

## **AUTOMATIC TEXTUAL ANALYSIS OF IBEX35 PRESIDENT'S LETTERS TO SHAREHOLDERS. FACTORS THAT INFLUENCE DISCOURSE TONE**

Enrique Bonsón. Professor of Financial Economics and Accounting at the University of Huelva. Plaza de la Merced 11, 21002 Huelva, Spain

David Perea. Researcher in New Technologies and Accounting at the University of Huelva. Plaza de la Merced 11, 21002 Huelva, Spain

Graça Azevedo. Coordinator Professor at Institute of Higher Learning in Accounting and Administration - University of Aveiro. Rua Associação Humanitária dos Bombeiros Voluntários de Aveiro, 3810-902 Aveiro, Portugal.

**Keywords:** Chairman's letter; PDF; positive tone; discourse length.

*Nuevas Tecnologías y Contabilidad.*

*Research Workshop 2: «Digitalización e inteligencia artificial: implicaciones en la gestión»*

# Automatic textual analysis of IBEX35 president's letters to shareholders. Factors that influence discourse tone.

## Abstract

Through an automatic process of textual analysis of the IBEX35 president's letters to shareholders, this study tries to analyse their content focusing on the length and the tone of the discourse and the potential factors that can influence both. A total of 187 letters corresponding to the years 2013-2018 were analysed using the R package "pdftools". Our findings show that: (1) the chairperson's letters differ in terms of content, length and tone; (2) in general they show a low positive tone but (3) there is a greater positive tone when the profit after taxes decrease with respect to the previous year and when the directors' remuneration increases with respect to the previous year. Regarding content, a bigger sample of 321 letters corresponding to the years 2008-2018 was analysed using Voyant Tools that allowed us to identify the most frequent concepts discussed and some differences between financial and non-financial companies.

## 1. INTRODUCTION

Annual reports might variously be viewed as "an undisguised advertisement" or as "platforms for preaching [management's] philosophies and [for] touting themselves and their companies" (Ingram & Frazier, 1983). The complexity of full financial reports has prompted companies to provide summary reports (including narrative summaries, such as the letters to shareholders) to render reported information more comprehensible (Costa et al., 2013).

The letter to shareholders is written annually by the Chief Executive Officer/ Chairman / Chairwoman of a company and normally precedes the more substantial and detailed annual report of financial data from the previous fiscal year. These messages from the leader of the company are particularly important elements of the annual report, as they typically explain past performance and they offer a vision for achieving future success (Poole, 2014).

The letter is a promotional genre designed to build and present the corporation's image (Anderson & Imperia, 1992). It has enormous rhetorical importance in building credibility and imparting confidence, convincing investors that the company is pursuing sound and effective strategies (Hyland, 1998).

Purportedly intended to simply present objective information regarding a company's performance and strategy, the letters, however, also serve to project the corporate image and ideology to both existing and potential investors. Negotiating relationships with multiple audiences for multiple purposes results in the rhetorical complexity and richness of the chairman's letter (Poole, 2014).

While the actual financial statements following the letter are often considered the most important items for investors and analysts, the letters have an undeniable influence on investment decisions (Lee & Tweedie, 1981). The letter is the most read portion of the annual report and 48% of readers claim to read the letters thoroughly (Bartlett & Chandler, 1997). In addition, annual reports and the president's letter also function to establish credibility and convince readers that the company is "pursuing sound strategy" (Kohut & Segars, 1992).

This letter can be written by the president or the CEO. A president technically has higher powers than a CEO. Since the CEO has still to answer to the board of directors, which is headed by the president. A CEO is concerned with executing strategies that have been approved by the board and they are the ones who are mostly seen in action. Ultimately, the fate of a CEO rests on how satisfied the board is with what they have done with the company (Partners, 2015).

There are cases where both (president and CEO) positions are held by the same person, although from one perspective, academics persuasively argue for the separation of roles on the basis that a clear division of responsibilities better guarantees independent action on behalf of the board (Coombes & Wong, 2004).

For the reasons explained, the letter to shareholders is a particularly important genre and the research to date on the messages is insightful. Exploring content and tone can be an interesting field of research as we show in this study which is organized as follows: in Section 2 we present a review of previous studies related to the president's letter. The sample used and the methodology followed in the research are explained in Section 3. Section 4 presents the findings. Finally, the main conclusions and avenues for future research are discussed in Section 5.

## **2. LITERATURE REVIEW**

Previous research has focused much more on the CEO's perspective, leaving the president's aside. An extensive academic literature explores aspects of the CEO letter to shareholders. Some of this comprises content analysis studies of expressions of company performance (Abrahamson & Amir, 1996; Clatworthy & Jones, 2006), bankruptcy and/or a company's risk of failure (Smith & Taffler, 2000; Tennyson et al., 1990); cultural values (Mir et al., 2009); and the linguistic features of CEO letters for narrative cues (e.g. metaphors and rhetoric) that are indicative of the influence the communicator is trying to exert on a communication recipient (Amernic et al., 2010; Amernic & Craig, 2006; Sydserff & Weetman, 1999).

Researchers have studied the complex interaction between the CEO letter, the company and the financial statements that together create a social world in which the CEO plays a key role (Jonäll & Rimmel, 2010).

The study by Kohut and Segars (1992) assessed whether there are discernible thematic differences between low-performing and high-performing companies and the extent "word count, number of sentences, and syllables" differ between the two performance levels. Using a content analysis methodology, the study determined that high-performing companies were significantly more loquacious than their low-performing counterparts.

Interestingly, the researchers concluded that high-performer letters were more likely to refer to past events in their discussion of company performance. In contrast, low performers tended to project more toward the future.

Additional studies have also examined presidents' letters and annual reports' methods for reporting both positive and negative performance. Clatworthy and Jones (2003) analysed the end of year narratives of the top 50 and bottom 50 listed UK companies. The analysis determined that both groups of companies accentuate the positive aspects of their performance, assume responsibility for success, and deflect blame to external factors for bad news. However, Rutherford (2003) reported that poorly performing companies do not use linguistic complexity to obscure negative performance and that the textual complexity of annual reports cannot simply be attributed to performance.

Regarding content analysis, a preliminary examination (McConnell et al., 1986) of 100 presidents' letters identified nine recurring themes commonly addressed in discussions of the future. These themes were: (1) Confidence, (2) Market Context, (3) Growth, (4) Statement of Strategic Plans, (5) Changing Product Mix, (6) Imminent Losses, (7) Imminent Gains, (8) Positive References to the Years Ahead, (9) Positive References to the Forthcoming Year. Additionally, Kohut and Segars (1992), examined the content of the president's letter of the top and bottom 25 firms of the Fortune 500 and revealed six main themes: (1) environment, (2) growth, (3) operating philosophy, (4) markets and products, (5) unfavourable and (6) favourable financial reference. They were able to classify high and low performing firms according to the themes emphasized in the president's letter.

In this study, we conduct an automatic process of textual analysis, which can be considered its main contribution from a methodological perspective. The IBEX35 president's letters to shareholders are analysed trying to answer the following questions: (RQ1) What is the content, length and tone of the president's letter? (RQ2) What factors influence discourse length on president's letter? (RQ3) What factors influence their positive tone?

### **3. METHODOLOGY**

#### **Sample and text extraction**

The sample for this study consisted of the 32 IBEX35 companies as of December 2018 which regularly provided access to the president's letters. IBEX35 concentrates 90% of the business of the entire Spanish Stock Exchange. A total of 187 letters from 2013 to 2018 were analysed. Because 5 companies presented only five years. President's letters were identified manually through the annual report of the companies, available on their websites. They are in a PDF (Portable Document Format) format.

The letters were then processed as shown in table and figure 1. Table 1 presents an overview of the text analysis operations conducted with R statistical advanced software (R Core Team, 2018) categorized in two sections: data preparation and analysis. The first step, importing text, covers the functions for reading texts of pdf file format into a raw text corpus in R. The next is the string operations and pre-processing cover techniques for manipulating raw texts and processing them into tokens (i.e., units of text, such as

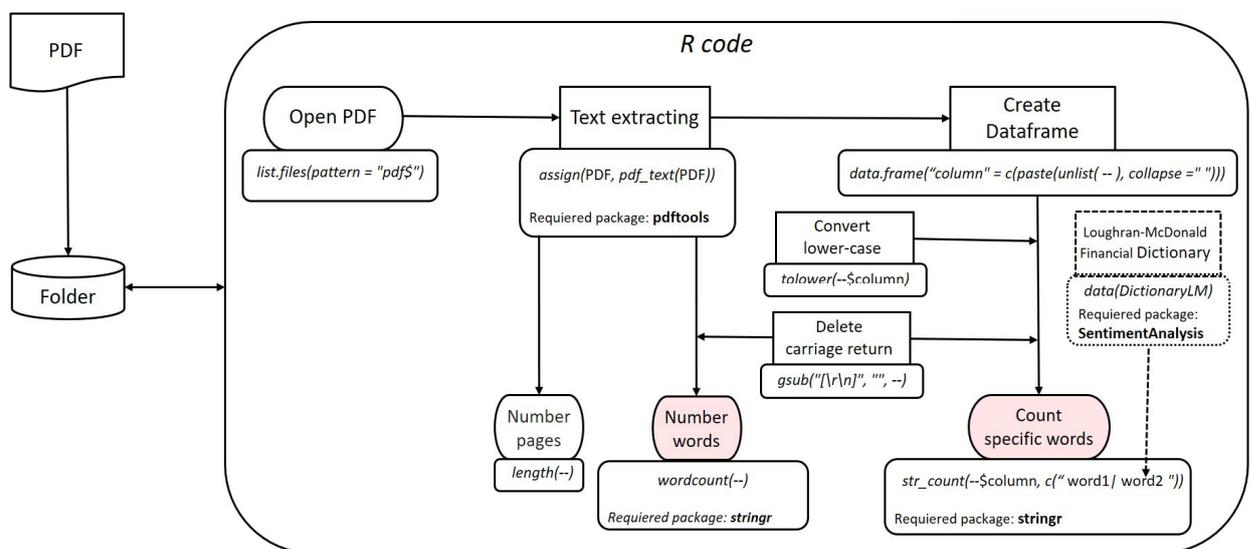
words or word stems). The analysis section utilizes the selected dictionary to identify the words expressing a positive tone. The dictionary approach broadly refers to the use of patterns, from simple keywords to complex Boolean queries and regular expressions, to count how often certain concepts occur in texts.

**Table 1.** An overview of text PDF analysis operations, with the R packages used in this analysis

Operations	R packages	R functions
<b>Data preparation</b>		
importing text	pdftools	<i>pdf_text()</i>
string processing	Stringr	<i>wordcount()</i> , <i>str_count()</i>
<b>Analysis</b>		
Dictionary	SentimentAnalysis	<i>DictionaryLM</i>

Figure 1 shows the flowchart of the analysis detailing every step and R package and function used. The extraction of the text is done through the "pdf\_text()" function of the "pdftools" R package (Ooms, 2020), that returns a character vector of equal length to the number of pages in the PDF file, in order to create the sentences or paragraphs. It's used because the pdf format has little semantic structure. Previously, carriage returns were also automatically deleted, and capital letters were converted to lowercase. The total word count contained in each letter is done automatically through the "wordcount" function of the "ngram" R package (Schmidt & Heckendorf, 2017).

**Figure 1.** Flowchart of PDF document analysis



All the letters were then automatically analysed using the "str\_count" function of the "stringr" R package (Wickham, 2019) that counts the number of matches of a dictionary in a string.

We use a list of positive words of the Loughran-McDonald finance-specific dictionary (Loughran & McDonald, 2010) (see table 2) that has been widely used in the finance domain. It is "DictionaryLM" function of the "SentimentAnalysis" R package (Feuerriegel & Proelochs, 2019). Thus, identifying the positive tone of each letter ( $Tone\ positive = \frac{number\ of\ positive\ words\ in\ letter}{total\ words\ of\ letter}$ ).

**Table 2.** Positive words in the Loughran-McDonald finance dictionary

354 words

able	best	delighting	fantastic	inspirational	proactive
abundance	better	dependability	favorable	integrity	profitably
acclaimed	bolstered	desirable	friendly	invent	progress
accomplish	bolstering	desired	gain	leadership	rebound
accomplished	boom	dream	good	loyal	regain
achieve	booming	easier	great	lucrative	reward
achieved	boost	effective	happiest	meritorious	satisfaction
adequately	boosted	empower	highest	opportunities	smooth
advancement	breakthrough	enable	honor	optimistic	solves
advantageous	breakthroughs	encouraged	ideal	outperform	transparency
alliance	brilliant	enhance	impress	perfect	tremendous
assure	charitable	enjoy	improve	pleasant	upturn
attain	collaborate	enthusiasm	incredible	popular	vibrant
attractive	compliment	excellence	innovate	positive	win
beautiful	conclusive	exceptional	insightful	Premier	worthy
beneficial	confident	excited	inspiration	prestige	.....

For content analysis, the sample was extended to years 2008-2018. A total of 321 letters were then considered. The analysis was conducted by means of Voyant Tools (Sinclair et al., 2016), an open source web-based text reading and analysis environment that performs content analysis allowing large-scale comparisons of a set of texts or corpus.

A content analysis is a technique widely used in the social sciences. It can be characterized as the sys-thematic enumeration, coding and classification of words and phrases for the purpose of analysing message content. It is not a fixed analytical technique; rather, it is an approach that offers guidelines for the systematic analysis of written communications.

Voyant includes several tools like “Cirrus” and “Collocates Graph” to represent the results of the content analysis. “Cirrus” is a word cloud that visualizes the top frequency words of a corpus or document. “Collocates Graph” represents keywords and terms that occur in proximity as a force directed network graph. Apart from stop words, very frequent words (*group, new, million, business, year, company, report, bank*) that have no contextual value have also been removed.

**Dependent and independent variables**

In this study we try to identify potential factors that can influence the length and the tone of the discourse of the president’s letters, so both are the dependent variables we use in our model.

The length of the letters has been proven to generate primacy effects for longer letters, and in a short but complex letter, a recency effect is predicted, in which case it would be to the company’s advantage to present the good news last (Baird & Zelin, 2000). Thus, this variable has been analysed from an effect generating perspective which suggested us to explore the opposite, that is: possible factors influencing it.

The tone of the discourse has been studied to examine how companies report good and bad news in different ways (Clatworthy & Jones, 2003), whether the ordering of good news and bad news in a president's letter could bias investor perceptions (Baird & Zelin,

2000) and the factors of the amount of negativity expressed in the president's letter (Abrahamson & Amir, 1996).

The independent variables (see *table 3*) refer to the increase (with respect to the previous year) of Market capitalization (MarkCap), Profit after taxes (EAT), Directors' Remuneration (DirecRemu) and to the Sector (Sector) in which the company is included.

In our paper we analyse the potential influence of the growth of the market capitalization of the company. This variable has been used in previous literature on disclosure (Healy et al., 1999; Skinner, 1994; Verrecchia, 1990). Abrahamson & Amir (1996), found that market capitalization is significantly lower in firms with low negative tone relative to firms with high negative tone.

We also analyse the potential impact of the growth or decline of the profit after taxes (EAT). Companies both with improving or declining performance prefer to take credit for good news themselves, while blaming the external environment for bad news (Clatworthy & Jones, 2003) and moreover, both groups placed predominant emphasis on the past (Kohut & Segars, 1992).

Directors' remuneration is an important aspect of companies' disclosures to check if moderated executive pay increases or ratcheted them upwards (Clarke et al., 1998). Some suggest that with more information about pay levels on public display, those who are paid less will press for pay increases, since remuneration levels are often set with the help of comparisons with other companies (Hampel, 1998). For that reason, we decided to explore the potential impact of Director's remuneration growth on the president's letter.

Company's sector is one of the most frequently addressed determinants in voluntary reporting literature. Researchers provide rather than consistent evidence for a significant relationship between these two variables (Bonsón & Bednárová, 2013; Brammer & Pavelin, 2006; Hahn & Kühnen, 2013). Because of the nature of their activities, the president's letters of companies operating in different sectors may also differ. In our paper, we consider two groups of sectors. The first group includes companies that operate in the financial and insurance sectors. The second group all the others. Accordingly, it has been verified that finance companies are slightly more likely to publish a CEO letter than non-finance companies (Costa et al., 2013), which suggest that differences could also be found in relation to our analysis.

**Table 3.** Variables

Variable	Full Name	Shortened Name	Description	Source
Dependent	Discourse Length	DiscLeng	1 = number words above the average. 0 = number words equal or below the average.	Chairman's letters
	Positive tone	PositTone	1 = positive words above the average. 0 = positive words equal or below the average.	
Independent	Market capitalization	MarkCap	1 = market capitalization growth compared to the previous year. 0 = If not.	Google Finance
	Profit after taxes	EAT	1 = EAT growth compared to the previous year. 0 = If not.	SABI (Sistema de Análisis de Balances Ibéricos)
	Directors' Remuneration	DirecRemu	1 = Directors' Remuneration growth compared to the previous year. 0 = If not.	CNMV: Comisión Nacional de Mercado de Valores Informes de remuneraciones de los consejeros de las sociedades cotizadas 2013 / 2014 / 2015 / 2016 / 2017 / 2018
	Sector	Sector	1 = it is a financial company. 0 = If not.	Activity of companies themselves

These independent variables have been collected from different sources (Google Finance, Sistema de Análisis de Balances Ibéricos and Comisión Nacional de Mercado de Valores) and treated as dummy variables. These factors try to explain both the discourse length (dependent variable 1) and its positive tone (dependent variable 2).

In this way, the following two logistic regressions were conducted:

$$(1) \text{ DiscLeng} = \alpha + \beta_1 \text{MarkCap} + \beta_2 \text{EAT} + \beta_3 \text{DirecRemu} + \beta_4 \text{Sector} + \epsilon$$

$$(2) \text{ PositTone} = \alpha + \beta_1 \text{MarkCap} + \beta_2 \text{EAT} + \beta_3 \text{DirecRemu} + \beta_4 \text{Sector} + \epsilon$$

#### 4. FINDINGS

The results obtained with respect to the length and positive tone were that the maximum discourse length was found to be 92.697 words and the minimum 653 (average=5.152, std.=8.101), and the positive tone was very low (average=1,198%, std.= 0,649), ranging from 3,72% to 0,005% as can be seen in table 4. It means that there is no homogeneous length or tone between the different letters.

**Table 4.** Descriptive statistics

	Maximum	Average	Minimum	St. D.
<b>Discourse length</b>	92.697	5.152	653	8.101
<b>Positive tone (%)</b>	3,722	1,198	0,005	0,649

According to our findings, none of the variables studied affect length (see table 5). While, there is a significant negative relationship between the profit after taxes of companies and its positive tone and also, there is a significant positive relationship between the directors' remuneration and positive tone (see table 6). Therefore, the chairman's letters use a greater positive tone, when the profit after taxes decrease with respect to the previous year and when the directors' remuneration increases with respect to the previous year.

**Table 5.** Multivariate statistics – Generalised Linear Model (Binomial)

<i>Independent variable</i>	<i>Dependent variable</i>		
	<b>Discourse Length</b>		
	Estimate	z value	Sig.
(Intercept)	-1,354	-3,257	0,0011 **
Market capitalization	-2,028	-0,569	0,569
Profit after taxes	0,379	0,916	0,360
Directors' Remuneration	-0,122	-0,340	0,734
Sector	0,467	1,810	0,238

\*\* Significant at  $p < 0.01$  (2-tailed)

**Table 6.** Multivariate statistics – Generalised Linear Model (Binomial)

<i>Independent variable</i>	<i>Dependent variable</i>		
	<b>Positive tone</b>		
	Estimate	z value	Sig.
(Intercept)	-0,403	-1,146	0,252
Market capitalization	0,059	0,185	0,853
Profit after taxes	-0,708	-2,047	0,041 *
Directors' Remuneration	0,681	2,099	0,036 *
Sector	0,254	0,689	0,491

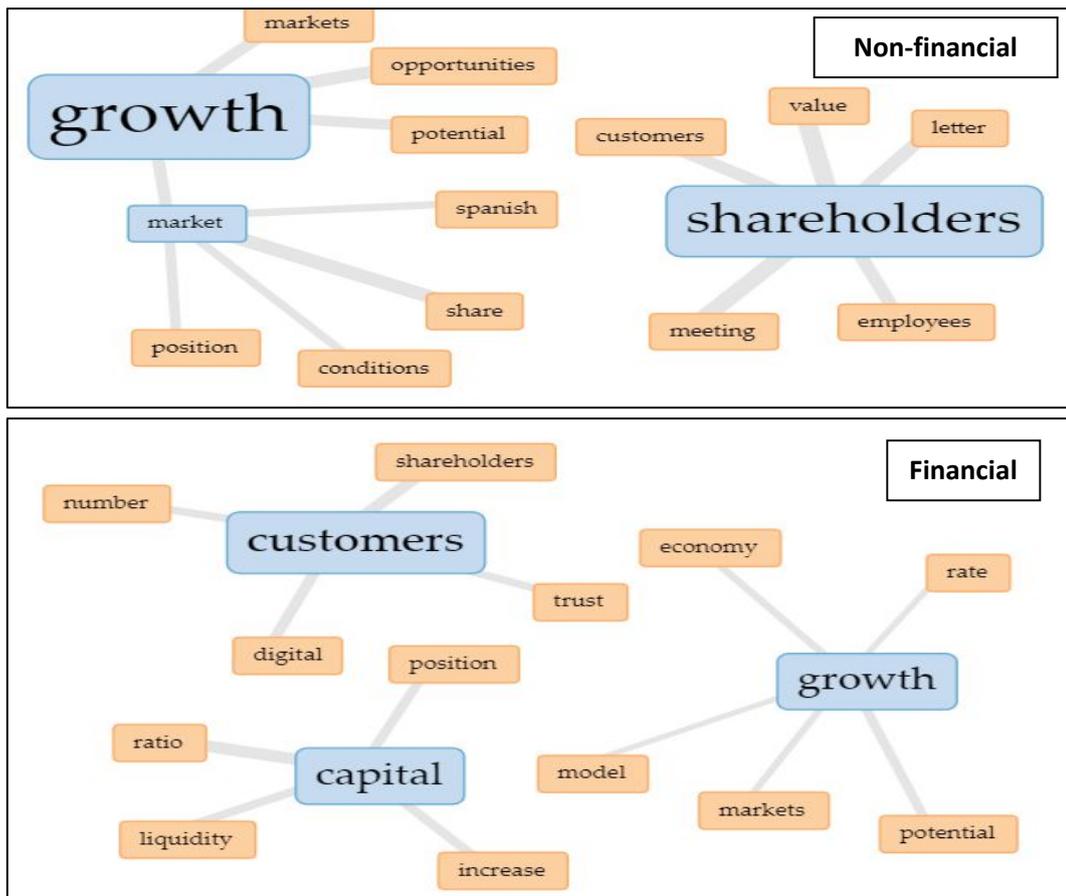
\* Significant at  $p < 0.05$  (2-tailed)

Regarding content analysis, a corpus of 321 documents with 378,267 total words and 19,291 single word forms is analysed with Voyant Tools. Figure 2 shows that the most frequent words in the president's letters are "growth" (1261), followed by "financial" (854) and "shareholders" (794). But the words "customers", "market", "management" and "commitment" are also relevant.

**Figure 2.** Cirrus of content analysis







## 5. CONCLUSION

Our study shows that president's letters differ in terms of length and tone. There is no homogeneous length or tone between them as Baird and Zelin (2000) reported. The letters have an average length of 5,152 words and the discourse has a low positive tone (1,198%). Even so, the positive tone is greater than the negative, since unless it is required, negative results are generally not supposed to appear (Abrahamson & Park, 1994). It is true that words with a negative connotation could all too easily suggest a prejudicial financial situation (Bournois & Point, 2006) for this reason, avoiding a negative tone is expected. According to it, although there is a low positive tone, we focus on the positive tone, since the negative is usually non-existent.

Regarding variables studied, none of them affect length, but there are certain relationships with tone. For example, when the EAT decreases with respect to the previous year, the letters show a greater positive tone. This is because the practice of embellishment by omission is frequently used to prevent any real assessment of the company's performance, and in special following a difficult year, the prominence of self-justification and a certain complacency at the state of things can be noted (Bournois & Point, 2006). It also happens when the directors' remuneration increases with respect to the previous year. In this case the positive tone is greater because the president conveys to their shareholders that the company is doing a good exercise. We interpret this to mean that the president justifies raising his board's remuneration, using a more positive tone, for shareholders to understand that rise. On the contrary, the positive tone is not

related to the variation with respect to the previous year of the market capitalization, nor the sector that classifies the company (financial or non-financial).

The content analysis of the letters highlights the growth of the company as the most frequent topic the presidents discuss, without neglecting the technical aspects (financial and management) and the personal aspects (to their shareholders and customers). This aligns with previous investigations (Bournois & Point, 2006; Kohut & Segars, 1992; McConnell et al., 1986) where they all coincide in identifying growth. Most companies refer to growth, either underlining it as a potential, an opportunity, a strategy and a market.

There are certain differences between the letter's content of financial companies and non-financial companies. While non-financial companies focus more on the growth, financial companies focus mainly on customers. This does not only happen in president's letters, it also transpires that during the Covid-19 crisis, it has been present that the brands of financial entities have been more rational in their communication, and have focused especially on explaining how they have helped their clients (Welovroi, 2020).

The contribution of our study is two-fold. First, it fills a gap in the literature. Second, the findings of our study may have practical implications for shareholders, who can understand what can be happening when a higher positive tone is used in the chairman's letters.

### **Limitations and future research**

Before closing, several limitations—together with recommendations for future research—have to be acknowledged. The first limitation is about the sample. For that reason, it should be extended to a higher sample using a Big Data approach (AECA, 2017), since there is no problem in processing the text when done automatically.

Although this empirical research studied Spanish stock exchange, future studies could adopt our approach and apply it to a comparative context with other international stock exchanges, which could improve the generalisability and understanding of the results.

### **REFERENCES**

- Abrahamson, E., & Amir, E. (1996). THE INFORMATION CONTENT OF THE PRESIDENT'S LETTER TO SHAREHOLDERS. In *Journal of Business Finance & Accounting* (Vol. 23, Issue 8). <https://doi.org/10.1111/j.1468-5957.1996.tb01163.x>
- Abrahamson, E., & Park, C. (1994). Concealment of Negative Organizational Outcomes: An Agency Theory Perspective. *Academy of Management Journal*, 37(5), 1302–1334. <https://doi.org/10.5465/256674>
- AECA. (2017). *"Big Data" e información empresarial* (Asociación Española de Contabilidad y Administración de Empresas (ed.)).
- Amernic, J., & Craig, R. (2006). *CEO-Speak: The Language of Corporate Leadership*. McGill-Queen's Press. [https://books.google.es/books/about/CEO\\_Speak.html?id=UtWg20oIrl0C&redir\\_esc=y](https://books.google.es/books/about/CEO_Speak.html?id=UtWg20oIrl0C&redir_esc=y)

- Amernic, J., Craig, R., & Tourish, D. (2010). *Measuring and Assessing Tone at the Top Using Annual Report CEO Letters*. [www.icas.org.uk/research](http://www.icas.org.uk/research)
- Anderson, C. J., & Imperia, G. (1992). The Corporate Annual Report: A Photo Analysis of Male and Female Portrayals. *Journal of Business Communication*, 29(2), 113–128. <https://doi.org/10.1177/002194369202900201>
- Baird, J. E., & Zelin, R. C. (2000). THE EFFECTS OF INFORMATION ORDERING ON INVESTOR PERCEPTIONS: AN EXPERIMENT UTILIZING PRESIDENTS' LETTERS. In *Journal of Financial and Strategic Decisions* (Vol. 13).
- Bartlett, S. A., & Chandler, R. A. (1997). The corporate report and the private shareholder: Lee and tweedie twenty years on. *British Accounting Review*, 29(3), 245–261. <https://doi.org/10.1006/bare.1996.0044>
- Bonsón, E., & Bednárová, M. (2013). Corporate LinkedIn practices of Eurozone companies. *Online Information Review*, 37(6), 969–984. <https://doi.org/10.1108/OIR-09-2012-0159>
- Bournois, F., & Point, S. (2006). A letter from the president: Seduction, charm and obfuscation in French CEO letters. *Journal of Business Strategy*, 27(6), 46–55. <https://doi.org/10.1108/02756660610710355>
- Brammer, S., & Pavelin, S. (2006). Voluntary environmental disclosures by large UK companies. *Journal of Business Finance and Accounting*, 33(7–8), 1168–1188. <https://doi.org/10.1111/j.1468-5957.2006.00598.x>
- Clarke, R. N., Conyon, M. J., & Peck, S. I. (1998). Corporate Governance and Directors' Remuneration: Views from the Top. *Business Strategy Review*, 9(4), 21–30. <https://doi.org/10.1111/1467-8616.00079>
- Clatworthy, & Jones, M. J. (2003). Financial reporting of good news and bad news: Evidence from accounting narratives. *Accounting and Business Research*, 33(3), 171–185. <https://doi.org/10.1080/00014788.2003.9729645>
- Clatworthy, M. A., & Jones, M. J. (2006). Differential Financial Reporting Patterns in Accounting Narratives: Evidence from Profitable and Unprofitable Companies. *Accounting, Auditing and Accountability Journal*, 19(4), 493–511. <https://research-information.bris.ac.uk/en/publications/differential-financial-reporting-patterns-in-accounting-narrative>
- Coombes, P., & Wong, S. C. Y. (2004). Chairman and CEO - One Job or Two? *The McKinsey Quarterly*, 2. <https://papers.ssrn.com/abstract=897485>
- Costa, G. A., Oliveira, L. C., Rodrigues, L. L., & Craig, R. (2013). Factors associated with the publication of a CEO letter. *Corporate Communications*, 18(4), 432–450. <https://doi.org/10.1108/CCIJ-07-2012-0045>
- Feuerriegel, S., & Proellocks, N. (2019). *SentimentAnalysis: Dictionary-Based Sentiment Analysis*. <https://cran.r-project.org/package=SentimentAnalysis>
- Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research.

- Journal of Cleaner Production*, 59, 5–21.  
<https://doi.org/10.1016/j.jclepro.2013.07.005>
- Hampel, R. (1998). *COMMITTEE ON CORPORATE GOVERNANCE Final Report*.
- Healy, P. M., Hutton, A. P., & Palepu, K. G. (1999). Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure. *Contemporary Accounting Research*, 16(3), 485–520.  
<https://doi.org/10.1111/j.1911-3846.1999.tb00592.x>
- Hyland, K. (1998). Exploring Corporate Rhetoric: Metadiscourse in the CEO's Letter. *Journal of Business Communication*, 35(2), 224–244.  
<https://doi.org/10.1177/002194369803500203>
- Ingram, R. W., & Frazier, K. B. (1983). Narrative disclosures in annual reports. *Journal of Business Research*, 11(1), 49–60.  
<https://ideas.repec.org/a/eee/jbrese/v11y1983i1p49-60.html>
- Jonäll, K., & Rimmel, G. (2010). CEO letters as legitimacy builders: coupling text to numbers. *Journal of Human Resource Costing & Accounting*, 14(4), 307–328.  
<https://doi.org/10.1108/14013381011105975>
- Kohut, G. F., & Segars, A. H. (1992). The President's Letter to Stockholders: An Examination of Corporate Communication Strategy. *Journal of Business Communication*, 29(1), 7–21. <https://doi.org/10.1177/002194369202900101>
- Lee, T. A., & Tweedie, D. P. (1981). *The institutional investor and financial information: a report sponsored by the Research Committee of the Institute of Chartered Accountants in England and Wales* (Institute of Chartered Accountants in England and Wales. (ed.)). The Institute. <https://capitadiscovery.co.uk/brighton-ac/items/222742>
- Loughran, T., & McDonald, B. (2010). When is a Liability not a Liability? Textual Analysis, Dictionaries, and 10-Ks by Tim Loughran, Bill McDonald :: SSRN. *Journal of Finance, Forthcoming*.
- McConnell, D., Haslem, J. A., & Gibson, V. R. (1986). The President's Letter to Stockholders: A New Look. *Financial Analysts Journal*, 42(5), 66–70.  
<https://doi.org/10.2469/faj.v42.n5.66>
- Mir, M. Z., Chatterjee, B., & Rahaman, A. S. (2009). Culture and corporate voluntary reporting: A comparative exploration of the chairperson's report in India and New Zealand. *Managerial Auditing Journal*, 24(7), 639–667.  
<https://doi.org/10.1108/02686900910975369>
- Ooms, J. (2020). *pdftools: Text Extraction, Rendering and Converting of PDF Documents*. <https://cran.r-project.org/package=pdftools>
- Partners, J. C. (2015). *Executive Chairman vs CEO*. Joseph Chris Partners Executive Recruiting Search Firm. <http://www.josephchris.com/executive-chairman-vs-ceo>
- Poole, R. (2014). Good Times, Bad Times: A Keyword Analysis of Letters to Shareholders of Two Fortune 500 Banking Institutions. *International Journal of*

- Business Communication*, 53(1), 55–73.  
<https://doi.org/10.1177/2329488414525449>
- R Core Team. (2018). *R: A Language and Environment for Statistical Computing*.  
<https://www.r-project.org/>
- Rutherford, B. A. (2003). Obfuscation, textual complexity and the role of regulated narrative accounting disclosure in corporate governance. *Journal of Management and Governance*, 7(2), 187–210. <https://doi.org/10.1023/A:1023647615279>
- Schmidt, D., & Heckendorf, C. (2017). *{ngram}: Fast n-Gram Tokenization*.  
<https://cran.r-project.org/package=ngram>
- Sinclair, Stéfan, & Rockwell. (2016). *Voyant Tools*. <http://voyant-tools.org/>.
- Skinner, D. J. (1994). Why Firms Voluntarily Disclose Bad News. *Journal of Accounting Research*, 32(1), 38. <https://doi.org/10.2307/2491386>
- Smith, M., & Taffler, R. J. (2000). The chairman's statement - A content analysis of discretionary narrative disclosures. *Accounting, Auditing & Accountability Journal*, 13(5), 624–647. <https://doi.org/10.1108/09513570010353738>
- Sydserrff, R., & Weetman, P. (1999). A texture index for evaluating accounting narratives: An alternative to readability formulas. *Accounting, Auditing & Accountability Journal*, 12(4), 459–488.  
<https://doi.org/10.1108/09513579910283503>
- Tennyson, B. M., Ingram, R. W., & Dugan, M. T. (1990). ASSESSING THE INFORMATION CONTENT OF NARRATIVE DISCLOSURES IN EXPLAINING BANKRUPTCY. *Journal of Business Finance & Accounting*, 17(3), 391–410. <https://doi.org/10.1111/j.1468-5957.1990.tb01193.x>
- Verrecchia, R. E. (1990). Information quality and discretionary disclosure. *Journal of Accounting and Economics*, 12(4), 365–380. [https://doi.org/10.1016/0165-4101\(90\)90021-U](https://doi.org/10.1016/0165-4101(90)90021-U)
- Welovroi. (2020). *Empleo de las redes sociales por parte de las empresas del Ibex 35 durante la pandemia de coronavirus*. <https://www.expansion.com/economia-digital/companias/2020/06/09/5ed90ab9468aeb35288b4595.html>
- Wickham, H. (2019). *stringr: Simple, Consistent Wrappers for Common String Operations*. <https://cran.r-project.org/package=stringr>