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Conference Calls: an Empirical Analysis of Information Content and the Type of Disclosed News

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ABSTRACT

This article analyzes whether the type of news and the earnings persistence influence the amount of information that is voluntarily disclosed by the companies. As a proxy for voluntary disclosure we use the information content of the conference calls of the companies listed on the BM&F Bovespa from 2008 to 2015. The results indicate that the companies with bad news provide more information during the conference call (presentation section and questions & answers section) than the companies with good news. Moreover, were found evidence that the companies with less persistent positive earnings provide a larger amount of information than the companies with more persistent positive earnings. Regarding companies with negative earnings we did not find any relation between persistence and the informational content.

Keywords: Information content. Voluntary disclosure. Conference calls. Good and bad news. Persistence.

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1 INTRODUCTION

The objective of this study is to analyze whether the information content of conference calls1 is influenced by the type of news being disclosed, as well as by the firm's earnings persistence. More specifically, we analyze whether good or bad news have an impact on the amount of information disclosed by the firm in the presentation of its quarterly results – first section of the conference, or when it is challenged by analysts regarding the said results – second section of the conference. For this purpose, we treat good news as positive earnings (profit) and bad news as negative earnings (loss). Generally speaking, we expect firms with bad news to disclose greater information content, when compared with firms with bad news, possibly in order to provide explanation on low performance (GRAHAM et al., 2005), as well as probable attitudes to reverse the unfavorable situation of the company.

Literature suggests that voluntary disclosure practices such as conference calls reduce information asymmetry between companies and the market (BROWN; HILLEGEIST; LO, 2004). In recent years, firms have used conference calls in order to ensure a better understanding, by investor, of their disclosed earnings. For this reason, understanding the effects of voluntary disclosure practices is a relevant issue for the market and its participants (KIMBROUGH, 2005).

Research involving US companies suggest that conference calls are informative for the participants of the capital market causing high levels of trading and reactions in stocks price (FRANKEL; JOHNSON; SKINNER, 1999; BUSHEE; MATSUMOTO; MILLER, 2003; KOHLBECK; MAGILKE, 2002; KIMBROUGH, 2005; MATSUMOTO; PRONK; ROELOFSEN, 2011) causing analysts' forecasts to become more precise (BOWEN; DAVIS; MATSUMOTO, 2002).

Matsumoto et al. (2011) found evidence that conferences are more informative when the manager cannot achieve analysts' forecast, and that the questions and answers section is more informative than the presentation section, suggesting that participants play an important role in obtaining relevant information. Frankel et al. (2010) show that the effect of missing the benchmark on the disclosed information content is even greater when it occurs due to a lack of a few cents. Therefore, missing a benchmark would be one of the determinants to increase

[1] For the purpose of this study the terms conference calls, conferences, audio conferences and teleconferences are treated as synonyms.

the average duration of conference calls (FRANKEL et al., 1999; MATSUMOTO et al.; 2011). However, these studies do not analyze the effect of the firm's earnings persistence on the information content of the conference call. Li (2008) found evidence related to the earnings persistence on the level of readability of the mandatory annual reports disclosed by firms. More specifically, Li (2008) identified that companies with less persistent positive earnings present annual reports (mandatory *disclosure*) that are more complex to read than companies with more persistent positive earnings. Thus, our work is the first to associated the type of news, as well as its persistence with a mechanism of voluntary disclosure, in the case of conference calls. Therefore, our research bridges this gap in the literature.

Although the practice of conference calls as a voluntary disclosure has increased in the Brazilian capital market, as far as we know, no research has been conducted in Brazil in order to understand the determinants of the amount of information content for this kind of practice. Therefore, this research bridges this gap in the national literature.

In order to meet the objectives of our study, we adopted the duration in minutes, as a proxy for information content of conference calls, similar to Matsumoto et al. (2011). The sample consisted of 3559 quarterly observations of companies listed on the BM&FBovespa. Following the literature, we manually collected transcripts of the conference call from sites firm's investors relations websites (IR) from 2008 to 2015. For the quarters where the transcription was not available we then collected the audio, where both were missing we considered that there was no conference for the quarter. As a benchmark for defining good and bad news we used the nature of earnings, positive earnings for good news, negative earnings for bad news. Graham et al. (2005) show that presenting positive earnings is one of the benchmarks pursued by managers. Burgstahler and Dichev (2001) found evidence that firms manage their results in order to avoid presenting small losses.

Results suggest that firms' conference calls with negative quarterly earnings have greater information content than those with positive earnings. More specifically, managers disclose more information during the first section of the conference (presentation) when there are negative earnings or bad news, and the second section (questions and answers) also appears with greater information content when there are bad news.

With regards to the earnings persistence, evidence indicates that the information content for both sections of the conference is greater when the firm's earnings is less persistent. Thus, when managers know that their quarterly profits will be less persistent (bad news), they disclose more information and the participants of the conference also ask more questions in

the second section of the conference call. However, we cannot determine whether this information is relevant and helps participants in understanding the low quality of earnings or if the manager is simply trying to draw away the attention of participants with other information so they will not perceive the low persistence of earnings. The greater information content in the second section of the conference when there are less persistent earnings can be due to the fact that less persistent earnings cause more uncertainties on the market, increasing participants' demand for information that will help adjusting their forecasting models, or because the manager tried to obfuscate the low quality of earnings in the first conference section and is being questioned about it in the second section. With regards to companies with negative earnings, we did not find evidence that earnings persistence would have any influence on the information content of the sections of the firm's conference call.

This study contributes to the literature in at least three ways. First of all, it is an embryonic research in Brazil that deals with the determinants analysis of information content of conference calls of Brazilian companies. Secondly, the research contributes to an important discussion for the functioning of the stock market, which is the disclosure of information through voluntary mechanisms, which are beyond the strictest standards of mandatory mechanisms. Finally, this study encourages the academic debate related to literature disclosure, which seeks for a greater understanding regarding the quality and amount of disclosed information by the firm subject to its incentives and interests.

2 PRIOR LITERATURE

According to Kreps (1990), optimal contracts between the company and investors offer incentives so that there is full disclosure of private information. Thus, financial disclosures emerge in an attempt to solve problems associated with information asymmetry. The financial information is disclosed through mandatory financial reports such as the balance sheet, the income statement and explanatory notes or through voluntary disclosures, such as managements' forecasts, analysts' forecasts, press releases and conference calls. According to the literature (AMIHUD; MENDELSON, 1989; DIAMOND; VERRECCHIA, 1991; KIM; VERRECCHIA, 1994; EASLEY; O'HARA, 2004) voluntary disclosures policies and the increase of information quality help to reduce information asymmetry, and this reduction causes the liquidity of the capital market to increase. Therefore, voluntary disclosures also help ensure the functionality and efficiency of the capital market. Beyer et al. (2010), by using North American data, shows that 66% of the variance of quarterly abnormal returns is explained by voluntary disclosures, 12% is explained by mandatory disclosures and 22% by

analysts' forecasts, concluding that voluntary disclosures would be a set of relevant information for the market.

Companies are increasing the practice of conference calls as a mechanism of voluntary disclosure in recent years, especially in environments where the stock market is consolidated or undergoing a consolidation phase. In relation to Brazil in 2008, approximately 275 conference calls were conducted whereas in 2014, this number rose to 568, a variation of 106%. Consequently, this type of disclosure has been the focus of several international research whose aim is to analyze whether conference calls are able to deliver incremental and relevant information, helping to reduce information asymmetry (FRANKEL; MAYEW; SUN, 2010; HOLLANDER; PRONK; ROELOFSEN, 2010; MATSUMOTO; PRONK; ROELOFSEN, 2011).

Galant (1994), Feldman (1999) and WAROFF (1994) claim that conference calls involving several analysts, institutional investors and those even open to the public improve equality in the dissemination of information as all participants have access to the same information at the same time. However, restricted conference calls improve the timeliness of disclosures to analysts and financial resource managers, leaving individual investors at a disadvantage (SMITH, 1995; GUTNER, 1996; LEVITT, 1998). Thus, analysts and financial managers can transmit and/or trade in real time according to the information delivered during the conference call, whereas investors not invited by the company do not have this opportunity.

Tasker (1998), Frankel, Johnson and Skinner (1999), Price, Salas and Sirmans (2015) sought to understand the characteristics of companies that use conference calls as a voluntary disclosure mechanism, whether they are actually able to provide relevant information to the market and if all investors can equally have access to this information. Tasker (1998) examined how the accounting quality of financial reporting influences the company's behavior with respect to voluntary disclosures, using conference calls as a metric for voluntary disclosures. Their results show that companies with less informative financial reports (lower accounting quality) are more likely to practice conference calls than others, by measuring the accounting quality as the amount of information on the firm's operations that were disclosed in its financial statements.

Frankel, Johnson and Skinner (1999) claim that companies that are more likely to practice conference calls have similar characteristics to companies with policies of a more informative disclosure: they are larger, they have a larger number of analysts following them,

they access the capital market more frequently, they have higher book-to-market and revenues growth ratios. It suggests that companies with higher expected growth are more likely to make conference calls and this may be because these companies have more information problems than others. In addition, Frankel, Johnson and Skinner (1999) found high levels of earnings volatility and an abnormally large volume in trading during the period of conference calls, suggesting that conference calls provide new and relevant information, and large investors trade in real time according to the information disclosed.

Given its structure, conference call is a unique disclosure mechanism, it is separated into two sections with interactions between two important agents, manager and analysts. The first part is the presentation, where the manager has the opportunity to present their interpretation of the company's performance for the quarter and any additional information one may wish to voluntarily disclose to participants. The second part is referred to as questions and answers, participants of the conference can ask the manager regarding non-disclosed information or on any information that may have been disclosed but was not clear. Unlike other disclosure mechanisms, whether they are mandatory and voluntary, the manager will not only provide information to investors and analysts, but these will also be challenged at the time of disclosure.

There are certain circumstances in which the manager has no incentive to disclose all their private information voluntarily, that is, even if one chooses to hold a conference call it does not mean that they will disclose all the information they have. Research relating the manager's type of news and the amount of information disclosed reach several conclusions. Grossman and Hart (1980), Grossman (1981), Milgrom (1981), Milgrom and Roberts (1986) claim that the manager will only voluntarily disclose all their private information under certain circumstances determined as a result of the rationality of investors. Evidence in the literature suggests that managers are more likely to voluntarily disclose "good news" than "bad news" and investors react negatively in the absence of disclosures (SKINNER, 1994; SOFFER; THIAGARAJAN; WALTHER, 2000). However, the absence of disclosure is not always a result from bad news, but ownership costs or uncertainty regarding information (VERRECCHIA, 1983). Anyway, when a manager chooses to make a conference call and does not disclose any desired information during the presentation they will be asked during questions and answers, and if they do not disclose the information at this point the market will infer that they have bad news (HOLLANDER; PRONK; ROELOFSEN, 2010).

Through a research done with another 400 executives Graham, Harvey and Rajgopal (2005) analyzed the incentives and factors that guide the decisions of managers with respect to voluntary disclosures and performance measures. The factor that seems to mostly influence on managers' disclosure decisions are earnings targets, especially earnings per share. Managers believe that not meeting earnings targets or reporting volatile earnings cause earnings to be less predictable, which causes stock prices to reduce, since investors are uncertainty averse. The main targets to be achieved are: (1) same earnings from the previous quarter, (2) earnings consensus forecasted by analysts for the quarter and (3) positive earnings. Matsumoto, Pronk and Roelofsen (2011) and Frankel, Mayew and Sun (2010) adopted the consensus of analysts for analyzing the information content of conference calls. For the purposes of this study, we use the firm's current earnings as a benchmark to measure the type of news, thus, negative earnings represent bad news and positive earnings good news. This direction occurred due to the difficulty of obtaining analysts' forecasts in the Brazilian market.

Li (2008) adopted the level of complexity of reading and the extent of the company's annual report as a metric for the quality of disclosure. His results show that companies with bad news write more complex and more extensive annual reports. In an attempt to justify this behavior, he provides the "obfuscation hypothesis": managers make several decisions interested in, at least partially, to make it harder for investors to discover information that they would like to hide, as this would negatively affect the stock price (BLOOMFIELD, 2002). However, Bloomfield (2008) provides an alternative hypothesis, the "ontology hypothesis" firms with bad news write more complex and extensive reports not by a discretionary choice of the manager, but because this kind of news is more difficult to explain. In addition, Bloomfield (2008) highlights the importance of extending the research conducted by Li (2008) exploring more spontaneous means of communication, such as conference calls, rather than annual reports. Lo et al (2016) found evidence that managers after managing earnings in order to achieve the positive earnings of the previous year, write more complex management reports in order to hide the discretionary practices adopted to achieve their goals.

According to the "obfuscation hypothesis" we expect managers with bad news to make a longer presentation, in order to divert investors' attention with disclosures of other good news, blaming other factors other than mismanagement, among other possible ways. Following the same line, we expect analysts to be able to note the obfuscation of bad news and for this reason they will further question the manager, making the question part longer.

According to the 'ontology hypothesis" expected earnings are similar, as negative earnings are less common (empirically) and more difficult to explain, the manager will require more time to explain bad news, making the presentation part to be longer than when there are good news. Similarly, as negative earnings are unusual events, analysts will need more information to properly adjust their forecasting models. If the manager does not know the exact information that analysts need they will not disclose it during the presentation, but will be questioned during the question section, making the questions section longer when the manager has bad news.

Results found in the literature provide further support for our beliefs. Matsumoto, Pronk and Roelofsen (2011), Frankel, Mayew and Sun (2010) adopted the consensus of analysts' forecasts as a benchmark to measure the type of news. Frankel, Mayew and Sun (2010) investigated the effect that negative earnings or target achievements by pennies have on the duration of the conference call. They argue that managers take actions and decisions to avoid small negative earnings surprises, because even slight target miss outs cause the manager to spend more time and resources to restore their credibility and convey the company's financial condition (BURGSTAHLER; DICHEV, 1997; DEGEORGE; PATEL; ZECKHAUSER, 1999; BURGSTAHLER; EAMES, 2006), and require more time to explain why the quarterly benchmark was not reached (GRAHAM; HARVEY; RAJGOPAL, 2005). Their results show that the duration of the conference increases significantly when the company misses the benchmark by a penny and this increase is even more pronounced when compared to quarters where the company achieves the benchmark by a penny, but perform no singular analysis regarding the presentation and questions sections as was done by Matsumoto, Pronk and Roelofsen (2011).

Matsumoto, Pronk and Roelofsen (2011) claim that the conference call parts have larger information content when the company cannot reach the consensus of analysts' expected earnings (bad news). In addition, when the manager has bad news to disclose the question section tends to be longer than the presentation.

Based on the discussion presented this study presents the following hypotheses:

H1a: The disclosure of bad news impacts on a larger information content in conference calls.

H1b: The disclosure of bad news impacts on a larger information content in the presentation section of conference calls.

H1c: The disclosure of bad news impacts on a larger information content in the question and answer section of conference calls.

In addition to the relationship between the type of news and information content, we seek to expand our analysis and try to determine whether there is a relationship between the information content of the conference call to the firm's earnings persistence. Few studies in the literature examine the relationship between the quantity and/or quality of disclosure to the quality of earning, among these Li (2008) found evidence that managers with less persistent positive earnings (low quality of earnings) write annual reports that are more complex to read (low quality of disclosures), and found no relationship when companies disclose more persistent negative earnings.

To find the relationship between the information content of the conference call and the earnings persistence a separate analysis is needed for the group of firms with profits and the group of firms with losses. The persistence of these two groups is interpreted differently. More persistent profits are better news than less persistent profits and more persistent losses are worse than less persistent losses (LI, 2008).

The "obfuscation hypothesis" predicts that the manager will disclose more information when they expect their positive earnings to be less persistent or that their negative earnings are more persistent when trying to obfuscate the low quality of their earnings. We expect that analysts are able to notice the manager's attempt to obfuscate and will question them further about the quality of their disclosed earnings. According to the "ontology hypothesis" the manager will take longer during their presentation when positive or negative earnings are expected to be less persistent since less persistent earnings are more difficult to explain. Analysts should also ask more questions during this section when the manager discloses positive or negative earnings that are expected to be less persistent, since low persistence is more difficult to understand as it is unusual.

Therefore, the second hypothesis to be tested in this research for firms with positive earnings and firms with negative earnings is:

H2a: Firms with less persistent positive earnings (more persistent negative earnings) present greater information content in their conference calls than firms with more persistent positive earnings (less persistent negative earnings).

H2b: Firms with less persistent positive earnings (more persistent negative earnings) present greater information content in the presentation section of their

conference calls than firms with more persistent positive earnings (less persistent negative earnings).

H2c: Firms with less persistent positive earnings (more persistent negative earnings) present greater information content in the questions and answers section of their conference calls than firms with more persistent positive earnings (less persistent negative earnings).

3 METHODOLOGY

3.1 SAMPLE SELECTION

We collected data of conference calls available from websites for companies' investors relations (IR) from 2008 to 2015. The sample was limited to companies listed on the BM&FBovespa most likely to use as audio conferencing as a mechanism of voluntary disclosure, that is, firms with higher levels of governance (New Market, Bovespa Mais, Levels I and Level II). To stay in line with the literature, we prioritize the collection of transcriptions and for the periods where the transcript was not available we collected the audio. For periods where the company does not provide the transcript nor the audio we consider that there was no conference, resulting in 1832 transcripts and 1727 audios. Data regarding firms' earnings and the control variables were collected from the Economatica database.

Table 1 – Sample Selection and Description of Data

Panel A: Sample Distribution by Year

Year	Number of conference calls
2008	275
2009	318
2010	380
2011	434
2012	498
2013	534
2014	568
2015	552
Total	3559

Panel B: Sample Distribution by Firm

Sector	Number of conference calls
Agricultural & Fishing	18
Foods & Beverages	140

Trade	264
Construction	397
Electronics	32
Electric Power	311
Finance & Insurance	387
Funds	0
Non-metallic Minerals	39
Mining	59
Industrial Machinery	92
Others	842
Pulp and Paper	79
Oil and Gas	41
Chemical	82
Steel & metallurgy	110
Software & Data	80
Telecommunications	44
Textile	93
Transport and Services	280
Vehicles & Auto-parts	169
Total	3559

Source: Developed by the authors.

In Panel A in Table 1 we have the number of conferences collected per year, the year with the greatest number of conferences was 2014 (16%) followed by 2015 (15.5%) and 2013 (15%). As data were collected in the beginning of 2016 some companies completed and/or disclosed all data for their conferences regarding the fourth quarter of 2015, due to this reason 2015 does not appear as the year with the highest number of transcriptions. In Panel B, the distribution is done according to the firm, based on the classification by Economatica. The sectors with the highest number of conferences are: Others (23.6%), Construction (11.1%) and Finances and Insurances (10.9%).

3.2 MEASUREMENT FOR INFORMATION CONTENT AND NEWS TYPE

Following one of the approaches by Matsumoto, Pronk and Roelofsen, (2011), the proxy used for the information content was the duration of the conference call. In order to estimate the duration of the conference call through the transcripts we needed to divide all transcripts into two sections (section 1: presentation; section 2: questions and answers) and log the number of words present in each part. Then, we collected 1438 available audios on the companies' websites where the transcript also existed to estimate the average number of words spoken per minute (129 word per minute). Such procedure is usual in the literature to estimate the duration of the conference call (MATSUMOTO; PRONK; ROELOFSEN, 2011; FRANKEL; JOHNSON; SKINNER, 1999).

3.3 MODEL AND CONTROL VARIABLES

To measure the relationship between the information content provided by the manager during the conference call and the type of news, we created the following three models based on Matsumoto, Pronk and Roelofsen (2011) and Frankel, Mayew and Sun (2010):

$$CALL_{it} = \alpha_0 + \alpha_1 LOSS_{it} + \sum_{k=2}^{n} \alpha_k CONTROL_{kit} + \epsilon_{it} \quad (1)$$

$$PRES_{it} = \beta_0 + \beta_1 LOSS_{it} + \sum_{k=2}^{n} \beta_k CONTROL_{kit} + \varepsilon_{it} \quad (2)$$

$$Q\&A_{it} = \gamma_0 + \gamma_1 LOSS_{it} + \sum_{k=2}^{n} \gamma_k CONTROL_{kit} + \omega_{it} \quad (3)$$

In models 1, 2 and 3 the dependent variables *CALLit*, *PRESit* and *Q&Ait* contain the duration of conference call, presentation and questions and answers of the company *i* in the quarter *t*, respectively. The dependent variable *LOSSit* indicates whether company *i* incurred negative earnings in quarter *t*.

In models 1, 2 and 3 there are also different control variables suggested by the literature. We controlled them through the company's performance calculating the firm's return on sales (*ROS*), the cumulative abnormal earnings during the previous 90 days to the conference call (*RET*), and the percentage of quarters with loss in recent four years (*%LOSS)*. The results in the studies by Chen, DeFond and Park (2002) indicate that investors demand additional information in volatile environments. Therefore, we included variables for the volatility of stocks returns during the 90 days prior to the conference call (*VOL*) and the absolute change in seasonal returns on sales (*ABS_ROS_CH*). According to Frankel, Johnson and Skinner (1999) and Tasker (1998) the size and growth potential of the company are associated with voluntary disclosures, so we added the natural logarithm of the market value of the company (*LNMV*) and the ratio of equity and the market value, referred to as book-to-market (*BTM*). To control other unobservable variables that affect the characteristics of the conference call we followed Matsumoto, Pronk and Roelofsen (2011), adding lag variables in our models, that is, in models 1, 2 and 3 as control variables we included *CALLi*(*t*-1), *PRESi*(*t*-1) and *Q&Ai*(*t*-1), respectively. The conference calls of the fourth quarter tend to be longer due to the need to provide information that compare the performance of the current year with the performance of the previous year and perspectives and adjustments that will be made in the subsequent year, for this reason we included the indicator variable *Q*4 to control the effects of the fourth quarter. Finally, in order to control the fixed effects of year and firm we included indicator variables for each year and firm sector in all models.

To study the relationship between the information content and the earnings persistence we rely on the study by Li (2008), estimating models below separately for two company groups, those that reported profits and those that reported losses, in order to examine whether the persistence of different news affects differently the informational content of the conference call.

$$EPS_{i,t+4} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 CALL_{it} + \alpha_3 CONF_{it} * EPS_{it} + \sum_{k=4}^{m} \alpha_k CONTROL_{kit} + \epsilon_{it} \quad (4)$$

$$EPS_{i,t+4} = \beta_0 + \beta_1 EPS_{it} + \beta_2 PRES_{it} + \beta_3 PRES_{it} * EPS_{it} + \sum_{k=4}^{m} \beta_k CONTROL_{kit} + \varepsilon_{it} \quad (5)$$

$$EPS_{i,t+4} = \gamma_0 + \gamma_1 EPS_{it} + \gamma_2 Q\&A_{it} + \gamma_3 Q\&A_{it} * EPS_{it} + \sum_{k=4}^{m} \gamma_k CONTROL_{kit} + \omega_{it} \quad (6)$$

The dependent variable in models 4, 5 and 6, $EPSi(t+4)$, contains earnings per share of the company *i* in the quarter *t*+4. As independent variable we EPS_{it}, earnings per share of the company *i* in the quarter *t*. For model 4 we added as an independent variable the duration of the conference call $CALLit$ and its interaction with earnings per share, $CALLit * EPSit$. In models 5 and 6 we have as independent variables the duration of the presentation ($PRESit$) and questions ($Q\&Ait$), respectively, as well as their interaction with $EPSit$. We include all control variables in models 1, 2 and 3, except the lag variable and the indicator variable *Q*4, and their interactions with earnings (*EPS*) as control variables, in addition to the controls for fixed effects of year and firm. According to Sloan (1996) there is a negative relationship between the absolute value of the amount of accruals and earnings persistence, for this reason we also added to models 4, 5 and 6 the variable *ABSACC* containing the absolute value of accruals.

Our main interest is in the coefficients α_3, β_3 and γ_3. The interpretation of the sign of the coefficients is done as follows, if $\alpha 3$ is positive for the group of companies that reported profits in the current quarter, it means that companies with longer conference calls (greater information content) expect more persistent positive earnings. For the group of companies reporting losses in the current quarter, a positive α_3 means that firms with longer conference calls than the others of the same group, present more persistent negative earnings. A similar analysis can be conducted for, β_3 and γ_3.

4 ANALYSIS OF RESULTS

The number of conference calls comprising the sample is shown in Figure 1. We observed an increase in the use of conference calls in earnings voluntary disclosure over the years, the fall from 2014 to 2015 probably occurs because data collection was done in early

2016 when most companies had not yet conducted the conference for the fourth quarter of 2015.

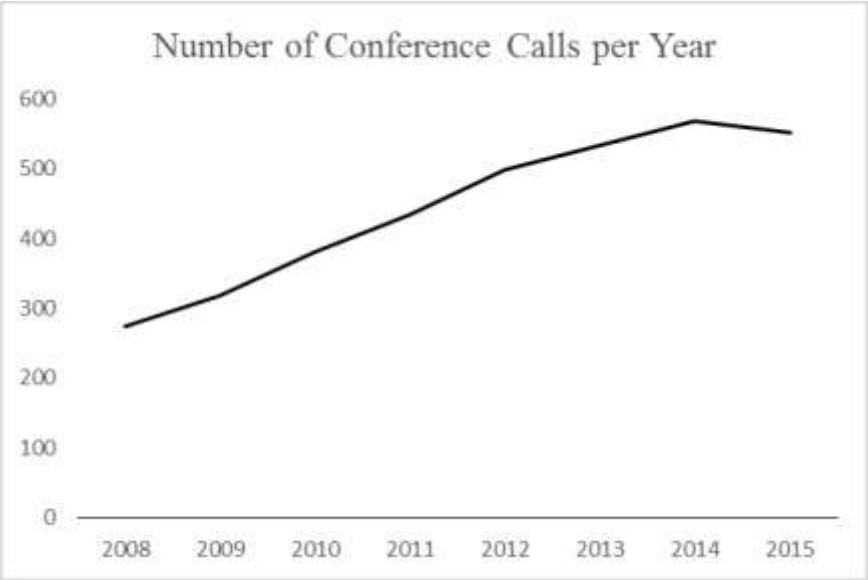

Figure 1 – Number of conference calls observations per year.
Source: Developed by the authors.

In Figure 2, we show the average duration of conference calls, we can observe an increase in the duration of the conference over the quarters, that is, conference calls on earnings of the fourth quarter tend to disclose more information than in any other quarter and conference calls on earnings of the first quarters are shorter. One possible explanation for this behavior is that the conference of the 4th quarter also deals with the firm's annual earnings.

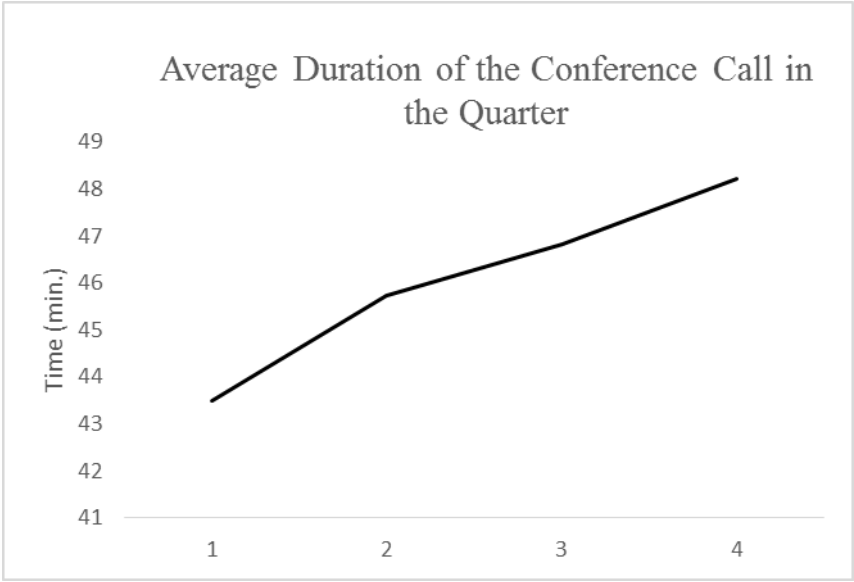

Figure 2 – Average duration of the conference call by quarter.
Source: Developed by the authors.

In Panel A in Table 2, we report the descriptive statistics of the variables used in the models. The conference call lasts on average 46.08 minutes, with the first section

(presentation) and the second section (questions and answers) last on average 23.01 and 23.58, respectively. The 1st percentile of the first section (second section) is 6.83 long (0 minutes) and the 99th percentile is 62.54 minutes long (66.87 minutes), exposing a substantial variation of the sample. The mean of the variable *LOSS* is 0.33, that is, 33% of the observations in the sample correspond to companies that report losses.

In Panel B we find the correlations between the variables, we see there is a small correlation, though significant between the sections of the conference call *PRES* and *Q&A* with the variable *LOSS*. The 0.05 correlation between the variables *PRES* and *LOSS* implies that company incurring negative earnings makes a longer presentation, and the −0.06 correlation between *Q&A* and *LOSS* initially contradicting theories that suggest that the questions and answers should be longer when companies report negative earnings. The positive correlation (significant) between *LNMV* and the variables *CALL*, *PRES* and *Q&A*indicate that larger companies tend to disclose more information during conference calls in both sections.

Table 2 – Descriptive Statistics

Panel A: Descriptive Statistics of the Variables

Variáveis[a]	Média	1st Percentile	25th Percentile	Median	75th Percentile	99th Percentile	Standard Deviation	N. of Observ.
CALL	46.08	13.12	31.71	43.38	57.3	103.14	20.23	3435
PRES	23.01	6.83	15.42	20.35	27.58	62.54	12.28	3277
Q&A	23.58	0	12.4	21.56	32.23	66.87	15.55	3379
EPS	−2.27	−68.41	−0.05	0.11	0.42	44.19	83.69	11379
LOSS	0.33	0	0	0	1	1	0.47	11379
%LOSS	0.32	0	0	0.25	0.75	1	0.38	11328
ROS	-9.19	-216.71	0	4.18	12.43	431.62	2600.43	11315
ABS_ROS_CH	153.23	0	0.44	3.23	21.18	1532.81	3732,12	10959
RET	2.97	-63.84	-2.1	0	7.23	89.19	30.79	10323
VOL	2.37	0.79	1.31	1.83	2.64	10.9	2.31	10323
LNMV	13.7	8.38	12.29	13.87	15.26	18.8	2.19	9100
BTM	-3.04	-45.61	0.32	0.65	1.19	6.67	72.13	9074
ABSACC	6.12	0	0.01	0.02	0.04	1.67	394.27	10371

Panel B: Correlation Matrix[b]

	CALL	*PRES*	*Q&A*	*EPS*	*LOSS*	*%LOSS*	*ROS*	*ABS_ROS_CH*	*RET*	*VOL*	*LNMV*	*BTM*	*ABSACC*
CALL	1	**0.65**	**0.83**	0.01	-0.02	**-0.06**	0	0	-0.01	-0.01	**0.42**	**-0.13**	**-0.06**
PRES	**0.59**	1	**0.12**	0.01	**0.05**	**0.05**	0.01	0	0	0	**0.14**	-0.03	-0.01
Q&A	**0.84**	**0.11**	1	0.01	**-0.06**	**-0.11**	-0.01	0	-0.01	-0.01	**0.45**	**-0.15**	**-0.07**
EPS	**0.09**	0.04	**0.08**	1	**-0.09**	**-0.13**	0	0	0.01	**-0.03**	**0.07**	0.01	**-0.15**
LOSS	-0.01	**0.05**	**-0.06**	**-0.81**	1	**0.8**	**-0.04**	0.01	-0.01	**0.15**	**-0.42**	**-0.08**	0.02
%LOSS	**-0.06**	0.01	**-0.1**	**-0.65**	**0.79**	1	-0.01	0.02	0.01	**0.17**	**-0.53**	**-0.1**	0.02
ROS	**0.05**	0.02	**0.05**	**0.58**	**-0.8**	**-0.6**	1	**-0.54**	-0.01	0	0	0	0
ABS_ROS__CH	0.01	**0.07**	-0.03	**-0.04**	**-0.04**	**-0.02**	**0.23**	1	**0.03**	0.01	-0.01	0	0

RET	-0.01	0	0	**0.08**	**-0.08**	**-0.07**	**0.05**	**-0.03**	1	**0.57**	**-0.09**	-0.02	0
VOL	0.03	-0.02	0.04	**-0.1**	**0.05**	**0.05**	-0.01	**0.15**	**0.06**	1	**-0.2**	-0.02	0
LNMV	**0.43**	**0.08**	**0.49**	**0.36**	**-0.4**	**-0.49**	**0.24**	**-0.05**	0.01	-0.03	1	**0.13**	**-0.06**
BTM	**-0.15**	0	**-0.2**	**0.06**	**-0.07**	**-0.05**	**0.08**	**0.25**	**-0.1**	-0.01	**-0.09**	1	**-0.07**
ABSACC	**-0.05**	0	**-0.06**	**-0.19**	**0.24**	**0.24**	**-0.18**	**-0.09**	0	**0.07**	**-0.2**	**-0.17**	1

This table contains the descriptive statistics of the sample in Panel A and correlations in Panel B.
[a] *CALL* duration of the conference call, *PRES* duration of the presentation and *Q&A* duration of questions and answers, in minutes, of the conference call. *EPS* earnings per share. *LOSS* indicator variable equal to 1 when the *EPS* of the company *i* in the quarter *t* is negative and 0 otherwise. *%LOSS* percentage of quarters with negative *EPS* during the last four quarters of the company *i*, where data from at least three quarters are required. *ROS* return on sales (ratio between revenue and net income) of the company *i* in the quarter *t. ABS_ROS_CH* absolute value of the seasonal change in earnings on sales of the company *i* from the quarter *t-4* to the quarter *t*. *RET* cumulative abnormal earnings adjusted daily by the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. VOL* standard deviation of daily cumulative adjusted abnormal earnings of the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. LNMV* natural logarithm of the market value of the company *i* in the quarter *t. BTM* ratio between the equity and the market value of the company *i* in the quarter *t. ABSACC* absolute value of the amount of the company's accruals *i* in the quarter *t*, accruals are calculated as the difference between net income and the cash flow weighted by total assets.
[b] Above the diagonal are the Pearson's correlations and below the diagonal are the Spearman's correlations. Correlations in bold are significant at least at 1%.
Source: Developed by the authors.

4.1 ANALYSIS OF INFORMATION CONTENT OF THE CONFERENCE CALL

Table 3 shows the result of the estimation of models 1, 2 and 3 in columns [a], [b] and [c], respectively. Each model has a different number of observations, because some transcripts or audios only had one part of the conference call.

The main interest in these models are the estimated coefficients of the variable *LOSS*, which is statistically positive and significant in all cases, the estimated coefficients were 2.87, 1.04 and 2.13, in columns [a], [b] and [c], respectively. Therefore, the conference call, on average, is longer by 3 minutes, approximately, when the company incurs negative earnings in the quarter, and this occurs because both sections are longer, that is, the manager performs a longer presentation and is further questioned and/or takes longer to answer the questions when negative earnings are reported for the quarter. The results are in accordance with the presented hypothesis 1.

With respect to variable *Q*4, its estimated coefficient shown in columns [a] and [b] in Table 3 are 2.44 and 2.42, respectively, and statistically significant. Therefore, earnings conference calls of the fourth quarter are longer in fact, and this occurs because the manager takes longer to perform the presentation than in other quarters, with the purpose to provide information comparing the current year's performance with that of the previous year and prospects for the next year's performance.

The estimated coefficient of the variable *RET* is statistically significant and negative in columns [a] and [c] in Table 3, probably because the manager is less questioned when the company's performance is better causing the section of questions and answers to be shorter

and consequently the conference call too. Its coefficient in column [b] does not appear as statistically significant, implying that changes in the cumulative abnormal return does not influence the information content of the presentation.

Table 3 – Analysis of Informational Content of the Conference Call

Dependent Variable[a]	**[a]** ***CALL***			**[b]** ***PRES***			**[c]** ***Q&A***		
Independent Variable[b]	**Coef.**	**t-stat**[c]		**Coef.**	**t-stat**[c]		**Coef.**	**t-stat**[c]	
Constant	-18.24	-2.68	***	3.95	0.84		-30.93	-5.83	***
LOSS	2.87	2.77	***	1.04	1.81	*	2.13	2.13	**
%LOSS	-3.23	-1.78	*	0.47	0.27		-2.86	-1.98	**
ROS	0	0.85		0	-0.23		0	0.85	
ABS_ROS_CH	0	-0.39		0	3.33	***	0	-3.53	***
RET	-0.03	-2.59	**	-0.01	-1.33		-0.02	-2.38	**
VOL	0.37	0.93		0.02	0.09		0.5	1.39	
LNMV	3.31	6.54	***	0.5	1.43		3.46	9.21	***
BTM	-0.26	-0.94		-0.04	-0.14		-0.35	-1.36	
CALL(t-1)	0.41	8.01	***						
PRES(t-1)				0.48	5.61	***			
Q&A(t-1)							0.31	5.49	***
Q4	2.44	2.55	**	2.42	3.05	***	0.49	0.82	
Year Fixed Effects	**Yes**			**Yes**			**Yes**		
Firm Fixed Effects	**Yes**			**Yes**			**Yes**		
N. of Obs.	2836			2696			2769		
R^2	0.4508			0.3455			0.3985		

This table contains the coefficients estimated by the method of least squares (OLS) of models 1, 2 and 3, in columns[a], [b] and [c], respectively.
[a] *CALL* duration of the conference call, *PRES* duration of the presentation and *Q&A* duration of questions and answers, in minutes, of the conference call of the company *i* in the quarter *t*.
[b] *LOSS* indicator variable equal to 1 when the *EPS* of the company *i* in the quarter *t* is negative and 0 otherwise. *%LOSS* percentage of quarters with negative *EPS* during the last four quarters of the company *i*, where data from at least three quarters are required. *ROS* return on sales (ratio between revenue and net income) of the company *i* in the quarter *t. ABS_ROS_CH* absolute value of the seasonal change in earnings on sales of the company *i* from the quarter *t-4* to the quarter *t. RET* cumulative abnormal earnings adjusted daily by the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. VOL* standard deviation of daily cumulative adjusted abnormal earnings of the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. LNMV* natural logarithm of the market value of the company *i* in the quarter *t. BTM* ratio between the equity and the market value of the company *i* in the quarter *t. CALL(t-1*) duration of the conference call, *PRES(t-1)* duration of the presentation and *Q&A(t-1)* duration of questions and answers of the conference call of the company *i* in the quarter *t-1*. *Q4* is an indicator variable equal to 1 when quarter *t* is the fourth quarter and 0 otherwise.
[c] t-statistic with cluster analysis by company. *, ** and *** indicate statistical significance at 1%, 5% and 10%, respectively.
Source: Developed by the authors.

4.2 RELATIONSHIP BETWEEN THE INFORMATION CONTENT AND THE PERSISTENCE OF THE TYPE OF NEWS

In this section the objective is to analyze the relationship between the information content of the conference and the persistence of the company's earnings. To do this analysis we divided our sample into two groups, observations in which bad news were disclosed (losses) and in which good news were disclosed (profits). In Table 4 we have a number of observations for each group with respect to each variable. The number of companies incurring profits is much higher than the number of companies with loss. In approximately 81% of the observations in which we have the duration for the conference companies report positive earnings and only 19% of companies report negative earnings.

Table 4 – Number of Observations by Group of News

	CALL		***PRES***		***Q&A***	
Number of observations without cuts	3435		3277		3379	
Observations with data on quarterly earnings	3389		3235		3337	
Separation by group	**Profit**	**Loss**	**Profit**	**Loss**	**Profit**	**Loss**
Number of observations	2743	646	2635	600	2730	607

Source: Developed by the authors.

The results of the models 4, 5 and 6 for the group of companies with good news (profits) are in columns [a], [b] and [c] in Table 5. Column [a] in Table 5 shows the *EPS* regression results a year ahead of the current *EPS*, the duration of the conference call on current earnings and the interaction between the two. The interaction term between the variables earnings per share and duration of the conference captures the change in positive earnings persistence with respect to changes in the conference duration.

In the other columns we replaced duration of the conference call for the duration of its sections separately, in column [b] the duration of the presentation and in column [c] the duration of questions and answers. The estimated coefficients of the control variables were omitted, as well as the coefficients of the dummy variables included to capture the fixed effects of the year and firm. In all regressions we used the same control variables as well as the interaction of the control variables with the *EPS*

The main interest is in the coefficients of the interaction variables *CALL∗ EPS*, *PRES∗EPS* and *Q&A∗ EPS*, all estimated coefficients are statistically significant and

negative. In column [a] in Table 5, the coefficient of the variable $CALL * EPS$ is −0.29, thus, longer conferences are related to less persistent positive earnings.

Table 5 – Relationship between Information Content and Persistence of Good News

Dependent Variable[a]	**[a]** ***EPS(t+4)***			**[b]** ***EPS(t+4)***			**[c]** ***EPS(t+4)***		
Independent Variable[b]	**Coef.**	**t-stat**[d]		**Coef.**	**t-stat**[d]		**Coef.**	**t-stat**[d]	
Constant	9.14	0.98		21.64	1.74	*	9.54	1.09	
EPS	-15.21	-1		-40.29	-1.89	*	-14.45	-1.2	
CALL	0.12	3.48	***						
*CALL*EPS*	-0.29	-4.2	***						
PRES				0.18	2.45	**			
*PRES*EPS*				-0.27	-1.95	*			
Q&A							0.11	2.6	**
*Q&A*EPS*							-0.33	-3.34	***
Control Variables[c]	**Yes**			**Yes**			**Yes**		
Year Fixed Effects	**Yes**			**Yes**			**Yes**		
Firm Fixed Effects	**Yes**			**Yes**			**Yes**		
Nº. of Obs.	2163			2085			2137		
R^2	0.8215			0.7535			0.8126		

This table contains the coefficients estimated by the method of least squares (MLS) of the models 4, 5 and 6, in columns [a], [b] and [c], respectively, for companies incurring profit.
[a] *EPS(t+4)* earnings per share of the company *i* in the quarter *t+4.*
[b] *EPS* earnings per share of the company *i* in the quarter *t. CALL* duration of the conference call, *PRES* duration of the presentation and *Q&A* duration of questions and answers, in minutes, of the conference call of the company *i* in the quarter *t.*
[c] *LOSS* indicator variable equal to 1 when the EPS of the company *i* in the quarter *t* is negative and 0 otherwise. *%LOSS* percentage of quarters with negative EPS during the last four quarters of the company *i*, where data from at least three quarters are required. *ROS* return on sales (ratio between revenue and net income) of the company *i* in the quarter *t. ABS_ROS_CH* absolute value of the seasonal change in earnings on sales of the company *i* from the quarter *t-4* to the quarter *t. RET* cumulative abnormal earnings adjusted daily by the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. VOL* standard deviation of daily cumulative adjusted abnormal earnings of the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. LNMV* natural logarithm of the market value of the company *i* in the quarter *t. BTM* ratio between the equity and the market value of the company *i* in the quarter *t. ABSACC* absolute value of the amount of the company's accruals *i* in the quarter *t*, accruals are calculated as the difference between net income and the cash flow weighted by total assets. And the interaction between all these variables and *EPS.*
[d] t-statistics with cluster analysis by the company. *, ** and *** indicate statistical significance at 1%, 5% and 10%, respectively.
Source: Developed by the authors.

In column [b] the coefficient of the variable $PRES * EPS$ is −0.27, that is, when the first section of the conference presents a higher information content than the average, the announced positive earnings tend to be less persistent. One possible explanation may be an

ontological issue, where less persistent earnings are naturally more difficult to explain than more persistent earnings and therefore require more time to be communicated. Another alternative explanation could be a matter of obfuscation, where the manager would intentionally act on communication trying to divert attention from conference participants from bad news that they would have to communicate and thus spend more time in their presentation.

In column [c] the coefficient of the variable *Q&A∗EPS* is −0.33, so when the second part of the conference lasts longer than the average, positive earnings tend to be less persistent. Therefore, based on an ontological explanation, we have that less persistent positive earnings are more difficult to understand, thus, even if the manager has disclosed information about the quality of earnings participants of the conference demand more information to better understand the firm's earnings. Another alternative explanation would be that if the manager acted in order to obfuscate the bad quality of earnings during the first part of the conference, a greater duration of the second section may indicate that the participants perceive this behavior and ask more questions to the manager when the current positive earnings tend to be less persistent.

The same models were estimated for companies with bad news (loss) and the results are found in Table 6. In column [a] we have the estimated model coefficients that captures the relationship between the information content from the conference call with the persistence of bad news. In columns [b] and [c] the results of the models that analyze the information content of the two conference sections individually. The control variables are the same as regressions shown in Table 5 and their coefficient were also omitted. Following the same pattern, we included variables included to capture the fixed effects of year and firm. The estimated variable coefficient *CALL∗EPS* in model 4 for companies with bad news is negative and statistically significant, −0.020. Therefore, when the conference has a higher information content than the average, negative earnings tend to be less persistent. One possible explanation for this behavior is that managers with less persistent negative earnings seek to differentiate themselves from those with more persistent negative earnings, disclosing more information to reveal this news. However, the coefficients of the variables *PRES∗EPS* (column [b]) and *Q&A∗EPS* (column [c]), in Table 6, are not statistically significant. Therefore, variations in the information content of the first or second part of the conference call are not related to variations in the persistence of the company's negative earnings.

Table 6 – Relationship between Informational Content and Persistence of Good News

Dependent Variable[a]	**[a]** ***EPS(t+4)***			**[b]** ***EPS(t+4)***		**[c]** ***EPS(t+4)***	
Independent Variable[b]	**Coef.**	**t-stat**[d]		**Coef.**	**t-stat**[d]	**Coef.**	**t-stat**[d]
Constant	-71.14	-0.72		-49.42	-0.61	-92.79	-0.83
EPS	-1.32	-0.38		-0.001	0	0.45	0.17
CALL	-0.56	-1.88	*				
*CALL*EPS*	-0.02	-2.05	**				
PRES				-0.16	-1.28		
*PRES*EPS*				-0.01	-0.35		
Q&A						-0.74	-1.47
*Q&A*EPS*						-0.27	-1.55
Control Variable[c]	**Yes**			**Yes**		**Yes**	
Year Fixed Effects	**Yes**			**Yes**		**Yes**	
Firm Fixed Effects	**Yes**			**Yes**		**Yes**	
Nº. of Obs.	477			449		452	
R²	0.5438			0.5441		0.5554	

This table contains the coefficients estimated by the method of least squares (OLS) of the models 4, 5 and 6, in columns [a], [b] and [c], respectively, for companies incurring loss.

[a] *EPS(t+4)* earnings per share of the company *i* in the quarter *t+4.*

[b] *EPS* earnings per share of the company *i* in the quarter *t. CALL* duration of the conference call, *PRES* duration of the presentation and *Q&A* duration of questions and answers, in minutes, of the conference call of the company *i* in the quarter *t*.

[c] *LOSS* indicator variable equal to 1 when the *EPS* of the company *i* in the quarter *t* is negative and 0 otherwise. *%LOSS* percentage of quarters with negative *EPS* during the last four quarters of the company *i*, where data from at least three quarters are required. *ROS* return on sales (ratio between revenue and net income) of the company *i* in the quarter *t. ABS_ROS_CH* absolute value of the seasonal change in earnings on sales of the company *i* from the quarter *t-4* to the quarter *t. RET* cumulative abnormal earnings adjusted daily by the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. VOL* standard deviation of daily cumulative adjusted abnormal earnings of the company *i* during 90 days (trading days) up to two days prior to the conference call weighted by the earnings of the quarter *t. LNMV* natural logarithm of the market value of the company *i* in the quarter *t. BTM* ratio between the equity and the market value of the company *i* in the quarter *t. ABSACC* absolute value of the amount of the company's accruals *i* in the quarter *t,* accruals are calculated as the difference between net income and the cash flow weighted by total assets. And the interaction between all these variables and *EPS.*

[d] t-statistics with cluster analysis by the company. *, ** and *** indicate statistical significance at 1%, 5% and 10%, respectively.

Source: Developed by the authors.

5 FINAL CONSIDERATIONS

This study analyzed the relationship between the information content of the conference call and the type of news, considering bad or good news when the company reports positive or negative earnings for the quarter, respectively. The results indicate that the section of the conference, in which the manager presents the firm's quarterly earnings, has greater information content when the company reports bad news. Therefore, the manager voluntarily discloses more information during the presentation when the company incurs negative

earnings than when the company incurs positive earnings. The second section of the conference, which is related to questions and answers in quarterly earnings, also presented greater information content when the company has bad news to disclose, indicating that the manager is further questioned by participants of the conference when the company incurs negative earnings.

In addition, we found evidence that the manager discloses on average, more information during the first section of the conference when they know the good news will not be persistent for the following year, than when the good news is persistent. Just as the first part of the conference, the second part presented greater information content, on average, when the good news is less persistent. We found a negative correlation and statistically significant between the information content and the persistence of bad news, indicating that companies with less persistent negative earnings have conferences with informational content greater than those with more persistent negative earnings. However, there is no statistically significant relationship between the parts of the conference, separately, and the persistence of bad news.

The limitations of this research are related to issues such as: the metrics used to measure the effects of interest as information content, for which we used the duration in minutes of the conference call, the classification of the type of news, for which we used whether the company reported positive or negative earnings etc. In addition, the results are limited for the analyzed periods and companies, which should not be extended to other time stratums or groups of companies.

For future research it would be interesting to analyze more in-depth, what the true explanation is for disclosures with greater information content when the company presents negative or less persistent positive earnings, i.e., it would be an ontological or obfuscation matter. In addition, research could be conducted using other means of disclosure, such as press release, mandatory reports etc., as well as using other metrics for the measurement of information content and the type of news.

CONTRIBUTIONS BY THE AUTHORS

Nadia Cardoso Moreira contributed to the development of the idea, literature review, writing, collecting and analyzing data.

Felipe Ramos contributed to the development of the idea, writing, collecting and analyzing data.

Juliana Kozak-Rogo contributed to the development of the idea, construction of the econometric model, data analysis.

Rafael Rogo contributed to the development of the idea, data analysis and writing.

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