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Earnings management and corporate governance: an analysis based on the adoption of IFRS in Brazil

Gestión de resultados y gobernanza corporativa: un análisis basado en la adopción de las IFRS en Brasil

Gerenciamento de resultados e governança corporativa: uma análise a partir da adoção das IFRS no Brasil

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Abstract

Purpose: This paper aims to analyze whether the adoption of the International Financial Reporting Standards (IFRS) strengthened the negative relationship among earnings management and corporate governance best practices, which are: B3's differentiated levels of corporate governance, the presence of a board of independent directors and whether the company is audited by a Big Four or not.

Methodology: We applied panel data regression with a sample of 92 companies listed in B3 during the period 2002-2007, for the period prior to IFRS and 2010-2015, for the period after IFRS. Data were collected from the explanatory notes, company reference form and in the

Economática® database. In order to measure the dependent variable earnings management, we applied the model proposed by Dechow, Hutton, Kim and Sloan (2012).

Results: Results show that when there is an independent administrative committee, the levels of earnings management are lower, and this relationship is driven by the IFRS adoption. We cannot affirm that companies at the highest levels of corporate governance and audited by a Big Four have a lower incidence of earnings management after the application of IFRS.

Contributions of the Study: This paper contributes to a better understanding of how variables related to governance can influence the quality of accounting and financial information. It also contributes to the literature that investigates how IFRS can influence the quality of accounting information.

Keywords: Earnings Management; Corporate Governance; IFRS.

Resumen

Objetivo: El propósito de este documento es analizar si la adopción de las *International Financial Reporting Standards* (IFRS) fortaleció la relación negativa entre la gestión de resultados y las buenas prácticas de gobernanza corporativa, que son los niveles diferenciados de gobierno corporativo de B3, la presencia de un consejo de administración independiente y si la compañía es auditada por un Big Four.

Metodología: Utilizamos una muestra de 92 empresas que figuran en B3 en el período 2002-2007 para el período anterior a las IFRS y 2010-2015 para el período posterior a las IFRS, con los datos recopilados en las notas explicativas, el formulario de referencia y en la base de datos Economática®. Para medir la gestión de ingresos variables dependientes, se utilizó el modelo propuesto por Dechow, Hutton, Kim y Sloan (2012).

Resultados: Los resultados de la encuesta sugieren que cuando hay un comité administrativo independiente, los niveles de gestión de ganancias son más bajos, y esta relación es impulsada por la adopción de las IFRS. No podemos afirmar que las empresas en los niveles más altos de gobierno corporativo y auditadas por Big Four tienen una menor incidencia de gestión de ganancias después de la aplicación de las IFRS.

Contribuciones del Estudio: El documento contribuye a una mejor comprensión de cómo las variables relacionadas con la gobernanza pueden influir en la calidad de la información contable y financiera. También contribuye a la literatura que investiga cómo las IFRS pueden influir en la calidad de la información contable.

Palabras clave: Gestión de Resultados; Gobierno Corporativo; IFRS.

Resumo

Objetivo: O artigo tem por objetivo analisar se a adoção das *International Financial Reporting Standards* (IFRS) fortaleceu a relação negativa entre gerenciamento de resultados e boas práticas de governança corporativa, sendo elas: os níveis diferenciados de governança corporativa da B3, a presença de um conselho de administração independente e se a companhia é auditada por uma Big Four.

Metodologia: Utilizou-se uma amostra de 92 empresas listadas na B3 no período de 2002-2007 para anteriormente as IFRS e 2010-2015 para o posteriormente as IFRS, sendo os dados coletados nas notas explicativas, formulário de referência e na base de dados Economatica®. Para a mensuração da variável dependente gerenciamento de resultados, foi utilizado o modelo proposto por Dechow, Hutton, Kim e Sloan (2012).

Resultados: Os resultados da pesquisa sugerem que quando há a presença de um comitê administrativo independente, os níveis de gerenciamento de resultados são menores, sendo essa relação impulsionada pela adoção das IFRS. Não podemos afirmar que as empresas nos níveis mais altos de governança corporativa e auditadas por uma Big Four possuem menor incidência de gerenciamento de resultados após a aplicação das IFRS.

Contribuições do Estudo: O trabalho contribui para um melhor entendimento de como variáveis relacionadas com governança podem sim influenciar na qualidade da informação contábil-financeira. Também contribui para a literatura que investiga se as Normas Internacionais de Contabilidade influenciam ou não a qualidade da informação contábil.

Palavras-chave: Gerenciamento de Resultados; Governança Corporativa; IFRS.

1 Introduction

One of the major debates on the preparation of the International Financial Reporting Standards (IFRS) was related to the need for harmonization of accounting practices in the main capital markets of the world (Tendeloo & Vanstraelen, 2005). With the aim of improving the processing of financial information worldwide, the International Accounting Standards Board (IASB) has issued several accounting standards that are followed in several countries. The agency aims to achieve some benefits with the adoption of international accounting standards, such as improving the ability of stakeholders to make decisions, improving and improving the comparability, reliability and relevance of financial statements (Garrouch, Hadriche & Omri, 2014; Street, Gray & Bryant, 1999).

In 2008, Brazilian accounting went through the process of convergence with international accounting standards, adopting IFRS on an optional basis, and in 2010, these new standards became mandatory. Thus, Brazilian companies that adapted to new accounting pronouncements issued by the Federal Accounting Council (CFC) must present a more strengthened information system, generating more relevant and reliable information to stakeholders (Silva, Nardi & Ribeiro, 2015).

However, research on the adoption of IFRS differs in relation to the benefits for companies. Some studies indicate that the adoption of IFRS improved financial results, reduced conflict of interest and improving the quality of accounting information (Ewert & Wagenhofer, 2005; Key & Kim, 2020; Soderstrom & Sun, 2007; Zéghal, Chtourou & Sellami, 2011). However, other authors emphasize that the adoption of international accounting standards has not improved the quality of information, because IFRS allow several alternative accounting choices and treatments, and often managers can choose the most appropriate for the situation, not necessarily being the most effective (Abdul-Baki & Haniffa, 2019; Ahmed, Neel & Wang, 2013; Rudra & Bhattacharjee, 2012).

Of the authors who argue that IFRS improved the financial statements, Jeajean and Stolowy (2008) studied the effect of IFRS on results management in companies in Australia, France and the United Kingdom. In the first two countries, it was observed that the levels of results management decreased after the adoption of IFRS, which was not observed in the United Kingdom. Jermakowicz, Chen and Donker (2018) have come to the conclusion that the adoption of IFRS in Canada is related to an increase in the quality of accounting information.

However, in the contrary line of these findings, Ahmed et al. (2013) conducted a study in 20 countries and came to the conclusion that there was an increase in results management after the adoption of international accounting standards. Abdul-Baki and Haniffa (2019) studied a sample of 83 companies in Nigeria and found evidence that the adoption of IFRS is related to a fall in the quality of accounting information.

As highlighted in the literature, the adoption of a new accounting standard in the world affected the quality of financial statements in different ways, but this relationship can be better explained in the presence of other factors. Among these factors, we can mention corporate governance practices in companies (Garrouch et al., 2014). In order to increase reliability and increase the potential for stock valuation, best corporate governance practices have been considered relevant to ensure better transparency, reducing conflicts between investors and others involved in the business (Codesso, 2012; Erfurth & Bezerra, 2013).

Many studies indicate a negative relationship between best corporate governance practices and results management, that is, a strengthened corporate system can reduce data manipulation (Barros, Soares & Lima, 2013; García-Mecca & Sánchez-Ballesta, 2009; González & García-Mecca, 2014). Sivaramakrishnan and Yu (2008) found that the best corporate governance practices are applied, the better the quality of profits of American companies. Zéghal et al. (2011) indicates a negative relationship between the efficiency of the board of directors, the quality of external audit and the management of results in French companies. Barros et al. (2013) indicate that the intensity of results management is lower in Brazilian companies that have better corporate governance attributes.

Based on the evidence found in the literature, the interest arose to analyze whether the adoption of IFRS strengthened the negative relationship between results management and good corporate governance practices, namely: the differentiated levels of corporate governance of B3, the presence of an independent board of directors and whether the company is audited by a Big Four. The study is based on the following research question: **Does the applicability of IFRS strengthen the negative relationship of corporate governance with the management of results in Brazilian companies?**

During the literature review, no study was found in Brazil that verifies whether or not the applicability of IFRS strengthens the corporate governance system against the practice of results management. This study seeks to fill this gap, as well as highlighting to investors how the applicability of IFRS along with best corporate governance practices can help reduce outcome management practices.

2 Literature Review

2.1 The effects of the adoption of IFRS on results management

After a major debate on the internationalization of accounting, the IASB issued IFRS in order to improve and facilitate the comparability of financial reporting. In Brazil, IFRS were translated directly as International Accounting Standards (Antunes, Antunes, & Pentead, 2007). Quality financial information is of paramount importance to the capital market and the accounting standard generates rules to allow more transparent accounting information to be passed on to users of the financial statements (Ahmed et al., 2013). The accounting standard imposed by the IASB requires greater transparency and information measures of how the entity measures certain items, thus demonstrating a better quality of the information provided in order to facilitate decision-making (Marçal, 2019; Daske, 2006).

Research such as that of Iatridis (2010) in the United Kingdom, Iatridis and Rouvolis (2010) in Greece and Chen, Tang, Jiang and Lin (2010) in European Union countries confirms an increase in the quality of accounting and financial information after the adoption of IFRS. On the other hand, the authors Rudra and Bhattacharjee (2012) confirm that the companies that approve of IFRS are more predisposed to soften their results.

At the national level, Joia and Nakao (2014) concluded that there is no difference between the pre- and post-IFRS period regarding results management. However, on the other hand, the findings of Cardoso, Souza and Dantas (2015) and Boina and Macedo (2018) show an increase in the management of results of companies in Brazil after IFRS.

The results found in the literature are varied, and no statement and generalization should be made on the subject (Ahmed et al., 2013). Our study contributes to this literature, with the management of results being a proxy for the quality of accounting information after the adoption of IFRS, relating to corporate governance practices of companies.

2.2 Results management by accruals

Results management can be considered an attribute for the quality of accounting information, as it is considered as an incentive for the disclosure of information from companies (Dechow, Ge & Schrand, 2010). There are many definitions about this practice that have emerged over the years. Schipper (1989) defines results management as a purposeful invention in the financial result, with the process of external financial communication, with the aim of obtaining some personal gain.

As a result of voids in accounting standards and tax legislation, the administration of companies can opt for different practices, even when it comes to the same economic event (Cabello & Pereira, 2015). Typically, results management occurs through the existence of other accounting measurement methods, creating the possibility for managers to choose alternative and valid paths, in order to present the financial statements on time (Santos & Paulo, 2006; Gabriel & Corrar, 2011).

However, Dechow and Skinner (2000) state that results management may not necessarily be a fraud or an unlawful act, because accounting standards can accept various forms of accounting measurement, not being the most efficient for a given situation.

The practice of accounting manipulation takes place from accruals. Accruals are linked to income accounts that affect the company's profit, but not cash availability, this is due to the fact that accounting uses the Accrual Regime, where revenue and expense records are

independent of their effective receipt/payment, unlike the Cash Regime (Martinez, 2008; Oliveira & Soares, 2019).

Thus, accruals can be divided between discretionary and non-discretionary, the latter referring to the conditions of the business itself, and the discretionary ones would be the attitudes of the administration itself (Oliveira, 2017).

The formula adapted from Martinez (2008) is: Accounting result = accruals (Discretionary or non-discretionary accruals) + operational cash flow.

Profits can be considered a dangerous form of measurement for external users, as they may be distorted by managers encouraged to modify some accounting practice (Hendriksen & Van Breda, 2009).

According to the literature, the calculation of total accruals can be made between the difference in net income and operating cash flow. Thus, it is concluded that the profit that presents a better quality is the one that approaches the cash flow (Francis, Olsson & Schipper, 2008).

2.3 Corporate governance

2.3.1 Improving corporate governance practices

Even if there is no exact definition, corporate governance can be understood as a set of controls and incentive mechanisms in order to minimize the costs that agency conflicts can trigger, dissolving conflicts between resource providers and company managers (Silveira, 2006).

Martinez (2001) says corporate governance can be understood as the union of processes from which investors seek to minimize agency costs by naming a board of directors who, by the statutes defined by the companies, are responsible for monitoring the performance of managers.

The Brazilian Securities and Exchange Commission (CVM, 2005) defines corporate governance as the union of practices that aims to improve the performance of a company by defending all stakeholders, such as investors, creditors and employees, allowing easy access to capital.

Sabbatini (2010) indicates that corporate governance has two main supports: the delegation of power (assuming that the intentions of managers may not follow the objectives of the company itself) and the communicational asymmetry (because majority shareholders can retain more information than minorities, benefiting from this).

Regarding the delegation of power, Weston (1969) says that it is difficult to maximize shareholder value, especially in situations where the dispersion of stock control is observed, since executives almost always make the most important decisions. In relation to communicational asymmetry, intangible resources are of fundamental importance for the contribution of value creation, such as: training, management systems, customer portfolio, etc., and not disclosing this information in accounting reports can lead to a distorted evaluation of business value by parts of information users.

Nationally, one of the main initiatives to stimulate the improvement of the corporate governance model of companies is the creation of the differentiated levels of corporate governance of B3, created by the former São Paulo Stock Exchange in 2000, being them, the Traditional market, Level 1, Level 2 and Novo Mercado, the first and second has a lower degree of requirements and the third and fourth has a higher degree of requirement. This new level has established a new standard of differentiated corporate governance, being a benchmark of

transparency required by investors for new capital openings (Mazzioni, Prigol, Moura & Klann, 2015). The listing in this special segment of governance results in the adoption of several corporate rules with the objective of expanding the rights of shareholders, in addition to imposing a more transparent disclosure policy (Bolsa, Balcão, Brasil, 2019).

Thus, we believe that companies that are framed in these segments of B3, that is, classified as “Level 2” and “Novo Mercado”, present higher quality information and lower levels of results management, after the adoption of IFRS in the country, leading to the following research hypothesis:

H1: The adoption of IFRS reduces results management when companies belong to the best levels of B3 corporate governance.

2.3.2 Independent board of directors

The board of directors has a very important role in corporate governance and, essentially in the control and monitoring of managers, verifying the efficiency of the company’s members (Fama, 1980; Fame & Jensen, 1983; Hermalin & Weisbach, 1988).

Financial information is more credible to external users in the presence of independent directors (Garrouch et al, 2014). Gorrouch et al (2014) claim that they represent an importance to prevent the manipulation of accounting information, monitoring business within companies with the necessary independence to impartially analyze financial data, reducing the likelihood of fraud in financial statements.

There are studies (Dechow, Sloan & Sweeney, 1996; Bedard, Chtourou & Courteau, 2004; Verriest, Gaeremynck & Thornton, 2013) that prove that the presence of an independent board triggers a reduction in results management. Then, there was interest in verifying whether the independent board negatively affects the management of results, using the adoption of IFRS as a mediating variable, resulting in the following research hypothesis:

H2: Adoption of IFRS reduces results management when there is a board of independent directors

2.3.3 Independent audit

The reputation of the external auditor can be considered as an indicator for evaluating the quality of the audit of companies and an attribute of good corporate governance. In this way, large external audit firms, such as the companies listed in the Big Four, generally offer great audit services and play an important role in increasing the financial credibility of companies (Gorrouch et al, 2014).

The need for an external auditor has always been emphasized in studies as an attribute to provide better quality financial reporting and help reduce information asymmetry between managers and shareholders (Datar, Feltham & Hughes, 1991).

The quality of the audit can be defined as the auditor’s ability to detect any anomaly in a client’s financial statements (DeAngelo, 1981). Francis, LaFond, Olsson and Schipper (2004) say good companies are more likely to select Big Four auditors to audit their financial statements and raise investor confidence and raise funds. Companies framed in the Big Four offer high-quality audit services for fear of losing their reputation in the market, always striving to produce reliable numbers for external users (Anderson & Zeghal, 1994).

Therefore, the interest arose to investigate whether the companies audited by a Big Four have a negative relationship with the management of results, using as a mediating variable the applicability of IFRS, leading to the following research hypothesis:

H3: Adoption of IFRS reduces results management when companies are audited by a Big Four

2.4 Previous studies

The literature on the relationship between corporate governance and results management is broad. Thus, a table was elaborated with the main studies on this theme with the objective of showing how this article can broaden the discussion in this line of research.

Table 1

Related studies on the subject

Author(s)	Goal	Sample	Results
Klein (2002)	Examine whether the audit committee and the characteristics of the board of directors are related to results management.	692 companies listed in the S&P 500 between March 31, 1992 and 1993, holding shareholder meetings between July 1, 1991 and June 30, 1993.	A negative relationship is found between the independence of the audit committee and abnormal accruals. A negative relationship is also found between the independence of the administrative council and abnormal accruals.
Xie, Davidson III and Dadalt (2003)	Examine the role of the board of directors, the audit committee and the executive committee in preventing outcome management.	282 companies in the S&P 500 index, as listed in the June Standard and Poor's directory for each of the years 1992, 1994 and 1996.	It was concluded that the activity of the board and audit committee and the financial sophistication of its members can be important factors in restricting managers' propensity to engage in results management
Erfurth and Bezerra (2013)	Investigate the correlation between B3 differentiated governance segments and Results Management (GR) practices	46 companies listed on the B3 at different levels of governance: Level 1, Level 2 and Novo Mercado, in the period from 2000 to 2007.	The research did not allow us to infer that a higher level of governance necessarily means a lower degree of results management
Barros, Soares and Lima (2013)	Investigate the association between Corporate Governance and accounting results management in Brazilian publicly traded companies	108 companies listed on B3 in 2008, 2009 and 2010	It was observed that the intensity of results management is lower in companies that have a more marked presence of Governance attributes.

Garrouch, Hadriche and Omri (2014)	Investigate how mandatory adoption of new accounting standards and oversight mechanisms, such as Big 4 auditors and board independence, influence results management	120 companies listed on the French stock exchange between 2003 and 2011.	The results show that corporate governance mechanisms are not strong enough to enforce the application of IFRS standards in France.
Komalasari (2017)	Provide empirical evidence regarding the analysis of IFRS adoption as a moderating variable in the relationship between corporate governance and results management	The survey was conducted in companies listed on the Stock Exchanges of Germany, Denmark, France and the Netherlands from 2002 to 2013.	The results indicated that the adoption of IFRS strengthened the negative relationship of independent directors with results management by accruals.
Gois and Relative (2020)	Check the influence of corporate governance in results management by changing classification	236 publicly listed companies listed on B3 between 2005 and 2016	The results indicate that corporate governance, measured by the differentiated levels of corporate governance of B3, is a factor that reduces the change in classification, so governance is able to change the behavior of the manager.

Source: Own elaboration (2020).

No national study was found to verify whether the adoption of IFRS in the country strengthens or not strengthens the relationship between results management and corporate governance characteristics. Our study seeks to fill this gap by verifying whether or not the adoption of international accounting standards strengthened the negative relationship between results management and good corporate governance practices.

3 Method

3.1 Data and Sample

For the research, companies belonging to the levels of corporate governance defined by B3 (Bolsa, Balcão, Brasil) were considered, being: Traditional Market, Level 1, Level 2 and Novo Mercado. In this analysis, two groups were defined, the first being the traditional market and level 1 companies and the second companies defined as Level 2 and Novo Mercado. The analysis was carried out between the previous PERIOD IFRS (2002-2007) and later the IFRS (2010-2015). The years 2008 and 2009 were excluded from the analysis because they were considered a transition period and the adoption of IFRS was made only voluntarily.

The analysis of the results management and the model proposed in the study was done by regression with fully balanced panel data. The data needed to calculate the research variables were obtained through the explanatory notes, reference form and the Economática database.

After a database search, a sample of 313 companies listed in B3's corporate governance segments were collected. Companies that did not present the data necessary for the calculations

were excluded and a sample of 92 companies was obtained, composing a total of 1,104 observations.

3.3 Results Management

According to Oliveira (2017, p. 25) “accruals (totals) are separated into discretionary and non-discretionary, the latter referring to the impact of the conditions of the business itself, without judgment; discretionary ones reflect the actions of the administration’s choices.” As equation 1:

$$DA_{it} = TA_{it} - NDA_{it} \quad (1)$$

In which,

DA_{it} = discretionary accruals of company i in period t;

TA_{it} = total accruals of company i in period t;

NDA_{it} = non-discretionary accruals of company i in period t.

For the estimation of total accruals, there are two methods known in the literature: balance sheet approach (which would be an estimate) and cash flow approach (Baptista, 2009). The equation 2 of the calculation of total accruals by the cash flow approach is:

$$TA_{it} = LL_{it} - FCO_{it} \quad (2)$$

In which,

TA_{it} = total accruals of company i in period t;

LL_{it} = net income of company i in period t;

FCO_{it} = operating cash flow of company i in period t

For the estimation of total accruals by the balance sheet method, the variation of the current assets and current liabilities groups should be considered, subtracting the amount of accumulated depreciation (Oliveira, 2017). The equation 3 for calculating the total accruals is:

$$TA_{it} = \frac{(\Delta AC_{it} - \Delta Disp_{it}) - (\Delta PC_{it} - \Delta Div_{it}) - DDA_{it}}{A_{it-1}} \quad (3)$$

In which,

ΔAC_{it} = change in the current assets of company i in the period t-1 for period t;

$\Delta Disp_{it}$ = change in the availability of company i in the period t-1 for period t;

ΔPC_{it} = change in the current liabilities of company i in period t-1 for period t;

ΔDiv_{it} = change in the short-term debts of company i in the period t-1 for period t;

DDA_{it} = depreciation and amortization value of company i in period t;

A_{it-1} = total asset of company i in period t-1.

The calculation of the total accruals was made by the balance sheet approach on the grounds that the Cash Flow Statement (DFC), which is used in the calculation by the cash flow approach, is only available after 2005, as determined by the Brazilian Securities and Exchange Commission (CVM, 2005).

For the estimation of discretionary accruals, the model of Dechow, Hutton, Kim and Sloan (2012) was used. The Equation 4 is:

$$TA_{it} = \beta_1 \left(\frac{1}{A_{it-1}} \right) + \beta_2 \left(\frac{\Delta Receitas_{it} - \Delta CR_{it}}{A_{it-1}} \right) + \beta_3 \left(\frac{Imob_{it}}{A_{it-1}} \right) + TA_{it-1} + \varepsilon_{it} \quad (4)$$

In which,

$\Delta Receitas_{it}$ = change in net revenues of company i in period t-1 for period t;

ΔCR_{it} = change of accounts receivable from company i in the period t-1 for period t;

$Imob_{it}$ = fixed assets (gross) summed up by company code i in period t;

$\beta_1; \beta_2; \beta_3$ = coefficients estimated by regression;

ε_{it} = enterprise i regression error in period t (which would be discretionary accruals/results management).

First, by equation 2 we estimated the total accruals. Then, by equation 3 it was possible to estimate the non-discretionary accruals by the regression coefficients, and the discretionary accruals would be the residuals (error) of the linear regression.

3.4 Independent Variables

First, we defined our variables of interest to the research, namely: Level of Corporate Governance, Presence of the Independent Committee, Big Four and IFRS.

Control variables were defined in the econometric model of research in order to observe the regularity of behavior in relation to the management of results. These variables have been used in studies as conditioning factors for results management (Baptista 2008; Barros, 2012; Mazzioni et al. 2015; Martinez & Leal 2019; Oliveira & Soares, 2019).

Table 2

Independent Research Variables

Study variables	Operationalization and metrics	References
Corporate Governance Level (NGC)	Dummy - 1 for Level 2 companies and Novo Mercado and 0 for companies in the Level 1 and Traditional Market	Mazzioni et al. (2015)
Presence Independent Committee (PCI)	Dummy - 1 when there is a committee independent and 0 when not	Garrouch et al. (2014); Komalasari (2017)
Big Four (BIG4)	Dummy - 1 when audited by a Big Four and 0 when not	Komalasari (2017)
IFRS Period (IFRS)	Dummy - 1 for later periods the IFRS and 0 for previous	Grecco, Geron, Grecco & Lima (2014)
Company Size (TAM)	Natural total asset logarithm (TAM = Ln (Total Asset))	Edwards, Soares & Lima (2013); Grecco et al. (2014); Mazzioni et al. (2015) and Martinez & Leal (2019)
Return on Assets (ROA)	Ratio between net operating income and total assets (ROA = Net Operating Income/Total Assets)	Mazzioni et al. (2015); Martinez & Leal (2019) and Oliveira & Soares (2019)
Company Growth (CRESC)	Change in operating revenue of company i between t-1 and t, divided by net operating revenue of t-1.	Mazzioni et al. (2015) and Oliveira & Soares (2019)

Source: Own elaboration (2020).

With the data of to the variables, the analysis was performed by the application of the regression by panel data, in order to verify the relationship of the dependent variable (results management) with the other independent variables of the study.

All tests were performed for the model, on absence of normality of residues (Jarque-BeraTest), heteroscedasticity (Breusch-Pagan Test), and absence of multicollinearity (Variance Inflation Factor - VIF) (Fávero, Belfiore, Takamatsu & Suzart, 2014). The model analyzed in this article can be described as follows in Equation 5:

$$|GR_{i,t}| = \beta_0 + \beta_1 NGC_{i,t} + \beta_2 PCI_{i,t} + \beta_3 BIG4_{i,t} + \beta_4 IFRS_{i,t} + \beta_5 NGC \times IFRS_{i,t} + \beta_6 PCI_{i,t} \times IFRS_{i,t} + \beta_7 BIG4 \times IFRS_{i,t} + \beta_8 TAM_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CRESC_{i,t} + SETORES + \varepsilon_{it} \quad (5)$$

In which,

$|GR_{i,t}|$ = discretionary accruals in absolute value of company i in period t;

$NGC_{i,t}$ = dummy variable where it is considered 0 for the first corporate governance level group (Traditional and Level 1) and 1 for the second corporate governance level group (New Market and Level 2);

$PCI_{i,t}$ = dummy variable where 0 is considered for the absence of an independent committee and 1 for presence;

$BIG4_{i,t}$ = dummy variable where it is considered 0 when not audited by a Big Four and 1 when audited;

$IFRS_{i,t}$ = dummy variable where it is considered 0 for the period prior to IFRS and 1 for the later IFRS period;

$TAM_{i,t}$ = company size i in period t;

$ROA_{i,t}$ = return on company assets i in period t;

$CRESC_{i,t}$ = company i growth in period t;

$SETORES$ = sector of company i in period t;

β_0 = constant of the regression model;

$\beta_1; \beta_2; \beta_3; \beta_4; \beta_5$ = coefficients of the regression model;

ε_{it} = enterprise i regression error in period t.

The variables NGC, PCI and BIG4 were tested together with the variable 1 IFRS to verify the effect of international accounting standards on the variables of interest of the research.

4 Results and Analyses

4.1 Results Management - *Discretionary Accruals*

First, we obtained the *necessary variables to estimate discretionary accruals* from the model of Dechow et al. (2012). After that, the descriptive statistics of the variables of the model were analyzed, which are presented in Table 3.

Table 3*Descriptive statistics of variables - model of Dechow et al. (2012).*

Variable	Note.	Average	Standard Deviation	Min.	Max.
TA *	1.104	0,0227	0,1317	-0,8728	1,2123
1/AT *	1.104	0,00001	0,0001	3.43E-09	0,0030
$\Delta R - \Delta CR$ *	1.104	0,0866	0,2768	-1,1329	4,4033
IMOB *	1.104	0,3567	0,2792	0	1,6723

* All variables were weighted by the lagged total assets.

Source: Own elaboration (2020).

On Table 3 we can observe that the variables have a lot of discrepancy between the maximum and minimum values. This is observed because there are companies of various sizes in the research sample. It is also possible to observe that the variables TA and 1/TA have the lowest standard deviation of the sample, meaning that they are closer to homogeneity.

After the analysis of descriptive statistics, a panel diagnosis was performed to verify which model is most appropriate for the analysis of the results management model. The results are located in Table 4.

Table 4*Diagnosis of the model Dechow et al. (2012)*

Tests	Results
Chow	0.001
Hausman	0.000
Breusch-Pagan	1,000
Result	Fixed effects

Source: Own elaboration (2020).

Chow, Hausman and Breusch-Pagan tests indicate that the most appropriate panel method for the model is with fixed effects.

All regression assumptions were verified. Through the Jarque-Bera test, it was possible to observe that the hypothesis that the residues have normality was rejected, but it was not considered a problem because the sample has many observations (Wooldridge, 2012). Multicollinearity was also verified by means of the Variance Inflation Factor (VIF) test and no problems were found with the model, because no variable presented values higher than 10. As for the model the most appropriate method is fixed effects, serial autocorrelation was verified through the Wooldridge Test and problems with autocorrelation of residues were observed and thus robust correction was applied. The results of the results management model are presented in Table 5:

Table 5*Results of linear regression - model of Dechow et al. (2012) - Fixed Effects*

Linear Regression			Number of Obs.	1st . 10th	
			Prob > F	0,000	
			R-squared	0,0286	
			Normality of Waste	0,000	
Ta	Mr. Coef.	Robust Standard Errors	T	P> t	Vif
1/AT	23,3742	31,4636	0,74	0,458	1,02
$\Delta R - \Delta CR$	0,0568	0,0151	3,75	0,000***	1,12
Imob	0,0274	0,0092	2,97	0,003***	1,04
TA _{t-1}	-0,0428	0,0320	-1,34	0,180	1,10

1% of statistical significance; TA = total accruals weighted by lagged total assets; 1/TA = 1 weighted by lagged total assets; $\Delta R - \Delta CR$ = operating income minus receivables (short and long term), weighted by lagged total assets; IMOB = fixed assets weighted by lagged total assets.

Source: Own elaboration (2020).

As observed in Table 5, only the variables $\Delta R - \Delta CR$ and IMOB presented statistical significance is a coefficient of 0.0568 and 0.0274, respectively. These results indicate that only these variables have an influence on the total accruals (TA) of the companies analyzed. It was also observed that the variables of the model have approximately 2.86% of explanatory power over the dependent variable (ED).

With the results of the model Dechow et al. (2012), we can go to the analysis of the model proposed in the research to analyze the research hypotheses.

4.2 Model Results

We performed the analysis of the variables through descriptive statistics, presenting the mean, standard deviation, minimum and maximum of the study variables. Table 6 presents the results:

Table 6*Descriptive statistics - Proposed model*

Variable	Note.	Average	Standard Deviation	Min.	Max.
GR or AD	1.104	0,0711	0,1108	0,0001	1,2762
Tam	1.104	14,380	2,0990	6,6503	19,661
Roa	1.104	-1,4985	135,42	-4466,8	46,616
CRESC	1.104	0,1738	1,5035	-1	48,030

Source: Own elaboration (2020).

It is possible to observe that the ROA variable has a large dispersion observed by the high standard deviation. Our sample has companies of various sizes, explaining the large dispersion in the results. The tam variable did not present such a high dispersion because the natural logarithm of the total assets of the companies was made. The variables GR/AD and CRESC presented the lowest dispersions of the sample.

The proposed research model was diagnosed. The results are presented in Table 7:

Table 7
Diagnosis of the research model

Tests	Results
Chow	0,000
Hausman	0,054
Breusch-Pagan	0,000
Result	Random Effects

Source: Own elaboration (2020).

According to the results, the most suitable panel model for the search model is the one with random effects.

We performed all the assumptions of the linear regression of the study. The normality of residues was tested through the Jarque-Bera test and the hypothesis that the residues have normality was rejected, however it was not considered a problem, since the sample has several observations (Wooldridge, 2012). After that, the VIF test was performed to verify the multilinearity of the variables and it was observed that none of the variables presented values higher than 10. The results of the research model proposed in the study are presented in Table 8:

Table 8
Results of linear regression of the proposed model - Equation 4 - Random Effects

Linear Regression			Number of Obs.	1.104	
			Prob > F	0,000	
			R-squared	0,189	
			Normality of Waste	0,000	
GR or AD	Mr. Coef.	Robust Standard Errors	T	P>[t]	Vif
Ngc	0,0114	0,0148	0,77	0,442	2,42
Pci	-0,0121	0,0138	-0,87	0,383	2,64
BIG4	0,0092	0,0145	0,63	0,526	2,50
IFRS	0,0350	0,0116	3,01	0,003**	3,65
NGC vs. IFRS	0,0358	0,0156	2,30	0,210	3,46
PCI vs. IFRS	-0,0404	0,0158	-2,55	0,011**	3,86
BIG4 x IFRS	-0,0127	0,0144	-0,88	0,379	5,20
Tam	-0,0068	0,0034	-1,99	0,047**	2,07
Roa	0,00001	0,00002	0,50	0,617	1,03
CRESC	0,0069	0,0021	3,33	0,001***	1,01
Bind	0,0007	0,0181	0,04	0,970	1,42
Community	-0,0290	0,0345	-0,84	0,400	1,28
CNCIC	0,0019	0,0297	0,06	0,949	1,24
Thin	-0,0315	0,0214	-1,47	0,141	1,35
Mbas	-0,0291	0,0181	-1,61	0,108	1,50
PGBIO	-0,0353	0,0545	-0,65	0,518	1,07
Health	-0,0389	0,0326	-1,19	0,233	1,12

Bruno Chacon Prata e Leonardo Flach					
TINFO	0,0003	0,0553	0,01	0,995	1,12
UPUBL	-0,0314	0,0176	-1,79	0,074*	1,79
_cons	0,1667	0,0440	3,79	0,000***	-

NOTE: BIND = dummy variable for industrial goods sector; COMU = dummy variable for communications sector; CNCIC = dummy variable for the non-Cyclical Consumption sector; FINA = dummy variable for the Financial sector; MBAS = dummy variable for the Basic Materials sector; PGBIO = dummy variable for the Oil, Gas and Biofuels sector; SAUDE = dummy variable for the Health sector; TINFO = dummy variable for the Information Technology sector; UPUBL = dummy variable for the Utilities sector.
* 10% of statistical significance; ** 5% of statistical significance; 1% of statistical significance.

Source: Own elaboration (2020).

The variables of interest for the test of the research hypotheses are NGC x IFRS, PCI x IFRS and BIG4 x IFRS. It is possible to observe that only the variable PCI x IFRS presented statistical significance and a negative coefficient in the value of 0.0404, that is, the companies that have an independent administrative committee have a lower index of results management after the adoption of IFRS, thus accepting the second hypothesis of this research. Our results are in line with findings in the literature, Komalasari (2017) analyzed how IFRS impacted the relationship between results management and the presence of an independent committee and verified that this relationship was strengthened after the IFRS were given the following the appointments of IFRS in Germany, Denmark, France and the Netherlands.

The variables NGC x IFRS and BIG4 x IFRS presented coefficients in the values of 0.0358 and -0.0127, respectively, but it is not possible to accept the hypotheses H1 and H3 because it was not possible to obtain statistical significance in these variables of the research. However, we can find similar results in the literature. Garrouch et al. (2014) showed that corporate governance mechanisms were not driven by the adoption of IFRS in relation to the results management of French companies.

The control variables TAM and CRESC showed statistical significance and negative and positive signs, respectively, in line with the findings in the literature (Baptista, 2008; Barros, 2012; Sincerre, Sampaio, Famá & Santos, 2016). This indicates that larger companies manage their results less (Oliveira & Soares, 2018).

In addition, we tested all variables of interest separately in three models to verify whether the results could be changed. After data processing, it was verified that the results were not changed and only the integrated model was maintained in the work, since there were no multicollinearity problems.

Table 9 is presented below with the search hypotheses and their respective results:

Table 9

Results of linear regression of the proposed model - Equation 4 - Random Effects

Chance	Result
H1: The adoption of IFRS reduces results management when companies belong to the best levels of B3 corporate governance.	Rejects
H2: Adoption of IFRS reduces results management when there is a board of independent directors	Non rejects**
H3: Adoption of IFRS reduces results management when companies are audited by a Big Four	Rejects

** 5% statistical significance

Source: Own elaboration (2020).

5 Final Considerations

The debate about how corporate governance practices can affect outcome management is extensive and several studies are found along this line. Our study seeks to contribute to this line of research by verifying whether or not the adoption of IFRS in Brazil strengthens this relationship between corporate governance and results management. The first major contribution that the study makes is to show that when there is the presence of an independent administrative committee the level of results management is lower, being driven by the adoption of IFRS in the country. The second contribution is that we cannot say that best corporate governance practices by companies listed at b3's differentiated levels and the companies audited by the Big Four have a lower level of results management after the adoption of IFRS. Our findings are in line with research in the international literature.

As an academic contribution, our study expands the line of research on results management and corporate governance including a new variable in research, the adoption of IFRS in Brazil. And as a practical contribution, our study shows that companies with the presence of an independent administrative committee can present lower levels of results management, which is a very important factor for stakeholder investment decision-making.

Like all studies, this article has limitations: (1) the models that measure the management of results through regression error are considered only estimates and not concrete numbers, which can cause distortions in the results; (2) many explanatory notes of the companies present conflicting results with the Economatica database, which can also cause distortions; and (3) only three attributes of good corporate governance practices were used, which can also limit the results of the research.

As a suggestion for future research, we recommend: (1) to apply the study in countries similar to Brazil, such as Mercosur countries; (2) apply other methods of analysis, such as regression with unbalanced panel or quantile regression; (3) apply another attribute of the quality of accounting information, such as persistence of profits or conservatism.

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