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THE INFLUENCE OF CORPORATE GOVERNANCE AND EXTERNAL CONTROL MECHANISMS IN TRADE-OFF AMONG RESULTS MANAGEMENT STRATEGIES

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ABSTRACT

The objective of the study was to analyze the influence of corporate governance (CG) and external control mechanisms on *the trade-off* among results management strategies by discretionary *accruals* and by operational decisions. The sample consisted of 177 companies listed in B³. Corporate governance was investigated through the index developed by Leal et al. (2015). The results management was captured by Paulo's model (2007) in the case of discretionary *accruals*, by the Roychowdhury's model (2006) in the case of operational expenses and the Vuong's test (1989) for the *trade-off* among these strategies. The study extends the investigations in the scope of results management by investigating whether endogenous (corporate governance) and exogenous (external control mechanisms) facts to the company influence the managers in their options by managing the results by discretionary *accruals* or operational decisions. In the results, it was verified that corporate governance and external control mechanisms influence the *trade-off* among the outcome strategies. The presence of these variables led managers to prioritize management utilization through discretionary *accruals* to the detriment of management through operational decisions. The research contributes to the literature on results management by detecting variables that influence the managers' discretionary decisions as to which management strategy to use, bringing practical contributions to signaling to the *stakeholders* that governance and external control mechanisms are effective in their role of inhibiting results management.

Keywords: Governance Structure. Analysts' Predictions. Institutional Investors. Credit Rating. Voung's Test.

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1 INTRODUCTION

The emergence of large publicly-traded companies has brought with it the spraying of ownership and the managers' power strengthening , which has demanded the development of control mechanisms aimed at minimizing the possible opportunistic attitudes of the management of these companies (Berle & Means, 1932). Corporate Governance (GC) is an internal control mechanism that aims to minimize conflicts of interest between shareholders and managers by increasing the disclosure of managers' decisions, resulting in greater transparency (Shleifer & Vishny, 1997; Blair, 1998; LaPorta, Lopez-De Silanes, Shleifer, & Vishny, 2000; Comissão de Valores Mobiliários, 2002; Silveira, 2004; Roe, 2005). However, GC is an imperfect monitoring mechanism (Williamson, 1983, 1984; Shleifer & Vishny, 1997; LaPorta et al., 2000), which has encouraged the development of external control mechanisms that would assist shareholders in their investment decisions, such as analysts' predictions, institutional investors and credit ratings.

Market analysts'' predictions affect the informal environment, informally playing a role in monitoring the quality of company accounting information (Kothari, 2001; Dechow & Schrand, 2004; Martinez, 2004). However, these professionals predictions are sensitive to market expectations, economic circumstances and political factors (Kothari, 2001; Martinez, 2004; Dalmácio, Lopes, Rezende & Sarlo Neto, 2013). Yu (2008) showed that the greater the analysts' coverage, the less the managers' results manipulation, the maximized effect when institutional investors are present in the company's stock market.

Institutional investors are entities (which may be pension funds, investment banks, among others) that administer funds taken from a group of people with common and previously defined objectives (Shleifer & Vishny, 1986; Bushee, 1997, 1998; Ferri & Soares, 2009; Elyasiani & Jia, 2010). Unlike individual investors, institutional investors have more resources and incentives to effectively monitor companies (Shleifer & Vishny, 1986; Lev, 1988; Jiambalvo, Rajgopal & Venkatachalam, 2002). However, by strengthening commercial relations with the company, the institutional investor may develop alliances with the managers, and therefore is more inclined to vote in the administration support to the detriment of the minority investors' interests (Bushee, 1997; Elyasiani & Jia, 2010). Cardoso (2000) and Opp, Opp e Harris (2013) point out that institutional investors use classifications drawn up by credit rating agencies, both to complement their own internal analyzes and as a *benchmark* for assessing which shares will compose their funds.

The rating agencies, the main ones being *Standard & Poor's* (S&P), *Moody's* and *Fitch,* aim to assess the payment capacity of the credit taker, assigning a rating to each evaluated company that goes from D to the lowest grade, up to AAA for the highest grade (Cardoso, 2000; Sinclair, 2005; Vale, 2016). The worldwide ratings dissemination enables issuers to have greater access to new markets and greater liquidity of their roles due to investor confidence in the assessments issued by the agencies (Cardoso, 2000). However Brown, Chen e Kim (2015,) verified that companies tend to manage their results with the objective of improving their credit ratings, especially when companies are on the so-called speculative border, that is, between the BBB and BB grades.

The aforementioned control mechanisms play an informal role in monitoring the quality of accounting information disclosed by companies (Bushee, 1997, 1998; Dechow & Schrand, 2004; Bone, 2007). For this reason, a research gap is seen about investigating the ability of these control mechanisms to identify and minimize the managers' results management.

Results management can be performed through discretionary accruals (AEM) or through operational decisions (REM) (Roychowdhury, 2006; Cohen & Zarowin, 2010; Gunny, 2010; Zang, 2012; Cupertino, 2013; Mota, 2018). Zang (2012) emphasizes that managers switch between the two strategies in a predictive way (what is called *trade-off*), and investigating them in isolation does not lead to consistent conclusions. In view of the above, the present study aims **to analyze the influence of Corporate Governance and External Control mechanisms in *trade-off***

among results management strategies through discretionary accruals and operational decisions.

The study is justified in analyzing the CG by constructing an index that aims to measure the quality of corporate governance, and this index is built on the basis of the reference forms. All the companies listed in Brazilian Stock Exchange (B³), from 2010 to 2019, were analyzed, totaling 3068 reference forms analyzed. Furthermore, this study innovates by investigating both internal control mechanisms (CG), as well as control mechanisms that are external to the company (with analysts' predictions, institutional investors and credit ratings) in the detection and minimization of results management, this provides a more holistic view of which variables (or set of variables) are more effective in monitoring opportunistic attitudes exercised by companies' managers. Finally, the study contributes to the literature on results management by analyzing the alternation among management strategies exercised in a predictive way by company managers, emphasizing the importance of not being limited to the analysis of these management strategies in isolation.

2 LITERATURE REVIEW

Measuring the quality of the companies' GC practices helps investors by highlighting which aspects of governance are prioritized by companies and which deserve greater investments (Silva & Leal, 2005; Claessens & Yurtoglu, 2013; Leal, Carvalhal, & Ievorlino, 2015; Black, Carvalho, Khanna, Kim, & Yurtoglu, 2020; Nsour & Al-Rjoub, 2022). Thus, models were developed with the objective of measuring the quality of GC practices, as elaborated by Leal et al., (2015). The authors' model consists of 20 questions that the researcher himself or herself answers using secondary data, assigning points to the company, so that the higher the company's score, the better its GC practices are.

Empirical studies that used the model of Leal et al. (2015) investigated their influence on the results management, as in the study of Kawai (2017). The author evidenced that the GC internal mechanisms were not sufficient to inhibit the results management through discretionary accruals, thus suggesting the inclusion of external control mechanisms in the investigations, such as analysts' predictions, institutional investors and credit ratings. These external control mechanisms are better informed when compared to minority investors, thus playing an informal role in monitoring the quality of accounting information disclosed by the companies (Bushee, 1997, 1998; Dechow & Schrand, 2004; Bone, 2007)

Although they present these aspects in common, the external control mechanisms have their own characteristics: upon preparing their predictions on future results, market analysts evaluate the companies' performance, influencing both the price of the companies' shares and their variability (Kothari, 2001; Dechow & Schrand, 2004; Martinez, 2004); the presence of institutional investors makes the company's shares more attractive, however, the value of the company's shares may be related to the decisions of continuance of this type of investor (Shleifer & Vishny, 1986; Bushee, 1997, 1998; Elyasiani & Jia, 2010); when assessing the credit taker's payment capacity, rating agencies influence the investors' decision-making, however, given that publicly-traded companies pay to be evaluated, a conflict of interest may occur, as excessively severe assessments may be likely to affect the customers of these rating companies (Cardoso, 2000; Bhojraj & Sengupta, 2003; Sinclair, 2005; Vale, 2016). Given this characteristic of monitoring performed by these control mechanisms, the literature developed in the investigation of the relations between these mechanisms and the results management.

Empirical studies investigating the GC efficiency in the identification and minimization of results management showed that the higher the GC quality of the company, the lower the level of the result management (Dechow, Sloan & Sweeney, 1996; Martinez, 2010; Garven, 2015; Piosik & Genge, 2020). The authors who analyzed the relation between analysts' predictions and result management pointed out that the greater the analysts' coverage, the lower the management

through discretionary accruals (Yu, 2008; Martinez, 2011), however, in order to avoid an accounting result below that predicted by analysts, companies manage their results through operational decisions (Roychowdhury, 2006).

The literature on the relation between institutional investors and results management points out that the presence of this type of investor minimizes management by discretionary and (Rajgopal, Venkatachalam & Jiambalvov, 1999; Hsu & Koh, 2005; Koh, 2007) operational decisions . (Sakaki, Jackson & Jory, 2017; Gao, Shen, Li & Mao, 2020; Kałdoński,Jewartowski, & Mizerka, 2020) Empirical studies investigating the relation between credit rating and results management indicate that companies use both management through accruals (Alissa, Bonsall, Koharki & Penn, 2013; Liu, Subramanyam, & Shi, 2018; Sibim, Campos & Colauto, 2018) and operational decisions (Alissa et al., 2013; Brown, Chen, & Kim, 2015; Zhang, 2020) to improve their ratings.

Considering that results management can be performed both by manipulating discretionary accruals and operational expenses, Zang (2012) warns that the investigation of one of these in isolation does not lead to consistent conclusions. REM impacts the organizations' cash flow, AEM, in turn, does not necessarily present this effect, and EMN is used during the company's fiscal year, while AEM is held between the end of the financial year and the date of publication of the financial statements (Graham, Harvey & Rajgopal, 2005; Roychowdhury, 2006; Cohen & Zarowin, 2010; Gunny, 2010; Badertscher, 2011; Zang, 2012; Cupertino, 2013).

This time difference allows management to perform AEM after the end of the exercise based on the results generated by the REM applied during the period (Zang, 2012). This makes AEM attractive to managers, since when this type of management is carried out, the amount required to be manipulated to achieve the stated results goals is known (Gunny, 2010). However Graham et al. (2005) , and Badertscher (2011) argue that managers choose the EMN because it is less likely to auditors' and regulators' examination. The national empirical studies that used Zang's technique (2012) used it in different contexts, however, in all of them it was confirmed that the two management strategies were alternated in a predictive way by the manager (Cupertino, 2013; Mota, 2018; Dani, 2019; Souza, 2019).

3 METHODOLOGICAL DESIGN

The present study had a population of 355 publicly-traded companies listed on the Brazilian Stock Exchange (B³). The Corporate Governance Index (IGC) was elaborated with a sample of all the 355 companies. However, in order to investigate the results management , it was necessary to remove companies that did not have all the necessary data, as well as outliers, resulting in a sample of 177 companies. The longitudinal frame covers the period 2010 to 2019, basing its investigations on secondary data, using the panel data as a econometric model. The independent variables of the study, that is, those of which it was intended to investigate their influence on the results management are: corporate governance, the accuracy in analysts' prediction, the presence of institutional investors and credit *rating*.

Corporate governance was captured through the model developed by Leal et al. (2015). The authors' model is based on the construction of an index that aims to measure the quality of the company's GC. This index consists of 20 questions that the researcher himself or herself answers based on data collected from the reference forms and on the companies' website. Each question is scored: 1 point for answer "yes"; 0.5 if partially answered; and 0 if answer is "no". The index is then calculated according to equation 1:

$$GC = \frac{Pontuação\ da\ empresa\ (valor\ de\ 0\ a\ 20)}{20} * 10 \qquad (1)$$

The model covers 4 dimensions, namely: *disclosure*; the council composition and its functioning; ethics and conflicts of interest; and shareholders' rights.

Table 1
Measuring instrument of the Corporate Governance Index

Question	Score Criterion
Disclosure	
1. Does the company disclose information about its policies as well as its established mechanisms for dealing with conflicts of interest and/or related party transactions?	0 if the company does not disclose such information; 0.5 if it is partially disclosed; 1 if it is substantially disclosed.
2. Does the company disclose separately the amounts paid to executives and advisers, as well as separating the variable remuneration from the fixed?	0 if the company does not present any of these two separations in its disclosures; 0.5 if it presents only one; 1 if it presents the two separations.
3. Has the company submitted an independent auditor's opinion with the exception of the last five years?	0 if yes; 1 if no.
4. Does the company's website have an investor relationship section that contains its annual report?	0 if no; 1 if yes.
5. Does the company's website contain the presentations made to financial analysts?	Presentations shall relate to at least the last quarter of the previous year. 0 if no; 1 if yes.
6. Does the Annual Report include a specific section dedicated to implementing corporate governance principles?	The information must be substantial, not only presenting participation in the council and ownership structure. 0 if no; 1 if yes.
Composition of the Council and its Operation	
7. Are the Chairman of the Board of Directors and the CEO different people?	0 if no; 1 if yes.
8. Does the company have committees that disclose information to the public, such as company by-laws, annual report, site, FR?	0 if no; 1 if yes.
9. is the council made up of external advisors, with the exception of the CEO?	0 if no; 1 if yes.
10. Is the size of the council between 5 and 11 members, as recommended by the IBGC Code of Best practice?	0 if no; 1 if yes.
11. Do advisers have term of office of up to two consecutive years, as recommended by the IBGC Code of Best practice?	0 if no; 1 if yes.
Ethics and Conflict of Interest	
12. Is the percentage of shares without voting rights equal to or less than 20%?	0 if no; 1 if yes.
13. Is the percentage of control block voting shares equal to or less than that of all other types of shares?	0 if no; 1 if yes.
14. Are loans to the controlling shareholder or other related parties prohibited?	0 if no; 1 if yes.
15. Does the by-laws facilitate the shareholder participation in general meetings by: a) not requiring previous remittance of documentation that proves the condition of shareholder; and b) does it adopt the principle of good faith?	0 if it does not meet either of the two conditions; 0.5 if it meets only one; 1 if it meets both conditions.
Shareholders' rights	
16. At least one of the statements below is true: a) the company admits one vote to each share, of any kind; b) the company grants the right to vote to non-voting shareholders in decisions of greater impact.	0 if shares without voting rights do not vote; 0.5 if the company recognizes the voting rights to shares without voting rights in decisions of greater impact or if the company gives the right to vote, but has voting limits for shares of shareholders or *has golden shares*; 1 grant of one share one vote.
17. Does the company grant mandatory bid rights in addition to what is legally required?	0 if no rights other than legal rights are granted; 0.5 if the enterprise extends the extra rights of mandatory bid for shares with or without voting rights, but not both; 1 if the enterprise extends the offer for shares with and without voting rights, if any.
18. Is the company control direct?	1 if the direct controlling shareholder is an individual, institutional investor, foreign entity, the state or a company completely owned by one of the previous types of owner; 0, otherwise.

19. Do the shareholders' agreements refrain from directing or restricting the voting rights of any member of the board or from appointing an administrator?	0 if no; 1 if yes.
20. Is the *free float* equal to or greater than 25%, as required by BM&FBovespa?	0 if no; 1 if yes.

Source : Leal et al. (2015).

The accuracy of analysts' prediction was measured by means of the error of prediction, as used in Martinez's studies (2004) and Dalmácio et al. (2013). In this model, the lower the error, the more accurate the prediction, as shown in equation 2.

$$ErroDePrev: \frac{LPA_{real} - LPA_{previsto}}{LPA_{real}} \quad (2)$$

Where:

ErroDePrev: Prediction error;

LPA_{real}*:Proxy:* Real share profit;

$LPA_{previsto}$*:* Average earnings per share, predicted from the analysts' consensus.

The companies' earning per real share was captured in the Economática® basis, while the expected profit from the analysts' consensus was collected on *Thomson ONE Analytics® I/B/I/O®* basis. The analyst' prediction error can be negative or positive. When positive, it means that the real profit was higher than the expected profit, that is, that the company exceeded the consensus of the analysts' prediction. When negative, it means that the company has not reached the consensus of the analysts' prediction. Thus, the closer to zero, the greater the prediction accuracy and, the farther from zero, the less accurate the prediction was.

The measurement of the presence of institutional investors ($invest_{it}$) was done as performed in the study of Ferri e Soares (2009). First, the three largest shareholders of each company were raised, and this information was collected in the *Economic®* database. The bases of the CVM website, the Superintendence of Private Insurance (SUSEP) and Social Security were then used to identify which of these investors are institutional. Then, a *dummy* variable was built , receiving "1" for the case of one or more institutional investors among the three largest investors in the company and "0" for the opposite case.

Finally, the credit *rating* was measured based on the classification elaborated in the study of Miiller e Martinez (2016). The classification developed by the authors is based on the *S&P , Fitch and Moody's ratings*, classifying the companies in 22 *ratings*. Data were captured from Thomson ONE Analytics® I/B/E/S® database. When the company has only one *rating*, this will be used in the classification; when it has more than one, for prudence, it will be considered the worst *rating* (Miiller & Martinez, 2016).

After the acquisition of the independent variables, the study followed with the acquisition of its dependent variables, namely: the results management through discretionary accruals (AEM) and through operational decisions (REM). The data for the results management investigation were captured through the *Economática®* database and the panel data was used as a econometric model.

In order to capture the results management, it is first necessary to capture the total accruals, which are captured by means of the balance sheet approach, as used in the studies of Healy (1985), Jones (1991), Dechow, Sloan e Sweeney (1995), Martinez (2001), Pae (2005), Paulo (2007) e Rodrigues (2012). The model chosen for the AEM identification , as Paulo (2007)used by Rodrigues (2012), Duarte (2016), Mota (2018) e Rodrigues e Niyama (2018). Rodrigues e Niyama (2018) point out that the model proposed by Paulo controls several limitations of specification and control that the previous models did not encompass.

To analyze t REM, the models proposed by Roychowdhury (2006), as used in the studies of Paulo (2007), Gunny (2010), Badertscher (2011), Zang (2012) e Cupertino (2013), were used.

Models were used to capture management through production costs and discretionary expenses. The model that captures management through cash flows was not used because, according to Zang (2012), this model results in an ambiguous effect on the results management investigation.

For the empirical model construction, the companies suspicious of managing their results are identified first. This identification is carried out as follows: by reaching certain *benchmarks* in their profits, companies are considered to be companies suspicious of managing their results (*Susp*). Companies that avoid disclosing, reporting profits close to zero, are considered suspicious in the present study, as well as companies that seek to keep the reported profit close to the previous period. After the suspicious companies (Sup_{it}) are identified, they are correlated with each result management strategy (AEM and REM).

Then, the relation between each results management strategy and the study independent variables is investigated: the GC index(GC_{it}), the accuracy in the analysts' prediction ($Analyst_{it}$), the presence of institutional investors ($invest_{it}$) and credit *rating* ($Rating_{it}$). In addition to the above variables, the following control variables were included in the empirical models: return on assets (Dechow, Sloan & Sweeney, 1995; Bowen, Rajgopal & Venkatachalam, 2008; Zang, 2012; Catapan, Colauto & Barros, 2013; Chen & Soileau, 2014; Joia & Nakao, 2014)(ROA_{it}) ; leverage ($ALAV_{it}$) (Schipper, 1989; Gu, Lee & Rosett, 2005; Bowen et al., 2008; Catapan et al., 2013; Joia e Nakao, 2014); and the size (TAM_{it}) (Watts & Zimmerman, 1978; Gu et al., 2005; Catapan et al., 2013; Chen & Soileau, 2014; Joia & Nakao, 2014).

$$AEM_{it} = \alpha + \beta_1 Susp_{it} + \beta_2 GC_{it} + \beta_3 Analyst + \beta_4 Invest + \beta_5 Rating + \gamma_1 ROA_{it} + \gamma_2 ALAV_{it} + \gamma_3 TAM_{it} + \varepsilon_t \quad (3)$$

$$REM_{it} = \alpha + \beta_1 Susp_{it} + \beta_2 GC_{it} + \beta_3 Analyst + \beta_4 Invest + \beta_5 Rating + \gamma_1 ROA_{it} + \gamma_2 ALAV_{it} + \gamma_3 TAM_{it} + \varepsilon_t \quad (4)$$

Where:

AEM_{it}: Results management by the discretionary accruals of company i in period t;

REM_{it}: Result managements by operating decisions of Company i in period t;

$Susp_{it}$: *Dummy* variable for suspicious companies in period t; being "1" if the company hit one *of the benchmarks* and "0" for the other cases;

GC_{it}: Corporative Governance Index of the company i in period t.

$Analyst_{it}$: Accuracy in the analysts' prediction of company i in the period t;

$Invest_{it}$: Presence of institutional investors of company i in the period t;

$Rating_{it}$: Credit rating of the company i in the period t;

ROA_{it}: Profit before extraordinary items weighted by the total assets of the company i in the period t;

$ALAV_{it}$: Total of debts considered by total assets of company i in the period t;

TAM_{it}: Natural logarithm of total assets of company I in the period t.

α β γ: Estimated coefficients in the model;

ε: Error term.

The investigation of the GC influence and external control mechanisms in *the trade-off* among AEM and REM strategies was carried out through the Vuong (1989)'s test . This test, used by Dechow (1994), Paulo (2007), Dantas (2012) e Rodrigues (2012), tests the null hypothesis that both models analyzed are equally efficient in applying the data generation process compared to the alternative hypothesis that one model is more precise than the other in this regard.

The test is applied by means of a temporal series (m_{ti}), which corresponds to the likelihood ratio, explained from the regression residues (ε_{ti}), and the residual sum of its squares (*RSS*) originating in the estimation of the application of the 2 (two) models. The test then adapts two distinct bases in a single applied model, hereinafter called *z-vuong*, being estimated according to equation 5.

$$m_{it} = \frac{1}{2} log \left[\frac{RSS_x}{RSS_y}\right] + \frac{n}{2}\left[\frac{(\varepsilon_{AEMit})^2}{RSS_x} - \frac{(\varepsilon_{REMit})^2}{RSS_y}\right] \quad (5)$$

After the m_{ti} series is estimated, it is regressed in a constant c, where ε_{ti} is an error term ~ IID N(0, σ), according to equation 6.

$$m_{it} = c + \varepsilon_{it} \quad (6)$$

Finally , *z-vuong* is obtained by means of t-statistics associated with the constant c of this regression, according to equation 7.

$$z = t * \left[\frac{n-1}{n}\right]^{1/2} \quad (7)$$

Considering a significance level of 95%, we have: i) *if z-vuong* is lower than –1.96, it implies that managers prioritized the use of the AEM model; ii) *if z-vuong* is greater than +1.96, it implies that managers prioritized the use of the REM model; iii) *if z-vuong* is between –1.96 and +1.96, it implies that managers did not prioritize a strategy, using both.

4 ANALYSIS OF RESULTS

4.1 Corporate Governance Index

IGC was developed for all companies listed in B3 , totaling 355 companies, in the period 2010-2019. Since reference forms were issued annually, the present study examined a total of 3068 reference forms. The mean value of the GC index found was 5.64 in a scale from 0 to 10. The item that presented the highest index refers to the companies' website having an investor relationship section containing its annual reports (9.60), including a section with standardized formatting in most cases, in order to facilitate the *stakeholders*' access. The item with the lowest score concerns companies that have their own committees to report the information in public form (1.04), few companies have specific committees for such purposes, those that have them adopt names such as "Disclosure Committee".

Table 2
Average values of IGC dimensions in relation to the market segment

Dimensions	New Market	Level 2	Level 1	Basic	Total sample
Total IGC	7.19	5.74	5.62	4.03	5.64
Disclosure	9.39	8.95	8.61	6.34	8.32
Council Composition	7.07	6.80	6.60	4.74	6.30
Ethics and Conflict of Interest	5.12	3.37	3.66	2.54	3.67
Shareholders' rights	5.47	3.87	3.63	2.51	3.33
Number of Companies	158	23	40	133	354
Number of Companies(in %)	44.63%	6.50%	11.30%	37.57%	100%

Source: Elaborated by the author.

The dimension that presented higher averages was *disclosure*, evidencing that the information disclosure, carried out through reports and through its websites, is a priority for

Brazilian publicly traded companies. On the other hand, the size with lower averages was that which covers shareholders' rights, demonstrating that Brazilian companies still maintain centralized control, limiting the voting power of their shareholders.

4.2 The Influence of Corporate Governance and the external control mechanisms in the results management

In order to respond to the objective of the present study, the influence of GC and external control mechanisms on the results management by AEM and REM was analyzed, as shown in Table 3. The verification tests of the regression assumptions showed the following results: the *tests* of *Chow, Breusch* and *Pagan* and *Hausman* indicated the panel data model with fixed effects as the most appropriate; the VIF test did not indicate multicollinearity; the *Wooldridge* test showed that there was no autocorrelation for the REM models, but it evidenced self-correlation in the AEM models; *Wald* tests identified heteroscedasticity for both management models (AEM and REM); Shapiro-Francia's test indicated that the models do not tend to normality. For this reason, the models were estimated with robust standard errors, with the objective of minimizing heteroscedasticity, self-correction and normality problems.

Table 3
Relation of Corporate Governance and the External Control mechanisms in Results Management

	AEM			**REM**	
Independent Variable	**EarnZero**	**LastYear**	**Dependent Variable**	**EarnZero**	**LastYear**
Suspicious Companies	0.0402304*	0.0605627	**Suspicious Companies**	-0.0410841	-0.980291**
IGC	0.0106737	0.0055423	**IGC**	-0.0854585**	-0.0776376**
PA	-0.0022195	-0.0021809	**PA**	-0.000011	0.0000363
II	-0.0059734	-0.0016947	**II**	-0.0162615	-0.206191*
Rating	-0.0025417	-0.0019406	**Rating**	0.0023125	0.0016175
ROA	2.061041**	2.082476**	**ROA**	0.4843191**	0.4358065**
Leverage	-0.0715985	-0.0628685	**Leverage**	0.4468199***	0.4320226***
Size	0.1185899	0.1297608*	**Size**	-0.122436	-0.1384445
_Constant	-0.9848701	-1.048286*	**_Constant**	1.351665	1.439135
Notes	144	144	**Notes**	144	144
Prod > F	0.000	0.000	**Prod > F**	0.000	0.000
R^2	0.6467	0.6494	**R^2**	0.5104	0.5216

***, **, * represent statistical significance p<0.01, p<0.05 and p<0.10, respectively.
[1] The regressions were estimated for the observations in the sample from 2010 to 2019.
[2] Acronyms: IGC: Corporate Governance Index; PA: Analysts' Predictions; II: Institutional Investors; Rating: Credit Rating; ROA: Return on Assets.
Source : Elaborated by the author.

There was no significant influence between GC and external control mechanisms in AEM. However, there was significant and negative influence between GC and institutional investors in the REM, and the analysts 'prediction and credit rating did not show significant results. The present study then followed with the analysis of each of the study variables individually.

IGC did not show a significant relation with AEM. When using the same index for measuring GC quality Kawai (2017) , it also did not find a significant relation between these variables, indicating that GC was not sufficient to inhibit AEM. However, IGC presented a significant and negative relation in REM, both to achieve a profit close to zero and also to maintain

the profit of the previous period. These results corroborate the findings of Garven (2015), Talbi, Ali Omri, Guesmi e Ftiti (2015), Susanto e Pradipta (2016) e Piosik e Genge (2020) when finding out that the higher the quality of corporate governance, the lower the use of REM by the company. Piosik and Genge (2020) and Susanto and Pradipta (2016) have included in their investigations the relation between governance and REM the presence of II, concluding that this type of investor helps to reduce REM. These results were also found in the present research.

The presence of II presented a significant and negative relation with REM, according to the studies of Sakaki, Jackson e Jory (2017), Gao, Shen, Li e Mao (2020) e Kałdoński, Jewartowski e Mizerka (2020). These studies highlight the monitoring carried out by this type of investor, emphasizing that they fulfill a role of external governance mechanisms.

On the other hand, the presence of II did not present a significant relation with AEM, corroborating with the studies by Coelho, Lopes, Bhimani and Trapp (2011), Holanda et al. (2013), Maria Junior (2013) e Correia, Amaral e Louvet (2017). These studies analyzed the Brazilian context, which may be an indication of greater difficulty detecting discretionary *accruals* by institutional investors when investing in Brazilian companies. According to Holanda et al. (2013), the II that operate in the Brazilian stock market are not informally efficient to the extent that they segregate companies that practice income management, thus accepting the low informational quality in accounting reports. Correia et al. (2017) showed that both GC and II were not instruments capable of reducing the levels of result management, concluding that these mechanisms do not find the ideal conditions to play an effective role in monitoring and controlling the agency's problems.

The analysts' predictions and the credit *rating* did not show significant results, suggesting that both analysts and *rating* agencies were not able to detect the results management by Brazilian companies, or indeed, that their ratings do not influence the opportunistic decisions of these companies.

4.3 The influence of Corporate Governance and external control mechanisms in *trade-off* among results management strategies

In order to meet the general objective of the research, this section aims to investigate the influence of GC and external control mechanisms on the *trade-off* among the results management strategies. The measurement of the *trade-off* was performed using the Vuong (1989)'s test, according to table 4. This test aims to analyze the residues of regressions, in order to verify which model has greater predictive power (Vuong, 1989; Dechow, 1994; Paulo, 2007; Dantas, 2012; Rodrigues, 2012).

Table 4
The influence of Corporate Governance and External Control Mechanisms in *trade-off* among the Results Management strategies(*Vuong's Test*)

Period	z-voung	Conclusion
2010	-1.36	AEM and REM were chosen equally
2011	-4.61	AEM was chosen the most
2012	-2.96	AEM was chosen the most
2013	-3.06	AEM was chosen the most
2014	-1.49	AEM and REM were chosen equally
2015	-1.09	AEM and REM were chosen equally
2016	0.26	AEM and REM were chosen equally
2017	-2.17	AEM was chosen the most
2018	-3.05	AEM was chosen the most
2019	-2.28	AEM was chosen the most
2010 to 2019	-1.98	AEM was chosen the most

[1] The test was carried out for the observations that make up the sample in the period 2010 to 2019.
Source : Elaborated by the author.

When analyzing the data together from 2010 to 2019, the *Vuong* test presented a significant result, pointing the AEM as the model with the greatest predictive power in relation to REM, this result evidences the influence of GC and external control mechanisms on *the trade-off* among results management strategies. The *identification* of *the trade-off* among the results management strategies corroborates with the studies that also analyzed this phenomenon in the companies listed in B3 (Cupertino et al., 2014; Mota, 2018; Dani, 2019; Souza, 2019; Marques & Ferreira, 2020; Silva et al., 2020).

This result can be explained by the behavior of the variables relation with the results management, as discussed in the previous section. Both variables that presented significant relations with the results management, namely IGC and II, presented it in the REM and with a negative relationship, that is, the higher the quality of governance and when in the presence of this type of investor the REM is decreased, fact which can explain the managers' choice by AEM. In addition, the companies may opt for AEM as this strategy does not impact cash flow, unlike when REM is used (Graham et al., 2005; Roychowdhury, 2006; Gunny, 2010; Cohen & Zarowin, 2010; Badertscher, 2011).

Companies can choose AEM because this result management model is performed after the end of the fiscal year (Roychowdhury, 2006; Zang, 2012; Cupertino, 2013), , which allows the management to deal with discretionary *accruals* based on the results generated through the REM applied during the period (Zang, 2012). This makes AEM attractive to managers, since when this type of management is carried out, the amount required to be manipulated to achieve the stated results goals is known (Gunny, 2010). Chen (2009) e Badertcher (2011) point out that although AEM is more detectable compared to REM, managers choose the first strategy because it is considered less expensive, that is, it consumes a smaller amount of resources compared to REM.

To enrich the analysis, the *trade-off* was investigated among the results management strategies year by year. The robustness tests for regressions year by year indicated the lack of multicollinearity, however, non-normality, heteroscedasticity and self-correlation problems were observed. Therefore, as well as in the regression models in panel data, here the models were also estimated with robust standard errors, in order to minimize these problems. The results show that in most periods there was the choice of managers for the AEM, but in the years 2010, 2014, 2015 and 2016, there was no predominance of the use of either the AEM or the REM.

Table 5
Relation of Corporate Governance and the External Control mechanisms in Results Management, year by year

Year	Dependent Variable	IGC	PA	II	Rating
2010	REM	**0.0229869***	0.7291759	0.0701425	0.0300572
2011	AEM	0.0176926	-0.0190448	-0.0197818	0.0002556
2012	AEM	-0.0031313	**-0.059296****	0.0947308	0.0044138
2013	AEM	-0.0017463	**-0.0435529***	-0.0136634	0.0009005
2014	AEM	0.0728214	-0.0123653	-0.0532522	-0.0117437
2015	AEM	-0.1264119	-0.0107891	-0.0107891	0.1343961
2016	AEM	-0.0109965	0.0007683	0.0413127	-0.001713
2017	AEM	0.008278	-0.0018683	0.0053848	0.004136
2018	AEM	-0.0103836	-0.0002129	-0.008727	-0.0021903
2019	AEM	0.0416604	-0.125193	0.0235652	-0.009757
2010	REM	**0.0229869***	0.7291759	0.0701425	0.0300572
2011	REM	0.716504	-0.2626901	-0.3181517	0.0127327
2012	REM	0.2794284	-0.0515949	-0.2724866	0.0225128
2013	REM	-0.0086306	-0.192357	-0.0552009	-0.0079395

2014	REM	-0.3188935	0.1036133	0.5254877	0.0375516
2015	REM	0.3101095	**-0.185788***	0.0275766	-0.0414685
2016	REM	0.0061224	-0.0021792	**-0.1472037***	0.008601
2017	REM	0.0041657	0.0041642	0.0151862	-0.0032875
2018	REM	0.0205615	**-0.0262088*****	**-0.1865492***	0.0113376
2019	REM	-0.4236595	**0.1788481****	0.6846201	**0.074932****

***, **, * represent statistical significance p<0.01, p<0.05 and p<0.10, respectively.
[1] The regressions were estimated for the observations in the sample from 2010 to 2019.
Source : Elaborated by the author.

The period 2010 shows a significant relation between IGC and REM, as shown in Table 5, pointing out that the higher the quality of governance, the greater the management by operational decisions in that year. Cupertino, Martinez e Costa Jr. (2014) point out that the adoption of IFRS (which was effectively implemented in 2010) altered the managers' behavior as to the choice among the results management strategies. The authors verified that after the implantation of IFRS, there was an increase in REM at the same time as there was a decrease in AEM. Although this result does not corroborate the results found in the present study for 2010, it helps to explain why managers did not choose AEM during this period, as occurred in most of the other periods analyzed.

In the period 2011 to 2013, the *Vuong*'s test pointed to AEM as the most widely used results management model for managers. However, in the periods 2012 and 2013, there was a significant and negative relation between AEM and analysts' predictions, corroborating the research that Yu (2008) e Martinez (2011) evidenced analysts as inhibitors of results management. These results may indicate that after two years when analysts were able to detect the AEM, managers chose to use both strategies in the following periods.

The periods from 2014 to 2016 were marked by the preference of both management strategies for results by managers, but in the period from 2015 the analysts' predictions, and in 2016 institutional investors had significant negative relationships with REM. These results may indicate that these control mechanisms began to detect the REM, leading managers to prefer to use the AEM in the following periods.

The 2017 to 2019 periods showed a preference for AEM by managers. The institutional investors in 2018, the credit rating in 2019, and the analyst's predictions in 2018 and 2019 were significantly and negatively related to REM, suggesting that these control mechanisms were effective in detecting REM, but this was not also verified AEM, assisting in explaining the AEM preference by managers.

5 FINAL CONSIDERATIONS

The objective of this study was to analyze the influence of GC and external control mechanisms on *the trade-off* between AEM and REM performance management strategies in Brazilian publicly-traded companies from 2010 to 2019.

The investigation of the influence of GC and external control mechanisms in AEM, carried out through Paulo's model (2007), did not present significant results, corroborating the national studies. On the other hand, the influence of GC and external control mechanisms on the EMN by means of the model of Roychowdhury (2006) presented significant and negative results for the governance index and for the presence of institutional investors. Studies that found similar results highlighted the role of institutional investors as an external governance mechanism.

The analysis of the influence of GC and external control mechanisms on *the trade-off* among the results management strategies performed using the Vuong test (1989) showed significant results. The results indicated that the study variables influence the managers to choose AEM. An explanation for this choice is due to the fact that, when the high quality of governance as well as the presence of institutional investors is used, the managers used less the EMN. In

addition, the literature shows that managers can use AEM more to the detriment of REM because: i) the former affects the cash flow less; ii) AEM is less costly than REM; and iii) AEM is performed after the end of the financial year, so managers know exactly how much they manage to achieve their goals.

In a complementary way, the *trade-off* was analyzed among the results management strategies year by year. The results indicated that after a few years with the managers using both results management strategies, the control mechanisms began to detect and inhibit REM, leading the managers to choose the use of AEM. Similarly, after a few years of managers opting for AEM, the control mechanisms began to detect and inhibit this type of management, leading managers to use both strategies.

As research limitations, it is noteworthy the methodology used to capture the variables of GC and external control mechanisms, since there are several ways to measure these variables, considering that the use of another method could deliver different results. Another limitation is the fact that research on results management uses the residue of regressions for management identification, and part of this residue can be generated by the omission of important variables in the models.

The present study brings contributions in investigating whether the GC and external control mechanisms, elements seen as support in reducing the information asymmetry between companies and investors, help in inhibiting AEM as well as EMN, bringing practical contributions to *stakeholders* and the capital market by analyzing how these variables help *trade-off* among results management strategies.

As a suggestion for future research, we propose the analysis of the variables of the present research, comprising elements not covered in this study. IGC can be analyzed by categories, seeking to capture what dimensions of the index (*disclosure*, council composition, ethics and conflicts of interest and shareholders' rights) relate to the results management, in addition to comparing it with other indices to find out which is most effective in capturing the results manipulation. In the case of analysts' prediction, include in the variables the biases and dispersion of predictions, as well as individual predictions vs. consensus of analysts' predictions. Variable II can be expanded to capture the differences that exist between this type of investors, using classifications such as Bushee (1997), which classifies them as temporary, dedicated, and almost indexed.

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