference for this theory is the work by Jensen and Meckling (1976), who elaborated a line of reasoning about the relation between the agent (manager) and the principal (shareholder). The authors proposed a conflict of interest between the parties, as some decisions can maximize one side's wealth, while others improve that of the other side.

Due to the impossibility of a full contract and perfect agents, the company is open to the manager's decision, which can be focused on his own objective instead of the company. The agency problem departs from the premise that there is no equally distribution information among the agents, so that the agent with more information can make opportunistic decisions focused on his private interests. Another point is the moral hazard involved in cases in which the agent's actions are not observed by the principal or are costly (without cost-benefit) to monitor.

In view of this situation, the information asymmetry leads to market inefficiencies (Akerlof, 1970), given that each agent makes a decision based on his available information, and that those having more information can make good use of this advantage. To reduce the conflict of interests, mechanisms can be created to align the parties' interest and monitor the agent's action, that is, all of these actions have a price, which is defined as the agency cost.

To reduce the attitudes that maximize the agent's value, higher costs are needed to monitor his activities. According to Cardoso, Saraiva, Tenório and Silva (2009, p. 794), "accounting is a mechanism to reduce the information asymmetry" (authors' translation). Therefore, the lower the asymmetry, the lower the costs, as there is no need for other mechanisms to obtain the actual information, as the statements are expected to reliably represent the company's financial reality.

2.2 Earnings Management

The managers are encouraged to adapt the information with a view to obtaining gains. The managers can alter or, better, make accounting choices to increase or achieve their target and, thus, get their bonus (Healy, 1985). When the company closes debt contracts with clauses that establish values or conditions to release the loan or to maintain the limits in force, can make the administrators and proprietors commit accounting manipulations, mainly when they may not be able to keep their agreements (Sweeney, 1994).

These manipulations and accounting choices are defined as earnings management (EM) in the literature, which happens when the financial information does not represent the reality, which can mistakenly influence the information users' decision making. One of the causes of EM is that companies try to avoid the disclosure of losses. Another possibility is to minimize volatile results. Companies with less volatile results transmit more confidence to the users, as it is easier to project the profits without great oscillation. More confidence brings down the company's risk, which improves the risk-return ratio, thus valuing the companies.

2.3 Earnings Management and IFRS

According to Defond (2010), the studies that analyze the financial information quality in the transition period from the local standards to IFRS are potential future studies. As EM serves to test the information quality, the number of studies in the area tends to increase.

Some studies have been done, like Tendeloo and Vanstraelen (2005), who analyzed whether the voluntary adoption of the international standard reduces the EM level in Germany. They did not find this relation in their measure though. The authors also highlighted that the study involved companies from

a code-law country with little investor protection. Tendeloo and Vanstraelen (2005) used company size, operating cash flow and indebtedness as variables to calculate the regression. They also used a dummy for the companies audited by the Big Four (four largest audit companies in the world), besides including a dummy per sector and another according to the place where their shares were listed. It was observed in the study that the companies who published in IFRS, in comparison with those that used the German standard, increased the discretionary accruals. In companies audited by the Big Four, however, EM was reduced. Thus, the authors reach the conclusion that there is no difference in EM between the companies that publish in IFRS and in the German disclosure standard.

Barth, Landsman and Lang (2008) examined whether the application of international standards is associated with higher accounting quality. In their study, it was evidenced that, after the change in the accounting standard, 21 countries presented less EM, which was used as a proxy to capture the improved quality.

Jeanjean and Stolowy (2008) analyzed the effect of the IFRS on the EM level. The sample included companies from Australia, France and the United Kingdom. The results found in Australia and the United Kingdom, which are common-law countries, indicated that the level of EM dropped after the IFRS were introduced. In France, a code-law country, on the other hand, the result showed that the international standard increased the EM levels.

According to Iatridis (2012), Brazil is considered a code-law country. In line with Martins, Martins, Martins (2007), in Brazil, the accounting regulation process is still performed by the state, as well as in France and Germany, where the statements are elaborated according to the state's legal determinations. Thus, they are considered code-law countries.

In view of Brazil as a code-law country and expecting the same result as Jeanjean and Stolowy (2008), the adoption of the international standards is expected to increase the signs of EM. As mentioned in this study, however, the IFRS tend to improve the quality of financial information, increase the comparability and, thus, bring down the EM.

Iatridis (2010) developed a study in the United Kingdom to analyze the EM level during the years of the change from UKGAAP to IFRS and found that the implementation of the international standard reduced the EM levels. Iatridis and Rouvolis (2010) also developed the same study in Greece and reached the same conclusion, i.e. that the IFRS reduce the EM levels.

In the study by Elbannan (2011), the impact of the adherence to the new standard on the earnings quality was verified. The author analyzed whether, after the adoption of the International Accounting Standards (IAS), Egyptian companies' EM levels dropped, departing from the premise that low EM discloses high earnings quality. No significant result was found though.

Therefore, international studies verify the impact of the change in accounting regulations to the international standard on companies' EM level, or the influence on the financial information or earnings quality, using EM as a proxy. According to the studies cited above, it was concluded that the adoption of the IFRS reduces the manipulation of earnings. In the study by Elbannan (2011), however, the same change could not be alleged with statistical significance. In view of the range of results found in the countries where studies were elaborated with the same objectives, undertaking research in Brazil is increasingly important to examine the adopted behavior.

2.4 Earnings Management and IFRS – Brazilian context

In recent years, Brazil has expanded its capital market through the launch of new shares and through private companies' going public, entailing the inflow of foreign resources and greater Brazilian investments in this modality. To achieve a solid and transparent market, the information needs to reliably represent the reality, enhancing the investors' confidence. According to Easley and O'Hara (2004), more precise financial information reduces the investors' risk. Thus, the quality of information disclosure seems to be related with the return required from resource providers.

In line with Campos (2006, p. 374), “on average, the majority shareholder owns 61.01% of ordinary stock, indicating that this is an important result to demonstrate the high level of ownership concentration in Brazilian companies.” Shareholders that control company stock can act for their own benefit, to the detriment of the others. One way to minimize the information asymmetry and thus protect minority shareholders can be accounting.

Law 11.638 (2007) established tax neutrality, reducing the impact of tax accounting on financial accounting. Earlier, the disclosure to the capital market and the government used to be the same, which made companies present a statement to pay as few taxes as possible. Hence, as a result of the link between accounting and tax authorities, the result was distorted due to an economic incentive that exists in this relation.

The existing stimulus aims to minimize the company’s tax payments, which is why the managers choose accounting practices that achieve this objective (Goncharov & Zimmermann, 2006). Even if the accounting profit differs from the tax profit, it cannot be affirmed that financial accounting is independent from tax accounting in Brazil. After all, for an expense to be deductible (tax accounting), it needs to have been accounted for (Cardoso, 2005, p. 101).

Despite the end of this incentive, however, there are others that can be developed when terminating the link between tax authorities and accounting for the sake of EM practices. According to Watts and Zimmerman (1990), the political cost hypothesis and the bonus plan are some of the possibilities. The first would serve not to attract the tax authorities’ attention because of a great difference between the two profits, which could cause a creation of mechanisms to increase the taxation; the second would serve to increase the profit disclosed, the managers’ bonus and the company value. Hence, when withdrawing the tax incentive, the attention is focused on others.

As the IFRS are aimed at improving the accounting disclosure and making the information more relevant to investors, however, their adoption would tend to reduce the potential EM in the companies’ financial statements (Iatridis, 2010). Therefore, the following research hypothesis was elaborated: **the EM levels in Brazil dropped in function of the adoption of the IFRS.**

3. Method

3.1 Methodological Procedures

In most studies, the measuring models of the earnings management variables relate to the discretionary accruals, which presupposes that only the manipulation of financial information is involved. Non-discretionary accruals are inherent in the company’s activities; therefore, they are not altered by accounting choices that favor one of the parties involved. In short, the sum of both represents the total accruals, which is the difference between the company’s cash flow and profit. This operation has been described in the following equation:

$$AT_t = AD_t + AND_t \quad (\text{Equation 1})$$

Where:

AT_t = Total accruals of the company in period t.

AD_t = Discretionary accruals of the company in period t.

AND_t = Non-discretionary accruals of the company in period t.

The total accruals are calculated according to Healy (1985) and Jones (1991):

$$AT = \Delta (Ac - Disp) - \Delta (Pc - EmprCP) - DespDepr \quad (\text{Equation 2})$$

Where:

AT = Total accruals of the company in the period

Ac = Current assets

Disp = Short-term availability and financial applications

Pc = Current liabilities

EmprCP = Short-term loans and funding

DespDepr = Depreciation, amortization expenses.

As a proxy of EM, the calculation of discretionary accruals is defined and, for that purpose, the Modified Jones Model was used. Next, together with the others, this variable is included in an equation, whose preliminary model was suggested by McNichols and Wilson (1988).

According to Martinez (2001, p. 41), the Jones Model is the most used in EM research. Next, in Equation 3, the linear regression formula is presented, using the Jones Model (1991):

$$AT_{i,t} = \alpha_1 (1/A_{i,t-1}) + \alpha_2 \Delta Recliq_{i,t} + \alpha_3 \Delta Imob_{i,t} + e_{i,t} \quad (\text{Equation 3})$$

Where:

$AT_{i,t}$ = accruals weighted by total assets at the end of period $t-1$;

$A_{i,t-1}$ = Total Assets in year $t-1$;

$\Delta Recliq_{i,t}$ = variation in net revenues weighted by total assets at the end of period $t-1$;

$Imob_{i,t}$ = fixed and deferred/intangible assets weighted by total assets at the end of period $t-1$;

$e_{i,t}$ = error, residues.

Nevertheless, evolution in the proxies is needed to calculate the discretionary accruals, according to Defond (2010, p. 407), even if the model is accepted as a proxy of earning quality. The calculation of the discretionary accruals according to the Jones Model is criticized in international study that question the ability to correctly divide the managed part and that inherent to the companies' activities (Subramanyam, 1996).

Therefore, the work by Dechow, Sloan and Sweeney (1995) modifies the model, considering the variation in the accounts receivable in their formula, together with the differences between current and past sales. Thus, by including the accounts receivable into the equation, the manipulation in the forward sales is considered as an EM practice. This change enhanced the efficiency of the model's tests. In addition, according to Paulo (2007, p. 103), the Modified Jones Model is used in most empirical studies. Guay, Kothari e Watts (1996, p. 86) consider the following about the models employed: "Simple regressions of returns on discretionary accruals suggest the Jones and modified Jones models yield discretionary accruals that are consistent with both performance-improving and opportunistic smoothing of earnings".

According to Xiong (2006, p. 217), the changes in the company's economic environment and credit policy are controlled in the Modified Jones formula, which is presented next, in accordance with Dechow, Sloan and Sweeney (1995):

$$AND_{i,t} = \alpha_1 (1/A_{i,t-1}) + \alpha_2 (\Delta Recliq_{i,t} - \Delta ContRec_{i,t}) + \alpha_3 \Delta Imob_{i,t} \quad (\text{Equação 4})$$

Where:

$AND_{i,t}$ = non-discretionary accruals of company I in period t;

$A_{i,t-1}$ = Total Assets in year $t-1$;

$\Delta ContRec_{i,t}$ = variation in accounts receivable weighted by total assets at the end of period $t-1$;

$\Delta Recliq_{i,t}$ = variation in net revenues weighted by total assets at the end of period $t-1$;

$Imob_{i,t}$ = fixed and deferred/intangible assets weighted by total assets at the end of period $t-1$;

$\alpha_1, \alpha_2, \alpha_3$ = coefficients estimated in Equation 3.

In the Jones Model (1991), the discretionary accruals are taken from the regression residues. In the Modified Jones Model, on the other hand, first, the coefficients in Equation 3 are calculated and, then, these coefficients are combined in Equation 4, estimating the non-discretionary accruals (AND). Finally, the discretionary accruals are calculated according to Equation 1.

In this research, differently from the method used by Kothari, Leone and Wasley (2005), which presents cross-sectional cuts, and by Dechow, Sloan and Sweeney (1995), which presents time series, the model was calculated using panel data.

After defining the value of the discretionary accruals, two tests were applied. The first aims to verify, using the hypothesis test for the difference of means, whether the discretionary accrual levels differ before and after 2010, when the IFRS were adopted. As it is possible that these levels do not differ in function of the adoption of the IFRS itself, a regression test was applied, considering a dummy variable for the event to explain the dependent variable discretionary accruals.

To test the hypothesis of the difference of means, the discretionary accruals were calculated for each company-year, according to the Modified Jones Model, and then separated in two groups, before and after 2010. Mann-Whitney's non-parameter U test was applied, adopting a 5% significance interval.

The AD variable was also included in Equation 5, which is a formula adapted from the general model by McNichols and Wilson (1988). The adoption or not of the IFRS was used as a variable related to EM, represented as a dummy, that is, there are two groups: one is the period when the IFRS were fully adopted, and the other is the period when they were not completely obligatory yet. In addition, control variables were included in the proposed model. Below is the formula to calculate the regression:

$$AD: \alpha_0 + \alpha_1 IFRS_{i,t} + \alpha_2 ENDI_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 FCOP_{i,t} + \alpha_5 TAM_{i,t} + e_{i,t} \quad (\text{Equation 5})$$

Where:

AD = discretionary accruals calculated according to the Modified Jones Model;

$IFRS_{i,t}$ = dummy variable that indicates whether the financial disclosure is done according to the international standard; if yes, $IFRS_{i,t} = 1$, if no, $IFRS_{i,t} = 0$ (in the study, the statements were considered as follows: 2010 and 2011 = 1, 2006, 2007, 2008 and 2009 = 0);

$ENDIV_{i,t}$ = Indebtedness of the company in the period;

$ROA_{i,t}$ = Return on assets;

$FCOP_{i,t}$ = Operating cash flow proportional to total assets;

$TAM_{i,t}$ = natural logarithm of company assets;

$e_{i,t}$ = error, residue.

The regression analysis with panel data was developed in STATA version 9.2.

3.2 Definition of the Variables

Besides the dependent variable AD (*discretionary accruals*) and the dummy IFRS, the model in this study included the following control variables: Indebtedness (ENDIV), Performance (ROA – return on assets), Operational Cash Flow (FCOP) and Size (TAM). Next, the theoretical foundations for the inclusion of the variables in the proposed model are presented.

Indebtedness is used in international studies as a control variable for earnings management (Gu, Lee & Rosett, 2005). Dhaliwal (1980) analyzed the effect of management attitudes towards the accounting standard from the perspective of the capital structure. The researcher proved the hypothesis that, the higher the indebtedness level, the greater the use of accounting methods that are not in accordance with the standards.

Watts and Zimmerman (1990) state that, the higher the debt, the more the managers use accounting techniques to increase the result. According to the work by Defond and Jiambalvo (1994), a high debt level can lead to EM to increase the result in order to avoid technical failure. In other words, the managers, aiming for the going-concern of the company and the contract with its creditors, use accounting artifices to manipulate the information in the statements.

According to Valle (2008, p. 61), the indebtedness variable was calculated in relation to the total, short-term and long-term interest-bearing liabilities. The measure that reveals the company's financial dependence on resources from third parties is formulated as follows:

$$\text{ENDIV} = \text{Passivo Oneroso} / \text{Ativo} \quad (\text{Equation 6})$$

In Equation 6, the Interest-Bearing Liabilities correspond to the short-term funding and loans, long-term funding and loans, short-term and long-term debentures.

Another variable included is the performance. According to Kothari, Leone and Wasley (2005), when the calculation of the discretionary accruals is included in this variable, this enhances the reliability and the predictive power of EM. Francis, Lafond, Olsson and Schipper (2005) also used the performance as a variable in the regression of the debt cost in the accruals, and used the return on assets (ROA) as a proxy.

For the purpose of the calculations in this study, the company performance is considered, taking into account all funding sources, that is, the company earnings divided by the total assets. This performance measure is recommended as the assets are the company's future benefits. In line with Kothari, Leone and Wasley (2005), the ROA is used as a performance proxy, as follows:

$$\text{ROA} = \text{Net Profit} / \text{Earnings} \quad (\text{Equation 7})$$

The third variable in the model is the operating cash flow (OCF). Pae (2005) found that the predictive power of the Jones Model (1991) and the Modified Jones Model increases when the OCF is included. Besides this study, other studies, such as Dechow and Dichev (2002); Francis *et al.* (2005); Gu, Lee and Rosett (2005); Barth, Landsman and Lang (2008); and Iatridis (2010) associated the discretionary accruals with the operating cash flow.

According to Land and Lang (2002) and Myers, Myers and Skinner (2007), the practice of income smoothing induces a greater negative correlation between cash flow and accruals as, according to Leuz, Nanda and Wysocki (2003, p. 510), managers can also use their accounting criterion to hide economic shocks for the company's operating cash flow. To give an example, they can accelerate the disclosure of future revenues or postpone the declaration of current costs to hide the current low performance. On the other hand, the managers may not report good current performance in order to create future reserves. In both cases, the result is a negative correlation between the accruals and the operating cash flows.

Another variable frequently used in Brazilian and international studies is company size. In accordance with Gu, Lee and Rosett (2005, p. 317): “Size is one of the most important characteristics of the firm”. They argue that there is a negative connection with the accruals, according to three particularities: large companies (when compared to small ones) have more benefits related to the economy of scale; are more mature and operate in a more stationary state; and they tend to be diversified, working in more sectors. All of these characteristics lead to a lower level of operational volatility and, consequently, to a lower variability of the accruals.

The studies by Gu, Lee and Rosett (2005) and Tendeloo and Vanstraelen (2005) reached the result that the variation in the accruals decreases according to the company size, that is, has a negative coefficient.

According to Francis *et al.* (2005), Gu, Lee and Rosett (2005) and Tendeloo and Vanstraelen (2005, p. 165), the measure used to define size is the logarithm of the total assets. Thus, the size variable is represented as follows:

$$TAM_{i,t} = \text{LogAt}_{i,t} \quad (\text{Equation 8})$$

Where:

$\text{LogAt}_{i,t}$ = logarithm of total assets of company i in period t

3.3 Sample

The research is limited to the financial statements present in the databases of Economática and CVM. The analysis period covers the interval between 2006 and 2011⁴.

To calculate the accruals in the selected model, variables from the previous period are used. Thus, the data were extracted from Economática in which the companies disclose the information for the current year plus the previous year in the same accounting rule. To increase the number of observations, the three-monthly disclosures were defined. The sample was collected in April 2012.

To undertake this study, a minimum amount of observations per company was established. The first sample was based on all data collected, minus the companies that did not publish the necessary information⁵ to undertake the study in at least eight observations as, according to Dechow and Dichev (2002, p. 42), at least eight periods of data are needed to estimate regressions of the companies’ specific characteristics. Therefore, the sample was reduced, as demonstrated in Table 1.

Table 1
Sample of companies

Amostra	Quantidade de empresa
Amostra inicial	333
Empresas com menos de 8 observações	59
Amostra final	274

4 The filters used to obtain the initial sample were: Country of headquarters: Brazil; Type of assets: stocks; Asset or canceled: asset; Baseline date: three-monthly information; Stock exchange: Bovespa; Show only information from the most liquid asset; Consolidated, if not available use data from individual statements; Companies classified as financial, insurance and funds were excluded, as their statements are different from the other firms in terms of form and rules. In short, they are not comparable.

5 Necessary data: total assets, net revenues, fixed assets, operating cash flow (for companies that did not disclose this information, the cash flow was calculated through the indirect method), net profit. Any observations in which some of this information was not presented were removed from the sample.

For the analysis, the sample was divided in two periods: Before the Change (2006-2009), including the pre-adoption period, which comprises the transition phase from the former to the international standard; and the IFRS period (2010-2011), in which the statements were full disseminated in the new standard. The cut is justified, without considering the pre-adoption period separately, in function of the objective of verifying the earnings management before and after the adoption of the IFRS, which can only be considered after the complete adoption in 2010.

4. Results and Discussion

The first procedure was to elaborate the Modified Jones calculation in order to determine the AD. Therefore, the coefficients were calculated in the Jones Model (1991) (Equation 3) with the inclusion of a constant. Next, Table 2 displays the coefficients used in the Modified Jones Model.

Table 2
Jones Model (1991) Coefficients

Explanatory variables	Coefficient	z
$1/A_{i,t-1}$	38913.26	39.27 ***
$\Delta \text{Recliq}_{i,t}$	0.0451832	5.43 ***
$\Delta \text{Imob}_{i,t}$	-0.0747181	-52.08 ***
Constant	-0.2379228	-1.02 ***
R ²	0.6054	
F statistics	4734.65 ***	

***, **, *: Significant at 1%, 5% and 10%

As observed in Table 2, all coefficients were statistically significant at 1%. In addition, the R² was also significant, with a strong relation between the dependent and independent variables.

Next, these coefficients were combined in Equation 4, estimating the non-discretionary accrual (AND) and, finally, the AD was calculated according to Equation 1. This is the dependent variable in the proposed model (Equation 5) and, for all subsequent calculations, the AD is included as an absolute value, as the range of EM in the companies is measured, and not whether it is negative or positive. The independent variables are: IFRS, ENDIV, ROA, FCOP and TAM. The descriptive statistics are displayed in Table 3.

Table 3
Descriptive analysis of the sample

Variables	Standard Deviation	Mean	Minimum	Maximum
AD	12.89032	0.7419408	0.0000074	623.2941
IFRS _{i,t}	0.4756506	0.3456311	0	1
Endiv _{i,t}	9.295065	0.932395	0	212.6818
ROA _{i,t}	0.1390595	-0.0027725	-2.16093	1.596396
FCOP _{i,t}	0.1710717	0.0092481	-2.564648	1.225489
Tam _{i,t}	0.854791	6.084745	3.254065	8.796329

The Kolmogorov-Smirnov test was selected to verify whether the distribution of the variables is normal. This finding is relevant, as it influences the choice of the statistical tests. The null hypothesis suggests a normal distribution. The tests, however, reject the normality hypothesis of all variables, as shown in Table 4.

Table 4
Kolmogorov-Smirnov Test

Variables	Z
AD	0.4492***
IFRS _{i,t}	0.4206***
Endiv _{i,t}	0.4643***
ROA _{i,t}	0.3273***
FCOP _{i,t}	0.3057***
Tam _{i,t}	0.0224*

***, **, *, Significant at 1%, 5% and 10%

After calculating the AD variable and the normal distribution test, first, the hypothesis test of a difference of means was calculated to verify whether the EM levels changed after 2010, the year when the IFRS were fully adopted. Table 5 displays the results of Mann-Whitney's U-test.

Table 5
Mann-Whitney's U-test between EM and IFRS

	Mean without IFRS	Mean with IFRS	Z
AD	0.9945	0.2638	7.287***

As observed, the AD were significantly reduced after 2010, when the IFRS were adopted. In other words, the level of EM was reduced in the period when the financial statements were published in compliance with the international standards. Statistical evidence exists of a difference of means between the groups (without IFRS – dummy 0; and with IFRS – dummy 1), as the Z-statistics is significant.

Next, to analyze the impact of the adoption of the IFRS on the AD, the calculations needed for the proposed model (Equation 5) were done with fixed effects, random effects, heteroscedasticity tests, serial correlation, multicollinearity and the corrected model with robust estimators in the presence of heteroscedasticity and serial correlation, using the Newey and West correction (1987). Table 6 below displays all of these results.

Table 6

Results of the Proposed Model

Explanatory variables	Fixed effects		Random effects		Corrected Model	
	Coefficient	t	Coefficient	z	Coefficient	z
IFRS _{i,t}	1.306644	2.24**	-0.6387946	-1.35	1.306644	1.59
Endiv _{i,t}	0.0520056	0.68	0.0728393	1.75*	0.0520056	1.91*
ROA _{i,t}	-1.182189	-0.43	-1.546022	-0.59	-1.182189	0.231
FCOP _{i,t}	1.85186	0.93	0.5239727	0.27	1.885186	1.61
Tam _{i,t}	-10.07194	-5.94***	-0.5485586	-1.42	-10.07194	-1.88*
Constante	61.50633	6.02***	4.221901	1.79*		
R2	0.0014		0.0054		0.0139	
F statistics/x2	7.94***		12.76 **		8.1***	
Heteroscedasticity	1700000000***		168.41***			
Serial Correlation	59.596***					
Multicollinearity	1.66					
Hausman	34.95***					
Observations	3090					

***, **, *, Significance at 1%, 5% and 10%

According to Table 6, the results of the heteroscedasticity test, serial correlation and multicollinearity indicate that the hypotheses of homoscedasticity and non-serial correlation were rejected. Nevertheless, the multicollinearity corresponded to 1.66. According to Hair, Anderson, Tathan, Black and Babin (2005), values between one and ten present acceptable multicollinearity.

According to the Hausman test (1978), it is verified that it indicates the analysis through the fixed effects, as displayed in the final two columns – the model corrected through the use of the Newey and West correction (1987).

In the regression results, no statistical significance was found between AD and IFRS. In the model presented, it is proven that only indebtedness (ENDIV) and company size (TAM) have a statistically significant relation with the discretionary accruals (AD). For the other variables, although they are linked in the literature, the causality could not be proven statistically.

Based on the results obtained through the two tests, it can be affirmed that the EM levels dropped after 2010, when the IFRS were adopted, but it cannot be affirmed that the adoption of the IFRS was responsible for this change. Hence, it cannot be affirmed that the adherence to the international standard reduced or increased the EM level in Brazilian publicly traded companies according to the proposed model.

The result obtained for the TAM variable is in accordance with the theoretical foundations, that is, the larger the company, the lesser its earnings management, in line with Gu, Lee and Rosett (2005) and Tendeloo and Vanstraelen (2005).

The relation between AD and ENDIV also confirms the results of the work by Watts and Zimmerman (1990) and Defond and Jiambalvo (1994), who suggest a positive relation with AD, that is, the higher the debt, the greater the EM. It is interesting to observe that ENDIV is a factor that significantly affects AD throughout the study period, independently of the adoption of the IFRS, which suggests that Brazilian companies with a high degree of stockholder concentration are more concerned with the information provided to the sources of capital from third parties.

5. Final Considerations

The study analyzed the earnings management level during the transition period from the Brazilian accounting standards to the international standard. Two relevant topics for accounting are discussed in the attempt to contribute to the literature about EM and IFRS, considering that these areas are related with the quality of companies' financial information.

A hypothesis test of a difference of means was applied to the discretionary accruals (AD) before and after 2010, when the Brazilian publicly traded companies fully adopted the IFRS. It was verified that the AD levels dropped between the periods under analysis.

As this reduction may not have occurred in function of the adoption of the IFRS, however, a regression test with panel data was applied to verify whether this event could explain the change in AD during the period analyzed.

The panel data analyses did not show the influence of the IFRS adoption on the discretionary accruals. These results were also found in the research by Elbannan (2011), who did not find a significant relation between the two variables.

Nevertheless, a causal relation was identified between AD and the TAM variable, which confirms the results by Gu, Lee and Rosett (2005) and by Tendeloo and Vanstraelen (2005).

Also, statistical significance was found for the relation between AD and ENDIV, confirming the results of Watts and Zimmerman (1990) and Defond and Jiambalvo (1994).

These results show that, despite the reduction in the AD levels after 2010, it cannot be affirmed that this happened in function of the adoption of the IFRS. The AD remain lower for large companies and higher for indebted companies, despite the adoption of the IFRS. On the whole, the results suggest that large companies with a greater proportion of own capital tend to produce better reports, which indicates the need for the Brazilian stock market to grow.

One limitation in this research is due to the fact that the recent nature of the change restricts the data sample. Another limitation is due to the fact that the new standard causes changes in the companies' earnings, due to new forms of treating financial assets, biological assets, as the fair value changes the form of asset valuation and, consequently, affects the company earnings as a whole. Despite changes in their accruals, these companies are not necessarily managing their earning, but demonstrating the implications of the new standard for their profits or losses.

For the sake of future research, it is interesting to verify other factors that may have influenced the reduction in the AD levels after 2010, such as tax neutrality, the 2008 financial crisis, the adaptation period to the standards between 2008 and 2009 etc. It is also interesting to relate the adoption of the IFRS and AD with a larger analysis period, as the data in compliance with the IFRS are limited in this initial phase by possible interferences from the transition period. Also, for future studies, the use of the model by Tendeloo and Vanstraelen (2005) is suggested, who include a dummy variable for companies audited by the big four. Another suggestion is the isolation of the statements affected by the 2008 global financial crisis when measuring the phenomenon. An analysis of whether the possible changes in the EM level were caused by greater CVM regulation, by better corporate governance practices or by the tax regimen during the transition period are further proposals for future research. Another suggestion is to change the way the control variables are calculated or to include more variables to enhance the model's predictive power. In addition, studies using different EM measuring models can be elaborated, such as: Kang and Sivaramakrishanan (1995), Pae (2005) and Paulo (2007). Other studies could analyze the possibility of companies presenting profits instead of losses and verify the constancy of great losses with the help of the logistic regression method or frequency analysis, like in the studies by Burgstahler and Dichev (1997) and by Cardoso (2005) for example.

6. References

- Almeida, J. E. F. (2010) *Qualidade da informação contábil em ambientes competitivos*. Tese (Doutorado em Ciências Contábeis) – Departamento de Contabilidade e Atuária, Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo, São Paulo.
- Akerlof, G. A. (1970). The market for “lemons”: quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84(3), p. 488-500.
- Barth, M. E., Landsman, W. R. & Lang, M. H. (2008). International Accounting Standards and Accounting Quality. *Journal of Accounting Research*, 46(3), p. 467-498. doi: 10.1111/j.1475-679X.2008.00287.x
- Burgstahler, D. & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics*, 24(1), p. 99-126.
- Cameron, A. C., Trivedi, P. K. (2005). *Microeconomics: methods and applications*. New York: Cambridge University Press.
- Campos, T. L. C. (2006). Estrutura da propriedade e desempenho econômico: uma avaliação empírica para as empresas de capital aberto no Brasil. *Revista de Administração*, 41(4), p. 369-380.
- Cardoso, R. L. (2005). *Regulação econômica e escolhas de práticas contábeis: evidências no mercado de saúde suplementar*. São Paulo, 2005. 163 f. Tese (Doutorado em Ciências Contábeis) – Departamento de Contabilidade e Atuária, Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo, São Paulo.
- Cardoso, R. L., Saraiva, E., Tenório, F. G. & Silva, M. A. (2009). Regulação da contabilidade: teorias e análise da convergência dos padrões contábeis brasileiros aos IFRS. *Revista de Administração Pública*, 43(4), p. 773-799.
- Coelho, A. C. D. & Lopes, A. B. (2007). Avaliação da prática de gerenciamento de resultados na apuração do lucro por companhias abertas brasileiras conforme seu grau de alavancagem financeira. *Revista de Administração Contemporânea*, 11(Esp.2), p. 121-144.
- Dechow P. M., Sloan, R. G. & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), p. 193-225.
- Dechow, P. M. & Dichev, I. D. (2002). The quality of accruals and earnings: the role of accrual estimation errors. *The Accounting Review*, 77, 35-39.
- Dechow, P. M., Ge, W. & Schrand, C. (2010). Understanding earnings quality: A review of proxies, their determinants and their consequences. *Journal of Accounting and Economics*, 50(1-2), p. 344-401.
- Defond, M. L. & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17(1-2), p. 145-176.
- Defond, M. L. (2010). Earnings quality research: Advances, challenges and future research. *Journal Accounting and Economics*, 50(2-3), p. 402-409.
- Dhaliwal, D. S. (1980). The effects of the firm's capital structure on the choice of accounting methods. *The Accounting Review*, 55(1), p. 78-84.
- Easley, D. & O'Hara, M. (2004). Information and the cost of capital. *The Journal of Finance*, 59(4), p. 1553-1583.
- Elbannan, M. A. (2011). Accounting and stock market effects of international accounting standards adoption in an emerging economy. *Review of Quantitative Finance and Accounting*, 36(2), p. 207-245.
- Fields, T. D., Lys, T. Z. & Vincent, L. (2001). Empirical research on accounting choice. *Journal of Accounting and Economics*, (31), p. 255-307.

- Francis, J., Lafond, R., Olsson, P. & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting and Economics*, (39), p. 295-327.
- Goncharov, I., Zimmermann, J. (2006). Earnings management when incentives compete: the role of tax accounting in Russia. *Journal of International Accounting Research*, 5(1), 41-65.
- Gu, Z., Lee, C. W. J. & Rosett, J. G. (2005). What determines the variability of accounting accruals? *Review of Quantitative Finance and Accounting*, (24), p. 313-334.
- Guay, W. R., Kothari, S. P. & Watts, R. (1996). A market-based evaluation of discretionary accruals model. *Journal of Accounting Research*, 34(Supl.), p. 85-105.
- Hair, J. F., Anderson, R. E., Tatham, R. L., Black, W. C. & Babin, B. J. (2005). *Análise multivariada de dados*. 5. ed. Porto Alegre: Bookman.
- Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), p. 1251-1271.
- Healy, P. M. (1985). The effect of bonus schemes of accounting decisions. *Journal of Accounting and Economics*, (7), p. 85-107.
- Healy, P. M. (1996). Discussion of a market-based evaluation of discretionary accrual models. *Journal of Accounting Research*, 34(Supl.), p. 107-115.
- Iatridis, G. & Rouvolis, S. (2010). The post-adoption effects of the implementation of International Reporting Standards in Greece. *Journal of International Accounting, Auditing and Taxation*, (19), p. 55-65.
- Iatridis, G. (2010). International Financial Reporting Standards and the quality of financial statement information. *International Review of Financial Analysis*, 19(3), p. 193-204.
- Iatridis, G. (2012). Audit quality in common-law and code-law emerging markets: evidence on earnings conservatism, agency costs and cost of equity. *Emerging Markets Review*, 13(2), p. 101-117.
- Jeanjean, T. & Stolowy, H. (2008). Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption. *Journal of Accounting Public Policy*, (27), p. 480-494.
- Jensen, M. & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), p. 305-360.
- Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2), p. 193-228.
- Kang, S. H. & Sivaramakrishnan, K. (1995). Issues in testing earnings management: an instrumental variable approach. *Journal of Accounting Research*, 33(2), p. 353-367.
- Kohlbeck, M. & Warrfield, T. (2010). Accounting standard attributes and accounting quality: Discussion and analysis. *Research in Accounting Regulation*, 22(2), p. 59-70.
- Kothari, S. P. & Leone, A. J., Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), p. 163-197.
- Land, J. & Lang, M. (2002). Empirical evidence on the evolution of international earnings. *The Accounting Review*, 77(Supl.), p. 115-133.
- Lei n. 11.638, de 28 de dezembro de 2007. (2007) Altera e revoga dispositivos da Lei n. 6.404, de 15 de dezembro de 1976, e da Lei n. 6.385, de 7 de dezembro de 1976, e estende às sociedades de grande porte disposições relativas à elaboração e divulgação de demonstrações financeiras. Diário Oficial da União, edição extra, Poder Executivo, Brasília, DF, 28 dez. 2007.
- Lei n. 11.941, de 27 de Maio de 2009. (2009) Altera a legislação tributária federal relativa ao parcelamento ordinário de débitos tributários; concede remissão nos casos em que especifica; institui regime tributário de transição, alterando o Decreto no 70.235, de 6 de março de 1972; e dá outras providências. Diário Oficial da União, edição extra, Poder Executivo, Brasília, DF, 28 maio 2009.

- Lei n. 6.404, de 15 de dezembro de 1976. (1976) Dispõe sobre as Sociedades por Ações. Diário Oficial da União, Poder Executivo, Brasília, DF, 17 dez. 1976. Suplemento.
- Leuz, C., Nanda, D. & Wysocki, P. D. (2003). Earnings management and investor protection: an international comparison. *Journal of financial economics*, (69), p. 505-527.
- Lopes, A. B. (2002). *A informação contábil e o mercado de capitais*. São Paulo: Pioneira Thomson Learning.
- Martinez, A. L. (2001). *Gerenciamento dos resultados contábeis: estudo empírico das companhias abertas brasileiras*. Tese (Doutorado em Ciências Contábeis) – Departamento de Contabilidade e Atuária, Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo, São Paulo.
- Martins, E., Martins, V. A. & Martins, E. A. (2007). Normatização contábil: ensaio sobre sua evolução e o papel do CPC. *Revista de Informação Contábil*, 1(1), p. 7-30.
- McNichols, M. & Wilson, G. P. (1988). Evidence of Earnings management from the provision for bad debts. *Journal of Accounting Research*, 26(Supl.), p. 1-31.
- Medida Provisória n. 449, de 3 de dezembro de 2008. (2008) Altera a legislação tributária federal relativa ao parcelamento ordinário de débitos tributários, concede remissão nos casos em que especifica, institui regime tributário de transição e dá outras providências. Diário Oficial da União, Poder Executivo, Brasília, DF, 4 dez. 2008.
- Myers, J. N., Myers, L. A. & Skinner, D. J. (2007). Earnings momentum and earnings management. *Journal of Accounting, Auditing, and Finance*, 22(2), p. 249-284.
- Newey, W. K. & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, 55(3), p. 703-708.
- Pae, J. (2005). Expected accrual model: the impact of operating cash flows and reversals of accruals. *Review of Quantitative Finance and Accounting*, (24), p. 5-22.
- Paulo, E. (2007). *Manipulação das informações contábeis: uma análise teórica e empírica sobre os modelos operacionais de detecção de gerenciamento de resultados*. Tese (Doutorado em Contabilidade) – Departamento de Contabilidade e Atuária, Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo, São Paulo.
- Subramanyam, K. R. (1996). The pricing of discretionary accruals. *Journal of Accounting and Economics*, 22(1-3), p. 249-281.
- Sweeney, A. (1994). Debt-covenant violations and managers' accounting responses. *Journal of Accounting and Economics*, 17(3), p. 281-308.
- Tendeloo, B. V. & Vanstraelen, A. (2005). Earnings management under German GAAP versus IFRS. *European Accounting Review*, 14(1), p. 155-180.
- Valle, M. R. (2007). *A estrutura de capital das empresas brasileiras num ambiente de altas taxas de juros e na presença de fontes diferenciadas de financiamento*. Tese (Livre-docência) – Departamento de Contabilidade, Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto, Universidade de São Paulo.
- Watts, R. & Zimmerman, J. (1990). Positive accounting theory: a ten-year perspective. *The Accounting Review*, 65(1), p. 131-156.
- Xiong, Y. (2006). Earnings management and its measurement: a theoretical perspective. *The Journal of American Academy of Business*, 9(2), p. 214-219.