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Tone management of voluntary disclosures in Brazilian public companies' press releases

Gerenciamento de tons das divulgações voluntárias nos press releases das companhias abertas brasileiras

Gestión de tono de divulgaciones voluntarias en comunicados de prensa de las sociedades cotizadas en Brasil

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ABSTRACT

This study seeks to verify whether Brazilian public companies manipulate qualitative information through tone management. Forty-three companies were selected from Brazil's Ibovespa, Bolsa e Balcão (B3), with quarterly data from 2017 to 2018. The data regarding positive tonality were formatted using Loughran and McDonald (2011) word classification, taken from press releases voluntarily released by the companies and analyzed by the software Atlas.ti8. The index was regressed against the discretionary accruals obtained in two results management models. The results point to a negative and significant relationship between accounting management and positive tone of reporting, i.e. companies with higher positive tone manage less results. These findings present relevant information as they highlight the quality of the texts contained in the companies' reports.

Keywords: tone management; earnings management; voluntary disclosure; textual analysis; press releases.

RESUMO

Este artigo objetiva verificar se companhias abertas brasileiras manipulam informações qualitativas mediante gerenciamento de tons. Foram selecionadas 43 empresas pertencentes ao Ibovespa da Brasil, Bolsa e Balcão (B3), com dados trimestrais entre 2017 e 2018. Os dados referentes a tonalidade positiva foram formatados mediante classificação de palavras de Loughran e McDonald (2011), retiradas dos *press releases* divulgados voluntariamente pelas companhias e analisados pelo *software* Atlas.ti8. O índice foi regredido contra os *accruals* discricionários obtidos em dois modelos de gerenciamento de resultados. Os resultados apontam para relação negativa e significativa entre o gerenciamento contábil e a tonalidade positiva dos relatórios, ou seja, companhias com maior tom positivo gerenciam menos resultados. Estes achados apresentam informações relevantes por evidenciar a qualidade dos textos contidos nos relatórios das companhias.

Palavras-chave: gerenciamento de tons; gerenciamento de resultados; divulgação voluntária; análise textual; *press releases*.

RESUMEN

Este artículo tiene como objetivo verificar si las empresas públicas brasileñas manipulan información cualitativa a través de la gestión del tono. Se seleccionaron 43 empresas pertenecientes a Ibovespa da Brasil, Bolsa e Balcão (B3), con datos trimestrales entre 2017 y 2018. Los datos relacionados con el tono positivo fueron formateados por clasificación de palabras por Loughran y McDonald (2011), tomados de los comunicados de prensa publicados voluntariamente por las compañías y analizados por Software Atlas.ti8. El índice retrocedió contra las acumulaciones discrecionales obtenidas en dos modelos de gestión de ganancias. Los resultados apuntan a una relación negativa y significativa entre la gestión contable y el tono positivo de los informes, es decir, las empresas con un tono positivo más alto manejan menos resultados. Estos hallazgos presentan información relevante ya que destaca la calidad de los textos contenidos en los informes de las empresas.

Palabras clave: gestión de tonos; gestión de resultados; divulgación voluntaria; análisis textual; notas de prensa.

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1 CONTEXT

There is substantial literature in financial accounting that examines the informational content and relevance of the value of conventional quantitative factors, which are disclosed in the financial reports of the reporting entities through the use of economic tools and statistics that have become increasingly sophisticated over time (Feldman, Govindaraj & Livnat, 2010). Thus, the examination of these contents and figures reported by the accounting reports has the purpose of assisting the main users of the information in their decision making about economic events of an entity.

The quantitative information contained in financial reports alone only provides investors with an incomplete picture of the company's economic situation, inasmuch as the nature of the reports also reveals opportunities for analysis by users of the accounting information (Huang, Teoh & Zhang, 2014). Therefore, in order for users to have a complete view of an entity's economic and financial situation, in addition to quantitative accounting reports, it is important to analyze the non-financial information provided in these reports in order to improve the quality of the quantitative information provided.

Hales, Huang and Venkataraman (2011) comment that while traditional accounting research focuses on numerical financial information, there are efforts by researchers to explore more broadly the non-numerical information that accompanies financial statements.

Many ways of communication provide the user with information for his decision making. Telephone, radio, television and computers are means that provide messages that can persuade this user to make a decision. The tone of these messages may provide additional information or opportunistic information by attempting to persuade the individual positively or negatively (Kruglanski & Thompson, 1999).

Therefore, by disclosing qualitative information in companies' financial reports, managers may have opportunities to influence information in a subtle way by managing market participants' perceptions of the company's future performance. Therefore, it becomes relevant to study the quality of the information provided by companies not only of the numbers reported, but also of the words in those reports (Davis, Piger & Sedor, 2012).

For Loughran and McDonald (2011) a growing body of financial and accounting research uses textual analysis to examine the tone and sentiment in financial reports made available by companies, such as newspaper articles, press releases, information for investors, among other reports where companies are free to include convenient information.

Therefore, according to a growing number of studies analyzing the tone of textual reports released by entities, linguistic communication consists of a strong and potential source of information about the fundamental values of companies because, by quantifying language, researchers can examine and judge the impact of an unlimited variety of

elements contained in these reports, through the impressions and meanings of words (Tetlock, Saar-Tsechansky & Macskassy, 2008).

Petty e Caccioppo (1986) comment that information users' evaluations are based on the positive and negative affective signals associated with the object of analysis. Therefore, users' attitudes towards a given decision are associated with the positive or negative tone used in the object being analyzed. For Huang et al. (2014) it is relevant to investigate the tone of the qualitative text in reports released in the media, which can be very optimistic or pessimistic about quantitative performance disclosures, and it can be verified whether the managers who prepare these reports are opportunistic or not, about the tone of the information released.

Over time, there has been a significant increase in the information content contained in the reports called press releases, made available by companies around the world. The press release consists of informative reports made available to the press, which contains, among other information, the company's earnings releases (Davis et al., 2012).

The information disclosed by companies to the press in press releases is considered a voluntary form of disclosure by the companies (Huang et al., 2014). Voluntary disclosure concerns additional information, which depends on the criteria established by the company, on the cultural factor, on the relevant legislation, and on external pressures from consulting firms, financial analysts and capital markets (Popova, Georgakopoulos, Sotiropoulos & Vasileiou, 2013).

For Gray, Meek and Roberts (1995) the voluntary disclosure of accounting information is based on the principal-agent problem in the context of asymmetric information, while for Popova et al. (2013) the information voluntarily disclosed depends on the company's own interests.

It is worth noting that, as presented by Watts and Zimmerman (1986), according to the positive approach to accounting, accounting information can be presented from two perspectives: an opportunistic perspective and an informational perspective. The opportunistic perspective of accounting information includes situations where "[...] managers seek to mislead investors [...]" through the management of the accounting information disclosed; while the informational perspective "[...] refers to those where management discretion is a way for managers to disclose to investors their private expectations about the firm's future cash flows" (Paulo, 2007, p. 45). The company's managers provide information with greater informational content, minimizing the asymmetry of information existing between principal and agent (agency theory) (Paulo, 2007).

Therefore, as explained above, about the importance of the qualitative information made available in the company's financial reports, as well as the timeliness of information voluntarily disclosed as a tool that can present opportunistic or informational, this research has the following guiding question: Do Brazilian publicly traded

companies manage the tone of qualitative information in their press releases? From this perspective, this study aims to verify whether Brazilian publicly traded companies manipulate their qualitative information through tone management in their press releases by means of a relationship with the management of accounting results.

The investigation of tone management in the texts presented in financial reports aims to provide users with information on the quality of the texts reported in the financial reports, so it is relevant to verify the timeliness of the information made available on a voluntary basis in these means of information. This study aims to provide findings on textual analysis in voluntary reports, providing evidence for the literature on voluntary corporate disclosure in Brazil, through an approach of qualitative rather than quantitative information. Thus, the user will be able to observe if the text of the reports is in any way manipulated in order to distort the real economic and financial situation of the entity.

Thus, this study aims to contribute fundamentally to the users of accounting information by providing evidence on the level of quality that the text published in voluntary reports by Brazilian companies. Users external to the information generated internally by the accounting may observe through the results of this research whether the tone given to the companies' releases follows the level of discretion of companies that use opportunistic practices observed by the management of accounting results. The study also aims at contributing to the academia by comparing qualitative analysis models with quantitative analysis models from an empirical perspective, which may generate further discussions on the issue of quality of accounting information.

This study has four more sections in addition to this introduction. The next section addresses the theoretical framework on information asymmetry, voluntary disclosure, tone management, and theories that support this work. The second section presents the methodological aspects, through the research design, sample selection and data collection. The third section presents the results regarding the validation tests of the models and regression tests used. Finally, the fourth and last section presents the final considerations, limitations and suggestions for future research.

2 THEORETICAL BACKGROUND

2.1 Disclosure of Voluntary Information

Voluntary disclosure refers to all and any information that is not explicitly required by rules that regulate the publication of financial reports of the entities, thus not being mandatory, and has the objective of providing additional information to investors (Oliveira, Lopes & Cunha, 2008). According to Beyer, Cohen, Lys and Walther (2010, p. 304) the "voluntary disclosure models derive from the ideal disclosure decision for management when it has private information about the profitability or performance of its

company. Companies have incentives to disclose relevant voluntary information to investors.

[...] certain incentives are likely to extend to other stakeholders, such as officials, customers and regulatory agencies. Companies balance the benefits of increased disclosures against such costs, such as information gathering and processing costs, litigation costs, political costs, and competitive disadvantage costs. Voluntary disclosures are also affected by existing regulations. Financial reporting is influenced by a complex set of supply and demand forces (Gray et al., 1995, p. 48).

As communication of results in the press is voluntary, it is not subject to the explicit rules on disclosure, so management has ample freedom in the qualitative presentation of quantitative information (Huang et al., 2014, p. 1084). In addition, Huang et al. (2014, p. 1084) comment that "there is greater decision-making power over the content and format offered by voluntary disclosures than by mandatory disclosures".

Concluding, in Davis et al. (2012), their results suggest that managers use language as a voluntary disclosure mechanism to provide reliable information about the company's expected future performance.

2.2 The Language of Qualitative Company Information

A line of research related to the use of linguistic analysis has become present in recent years because of the computational use to explore how the tone of printed and spoken words in financial reports conveys additional information to the numbers reported in financial statements (Hales et al., 2011).

Loughran and McDonald (2011) comment that since the development of technology, when computers became more accessible, textual analysis has attracted more attention. The arrival of the Internet and the development of search engines have aroused new interest in the subject, generating more sophisticated techniques.

It is understood that quantitative analysis studies have contributed to the understanding of the structure and characteristics of the financial market; however, there is a perception that incorporating information transmitted only by quantitative factors may not be sufficient to explain users' decision making, as they are also influenced by the language used in the texts in these reports (Feldman et al., 2010).

Textual analysis is a subset of a broad literature on qualitative information. Literature on qualitative information is confronted with the difficult process of accurately converting qualitative information into reliable quantitative measures (Loughran & McDonald, 2011).

Loughran and McDonald (2011, p. 43) further comment on the existence of other labels for textual analysis, such as: "[...] content analysis, natural language processing, information retrieval or computational linguistics [...]", which describe text-based methods. Many different disciplines use textual analysis, including psychology,

anthropology, linguistics, political science, journalism and computer Science.

By quantifying the language, researchers can examine and judge the impact of an unlimited variety of events, in addition to analyzing the numbers reported in reports. Thus, analysis of the language used in reports allows researchers to identify common patterns in firm responses and market reactions to events (Tetlock et al., 2008).

Davis et al. (2012, p. 847) comment that the content of information contained in qualitative disclosures is consistent with the content of disclosures other than financial and accounting reports, which are available in other disclosure locations, such as management earnings forecasts, management discussion and analysis, and market analysts' reports. Therefore, qualitative information is expected to be in line with quantitative information, without distortions.

Language is the means by which companies communicate much of their past information and project their future performance (Hales et al., 2011). For Davis et al. (2012, p. 847) "[...] the disclosures made by managers in profit press releases are not limited to quantitative information", so it is understood that the language of the text in financial reports, i.e. the way the reports are written, is an important factor in the decision making of information users.

Confirming the previous statement, Feldman et al. (2010) state that market participants are not expected to communicate only through quantitative information, as companies and even the federal government provide qualitative information to investors through explanatory statements, disclosures, clarifications, etc., in different means of disclosure.

Press releases are an important source of publicity for companies. The language used in the dissemination of results through press releases provides a unifying structure, where the results are announced among other quantitative and qualitative disclosures (Davis et al., 2012).

Davis et al. (2012) comment that the information contained in the press releases should follow the best practice guidelines of the National Institute of Investor Relations and the Institute of Financial Executives, which recommend that managers present results that are balanced with the perspective of company performance. It is therefore noted that press releases on results constitute a reliable basis for research, and that it is thus possible to identify whether the language used in this disclosure tool is appropriate for the company's future expectations.

2.3 Results Management as a Measure of Profit Quality

Accounting accruals surveys aim to identify how items recognized on the accruals basis improve the ability of profit to reflect company performance. The accrual arises from the time difference between the economic effects of transactions and events, and the corresponding unrealized or previously realized cash flows. For example, if revenue is

recognized in a given period and is received only in future periods, then this difference would be the accounting profit component called accruals (Paulo, 2007).

The accruals anomaly was originally documented by Sloan (1996) and suggests that companies with high accruals in one period tend to have abnormally low stock returns in subsequent periods, while companies with low accruals in one period tend to have abnormally high stock returns in subsequent periods.

Dechow and Dichev (2002) state that the role of accruals is to adjust the company's result in a given period, because measuring the result only by cash flows does not recognize the total economic effect of the transaction or event. The purpose of adjusting to cash flows over time is to better measure the company's performance.

However, the literature on accounting accruals has pointed out that the positive approach to accounting has two perspectives: the opportunistic perspective and the informational perspective (Subramanyam, 1996). The informational perspective refers to situations where the managers of an entity offer more information to the market in order to provide additional information to assist users in their judgments and decisions about future cash flows (Watts & Zimmerman, 1990). The opportunistic perspective includes situations where "[...] managers choose accounting policies to maximize their own expected utilities related to a particular compensation relationship, debt contracts and political costs" (Paulo, 2007, p. 28). Through the opportunism of management in the face of accounting accruals, surveys on results management originate.

Paulo (2007) points out that there is a need to separate the accruals of the companies in order to analyze the management of results. The author segregates the accruals into: discretionary accruals, which are artificial and aim only to manipulate the accounting result; and non-discretionary accruals, which are considered inherent to the usual activities of companies.

Results management analysis generally focuses on management's use of discretionary accruals (Dechow, Sloan & Sweeney, 1995). Results management can be considered as the use of operating activities and discretionary accounting methods to adjust the numbers for a desired result (Giroux, 2004).

In empirical studies on management of accounting results "[...] a central issue is the estimation of the managed component (discretionary accruals) when outsiders observe only the sum of the managed and unmanaged accounting numbers (non-discretionary accruals)" (Kang & Sivaramakrishnan, 1995, p. 353). Thus, Dechow et al. (1995) state that discretionary accruals models should be measured by separating the total accruals from their non-discretionary accruals, thus evidencing the discretionary portion, which comprises the portion managed in an opportunistic manner.

The main focus of results management research is to detect if and when results management occurs, with

researchers using the most comprehensive measures of results management (accruals-based) and samples with companies where the motivation for management is strong (Healy & Wahlen, 1999).

The previously proposed models consider that discretionary accrual is a proxy for accounting results management. They present alternative approaches to solving the problem of poor specification of models that seek to break down accruals into expected (normal) and unexpected (abnormal) accruals (Paulo, 2007).

In short, it is understood that the discretion of accruals in a company can open up gaps for the management of results in an opportunistic manner. As accounting has currently gone through a process of establishing new accounting standards, these can be the scope of results management analysis.

For Healy and Wahlen (1999) the standards define the accounting language that management uses with the company's external users, and the reported financial reports must convey information from managers about the company's financial performance. Those issued by accounting "[...] should allow managers to exercise judgment in financial reporting," thus it is understood that the use of judgment by management creates opportunities for managing results, allowing managers to choose accounting methods that do not most accurately reflect events relating to their company (Healy & Wahlen, 1999, p. 366).

Therefore, it is understood that the quantitative information reported by the entities is susceptible to manipulation, as there are vested interests that permeate the decisions that can be taken by the managers of a company. Thus, the next subsection aims to address aspects related to qualitative information that is disclosed in reports of a non-binding nature by companies.

2.4 Tone Management of Disclosed Reports

Qualitative information issued by companies is an important part of users' decisions. Financial market participants are expected to process and analyze the qualitative information provided while making their decisions (Feldman et al., 2010).

The New York Stock Exchange (NYSE) requires that earnings releases to the market put the news in the "right perspective" and that managers avoid making overly optimistic forecasts. This requirement reflects the inherent flexibility of qualitative disclosures in general, but also highlights the importance of the use of language in disseminating results to the market and to regulators (Davis et al., 2012). Corroborating the NYSE's statement, the Brazilian Securities and Exchange Commission (CVM), through its Circular Letter, assigns that the disclosure of results be voluntary, and calls attention to the fact that the information reported in these releases is not biased, i.e., with some tone expressed in its text (CVM, 2017).

Press releases consist of a large proportion of events and company news that are sometimes more consistent,

timely and significant than the financial reports sent to regulators on a mandatory basis (Huang et al., 2014).

Davis et al. (2012, p. 845) comment that "managers generally report financial performance in comparative terms and therefore the language in managers' press releases is expected to communicate both positive (i.e. optimistic) and negative (i.e. pessimistic) feelings". For Huang et al. (2014) the tone of media reports can be very optimistic or pessimistic about quantitative performance disclosures. Thus, it is perceived that disclosures can be distorted by optimistic or pessimistic feelings that managers may attribute to the words.

Words are less objective than numbers, so doubts are raised regarding subjectivity in the use of language, which may unduly influence the behavior of decision makers in the market (Hales et al., 2011). Davis et al. (2012) state that positive and negative language have a substantial influence on how information is processed, perceived and understood.

In a neutral qualitative press release, the tone of the information varies according to the quantitative content of the release, with optimism in an increasing tone, according to the company's performance (Huang et al., 2014). However, for Davis et al. (2012), managers are expected to communicate non-neutral sentiments in their press releases.

Information users need to assess whether the non-financial information disclosed has favorable or unfavorable implications for contemporary and future returns (Feldman et al., 2010). Thus, market participants consider at some level that the language of managers is a reliable signal, despite the potential of managers to behave opportunistically when selecting the tone of disclosure in press releases (Davis et al., 2012).

Loughran and McDonalds (2011) comment that in previous surveys on tone management, the positive and negative words were counted to measure the tone of the text. A change in the tone of a text is understood as the optimism or pessimism of information incorporated in qualitative verbal revelations made by company managers (Feldman et al., 2010).

The positive and negative words developed for other disciplines misclassify words in a financial context (Loughran & McDonald, 2011). Hales et al. (2011, p. 225) comment that "[...] in financial contexts, vivid language can interact with investment positions to exacerbate oscillations in investor judgements, though not necessarily in the form implied by conventional wisdom". Thus, vivid language is understood to represent the positive tone assigned to a given text.

As explained by Davis et al. (2012), non-financial information disclosed by companies is expected to be reliable for market participants, providing additional information for their decision-making. However, as Hales et al. (2011) point out, the language of the texts is subjective and may unduly influence the behavior of market decision

makers. Therefore, given this ambiguity about the subject, the hypothesis that guides this research is presented as follows:

H1: The management of accounting results has a significant relationship with the positive tone of the earnings releases published by the Brazilian public companies listed on B3.

However, this study seeks to relate the management of accounting results, which represents a proxy of the manager's opportunistic perspective, to the positive tone of the company's voluntary financial reports, in order to identify whether the tone of the words in these financial reports really represent additional or manipulated information for the participants in the capital market.

3 METHODOLOGY

3.1 Sample Selection and Data Collection

The research uses qualitative methods combined with quantitative methods. From the textual analysis based on a list of positive words, carried out using a software that helps qualitative data analysis - Computer Aided Qualitative Data Analysis Software (CAQDAS), it was possible to collect qualitative data on the tone of the text of voluntary reports and quantify them, for subsequent application and use of quantitative methods of linear regression.

Data were initially obtained through the texts of the press releases that the companies carry out periodically.

These reports are called press releases and are made available by the companies on their institutional websites.

Table 1

Criteria for sample selection

Companies from 1st Quarter 2017 to 3rd Quarter 2018 listed in Ibovespa portfolio on 12/31/2018	62
(-) Companies belonging to the financial sector	(8)
(-) Holdings companies	(2)
(-) Companies without release results between one of the quarters analyzed	(9)
(=) Number of companies in the sample	43

Source: Research data.

Applying these criteria, the study sample comprises 43 companies with earnings releases between the 1st quarter of 2017 and the 3rd quarter of 2018. Eight companies belonging to the financial sector were excluded because they are not comparable with the other non-financial companies. Two holding companies were excluded, since they participate in the same economic group as another company in the sample. Finally, 9 firms were excluded because they did not have an earnings release published in one of the quarters analyzed, which could make it impossible to use regression with panel data. Thus, the study sample has 43 companies, representing 301 observations between the 1st quarter of 2017 and the 3rd quarter of 2018.

According to Circular Letter No. 01/2017 of the Brazilian Securities and Exchange Commission (CVM, 2017), companies may choose to disclose the "earnings release". Therefore, it is noted that this report made available to the market is voluntary for companies. The CVM also comments that the press release disclosure must occur after the disclosure of the annual or interim financial statements, which serve as a basis for its preparation. Finally, the CVM stresses the importance of preventing reported information from misleading the investor. Positive and negative information must be disclosed with the same prominence (CVM, 2017).

The survey sample includes Brazilian listed companies that disclose "earnings releases" in their financial reports. We chose to use companies listed on the Bovespa Index (Ibovespa), because it represents the most important indicator in the Brazilian capital market and because these companies may be more interested in providing voluntary information to the financial market.

Another reason for choosing companies that belong to the Ibovespa is that the textual analysis of the reports is time-consuming and analyzing all the companies on the stock exchange might not be feasible. In total, 301 press releases were analyzed for 43 companies in seven different quarters. This amount is considered relevant to provide satisfactory results.

Therefore, the criteria for the number of companies that were excluded from the survey sample are shown in Table 1, based on the companies listed in the Ibovespa portfolio on 12/31/2018:

The press releases were obtained from the homepage <http://www.cvm.gov.br>, in the area: Consultation - Companies - Economic and Financial Data - Press-release, for companies that disclose this information. After collecting the forms, it became necessary to obtain the information about the tone management of this voluntary report. To do this, this research used the classification of words with positive and negative tones according to the Loughran and McDonald (2011) study, which developed a list of words that apply specifically for financial reports and commercial purposes. The Loughran and McDonald (2011) word ranking was proposed through five word lists containing the following sentiments: positive words; negative words; words of uncertainty; litigious words; strong modal words; and weak modal words. The lists are available

on the homepage (<https://sraf.nd.edu/textual-analysis/resources/#LM%20Sentiment%20Word%20Lists>).

As this study intends to verify if there is tone management in the press releases issued by the companies, the list of positive words of Loughran and McDonald (2011) was used in order to verify if the managers overuse words that have a positive feeling, trying to influence the investor in his decision making.

The English word list was translated into Portuguese in two stages: initially the free translation was done by one of the authors of this research and later, the list was revised by a professional trained in the English language. This process was designed to give greater validity to the results obtained.

After selecting the positive words by Loughran and McDonald (2011), the textual analysis software ATLAS.ti8 was used to identify the number of words with positive tonality and their frequency in the companies' press releases. The use of similar software on qualitative report analysis was made in the studies of Davis et al. (2012), by the use of a software program called Diction, and the study of Tetlock et al. (2008), with the use of the General Inquirer software, both used for qualitative analysis of texts.

After the insertion of the positive word list, press releases were also inserted as documents to be analysed. Each report was analyzed separately according to the list of words, and a document was generated for each company, in each quarter, containing the total number of times the word occurs in the text, as well as the frequency of these words. The documents were transferred to a spreadsheet, making it possible to calculate the frequency index.

3.2 Accounting Results Management

Watts e Zimmerman (1986) comment that the managers of a company have their own interests that can influence the management's accounting choices, thus possibly giving rise to the management of accounting results by the company. Thus, discretionary accruals were used as a proxy for results management, because management uses it as a tool to maximize its interests.

Among the management models are the Jones Modified by Dechow et al. (1995) and the Jones Modified by Kothari, Leone and Wasley (2005), called Kothari Model. According to Black and Nakao (2017), in the Brazilian environment, the Jones Modified Model is the most indicated to detect the management of results through accruals.

For this purpose, two models were used to measure discretionary accruals: the Jones Model Modified by Dechow et al. (1995) and the Jones Model Modified by Kothari et al. (2005), as these are more recurrent in the Brazilian literature.

To find discretionary accruals according to the model of Dechow et al. (1995) it is necessary first to find the total accruals of the companies, (Eq. 1) and then to find the estimates of the parameters α , β_1 and β_2 and the

discretionary accruals (DA) through the Jones Modified model as follows in Equation 2:

$$TA_{it} = (\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - Dep_{it}) / A_{it-1} \quad \text{Equation (1)}$$

$$TA_{it} = \alpha \left(\frac{1}{A_{it-1}} \right) + \beta_1 (\Delta R_{it} - \Delta CR_{it}) + \beta_2 (PPE_{it}) + v_{it} \quad \text{Equation (2)}$$

At the second moment, the coefficients estimated in Equation 2 are combined with the parameters of the Modified Jones model to estimate the non-discretionary accruals, according to Equation 3:

$$NDA_{it} = \alpha \left(\frac{1}{A_{it-1}} \right) + \beta_1 (\Delta R_{it} - \Delta CR_{it}) + \beta_2 (PPE_{it}) \quad \text{Equation (3)}$$

Finally, the result of the non-discretionary accruals is extracted from the total accruals of Equation 2, thus resulting in the discretionary accruals generated by the Jones Modified model, according to Equation 4:

$$DA_{it} = TA_{it} - \alpha \left(\frac{1}{A_{it-1}} \right) - \beta_1 (\Delta R_{it} - \Delta CR_{it}) - \beta_2 (PPE_{it}) \quad \text{Equation (4)}$$

To find the discretionary accruals by the Jones model modified by Kothari et al. (2005), it is necessary to add the Return on Assets (ROA) to the regression of the total accruals of the firm (Equation 2). Thus, equation 5 represents the calculation of the total accruals by Kothari et al. (2005):

$$TA_{it} = \alpha \left(\frac{1}{A_{it-1}} \right) + \beta_1 (\Delta R_{it} - \Delta CR_{it}) + \beta_2 (PPE_{it}) + \beta_3 ROA_{it} + v_{it} \quad \text{Equation (5)}$$

Where:

TA_{it} = Total Accruals for company i in period t, weighted by total assets at the end of period t-1;

NDA_{it} = Non-discretionary accruals of company i in period t;

DA_{it} = Company i's discretionary accruals in period t;

ΔCA_{it} = Variation in company i's current assets in period t;

ΔCL_{it} = Variation in current liabilities of company i in period t;

$\Delta Cash_{it}$ = Variation in cash and cash equivalent of company i in period t;

ΔSTD_{it} = Variation of debt in company i's current liabilities in period t;

Dep_{it} = Depreciation and amortization expense of company i in period t;

ΔR_{it} = Variation in net revenues of firm i in period t-1 to period t, weighted by total assets at the end of period t-1;

ΔCR_{it} = Variation in company i's receivables (customers) in period t-1 to period t, weighted by total assets at the end of period t-1;

PEE_{it} = Balances of the fixed asset and deferred asset accounts of company i at the end of period t, weighted by total assets at the end of period t-1;

ROA_{it} : Return on Company Assets i in period t;

A_{it-1} = Total company assets at the end of period t-1;

v_{it} = Error of the regression (residual) representing the discretionary part of accruals; and

α , β_1 , β_2 e β_3 = Estimated coefficients in the regressions of Equation 1 and Equation 5.

3.3 Definition of Regression Model Variables

As Feldman et al. (2010) commented, there is a difficulty in studying the role and impact of qualitative communications in financial markets, and in finding an objective quantitative measure of the information that is being transmitted qualitatively.

The study used as main independent variable the tone of positive disclosure in the financial reports voluntarily made available by companies through press releases. The variable was measured according to Davis et al. (2012), through (net) measurement of the language contained in the earnings press releases, from the total number of words characterized as positive (optimistic) in the report, divided by the total number of words, according to linguistic theory.

The percentage obtained was considered as the independent variable to be analyzed, because it refers to the percentage of tone management in that report, i.e., the excess use of positive words disclosed. The variable will be called Positive Tone Disclosure (PTD).

As the study aims to identify whether company managers somehow manage the tones of words in press releases, the discretionary accruals by Dechow et al. (1995) and Kothari et al. (2005) were used as the proxy for managing company results in two different models.

If companies do not manipulate the qualitative information contained in the earnings releases, it is expected that there will be a negative and significant relationship between the disclosure with a positive tone and the management of results, because the quantity of positive words in the report matches the reality expected by the company, which is in line with the expectations of Davis et al. (2012), where the optimistic language in the press releases represents an informational perspective rather than an opportunistic one.

Other variables were used to control the disclosure tone, such as: Size (TAM), Degree of Debt (END), Return on Assets (ROA) and Cash Flow from Operations (CFO). As explained above, the regression models with panel data

used in this study are presented as follows:

$$|DA| Dechow_{i,t} = \beta_0 + \beta_1 DTP_{i,t} + \beta_2 TAM_{i,t} + \beta_3 END_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CFO_{i,t} + \mu_{i,t} \quad \text{Equation (6)}$$

$$|DA| Kothari_{i,t} = \beta_0 + \beta_1 DTP_{i,t} + \beta_2 TAM_{i,t} + \beta_3 END_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CFO_{i,t} + \mu_{i,t} \quad \text{Equation (7)}$$

Where:

$|DA| Dechow_{i,t}$ and $|DA| Kothari_{i,t}$ = Module of discretionary accruals of firm i in period t, by Jones Modified by Dechow et al. (1995) and Kothari et al. (2005);

DTP_{it} = percentage of tone management in company i report in period t;

TAM_{it} , END_{it} , ROA_{it} , and CFO_{it} = Represent the control variables represented by the size, indebtedness, return on assets and operating cash flow of company i in period t; and μ_{it} = residue from company i regression in period t.

The regression with panel data was tested using Gretl statistical software. Seven periods from the 1st quarter of 2017 to the 3rd quarter of 2018 were used for the generation of results.

4 ANALYSIS AND DISCUSSION OF THE RESULTS

4.1 Panel Diagnostic Tests and Descriptive Analysis

This section presents results regarding panel diagnostic tests, which aim to provide evidence on which regression model with panel data is most appropriate for the selected sample of companies. Thus, the results present evidence on the respective regression models with panel data: pooled MQO regression, fixed effects panel regression, and random effects panel regression.

The Chow test aims to identify which of the two regression models (pooled MQO regression or fixed-effect panel regression) is most appropriate. The Chow test for both models showed the respective results: from $0.735106/(301 - 48) = 0.00290556$, $F(42, 253) = 8.14295$ with p-value $3.99898e-028$ (model by Dechow et al. (1995)) and $0.18752/(301 - 48) = 0.000741186$, $F(42, 253) = 1.70796$ with p-value 0.00678932 (model of Kothari et al. (2005)). Both results show that a low p-value goes against the null hypothesis that the grouped MQO model (pooled) is adequate, validating the alternative hypothesis of the existence of fixed effects. Thus, between the grouped MQO regression model and the fixed effects panel model, the fixed effects model is more appropriate.

The Breusch-Pagan test aims to identify which of the two regression models (pooled MQO regression and random panel regression) is best. The Breusch-Pagan test for the models showed the following results: $LM = 125.835$ with p-value = $\text{prob}(\text{chi-square}(1) > 125.835) = 3.34175e-$

029 (Dechow et al. (1995) model) and $LM = 3.12421$ with $p\text{-value} = \text{prob}(\text{chi-square}(1) > 3.12421) = 0.0771375$ (Kothari et al. (2005) model). Both results show that a low $p\text{-value}$ goes against the null hypothesis that the grouped MQO model (pooled) is adequate, validating the alternative hypothesis of random effects. Thus, the test points out that between the pooled MQO and the panel with random effects the random effects model best represents the data.

Finally, Hausman's test provides evidence on which fixed or random effects model best represents regression data. The results indicated by the test for both models were: $H = 42.3315$ with $p\text{-value} = \text{prob}(\text{chi-square}(5) > 42.3315) = 5.04715e-008$ (model by Dechow et al. (1995)) and $H = 9.77274$ with $p\text{-value} = \text{prob}(\text{chi-square}(5) > 9.77274) = 0.0819366$ (model by Kothari et al. (2005)). In both results, a low $p\text{-value}$ was obtained, thus contradicting the null hypothesis that the random effects model is consistent, validating the alternative hypothesis of the existence of the fixed effects model. Therefore, the regression model that best explains these data is the Fixed Effects Panel.

About the descriptive analysis of the variables, Table 2 shows information referring to Mean, Median, Standard Deviation (S.D.), Minimum (Min) and Maximum (Max).

Table 2

Descriptive Statistics, using the observations 1:1 - 43:7.

Variable	Average	Median	S.D.	Min	Max
DA <i>Dechow</i>	0,0796	0,0580	0,0799	0,00010	0,665
DA <i>Kothari</i>	0,0298	0,0228	0,0292	4,00e-5	0,193
DTP	0,00896	0,00867	0,00374	0,00139	0,0213
TAM	7,38	7,42	0,524	6,48	8,94
END	35,5	33,1	17,9	1,20	79,9
ROA	4,86	4,47	3,43	0,00	15,5
CFO	0,0782	0,0613	0,0638	0,00115	0,395

Source: Research Results.

Legend: This table reports the results referring to the descriptive analysis of the dependent and independent variables of two regression models presented in the next subsections.

Note that in general, the variables have little variability, except the variable END, which has a high standard deviation in relation to the other variables. The values referring to Mean, Median, Standard Deviation, Minimum and Maximum of the other variables are equivalent, with values relatively close and little dispersed. A choice was made not to exclude any firms since the size of the sample was already small.

4.2 Classic Linear Regression Model Assumptions

The tests in this section are intended to represent the robustness in the estimation of the two models tested in this study. To this end, tests were performed to identify the presence of heteroscedasticity and normality of residuals, as well as the presence of multicollinearity in the independent variables of the study.

In both models, through White's test for heteroscedasticity, the following results were obtained: $LM = 30.8203$, with $p\text{-value} = P(\text{Chi-square}(20) > 30.8203) = 0.057608$ (model by Dechow et al. (1995)) and $LM = 35.4242$, with $p\text{-value} = P(\text{Chi-square}(20) > 35.4242) = 0.079581$ (model by Kothari et al. (2005)). Note that in both results the null hypothesis of errors without heteroscedasticity ($p\text{-value} > 0.05$) is not rejected, so it is not necessary to correct the errors using White's matrix.

The results obtained for the normality test of residuals are as follows: $\text{Chi-square}(2) = 236.513$, with $p\text{-value} = 4.38459e-052$ (model of Dechow et al. (1995)) and $\text{Chi-square}(2) = 196.291$, with $p\text{-value} = 2.37672e-043$ (model of Kothari et al. (2005)). In both results the null hypothesis (the error has Normal distribution) is rejected ($p\text{-value} > 0.05$), however, given the number of observations of the models ($N = 301$), we can assume that the errors are normally distributed.

Finally, tests related to multicollinearity were performed by means of Variance Inflation Factors (VIF). In this test, values above 10.0 may indicate the problem of multicollinearity. The results of the test for the model of Dechow et al. (1995) were the following: $DTP = 1.005$, $TAM = 1.154$, $END = 1.130$, $ROA = 1.576$ and $CFO = 1.284$. For the model of Kothari et al. (2005) the results were as follows: $DTP = 1.005$, $TAM = 1.154$, $END = 1.130$, $ROA = 1.576$ and $CFO = 1.284$. Note that for both models the independent variables have $FEV < 10.0$, thus indicating that the variables do not suffer from the multicollinearity problem.

Therefore, given the results presented above, we conclude that the regression models of Dechow et al. (1995) and Kothari et al. (2005) present robust results regarding the tests of accounting results management and positive tonality in the reports released. The next subsection presents the results of both models and their interactions.

4.3 Results of Regression Models with Fixed-Effect Panel Data

According to the results presented above, the results have statistical validation and will be presented using panel data with fixed effects. As the article aims to verify whether companies manage the tone of their press releases, this section aims to present the results regarding the relationship between the management of accounting results (proxy from the opportunistic perspective of management) and the tone of positive disclosure perceived in these reports.

The results are presented for two distinct results management models, the most indicated by Black and Nakao (2017) in their study, according to the characteristics of Brazilian companies. Therefore, Table 3 summarizes the results for the two regression models in a panel, one for each distinct management model, in order to identify whether the positive tonality is related to management.

The results for the first model were obtained through analysis of the discretionary accruals generated by the Jones model Modified by Dechow et al. (1995). The results of this model show that there is a negative and significant

relationship at the level of 1% between the management of accounting results (obtained through a regression model) and the level of positive tonality used in the press releases issued by the Brazilian public companies. This result does not reject the H1 of this survey, which expects results management to be related to the positive tone of the companies' releases.

Table 3

Regression results - dependent variable: discretionary accrual (DA) measured by Dechow et al. (1995) and Kothari et al. (2005).

Variables	Model 1	Model 2
	Dechow et al. (1995)	Kothari et al. (2005)
Constant	1,99704 (2,828)***	-0,217263 (-0,6091)
DTP	-6,63794 (-3,707)***	-1,57138 (-1,737)*
TAM	-0,250612 (-2,568)**	0,0303747 (0,6163)
END	0,000636432 (0,6096)	0,000895723 (1,699)*
ROA	-0,00149890 (-0,6780)	-0,000433304 (-0,3880)
CFO	-0,315128 (-4,113)***	0,0939772 (2,429)**
R ²	0,615887	0,266516
F Tet	8,631088	1,955937
P-value(F)	0,000000	0,000559

Source: Research Results.

Legend: This table reports results for two results management models. Values outside the brackets represent the regression coefficients, values within the brackets represent the t-ratio and ***, ** and * correspond to the statistical significance in the levels of 1%, 5% and 10% respectively.

Similarly, the results of the second model, through the analysis of the discretionary accruals generated by the Jones model Modified by Kothari et al. (2005), show that the level of the positive tone in the press releases has a negative and significant relationship at the level of 10% with the management of accounting results. This result also corroborates with the H1 of this research, through a negative relationship between the variables of interest.

Therefore, the results obtained in this analysis represent that the text of the financial reports published by the Brazilian publicly traded companies presents an informational perspective, since companies that have a low level of management of accounting results, which denotes an opportunistic attitude of management, are the companies that have the best levels of positive tone in their press releases.

Thus, it is perceived that the company, when publishing the press release of results with a positive level in the tone of its words, it does not intend to provide manipulated information to the capital market, but rather, provides information that represents the real situation of the company, i.e., minimize the information asymmetry existing between the principal and the agent in an agency contract, as already pointed out by Paulo (2007).

In relation to the control variables, the constant regression models provide evidence that: the size of companies is negatively related to discretionary accruals,

i.e., larger companies tend to manage less results; indebtedness is positively related to discretionary accruals, therefore it is noted that more indebted companies tend to manage their accounting results more; and operating cash flow is inconclusive, since in the first model it was negatively related to accruals, while in the second model it is positively related to discretionary accruals.

Therefore, in general, the results related to the variable of interest in this study are in accordance with Davis et al. (2012), who expect that qualitative information, disclosed in reports on a voluntary basis, will provide reliable information for capital market participants. These findings are in accordance with Huang et al. (2014), who indicate that the information reported in companies' press releases has consistent, timely and meaningful information compared to the financial reports that are required to be sent to regulators.

Therefore, users of financial information can use these non-financial reports as a proxy for information content, because companies that express good performance through the texts written in these reports are the companies that least manage the accounting results reported in the mandatory reports. Thus, according to Feldman et al. (2010), users, when evaluating the textual information disclosed in these reports, identify favorable implications for their decision making, by significantly reducing the information asymmetry existing between the parties.

5 CONCLUDING REMARKS

The article aimed at verifying whether the Brazilian publicly traded companies belonging to the B3 Ibovespa index that issue press releases manipulate their qualitative information through tone management in their earnings releases.

To achieve that objective, 43 non-financial companies belonging to the Ibovespa were selected, companies with quarterly information from the first quarter of 2017 to the third quarter of 2018. Thus, in order to achieve the proposed objective, data regarding the management of accounting results were collected by two models: Jones Modified by Dechow et al. (1995) and Jones Modified by Kothari et al. (2005). The results of each model's discretionary accruals were tested with the level of positive tone used in the companies' quarterly press releases.

The calculation of the positive tone of the non-financial information in these reports was done according to Davis et al. The variable was measured from the total number of words characterized as positive (optimistic) in the report, divided by the total number of words, according to linguistic theory. The positive words were obtained by classifying words with positive tonality as proposed by the Loughran and McDonald (2011) study, which has a total of 391 words surveyed in all these reports. The total of positive words divided by the total of words in these releases provide

an indicator that represents the positive tonality of the report.

The results obtained through these analyses show that the companies with the highest positive tone in their reports are the companies that manage their results the least, i.e. companies that provide informational content rather than opportunistic content, thus providing capital market participants with relevant information for their decision making.

Thus, the analysis of these findings provides evidence of the informational character that the text of the reports has, evidencing that accounting information users should pay attention not only to the financial data evidenced in accounting statements and financial reports by means of quantitative data, but also to the non-financial information of qualitative character, which is as important as the financial information when it comes to offering information to the capital market.

Therefore, it becomes relevant to expose that the way companies express themselves in their voluntary disclosures, more specifically in the way these companies express their qualitative information, is a fundamental point for any user to evaluate the economic and financial situation of the entity, thus aiming to make decisions reducing uncertainty to the maximum.

The sample size represents a limitation of the study, since the study used only the companies that were most traded on the Brazilian stock exchange. Another limitation comprises the regression models used; more current models may be used. Therefore, as a suggestion for future research, the other companies in the stock exchange may be analyzed, expanding the research sample. Another research suggestion is to analyze a longer period, trying to understand if these results show divergences in previous years. Finally, it becomes relevant to test other models of management of accounting results.

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