

ARTICLES

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VOLUNTARY DISCLOSURE: EMPIRICAL ANALYSIS OF THE TONE USED IN CONFERENCE CALLS

Evidenciação voluntária: Análise empírica sobre o tom usado em audioconferências

Divulgación voluntaria: Análisis empírico del tono usado en conferencias telefónicas

ABSTRACT

The study aims to perform the following two analyses for understanding the effect of a voluntary disclosure: 1) whether a company's performance is related to its voluntary disclosure in a conference call; and 2) whether the voluntary information is related to the future results of Brazilian companies. The tone of Brazilian firms with American Depositary Receipts (ADRs) (American Depositary Receipts) in the US market was measured between 2002 and 2016. The tone of managers was calculated in English using the original dictionary proposed by Loughran and McDonald (2011), as well as an adapted version in Portuguese. The findings suggest a positive relation between the tone used by managers during conference call and firms' current and future performance.

KEYWORDS | Voluntary disclosure, conference call, tone, performance, content analysis.

RESUMO

O objetivo desta pesquisa é realizar duas análises relacionadas à compreensão dos efeitos de uma evidenciação voluntária. Primeiro, analisar se o desempenho da empresa apresenta relação com o tom verbal da divulgação voluntária de uma audioconferência. Segundo, analisar se o tom verbal de divulgações voluntárias está relacionado com os resultados de empresas brasileiras no tempo futuro. Para aferição do tom verbal, foi realizada uma análise de conteúdo computadorizada sobre os arquivos transcritos referentes às audioconferências de empresas brasileiras com American Depositary Receipts (ADRs) no mercado americano entre os anos de 2002 e 2016. Para o cálculo do tom do gestor, foi utilizado o dicionário de Loughran e McDonald (2011), em inglês e uma versão adaptada para português. As evidências encontradas sugerem uma relação positiva entre o tom verbal utilizado pelos gestores durante as ligações de audioconferência e o desempenho atual e futuro da empresa.

PALAVRAS-CHAVE | Evidenciação voluntária, audioconferência, tom verbal, desempenho, análise de conteúdo.

RESUMEN

El objetivo de esta investigación es realizar dos análisis relacionados con la comprensión de los efectos de una divulgación voluntaria. Primero, analizar si el desempeño de la empresa presenta relación con el tono verbal de la divulgación voluntaria de una conferencia telefónica. Segundo, analizar si el tono verbal de divulgaciones voluntarias está relacionado con los resultados de empresas brasileñas en el futuro. Para la medición del tono verbal se realizó un análisis de contenido computarizado sobre los archivos transcritos referentes a las conferencias telefónicas de empresas brasileñas con American Depositary Receipts (ADR) en el mercado americano entre los años 2002 y 2016. Para el cálculo del tono del gestor se utilizó el diccionario de Loughran & McDonald (2011), en inglés y una versión adaptada al portugués. Las evidencias encontradas sugieren una relación positiva entre el tono verbal utilizado por los gestores durante las llamadas de conferencia y el desempeño actual y futuro de la empresa.

PALABRAS CLAVE | Divulgación voluntaria, conferencias telefónicas, tono, desempeño, análisis de contenidos.

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INTRODUCTION

The objective of this research is to verify whether the verbal tone used by managers in conference calls relates to company performance. Specifically, we analyze (i) whether the verbal tone of the conference call is a consequence of the company's current performance and (ii) whether the verbal tone of the conference call offers information about the company's future earnings. In addition, this research seeks to validate, in Portuguese, the dictionary of Loughran and McDonald (2011) that considers verbal tone in English.

Research regarding the verbal tone of results announcements, market announcements, and conference calls, conducted through computerized content analysis, has been gaining notoriety in the Accounting and Finance field (Davis, Piger, & Sedor, 2012; Henry, 2008; Loughran & McDonald, 2016; Tetlock, 2007; Tetlock, Saar-Tsechansky, & Macskassy, 2008). Specifically, regarding conference calls, we highlight advances in the understanding of verbal tone according to the variation of firm results compared with the forecasts of analysts (Frankel, Mayew, & Sun, 2010) and the association with the volatility of abnormal stock returns (Price, Doran, Peterson, & Bliss, 2012).

Despite recent research progress related to this, there have been no studies that, combined with the tools and techniques used here, seek to understand the association between the tone used for the information released in the conference calls and the quarterly earnings in the current and future periods in the Brazilian capital market. According to Moreira, Ramos, Kozak-Rogo, and Rogo (2016), there has been an increase in the annual number of conference calls since 2008 in Brazil, reinforcing the need for a better understanding of this information, which is complementary to mandatory data and may indicate some direction of future results (Davis et al., 2012).

This research is motivated by factors such as (i) the current low level of understanding about voluntary disclosure and its relationship between managers and investors (Price et al., 2012); (ii) the need indicated by the literature to broaden disclosure studies (Dye, 2001); and (iii) the proposal to increase the debate on voluntary disclosure and its impact on the Brazilian stock market. The relationship analyzed here, between verbal tone and performance variables, as yet, has not been studied in the Brazilian market, despite the importance for both academia and market participants.

To measure the variable related to the tone used in disclosure, a computerized content analysis is performed on conference call transcripts of companies listed on the B3 for 2002 to 2016. The original dictionary of Loughran and McDonald (2011)

is used, as well as an adapted version in Portuguese, to define the conference call tone. To measure the company's performance, return on assets (ROA) is used as well as other measures for sensitivity such as return on equity and earnings per share.

The findings suggest that the better the company's performance in the current quarter, the more optimistic the tone used by the manager during the conference call. Regarding future performance, a negative (pessimistic) tone in the current conference call indicates a less persistent performance in the following quarter. These results are found in analyses of conference call transcripts in both English and Portuguese.

This study contributes to the literature in at least three aspects. First, it can be considered pioneering research in the Brazilian accounting literature, associating the sentiment analysis (verbal tone) with a type of voluntary disclosure (conference call), demonstrating the manager's behavior at the time to announce the performance of the company to the market. Further, the research introduces an analysis tool that, unlike in previous domestic study, such as in Souza (2017), enables the automated extraction and categorization of specific data about the informational content present in corporate disclosure. Finally, the study validates the use of the dictionary by Loughran and McDonald (2011) of positive and negative words (verbal tone) in the context of the Portuguese language.

THEORETICAL FRAMEWORK

Tone analysis

Verbal tone, according to the accounting literature, can be conceptualized as the feelings expressed in communications based on the use of words that have positive and/or negative characteristics (Henry, 2008). Several studies have analyzed the relationship between verbal tone and company earnings announcements.

Henry (2008) analyzes press releases and verifies that the proportion of positive or negative words affects investors' initial reactions to company earnings announcements. Henry (2008) also develops a dictionary, or list of specific words, in the Finance and Accounting field, which has subsequently been used by other researchers in the field such as Davis, Ge, Matsumoto, and Zhang (2015) and Price et al. (2012).

Davis et al. (2012) verify the relationship between verbal tone (positive/negative) used in press releases and future firm performance and market reaction, analyzing a sample of approximately 24,000 reports. In their research, they use the DICTION 5.0 dictionary as the basis for classifying words as

positive or negative. The evidence suggests that the use of positive or optimistic verbal tone in press releases is positively related to the firm's ROA.

Tetlock et al. (2008) analyze the tone of the language in specific reports about individual companies covered in the *Wall Street Journal* and *Dow Jones News Service*. They find a possible association with future accounting results as well as with the stock returns of these companies. Moreover, their evidence indicates that (i) the fraction of negative words in specific reports about each company is associated with a prediction of lower earnings; (ii) stock prices absorb the information in the negative words, but with a brief delay; and (iii) negative words in specific reports about individual valuation aspects of a company are associated with future accounting results such as earnings and returns.

Until 2011, few studies had been conducted using specific financial and accounting contextual dictionaries. To address this methodological gap, Loughran and McDonald (2011) have developed a new database of terms, or a new dictionary, which includes a list of words related to the business field. Using a sample of annual "10K" reports from 1994 to 2008, they revealed that there is a significant relationship between their word list and market reactions around the date of issue of the mentioned report, such as turnover, unexpected gains, and volatility in stock returns.

Conference calls

In general, the agenda for financial conference calls has two sections that support the interaction between internal and external agents (Frankel et al., 2010; Healy & Palepu, 2001; Moreira et al., 2016; Price et al., 2012). In the first section, the presentation, the firm's manager discusses the quarterly earnings results and his/her perspective about the performance of the company in the coming quarters. In the second part, there is a question and answer (Q&A) session with external agents—participants such as analysts, investors, and guests—who have the opportunity to question the manager directly in real time about the information presented in the company's quarterly performance.

Moreira et al. (2016) verify the relationship between the extent of the informational content in the conference calls—both in the presentation and in the Q&A sessions—and the type of news disclosed by the firms (profit or loss) as well as earnings persistence over time. Their findings suggest that managers disclose more information when the company faces losses, suggesting more questioning by conference participants in this scenario.

Matsumoto, Pronk, and Roelofsens (2011), using a sample of more than 10,000 conference calls, analyze their informational content, separating the presentation and Q&A sections. Their aim was to verify whether conference calls were a source of incremental information to press releases. The results suggest that both sections are incrementally informative, but the Q&A session has more information content due to the engagement of external analysts. Their findings also indicate that managers share more information in times of bad results or low firm performance.

Joint approaches in the literature: Conference call and tone analysis

Price et al. (2012) analyze the tone of 2,800 conference calls over 16 quarters, considering different types of databases for content analysis of the transcripts—or word categorization—using the *Harvard IV-4 psychosocial dictionary*. Price et al. (2012) find that the positive tone both in the presentation section of the conference calls and in the Q&A session has a positive association with stock returns.

Frankel et al. (2010) evaluate the effect of small variations (cents) between the analysts' forecasts and company earnings. The results suggest that the duration of the conference call increases significantly when the results fall below expectations by a penny and that the propensity for earnings forecasts falls when the firm fails to meet analysts' predictions.

Davis et al. (2015) analyze whether the individual characteristics of each manager carry elements that indicate the nature of the verbal tone in the conference calls led by these managers. Their methodology uses current and future economic information as well as incentive variables for managers to build a model. The results indicate that the tone of the conference call contains idiosyncratic, manager-specific tendencies, and not only economic and strategic characteristics.

In a study conducted in Brazil, Souza (2017) documents 47 Brazilian public companies from 2010 to 2014. For his data collection, he performs content analysis by manually categorizing the sentences from 837 conference calls (the presentation section) as optimist or pessimist and verifies the relationship of each with earnings before interest, depreciation and amortization results in the current and future periods. He finds a significant relationship between a positive verbal tone and a positive performance in current and future periods.

Our research differs from that of Souza (2017) since it uses techniques and tools such as automated word classification software based on dictionaries previously validated by the

literature for categorization and analysis of verbal tone. This approach allows the large-scale analysis of textual questions and it is not influenced by the discretionary interpretations of the researcher. In addition, this research contributes to the national literature by validating, for the Portuguese language, the Loughran and McDonald dictionary (2011), widely used for verbal tone analysis in English.

Based on the examination conducted and the findings from previous international research, our first hypothesis focuses on the relationship between the verbal tone in conference calls and firm performance. Therefore, the hypothesis is as follows:

H1: The verbal tone of the manager leading the conference call is influenced by the firm's current performance.

The second part of our study is based on the belief that the informational content in the conference call, measured through verbal tone, may offer complementary information associated with the future performance of the firm. Therefore, this may indicate the direction of future results, as indicated in the earnings press release study by Davis et al. (2012) and other studies that have examined conference calls such as Davis et al. (2015) and Price et al. (2012).

Because there are studies that present results on the relationship between the verbal tone of corporate disclosures and future earnings (Davis et al., 2015, 2012), it is expected that in the Brazilian market, the results will be similar, since the conference call also represents information disclosure used by the market. Therefore, our second hypothesis addresses the potential association between the tone in the conference calls in the current period and the firm's future performance. Accordingly, the second hypothesis is:

H2: The firm's future performance is associated with the verbal tone of the manager in the conference call.

METHODOLOGY

The objectives of this research are to verify: (i) if the verbal tone of the managers in the conference call is determined by the firm's quarterly performance; and (ii) if the verbal tone of the managers in the conference call is related to the future performance of the company.

Verbal Tone Determination

A computerized content analysis method is used to determine the tone from quarterly earnings conference calls and the subsequent

analysis of the companies' performance. This method is widely used in research in the verbal tone field such as by Davis et al. (2012), Frankel et al. (2010), Henry (2008), and Price et al. (2012). Examining the content of the transcripts of the conference calls, our analysis verifies the existence of words derived from a specific database of terms (previously classified as positive or negative). The net result—more positive or negative words—reflects the verbal tone of each analyzed call.

The database of terms selected for verbal tone determination is the Loughran and McDonald dictionary (2011). This is based on their own study (Loughran & McDonald, 2011), which shows that this dictionary has a greater explanatory power than the *Harvard IV-4 psychosocial dictionary*. This improvement is related to the fact that their dictionary has a list of terms specific to the financial and accounting context. This argument is strengthened by Price et al. (2012), who demonstrate that context-specific linguistic dictionaries are more appropriate for use in research in accounting and finance.

The translation of the English Loughran and McDonald (2011) dictionary into Portuguese is done in a semi-automatic manner. Initially, the Cloud Translation *Application Programming Interface* provided by Google is used. The calls are made through a program (script) written in the Python 3 programming language by informing the English text and requesting their translation into Brazilian Portuguese. The translations are then manually revised to make sure they include the most common terms in the business field. For instance, “bankruptcy” is translated as “falência,” although it could be “bancarota,” “insolvência,” and “concordata”; “improve” is translated as “melhorar,” despite the possible alternatives “aprimorar” and “aperfeiçoar.” Exhibit 1 lists the most frequent words and their original terms.

Exhibit 1. Most frequent positive and negative words

Five most recurring words				
	Negative		Positive	
	Portuguese	English	Portuguese	English
1	redução	curtailment	muito	greatly
2	liquida	liquidates	maior	greater, greatest, highest
3	contra	against	melhor	best, better
4	inadimplência	delinquencies	lucro	gain
5	atenção	warning	forte	strong

Sample selection

For better adaptation and analysis, since the standard language of the dictionaries validated in the literature is English (Frankel et al., 2010; Loughran & McDonald, 2011; Price et al., 2012; Tetlock, 2007; Tetlock et al., 2008), the data sample used is limited to Brazilian companies with American depository receipts; that is, they have assets traded on American stock exchanges and broadcast the transcriptions of the conference calls in English and Portuguese.

Transcribed conference call files are manually collected from the respective investor relationship websites of the sample companies for 2002 to 2016. In total, 427 English conference call transcripts are collected from 11 companies. However, the final sample consists of 353 observations, as shown in Table 1, because we exclude from the sample firm-quarters that do not have the corresponding Portuguese conference call transcription for validation of the Portuguese dictionary and firm-quarters with some variable missing from the models.

Table 1. Sample composition

Sample	N
All firms/quarters with conference calls available in English	427
Less firms/quarters that do not have the same conference call in Portuguese	67
Less firms/quarters with some missing model variables	7
Total of firms/quarters in the sample	353

For each transcript, the presentation section of the conference call is selected and the portion related to Q&A excluded. As the Q&A session includes the interaction between managers and analysts, this could introduce bias in the tone used by the manager. Therefore, for this study, only the presentation section of the conference call is used as the subject of analysis. Data referring to the quarterly earnings results of each company and the control variables are obtained from the Economática database.

Econometric model and control variables

To create the econometric model for hypothesis verification, literature in the conference call field and research on verbal tone is used as reference. First, regarding the measurement of the dependent variable—nature of the verbal tone in the conference calls—the index described in equation (1) is used, as it is in the works of Frankel et al. (2010), Davis et al. (2012), Uang, Citron, Sudarsanam, and Taffler (2006), Henry (2008), and Price et al. (2012).

$$TOM_{it} = \left(\frac{Q_{positive_{it}} - Q_{negative_{it}}}{QTOTAL_{it}} \right) \times 1000 \quad (1)$$

In equation (1), the variable TOM_{it} is determined by the tone in each conference call of the sample relating to company i in quarter t calculated by the difference between the number of positive and negative words divided by the total words in the conference call related to company i in quarter t . To improve the coefficient visualization in the multivariate analysis, a multiplier factor (x1000) is added; such adaptation does not introduce any bias into the results. Equation (1) is applied to measure the tone of the conference call in both English and Portuguese.

To test H1, which examines the association between the tone of the conference call and company performance, equation (2) is applied:

$$TOM_{it} = \alpha_0 + \alpha_1 ROA_{it} + \sum_{k=2}^k \alpha_k CONTROL_{it}^k + \epsilon_{it} \quad (2)$$

where the independent variable ROA_{it} refers to the net profit of company i in quarter t weighted by total assets, thus associated with the company's performance. The control variables are selected according to the literature about verbal tone, such as Li (2008), Huang, Teoh, and Zhang (2014), and Davis et al. (2015), as well as studies about conference calls such as Moreira et al. (2016) and Frankel et al. (2010).

To control some performance benchmarks that may affect the tone used by managers, the following variables are included: $META_{it}$, a binary variable that identifies whether the company outperformed the result in the same quarter in the previous year, $PREJ_{it}$, a binary variable indicating whether the company had a loss in the current period, and $\%PREJ_{it}$, which represents the percentage of quarters with losses over the past four years.

Regarding the potential growth capacity, two control variables are added. $CRES_VENDAS_{it}$ represents quarterly sales growth relative to the same quarter in the previous year. Its purpose is to capture the growth of the firm's operational capacity. The company's book-to-market BTM_{it} is added as investment opportunity control, representing a forecasting property of market variables.

To address aspects related to the operational activity of the firm as well as its business environment, the variable TAM_{it}

is added, which represents the size of the company, measured through the natural logarithm of the market value. In the sample, quarterly information is used. Because the fourth quarter has a peculiarity in relation to the other quarters, as it is the closing of the annual results (Kothari, 2001), the variable $TRI4_{it}$ is added, which identifies whether the conference call is related to the fourth quarter.

Finally, firm and year fixed effects are added. The purpose of these effects is to control individual characteristics of the firm as well as temporal factors, such as macroeconomic issues, which may influence the tone used by the manager during the conference call.

The structure of the econometric model to verify H2, equation (3), is based on the studies of Matsumoto et al. (2011), Moreira et al. (2016), Frankel et al. (2010), Li (2008), and Davis et al. (2012).

$$ROA_{i,t+1} = \alpha_0 + \alpha_1 TOMNEG_{it} + \alpha_2 ROA_{it} + \alpha_3 TOMNEG_{it} * ROA_{it} + \sum_{k=4}^k \alpha_k CONTROL_{it}^k + \epsilon_{it} \quad (3)$$

In equation (3), the described dependent variable $ROA_{i,t+1}$ represents the ROA of company i in quarter $t+1$, measured by the net profit of company i in period $t+1$ divided by total assets. The independent variable $TOMNEG_{it}$ described in equation (3) is a dummy variable, which assumes the value 1 when the conference call tone is negative (pessimistic) and 0, when the opposite occurs. The variable ROA_{ij} represents the ROA of company i in quarter t . Thus, the coefficient of interaction between the variables $TOMNEG_{it} * ROA_{it}$ measures the persistence differential of the company's earnings when the conference call has a negative tone compared to when it has a positive tone. Thus, $\alpha_3 > 0$ indicates that a negative tone in the current conference call relates to more persistent results when compared with a conference call with a positive tone, while $\alpha_3 < 0$ indicates that a negative tone in the current conference call relates to less persistent results when compared with a conference call with positive tones.

In equation (3), a group of control variables is included to capture other effects that relate to the firm's future performance. For performance control, the variables representing return on sales $RETV_{it}$ and the percentage of losing quarters in the last four years, $\%PREJ_{it}$, are selected. For information control in volatile environments, the absolute value of the seasonal change in return on sales $MUDRV_{it}$ is also included.

Similar to equation (2), the company's book-to-market BTM_{it} is added as investment opportunity control, representing

a forecasting property of market variables. To address aspects related to the operational activity, as well as business environment, the variable TAM_{it} is added, which represents the size of the company, measured through the natural logarithm of the market value.

Again, because the fourth quarter has a peculiarity in relation to the other quarters, as the closing of the annual results, the variable $TRI4_{it}$ is added, which identifies whether the conference call is related to the fourth quarter. Finally, as in equation (2), firm and year fixed effects are added to control individual characteristics of the firm as well as temporal factors, such as macroeconomic issues, which may influence the firm's future performance.

ANALYSIS OF RESULTS

Table 2 shows the descriptive statistics of the variables used in this study. The verbal tone in English (Portuguese) extracted from the sample of conference calls, the presentation sections, has a positive average of 6.26 (5.53). Therefore, on average, the managers are optimistic during the presentations in the conference calls. This result is compatible with the initial findings by Davis et al. (2015). The sample is composed, on average, of profitable companies with earnings per share of around 0.26, with

only 12.5% of the sample having firm-quarters with a negative result. The companies also have a positive average return, with an ROA and return on equity (ROE) of 0.81 and 2.51, respectively. The market value of the firms is approximately twice as high as their respective equity values, with an average *BTM* of 0.60.

Table 2. Descriptive statistics

Variables	N	Mean	Std. dev.	Minimum	Maximum
TOM_inglês	353	6.26	6.25	-5.56	22.84
TOM_português	353	5.53	6.09	-7.45	22.18
TOMNEG_inglês	353	0.16	0.37	0.00	1.00
TOMNEG_português	353	0.20	0.40	0.00	1.00
ROA	353	0.81	2.10	-9.30	6.60
ROE	345	2.50	7.29	-38.50	26.00
LPA	353	0.26	0.75	-3.42	1.86
META	353	0.56	0.50	0.00	1.00
PREJ	353	0.12	0.33	0.00	1.00
%PREJ	353	0.12	0.25	0.00	1.00
CRES_VENDAS	353	0.18	0.46	-0.27	3.76
RETV	353	28.55	55.05	-103.09	317.96
MUDRV	353	32.12	71.43	0.06	443.99
BTM	353	0.60	0.53	-2.52	2.26
TAM	353	16.91	1.43	13.91	19.74
TRL4	353	0.24	0.43	0.00	1.00

TOM_inglês: tone (English) of the presentation section of the conference call; TOM_português: tone (Portuguese) of the presentation section of the conference call; TOMNeg_inglês: dummy variable equals 1 if the tone (English) is negative and 0 otherwise; TOMNeg_português: dummy variable equals 1 if the tone (Portuguese) is negative and 0 otherwise; ROA: return on assets; ROE: return on equity; LPA: earnings per share; META: dummy variable equals 1 if the firm meets or beats the earnings of the same quarter as last year and 0 otherwise; PREJ: dummy variable equals 1 if the firm has negative earnings, and 0 otherwise; %PREJ: percentage of losing quarters in the last four years; CRES_VENDAS: growth of sales in relation to the same quarter as last year; RETV: return on sales (revenue and net income ratio); MUDRV: absolute value of the variation of the return on sales of the firm *l* of the quarter *t-4* in quarter *t*; BTM: book-to-mark ratio; TAM: natural logarithm of firm's market value; TRL4: dummy variable equals 1 if it is the fourth quarter and 0 otherwise.

Table 3 shows the correlation matrix of the variables of the models. Variables TOM_ingles_{it} and $TOM_portugues_{it}$ have a statistically significant correlation of 0.65. The positive and relatively high correlation indicates that the translation from the dictionary of Loughran and McDonald (2011) into Portuguese is a good fit. In a preliminary analysis, we see that there is a statistically significant correlation between the tone of the conference call and the company's performance based on

earnings per share. Using the tone in English (Portuguese), the correlation is positive at 0.14 (0.23), indicating that the more positive the tone, the better the company's performance. However, the correlation is not statistically significant when compared with other performance variables such as ROA and ROE. It should be noted that this relationship between tone and performance is analyzed in more depth in the following multivariate analyses.

Table 3. Correlation matrix

Variable	TOM_Inglês	TOM_português	ROA	ROE	LPA	PREJ	%PREJ	RETV	MUDRV	TAM	BTM	CRES_VENDAS	META	TRI4
TOM_Inglês	1.00													
TOM_português	0.65	1.00												
ROA	0.01	0.12	1.00											
ROE	-0.02	0.08	0.80	1.00										
LPA	0.14	0.23	0.86	0.80	1.00									
PREJ	0.02	-0.12	-0.66	-0.65	-0.72	1.00								
%PREJ	0.01	-0.21	-0.58	-0.62	-0.60	0.76	1.00							
RETV	0.11	0.11	0.03	0.02	0.91	-0.38	-0.24	1.00						
MUDRV	0.19	0.09	-0.17	-0.15	-0.14	0.19	0.18	0.40	1.00					
TAM	-0.12	0.02	0.07	0.17	0.26	-0.21	-0.33	-0.11	-0.18	1.00				
BTM	-0.03	-0.06	-0.06	-0.22	0.01	0.00	-0.05	0.00	0.11	0.31	1.00			
CRES_VENDAS	0.11	0.11	0.13	0.06	0.05	-0.11	-0.15	0.20	0.09	-0.13	-0.02	1.00		
META	0.14	0.12	0.31	0.28	0.31	-0.29	-0.22	-0.06	-0.17	-0.01	-0.12	0.07	1.00	
TRI4	-0.06	0.01	-0.11	-0.08	-0.09	0.07	0.02	0.00	0.01	0.03	0.01	-0.01	-0.03	1.00

TOM_inglês: tone (English) of the presentation section of the conference call; TOM_português: tone (Portuguese) of the presentation section of the conference call; TOMNeg_inglês: dummy variable equals 1 if the tone (English) is negative and 0 otherwise; TOMNeg_português: dummy variable equals 1 if the tone (Portuguese) is negative and 0 otherwise; ROA: return on assets; ROE: return on equity; LPA: earnings per share; META: dummy variable equals 1 if the firm meets or beats the earnings of the same quarter as last year and 0 otherwise; PREJ: dummy variable equals 1 if the firm has negative earnings and 0 otherwise; %PREJ: percentage of losing quarters in the last four years; CRES_VENDAS: growth of sales in relation to the same quarter as last year; RETV: return on sales (revenue and net income ratio); MUDRV: absolute value of the variation of the return on sales of the firm I of the quarter $t-4$ in quarter t ; BTM: book-to-market ratio; TAM: natural logarithm of firm's market value; TRI4: dummy variable equals 1 if it is the fourth quarter and 0 otherwise.

Coefficients in bold are statistically significant at least at 10%.

Analysis of the verbal tone of conference calls and firm performance

Table 4 shows the results regarding H1. We use the ordinary least squares method, with firm and year fixed effects, and the t-statistics presented based on robust standard errors. Column [a] shows the statistical coefficients related to the conference call in English and column [b] shows those relating to conference calls in Portuguese. We see that, in both models, the current

performance of the company, represented by the variable *ROA*, shows a positive and statistically significant relationship at the 5% (10%) level with the conference calls in English (Portuguese). This suggests an association between the firm's current performance and the tone used by the manager during the presentation in the conference call. Specifically, the results show that the better the company's performance, the more optimistic the tone of the manager's speech.

Table 4. Tone of the conference call and performance

Independent variables	[a] TOM_inglês			[b] TOM_português		
	Coef.	t statistic		Coef.	t statistic	
Intercept	-18.73	-1.12				
ROA	0.50	2.10	**	0.40	1.70	*
META	0.19	0,31		-0.49	-0.82	
PREJ	0.99	0.72		1.14	0.81	
%PREJ	4.16	1.68	*	-0.05	-0.02	
CRES_VENDAS	0.96	1.55		0.39	0.96	
BTM	2.15	2.64	***	0.77	0.89	
TAM	1.26	1.28		2,14	2.79	***
TRI ₄	-0.37	-0.59		0.45	0.72	
Dummy year	Sim			Sim		
Dummy firm	Sim			Sim		
Observation	353			353		
R ²	0.45			0.47		

TOM_inglês: tone (English) of the presentation section of the conference call; TOM_português: tone (Portuguese) of the presentation section of the conference call; ROA: return on assets; META: dummy variable equals 1 if the firm meets or beats the earnings of the same quarter as last year and 0 otherwise; PREJ: dummy variable equals 1 if the firm has negative earnings, and 0 otherwise; %PREJ: percentage of losing quarters in the last four years; CRES_VENDAS: growth of sales in relation to the same quarter of the last year; RETV: return on sales (revenue and net income ratio); MUDRV: absolute value of the variation of the return on sales of the firm I of the quarter $t-4$ in quarter t ; BTM: book-to-market ratio; TAM: natural logarithm of firm's market value; TRI₄: dummy variable equals 1 if it is the fourth quarter and 0 otherwise.

Statistics t are presented based on robust standard errors. ***, **, and * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Regarding the controls added in the models, the statistically significant variables in either of the models, English and Portuguese, are the percentage loss in the last four years (%PREJ), book-to-market (BTM), and firm size (TAM). In this sense, a higher percentage loss in the last four years implies a more optimistic tone from the manager; a likely explanation for this is that the manager is aware that the persistent negative results will not continue in the future, indicating a likely reversal. The results also indicate that the higher the growth potential of the company, the more optimistic the manager's tone. Finally, there is also evidence that, on average, the larger the company, the more optimistic the tone of the manager during the presentation in the conference call. The other control variables are not statistically significant in either model.

Relationship between verbal tone and future results

Table 5 shows the results referring to H2. As with H1, we use the ordinary least squares method, with firm and year fixed effects, and t -statistics presented based on robust standard errors. Similar to Table 4, column [a] shows the results related to the conference call in English and column [b] shows the results related to the conference call in Portuguese. In line with previous studies such as Li (2008), we observe that the firm's future performance ($t+1$) carries some persistence relative to the firm's current performance, which is, on average, 0.46 (0.41) for the English (Portuguese) model. In both models, the relationship of interest, which is the interaction between the ROA of the company in period t and the negative tone of the conference call, shows a statistical significance of at least 5%. The relationship confirms the result expectations in that the tone of the current conference call has a relationship with the company's future performance. Specifically, the result suggests that the future ROA of a company with a negative tone in the current conference call is less persistent than when the tone of the conference call is positive, where the differential effect for companies with pessimistic tones is -0.55 (-0.42) for the English (Portuguese) model. This can be better observed when the sum of the coefficients is analyzed. The ROA persistence for companies with a negative tone in conference calls is not statistically significant, that is, it stays at zero, whereas companies with a positive tone show a statistical significance. In other words, there is a difference with regard to the persistence of the company's earnings between the two groups; conference calls with a positive tone are associated with persistent results and conference calls with a negative tone are not.

Regarding the controls, the only variable that has statistical significance of at least 10%, is return on sales (RETV) in the English model, suggesting that the higher the current return on sales, the higher the ROA of the company in the next period. The other variables are not statistically significant in either model.

The results here help us understand better the disclosure literature, specifically, the role of accounting information in a market economy. Typically, firm managers have more information about the firm's expected profitability of current and future investments than external parties (Beyer, Cohen, Lys, & Walther, 2010). Therefore, a greater understanding of the alternative communication channels (conference calls, press releases, etc.) used by the managers, as well as their incentives, provides the market with a means for better analysis of the signals (verbal tone, readability level, etc.) given by the managers. Consequently, in general, this better understanding helps investors more accurately assess the potential return on investment opportunities, enabling a more efficient capital allocation.

Table 5. Tone of the conference call and earnings persistence

Independent variables	[a] ROA t+1			[b] ROA t+1		
	Coef.	t statistic		Coef.	t statistic	
Intercept	-0.66	-0.91		-3.28	-0.75	
ROA	0.46	4.52	***	0.41	3.88	***
TOMNEG_Inglês	1.08	3.78	***			
TOMNEG_Inglês * ROA	-0.55	-3.87	***			
TOMNEG_Português				0.81	2.68	***
TOMNEG_Português * ROA				-0.42	-2.43	**
RETV	0.00	1.67	*	0.00	1.42	
%PREJ	-0.13	-0.14		-0.79	-0.85	
MUDRV	0.00	0.30		0.00	0.47	
BTM	-0.51	-1.44		-0.51	-1.22	
TAM	0.36	1.46		0.32	1.24	
TRL4	0.19	1.23		0.19	1.17	
Dummy year	Sim			Sim		
Dummy firm	Sim			Sim		
Observation	352			352		
R ²	0.47			0.44		
Test of sum of the coefficients:		F statistic		F statistic		
ROA + TOMNEG_Inglês * ROA		0.49				
ROA + TOMNEG_Português * ROA				0.00		

TOMNeg_inglês: dummy variable equals 1 if the tone (English) is negative and 0 otherwise; TOMNeg_português: dummy variable equals 1 if the tone (Portuguese) is negative and 0 otherwise; ROA: return on assets; %PREJ: percentage of losing quarters in the last four years; RETV: return on sales (revenue and net income ratio); MUDRV: absolute value of the variation of the return on sales of the firm I of the quarter $t-4$ in quarter t ; BTM: book-to-mark ratio; TAM: natural logarithm of firm's market value; TRL4: dummy variable equals 1 if it is the fourth quarter and 0 otherwise.

Statistics t are presented based on robust standard errors. ***, **, and * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Additional robustness testing

One of the concerns with the results presented is based on the proxy used to measure performance, which, in this case, is *ROA*. Thus, two other alternative firm performance proxies are used to evaluate the sensitivity of the results: return on equity (*ROE*) and earnings per share (*LPA*). The other variables and interactions of the models are maintained, and only the performance metrics are changed. In the test with *LPA* as a firm performance proxy, the logarithm of the outstanding shares of the firm is added as a control variable to control variations generated due to new share issues and buybacks.

Table 6. Tone of the conference call and performance (robustness test for ROE and LPA)

Independent variables	[a] TOM_inglês			[b] TOM_português			[c] TOM_inglês			[d] TOM_português		
	Coef.	t statistic		Coef.	t statistic		Coef.	t statistic		Coef.	t statistic	
Intercept	-24.39	-1.35		-16.94	-1.16		-1.51	-0.09		-20.33	-1.61	
ROE	0.13	2.81	***	0.12	2.66	***						
LPA							1.82	3.02	***	1.79	3.05	***
Control variables	Yes			Yes			Yes			Yes		
Dummy year	Yes			Yes			Yes			Yes		
Dummy firm	Yes			Yes			Yes			Yes		
Observation	345			345			353			353		
R ²	0.46			0.47			0.50			0.49		

TOM_inglês: tone (English) of the presentation section of the conference call; TOM_português: tone (Portuguese) of the presentation section of the conference call; ROE: return on equity; LPA: earnings per share;

Statistics t are presented based on robust standard errors. ***, **, and * represent statistical significance at 0.01, 0.05, and 0.10, respectively

The results of the robustness tests are shown in Tables 6 and 7. For both measures, ROE and LPA, the association between the company's performance and the tone used by the manager remained unchanged for the conference calls in English and Portuguese. The results in Table 5 show that both the return on equity and the earnings per share have a positive and statistically significant relationship at the 1% level with the tone used by the manager. Regarding the association between the tone of the manager and the future performance of the company, most results remain unchanged as well. The result is statistically insignificant only when the return on equity is used in Portuguese conference calls. Therefore, even using alternative firm performance proxies, the evidence of the relationship between the manager's tone and the company's current and future performance is robust.

Table 7. Tone of the conference call and earnings persistence (robustness test for ROE and LPA)

Independent variables	[a] ROE t+1			[b] ROE t+1			[a] LPA t+1			[b] LPA t+1		
	Coef.	t statistic		Coef.	t statistic		Coef.	t statistic		Coef.	t statistic	
Intercept	-14.87	-0.46		-11.06	-0.37		-2.55	-1.82	*	-2.26	-1.50	
ROE	0.28	2.17	**	0.29	2.46	**						
TOMNEG_Ingês	1.75	2.15	**				0.25	2.35	**			
TOMNEG_Ingês * ROE	-0.25	-1.96	*									
TOMNEG_Português				1.70	1.82	*				0.22	1.91	*
TOMNEG_Português * ROE				-0.23	-1.40							
LPA							0.32	2.49	**	0.21	1.55	
TOMNEG_Ingês * LPA							-0.59	-3.82	***			
TOMNEG_Português * LPA										-0.33	-1.86	*
Control variables	Sim			Sim			Sim			Sim		
Dummy year	Sim			Sim			Sim			Sim		
Dummy firm	Sim			Sim			Sim			Sim		

(Continue)

Table 7. Tone of the conference call and earnings persistence (robustness test for ROE and LPA)

(Continuation)

Independent variables	[a] ROE t+1		[b] ROE t+1		[a] LPA t+1		[b] LPA t+1	
	Coef.	t statistic	Coef.	t statistic	Coef.	t statistic	Coef.	t statistic
Observation	343		343		351		351	
R ²	0.32		0.32		0.35		0.30	
Test of sum of the coefficients:		F statistic	F statistic		F statistic		F statistic	
ROE + (TOMNEG_Inglês * ROE)		0.06						
ROE + (TOMNEG_Português * ROE)			0.19					
LPA + (TOMNEG_Inglês * LPA)					3.84	*		
LPA + (TOMNEG_Português * LPA)							0.77	

TOMNeg_ingles: dummy variable equals 1 if the tone (English) is negative and 0 otherwise; TOMNeg_português: dummy variable equals 1 if the tone (Portuguese) is negative and 0 otherwise; ROE: return on equity; LPA: earnings per share; Statistics t are presented based on robust standard errors. ***, **, and * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

CONCLUSION

This study analyzes the relationship between the verbal tone of Brazilian conference calls and the company performance in each quarter and the relationship between the verbal tone of the conference calls and company results in the current and future periods. In addition, the study validates, for the Portuguese language, the dictionary widely used by international literature, developed by Loughran and McDonald (2011).

The results show a relationship between the verbal tone and the current and future performance of the company. Specifically, the tone of the conference call is more positive (optimistic) for companies with better performance. This suggests that the manager's tone is influenced by the result to be presented to investors and analysts. If the manager expresses a more negative tone in the current conference call, a lower persistence of the company's earnings is implied. Regarding the adapted dictionary for Portuguese, it proves to be efficient, as the results for English are the same as the results for Portuguese.

For future research, we suggest, in compliance with Loughran and McDonald (2011) and Price et al. (2012), the development of more comprehensive dictionaries or word lists. These could include more categories than the ones used here (positive/negative) in a more contextualized manner within the financial and accounting scenario to increase the power of the explanation of the extracted verbal tone. In addition, emphasizing the research by Mayew and Venkatachalam (2012), we suggest the possibility of evaluating alternatives other than the included transcriptions of the conference calls, such as video and audio

information from both the presentation and Q&A sessions, for verification of factors such as vocal tone, gestures, facial expressions, and other possibilities.

This study contributes to the national literature by introducing the use of an automated tool for content analysis in textual and subjective documents, so dictionaries or lists of words previously validated by the literature can be used as a data extraction database. The article also contributes by showing evidence of the manager's behavior in terms of a voluntary communication channel with direct access to investors and analysts. It is among the first Brazilian studies to analyze this relationship in the national market.

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