


Association between the emotional content of integrated reporting and companies' economic performance

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Received on 09/29/2024 – Desk acceptance on 11/21/2024 – 3rd version approved on 06/19/2025

Academic Editor-in-Chief: Andson Braga de Aguiar

Associate Editor: Eduardo da Silva Flores

ABSTRACT

The objective of the study is to examine the association between the emotional content of integrated reporting and the economic performance of listed Brazilian companies. Related literature indicates a demand for studies on integrated reporting in emerging countries, notably those that assess the tone of corporate communication, involving positive and negative emotions, and its relationship with the economic performance of companies. The study is relevant due to its originality in discussing the voluntary disclosure of financial and non-financial information from the perspective of emotional content, associating positive and negative emotions with the economic performance of companies, measured by different metrics. The study has impacts such as: i) alerting investors and creditors to qualitative information and the tone of corporate narratives; ii) contributing to the decisions of investors and creditors by addressing subjective and interpretive aspects (positive or negative tone in integrated reports); iii) signaling to integrated reporting developers and regulators that the intensity of positive or negative emotion is associated with the economic performance of firms. The sample involves 160 company-year observations from 2014 to 2022. The Dictionary of Emotion Terms in Accounting and Finance was used to assess emotional content. The data were analyzed using descriptive statistics and multivariate regression models. The results of the study indicate a significant association between the emotional content of integrated reporting and the economic performance of companies. Positive emotion was negatively associated with the cost of capital, while negative emotion was inversely associated with profitability and market value.

Keywords: integrated reporting, emotional content, disclosure, economic performance.

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This is a bilingual text. This article was originally written in Portuguese, published under the DOI [10.1590/1808-057x20252220.pt](https://doi.org/10.1590/1808-057x20252220.pt).

This article stems from a doctoral thesis defended by the author, Márcio Viana Rolim, in 2024.



Associação entre o conteúdo emocional do relato integrado e o desempenho econômico das companhias

RESUMO

O objetivo do estudo é examinar a associação entre o conteúdo emocional do relato integrado e o desempenho econômico das companhias brasileiras listadas. A literatura correlata indica uma demanda por estudos sobre o relato integrado em países emergentes, notadamente aqueles que avaliam o tom da comunicação corporativa, envolvendo emoções positivas e negativas, e sua relação com o desempenho econômico das companhias. O estudo é relevante em decorrência de sua originalidade ao discutir a divulgação voluntária de informações financeiras e não financeiras sob a perspectiva do conteúdo emocional, associando emoções positivas e negativas ao desempenho econômico das companhias, mensurado por diferentes métricas. O estudo promove impactos como: i) alertar investidores e credores sobre as informações qualitativas e o tom das narrativas corporativas; ii) contribuir para as decisões de investidores e credores ao abordar aspectos subjetivos e interpretativos (tom positivo ou negativo nos relatos integrados); iii) e sinalizar aos elaboradores e normatizadores do relato integrado quanto aos indícios de que a intensidade de uso da emoção positiva ou da emoção negativa está associada ao desempenho econômico das firmas. A amostra envolve 160 observações empresa-ano no período de 2014 a 2022. O Dicionário de Termos de Emoção em Contabilidade e Finanças foi utilizado para avaliar o conteúdo emocional. Os dados foram analisados por meio de estatísticas descritivas e modelos de regressão multivariada. Os resultados do estudo indicam uma associação significativa entre o conteúdo emocional do relato integrado e o desempenho econômico das companhias. A emoção positiva apresentou associação negativa com o custo de capital, enquanto a emoção negativa apresentou associação inversa com a rentabilidade e o valor de mercado.

Palavras-chave: relato integrado, conteúdo emocional, disclosure, desempenho econômico.

1. INTRODUCTION

Accounting and finance literature shows that corporate narrative can influence the perception of those who read reports, since there are certain tones (positive, neutral, or negative) contained in the writing directed at stakeholders (Consoni et al., 2017; Zaro et al., 2022; Baditoui et al., 2023; Songini et al., 2023). Henry (2008), for example, suggested that there may be interference from the author of the business communication, which may occur through the positive tone of the information directed at investors.

Corporate narratives, in addition to influencing impression management through positive, neutral, or negative tone, can convey the emotions of those preparing the disclosures (Kos & Scarpin, 2021). By using certain terms in reports, managers may convey some emotion in order to explain, for example, unsatisfactory performance (Kos & Scarpin, 2021).

Emotional content can direct the tone (use of positive or negative words) of how the narrative is constructed and conveyed to investors and financial analysts. Executives can manage stakeholder impressions through narrative manipulation techniques in corporate reports with the purpose of directing thinking and decision-making that suits them (Yuthas et al., 2002).

In this context, there are gaps in the literature regarding the exploration of the tone of narratives in integrated reporting and their association with corporate performance, especially those involving the tone of

corporate communication (Songini et al., 2023), the form of their presentation (Songini et al., 2023), and the market's reaction to the disclosure of information (Baditoui et al., 2023; Zaro et al., 2022). Of particular note is the demand for studies on integrated reporting in emerging countries (Flores et al., 2019; Hossain et al., 2022; Jayasiri et al., 2022) and the assessment of compliance with integrated reporting framework, with a view to the quality of the information provided (Ferreira & Martins, 2024).

In view of the above, and as a way to advance the frontier of knowledge on the subject, the general objective of this research is to examine the association between the emotional content of integrated reporting and the economic performance of listed Brazilian companies. So, we analyzed all Brazilian listed companies that, between 2014 and 2022, declared that they used the International Integrated Reporting Council (IIRC) framework to prepare their integrated reports in their respective reference forms and that provided complete data for the variables covered in the research.

This study contributes to the literature on disclosure by introducing a discussion on emotional content in voluntarily disclosed integrated reports. The study also expands knowledge in the accounting field by exploring the association between the prevailing intensity of emotional content (positive or negative tone of disclosure) in a type of report that covers financial and non-financial information

and the economic performance of companies. Finally, the intensity of the use of negative and positive emotions through emotional content, the environmental, social, and governance (ESG) aspects contained in integrated reports, and economic performance, which were previously treated separately in most studies, are investigated together.

On a practical level, the study advances by showing that the narratives of reports intended for stakeholders, especially investors and creditors, may have more

than one piece of information for analyzing the firm (emotions and tone), in addition to financial indicators. It is therefore understood that the analysis of integrated reports, proposed in this research from the perspective of their emotional content and not only their compliance with the framework, can support decisions by regulatory and standard-setting bodies regarding guidelines for their eventual mandatory adoption by Brazilian companies.

2. THEORETICAL REFERENCE

The manager's decision to disclose information to the market is discretionary (Verrecchia, 2001). Dye (2001) adds that the judgment is guided by internal company issues, which are therefore endogenous. When making this judgment, the company manager assesses whether the benefits of disclosing the information outweigh the costs and uncertainties generated; otherwise, he or she will tend not to publicize it (Dye, 2001; Verrecchia, 2001).

In this context of decisions on information disclosure by companies, Borges and Malaquias (2022) found a positive and statistically significant association between the tone of Corporate Social Responsibility (CSR) disclosure and return on assets. For these authors, this finding provides evidence that corporate reports with a higher proportion of optimistic expressions tend to be associated with better profitability indices. The result is in line with the premise that the decision to disclose voluntary information would be linked to some benefit, with a positive economic effect, as predicted by Disclosure Theory.

Regarding the influence of economic performance on the tone of corporate communication, Albitar et al. (2022) investigated the existence of a relationship between ESG disclosure and the tone of CSR narratives in a sample of UK companies from 2008 to 2017. Their results showed that more independent directors tended to adopt less optimistic and more pessimistic language in reports. The study results also showed that higher ESG scores lead to more positive CSR narrative tones. Given this, it is clear that managers, depending on incentives, can transform the disclosure of narratives in a way that is most favorable to them.

By examining the disclosure of the Business Model section in integrated reports individually, Melloni et al. (2016) investigated whether companies adopted impression management by manipulating the tone of their narratives. They found that firms with declining profitability presented a more optimistic business model, possibly to overshadow negative results. In addition, the

findings indicated that less verifiable information, such as future projections, was associated with a more optimistic tone and greater discretion in disclosure.

Still regarding integrated reports, Melloni et al. (2017) sought to identify the factors associated with their various levels of conciseness, completeness, and balance. They found that companies with poor performance, measured by return on equity, tend to produce optimistic reports with a greater number of pages and lower readability. The authors also found that integrated reports suggest the practice of impression management, using a disclosure manipulation strategy, as companies redirected attention from poor results, present in the numbers, to non-financial information.

Given the postulates of Disclosure Theory and the previous studies presented, the following hypothesis is proposed:

H1: The emotional content (positive and negative emotion) of integrated reporting is significantly associated with the profitability of Brazilian companies listed on B3.

Among the external benefits obtained from the disclosure of corporate information is an increase in the value of the company, which is provided as a result of greater transparency (Dye, 2001; Verrecchia, 2001). By voluntarily disclosing information, companies attempt to legitimize their actions by changing the perception of their stakeholders, which can lead to an increase in market value (Deegan, 2002). For Dye (1985), voluntary disclosure is an opportunity for managers to disclose additional information with a view to maximizing the value of the firm.

With the aim of identifying how the quality of integrated reporting would be associated with market value, Barth et al. (2017) conducted a study using data from companies in South Africa, where the document is mandatory. The findings showed that the quality of integrated reporting is positively related to stock liquidity

and, therefore, to market value. According to Barth et al. (2017), increases in the market value of companies, due to the quality of integrated reporting, reflect improvements in internal decision-making.

Similarly, Flores et al. (2019) found that the adoption of integrated reporting improves analysts' ability to forecast earnings, with the accuracy of forecasts proving to be more efficient in the North American context. The authors point to the need for further research aimed at evaluating the content of integrated reporting and the way in which information is disclosed.

In turn, Huang et al. (2014) found that companies employ an abnormal tone in their publications in order to influence investor perceptions. They explain that the tone of narratives tends to be more positive than normal in situations in which companies meet or exceed previous profits or analyst forecasts. In contrast, the tone is manipulated downward when firms grant stock options to executives as a management incentive and with a view to reducing the stock price. The findings also signaled that press releases with overly positive content were related to weak operating cash flows and future results.

From the perspective of CSR reports, these documents with greater readability and optimistic tone may indicate better social and environmental performance (Du & Yu, 2021). Du and Yu (2021) found a positive association between social and environmental performance and changes in the readability and tone of CSR reports. The authors justify that this positive association occurs due to the change in the proportion of positive words in the reports, that is, managers use more positive words than negative ones when conveying information about future performance. The authors also mention that the positive association between readability and the company's social and environmental performance promotes optimistic market reactions, as it increases return levels and the volume of traded shares.

Specifically, in the context of integrated reporting, Melloni (2015) found a significant relationship between market value and the positive tone of the narratives contained in the document. When examining the economic benefits associated with textual attributes and external assurance of integrated reporting, Caglio et al. (2020) found associations between: i) report readability and better market valuation; ii) conciseness and higher stock liquidity; and iii) tone bias and less dispersed analyst estimates. According to Caglio et al. (2020), the results indicate that market agents seek readable, short, and direct integrated reports, as well as evidence of tone management strategies directed at analysts.

In the Brazilian market, Borges and Malaquias (2022) found a positive and statistically significant association between the tone of disclosure and the market value of companies. The findings suggest that the more optimistic the tone adopted in CSR publications, the higher the market value of the firms tends to be. Furthermore, as CSR reporting is voluntary, it can be inferred that this association also occurs with integrated reports. Therefore, the following hypothesis is proposed:

H2: The emotional content (positive and negative emotion) of integrated reporting has a significant association with the market value of Brazilian companies listed on B3.

Another benefit of voluntary disclosure is the reduction in the cost of capital resulting from the decrease in information asymmetry between the company and the investor (Verrecchia, 2001). Dye (2001) argues that voluntary disclosure depends on the incentives (costs versus benefits) that managers can obtain from this action. In this sense, studies by Dye (1985) and Verrecchia (1983) suggest that companies with good news would obtain a reduction in the cost of capital, while omitting or postponing disclosure would increase it.

In line with the theoretical perspective of Verrecchia (1983) and Dye (1985), who postulate an inverse relationship between the disclosure of good news and the cost of capital, Virtania and Siregar (2017) investigated whether there is a significant impact of the nature of environmental disclosure (positive, neutral, or negative) on the cost of capital. Contrary to what would be expected, the findings of Virtania and Siregar (2017) showed that there is a positive and significant relationship between environmental disclosure and the cost of capital. It was also found that positive environmental disclosure also has a positive effect on the cost of equity capital.

It should be noted that empirical research on voluntary disclosure and cost of capital is inconclusive, presenting an opportunity for further study (Leuz & Wysocki, 2016). For example, Vitolla et al. (2019) found a negative association between integrated reporting disclosure and the cost of equity based on a limited sample of global companies. Conversely, Hsiao et al. (2022) found no significant association between voluntary disclosure and the cost of capital in companies that adopt and do not adopt integrated reporting.

When investigating the association between the adoption of integrated reporting and the cost of capital, Vena et al. (2020) went further by attempting to understand the cultural context in which companies operated. With an international sample of developed and emerging

countries, the evidence confirmed that adopters of integrated reporting benefited from an average reduction of 1.4% in their cost of capital. The authors argue that the effectiveness of integrated reporting is highlighted in countries that have certain cultural attributes, such as: low power distance (individuals do not accept unequal distribution of power), strong values of collectivism (managers avoid riskier projects and overshadowing the company's performance), and a high level of masculinity (emphasis on economic growth at the expense of work-family balance and care for the neediest).

Zaro et al. (2022) examined the relationship between the cost of capital and the disclosure of integrated reporting, as well as the moderating effect of enforcement mechanisms on this relationship. According to Zaro et al. (2022), the findings pointed to a negative association between the cost of capital and the disclosure of integrated reporting, with this relationship being stronger in high-enforcement environments. The international sample of integrated reports included developed and emerging countries. It was found that even in cases where integrated reporting is voluntary, the institutional quality of the country was

shown to directly affect the results of the documents and, consequently, the cost of capital of firms.

Considering the influence of institutional quality on the information landscape and cost of capital, as noted above, Jian et al. (2024) examined a specific relationship between the cost of capital and the tone of Chinese companies' annual reports. The authors found that the higher the company's cost of equity capital, the more positive the tone used in the annual report disclosed. They state that in firms with lower accounting information quality and a higher degree of sector competition, the impact of the cost of capital on the degree of tone manipulation is even more significant.

Finally, Borges and Malaquias (2022) found that CSR disclosure with a predominance of positive expressions promotes reductions in the cost of capital of Brazilian firms. The finding leads to the assumption that other voluntary reports, such as integrated reporting, could perform similarly in the Brazilian context. Thus, the hypothesis is:

H₃: The emotional content (positive and negative emotion) of integrated reporting is significantly associated with the cost of capital of Brazilian companies listed on B3.

3. METHODOLOGICAL PROCEDURES

3.1 Sample and Data Collection

The study sample comprises companies listed on B3, with data available for the variables on the Refinitiv Eikon / LSEG (London Stock Exchange Group, 2023) platform, for the period from 2014 to 2022, and which stated, in the reference form filed with the Securities and Exchange Commission of Brazil – CVM (*Comissão de Valores Mobiliários*), that they use the IIRC framework for the preparation of integrated reporting. The sample period began in 2014 because that was the year the IIRC published the first Integrated Reporting framework, so that companies could get guidance on how to prepare their reports.

The data was extracted from Refinitiv Eikon / LSEG on May 13, 2024. The list included 734 Brazilian public companies listed on B3. For the purposes of delimiting the selection of firms, the ESG score from Refinitiv Eikon / LSEG was used, under the assumption that companies that disclose ESG information would be more likely to publish corporate reports on a voluntary basis, such as integrated reporting. As the Reference Forms were consulted manually, the inclusion of all 734 companies

would have made it impossible to carry out the research. Hence the need for the delimitation procedure employed.

Of the total of 734 companies, 130 companies had an ESG score in Refinitiv Eikon / LSEG in at least one year and were therefore included in the sample. After checking the reference form for self-declaration of compliance with IIRC guidelines for integrated reporting, 67 companies with 232 integrated reports were identified. Companies belonging to the same economic group, which used the same integrated reporting, were excluded from the sample. However, when collecting the remaining data for the variables that make up the econometric models, missing values were found. After excluding the missing values, the final sample had 160 company-year observations.

The choice of Brazilian companies is due to the country's pioneering role in participating in the IIRC Integrated Reporting Pilot Project (Teixeira et al., 2021). The domestic market has seen initiatives that encourage voluntary disclosure of information, such as B3's "Report or Explain" project (Fernandes & Barbosa, 2022). Additionally, with the enactment of Law No. 13,303/2016, Brazilian public companies and mixed-capital companies began to publish integrated reports annually. Finally, the choice of Brazil

was also based on a study conducted by KPMG (2020), which indicated the country as one of the four largest in the world in terms of voluntary adoption of integrated reporting.

3.2 Measurement of the Emotional Content of Disclosure

The research tool used to measure the emotional content of integrated reports, collected manually from the websites of the companies in the sample, was the Dictionary of Emotion Terms in Accounting and Finance, developed by Kos et al. (2020), hereinafter referred to as the dictionary. The instrument is based on the dictionary by Loughran and McDonald (2011) and consists of two stages of construction. According to Kos et al. (2020), in the first stage, the dictionary by Loughran and McDonald (2011) was translated and validated by professors in the areas of language and business. In the next stage, the terms were allocated to the emotions: joy, fear, anger, disgust, sadness, and surprise. The classification was validated by experts in accounting, finance, and psychology (Kos et al., 2020).

In this study, the dictionary was imported into the Tropes textual analysis software, and then the frequency of words corresponding to the textual emotion of integrated reporting disclosure was extracted. The percentage value was calculated statistically, which corresponds to the number of words, by category, found in integrated reporting, divided by the total number of words contained in the text, characterizing a relative measure. For the calculation, the same methodological procedures used by Kos and Scarpin (2021) and by Kos et al. (2020) were followed.

To identify the nature of the disclosure in terms of positive or negative emotion, two groups were established. The first, representing the disclosure of positive emotion, consisted of the category "joy." In the second group, representing the disclosure of negative emotion, the emotions "fear," "anger," "sadness," and "disgust" were grouped together, the category "surprise" was not assigned to either group because, as identified by Kos and Scarpin (2021) and Kos et al. (2020), words in this category can have either a positive or negative meaning, depending on the context.

3.3 Description of Variables

The dependent variables of the research were profitability (ROA and ROE), market value (VRM), and cost of capital (WACC). As integrated reports

are published on different dates throughout the year, specifically for market value, June 30 was adopted as the base date for data collection, while profitability and cost of capital metrics refer to the end of the fiscal year, December 31, as do the control variables. This is because it is understood that the effects of the disclosure of reports on market value are best captured in the middle of the year, when most of the documents are published (Borges & Malaquias, 2022). To obtain the variables of interest (independent) corresponding to positive and negative emotions, we proceeded as described in the previous section (3.2). We also inserted dummy variable vectors for the sector (16 sector groups) and for the year (9 years, from 2015 to 2023). Table 1 summarizes the research variables.

Given that corporate reports for base year t are normally published in the first half of $t+1$, the variables corresponding to companies' economic and financial information are found in fiscal year $t+1$. Therefore, period t corresponds to the years 2014 to 2022, in terms of integrated reports, to obtain the independent variables related to emotional content. The period $t+1$ corresponds to the fiscal years from 2015 to 2023 for the evaluation of economic association (dependent and control variables), similar to other studies, such as those by Borges and Malaquias (2022) and Hsiao et al. (2022). In other words, the analysis covered integrated reports up to the year 2022 because economic data, such as profitability, market value, and cost of capital, which are available in 2024, refer to the year following the release of integrated reporting (2023), so that the expected association can be examined.

3.4 Model Specification and Tests

Descriptive statistics (maximum, minimum, mean, standard deviation, and coefficient of variation) were applied for the preliminary analysis of the study data. In turn, multivariate regression considered the database as a cross-section, using the ordinary least squares method to estimate the parameters.

We chose to apply the pooled model, with robust standard errors clustered by company, due to the low number of individual companies, the diversity of sectors in the sample, and the absence of variation in relevant emotional content over time. In the accounting literature, the pooled model has been applied in similar national (Borges & Malaquias, 2019; Funchal et al., 2016) and international (Nag & Bhattacharyya, 2016; Vitolla et al., 2019) studies. The generic econometric model used to test the hypotheses can be verified in Equation 1:

$$PERF_{it} = \beta_0 + \beta_1 POSE_{it} + \beta_2 NEGE_{it} + \beta_3 SIZ(\ln)_{it} + \beta_4 LEV_{it} + \beta_5 GRO_{it} + \beta_6 ESG_{it} +$$

$$\beta_7 COVID_t + \sum_{j=1}^{16} \gamma_j Sector_j + \sum_{t=2015}^{2023} \theta_t Year_t + \varepsilon_{it}$$

1

where PERF corresponds to the respective performance metrics (ROA, ROE, VRM, and WACC); POSE corresponds to positive emotion; NEGE corresponds to negative emotion; SIZ(ln) corresponds to size; LEV corresponds to leverage; GRO corresponds to growth prospects; ESG corresponds to the ESG score; and COVID corresponds to the period since the pandemic began; Sector and Year correspond to dummy vectors that identify the sectors and the year, respectively; i designates the firms, j the sector, and t the time; β , γ , and θ are the coefficients; and ε is the error term.

In this study, outliers were treated with the winsorization procedure, with a limit of 1%. The procedure adopted to verify whether the regression models were subject to multicollinearity was the Variance Inflation Factor (VIF). For robustness purposes and as a way to minimize problems arising from endogeneity, the models were re-estimated with instrumental variables using the two-stage least squares method, as suggested by Borges (2022) and Santos (2022).

Table 1*Description of research variables*

Variables	Type	Acronym	Measurement and Operationalization	Theoretical Basis
Profitability	dependent	ROA	$ROA_t = (\text{Operating Profit} / \text{Total Assets average})$	Caglio et al. (2020); Kos and Scarpin (2021).
		ROE	$ROE_t = (\text{Net Income} / \text{Average Equity})$	Aouadi and Marsat (2016); Buallay (2019).
Market Value	dependent	VRM(ln)	Value = Natural Log (Share Price x Number of Shares Outstanding)	Borges and Malaquias (2022); Caglio et al. (2020).
Cost of Capital	dependent	WACC	$WACC_t = W_e \times K_e + W_i \times K_i$	Borges and Malaquias (2022); Hsiao, de Villiers, and Scott (2022).
Positive Emotion	independent	POSE	Frequency of positive emotion words from the dictionary in the report, divided by the number of words in the report.	Kos and Scarpin (2021); Kos et al. (2020).
Negative Emotion	independent	NEGE	Frequency of negative emotion words from the dictionary in the report, divided by the number of words in the report.	Kos and Scarpin (2021); Kos et al. (2020).
Company Size	control	SIZ(ln)	Natural Log (LN) of Total Assets at the end of each year.	Caglio et al. (2020); Melloni et al. (2016).
Growth Prospects	control	GRO	$GRO = (\text{Sales}_t - \text{Sales}_{t-1} / \text{Sales}_{t-1})$	Anantharaman et al. (2021); Aouadi and Marsat (2016).
Leverage	control	LEV	$LEV = (\text{Total Debt} / \text{Total Assets})$	Christensen et al. (2022); Yekini et al. (2016).
ESG Score	control	ESGS	LSEG ESG Score.	Aoudi and Marsat (2016); Grassmann (2021).
Period	control	COVID	Dummy variable assigned a value of 1 for the period from 2020 onward (pandemic) and 0 otherwise.	Rababah et al. (2020).
Year	control	YEAR	Vector of dummies identifying the years of the sample period.	Borges and Malaquias (2022).
Sector	control	SECTOR	Vector of dummies identifying the sectors in which the firms operate.	Borges and Malaquias (2022).

Notes: ESG = Environmental, Social and Governance. ROA = return on assets; ROE = return on equity; VRM(ln) = market value; WACC = weighted average cost of capital; POSE = positive emotion; NEGE = negative emotion; SIZ(ln) = company size; GRO = growth outlook; LEV = indebtedness; ESGS = ESG score.

Source: Prepared by the authors.

4. RESULTS AND DISCUSSION

Figure 1 shows the behavior of the emotional content of integrated reporting in terms of positive and negative emotions during the period.

The integrated reports revealed a predominance of positive words. The averages of positive and negative words, in relation to the total number of words in the documents, remained with low variation over time. The highlight of the analysis would be the slight average reduction in positive words in 2020, the main year of the Covid-19 pandemic, with a higher proportion of negative words in that period. The median positive emotion was slightly higher than the average only in 2020, and the median negative emotion in 2022.

Table 2 presents the descriptive statistics. The companies presented standard deviations above the averages for profitability (ROA and ROE) and for sales growth prospects (GROWTH). This is an indication of greater variability in the data between firms, which is reinforced by the high values of the coefficients of variation shown in the last column of Table 2. This discrepancy in values between firms may be due to the segments in which they operate, the type of business they are in, and the negative results obtained. There is a similarity between the behavior of profitability and sales growth prospects in the presentation of negative minimum values.

The characteristics of average profitability, shown in Table 2, are similar to the results of Kos and Scarpin (2021), when examining the emotional content of Brazilian companies' management reports from 2011 to 2015. There is similarity both in the ROA and ROE averages and in the minimum returns of these indices being negative. On the other hand, market value (VRM(ln)), company size (SIZ(ln)), positive emotion (POSE), and negative emotion (NEGE) had standard deviations below the average. This indication of low dispersion is reinforced by the coefficients of variation, pointing to greater uniformity among companies, particularly in relation to size and market value.

The low variability between positive and negative emotions, shown in Figure 1, was reinforced by the coefficients of variation in Table 2. The indication of low dispersion of positive and negative emotions indicates that, on average, firms have similar scores within each emotion category, being slightly less dispersed for positive emotions than for negative emotions. It is also noted that, on average, the presence of positive emotion (3.27%) in integrated reports is greater than that of negative emotion (1.03%), which represents a predominantly optimistic narrative when reporting voluntary information intended for external users.

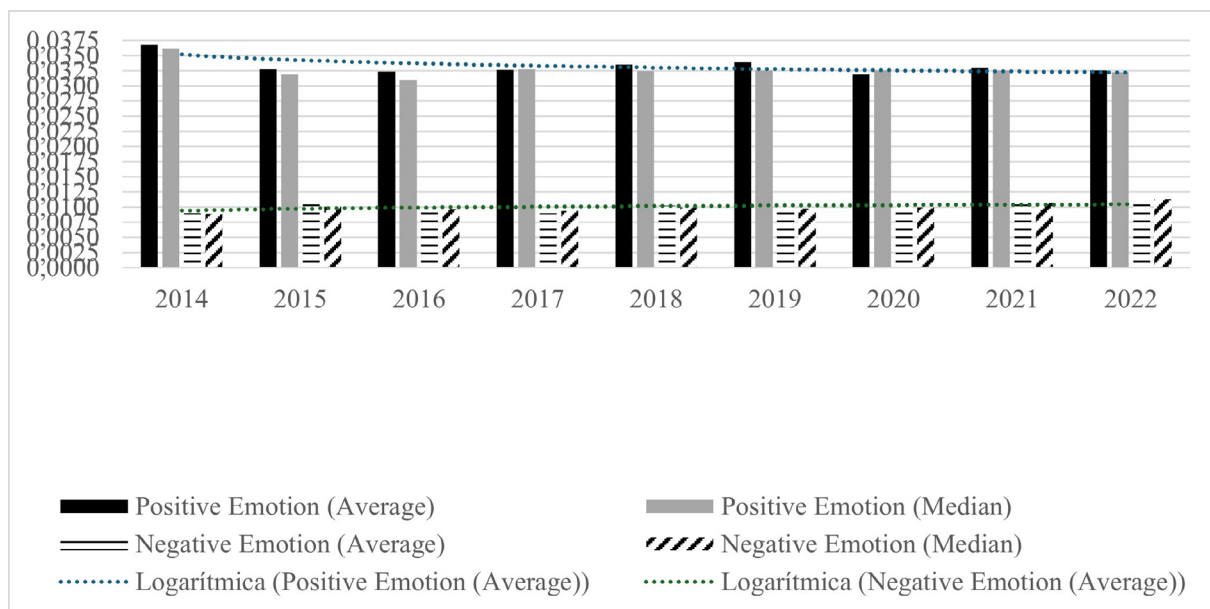


Figure 1 Measures of central tendency for positive and negative emotion indices

Source: Prepared by the authors.

Table 2
Descriptive statistics

Variables	Period	N	Mean	Standard deviation	Minimum	Maximum	Coefficient of variation
ROA	t + 1	160	0.05212	0.06013	-0.16161	0.26178	115.35
ROE	t + 1	160	0.16112	0.26163	-0.86380	1.23620	162.38
VRM(ln)	t + 1	160	0.09027	0.03653	0.02491	0.18242	4.59
WACC	t + 1	160	23.62680	1.08514	20.81563	26.29937	40.47
POSE	t	160	0.03269	0.00507	0.01049	0.04765	15.50
NEGE	t	160	0.01034	0.00235	0.00380	0.02086	22.69
SIZ(ln)	t + 1	160	24.21411	0.97311	21.49521	26.92425	4.02
LEV	t + 1	160	0.37611	0.17391	0.01681	0.76710	46.24
GRO	t + 1	160	0.14764	0.22024	-0.36169	1.02322	149.17
ESGS	t + 1	160	63.23219	18.19560	1.32297	91.56147	28.78

Notes: ROA = return on assets; ROE = return on equity; VRM(ln) = market value; WACC = weighted average cost of capital; POSE = positive emotion; NEGE = negative emotion; SIZ(ln) = company size; LEV = leverage; GRO = growth outlook; ESGS = ESG score; N = number of observations. As highlighted in the table and specified in the study methodology, the dependent and control variables in this research are at “t+1” and refer to performance measures in the fiscal years from 2015 to 2023, while the independent variables deal with emotional content and ESGS for the fiscal years from 2014 to 2022.

Source: Prepared by the authors.

Still referring to Table 2, the ESG score (ESGS) stands out. Companies with an average of 63.23% are located in the third quartile of the ranking, which suggests that, on average, companies have good ESG performance and an average degree of transparency in their reports. It is worth noting that, although the sample selection is limited to companies that disclose integrated reports, the minimum value (1.32), maximum value (91.56), and standard deviation (18.19) reinforce that disclosure of the document does not necessarily guarantee a high ESG score (ESG performance). This result is similar to the findings of Albitar et al. (2022), in which the highest ESG disclosure rating led to a more positive narrative tone in CSR reports.

Next, the variables were subjected to regression analysis. The findings of the regression with stacked data are presented in Table 3.

The findings in Table 3, analyzed considering both positive and negative emotions in integrated reports, revealed at least one association between emotional content and performance variables. With regard to negative emotion, a negative and statistically significant association was found in the model whose profitability metric is return on assets (ROA).

These results support hypothesis H₁ that the emotional content of integrated reporting is associated with company profitability. In other words, there is evidence that

companies that show negative emotions in the narratives of integrated reporting tend to have lower profitability. Regarding the association between positive emotion and profitability, the results were not statistically significant, thus contradicting previous studies, such as those by Albitar et al. (2022) and Borges and Malaquias (2022), which found a positive relationship between profitability and the positive tone of disclosures.

Disclosure Theory is based on the premise that companies disclose additional information when it is favorable to them and omit it when it is unfavorable (Verrecchia, 1983; Dye, 1985). However, voluntary information is not withheld entirely because disclosure is expected by the market and, if it were completely omitted, it would undermine confidence in the company and potentially lead to high future legal costs, which would damage the brand and the reputation of its managers (Verrecchia, 2001).

Still in Table 3, positive emotion showed a positive association with market value, while negative emotion revealed a negative association. With regard to market value, the coefficient of determination indicates that approximately 78% of its variations can be explained by the variables in the model. This finding supports hypothesis H₂ that the emotional content of integrated reporting has a significant association with the market value of companies.

Table 3
Relationship between emotional content and performance

	ROA		ROE		WACC		VRM(ln)
POSE	0.82272		2.19045		-0.95400	***	19.66327 *
NEGE	-4.37073	***	-8.38361		0.11225		-106.72370 ***
SIZ(ln)	-0.01712	***	-0.03452		0.00265		0.69524 ***
LEV	-0.22323	***	-0.27779	*	-0.09264	***	-2.57460 ***
GRO	0.08705	***	0.31810	***	-0.00046		0.45428 *
ESGS	0.00055	**	0.00141		0.00030	*	0.01164 ***
COVID	0.01257		-0.01977		0.02759	***	-0.53227 **
Year	Yes		Yes		Yes		Yes
Sector	Yes		Yes		Yes		Yes
Constant	0.53777	***	0.98961	*	0.01709		8.93714 ***
N	160		160		160		160
R ²	0.5681		0.2205		0.8071		0.7839
Mean VIF	3.81		3.81		3.81		3.81

Notes: ROA = return on assets; ROE = return on equity; WACC = weighted average cost of capital; VRM(ln) = market value; POSE = positive emotion; NEGE = negative emotion; SIZ(ln) = company size; LEV = leverage; GRO = growth outlook; ESGS = ESG score; N = number of observations; Mean VIF = mean variance inflation factor. The models were estimated with controls for fixed effects of year and sector.

*** statistically significant at the 1% level; ** = statistically significant at the 5% level; * statistically significant at the 10% level.

Source: Prepared by the authors.

In the case of hypothesis H₂, in which negative emotion signaled a negative association with market value, previous studies, such as those by Melloni (2015), Caglio et al. (2020), and Borges and Malaquias (2022), found, similarly to the findings in this research, that an increase in the positive tone of the narrative was associated with an increase in the market capitalization of firms. Thus, based on a significant association between tone and market value, it is assumed that an increase in the negative tone of the narrative would tend to be associated with reductions in market value. According to Yekini et al. (2016), an optimistic tone is usually related to significant increases in stock prices. Therefore, it is assumed that a negative tone would be a contributing factor to the reduction in stock prices.

Additionally, Huang et al. (2014) state that companies use an abnormal tone to persuade investors. They explain that a positive tone is used in situations where previous profits are achieved or exceeded, or even when analysts' forecasts are exceeded. However, the tone is also manipulated downward when firms grant shares to executives as a management incentive and in order to lower the share price. These arguments are consistent with Disclosure Theory, which indicates that disclosures occur through incentives received by managers or companies (Dye, 2001). According to Deegan (2002), voluntary disclosures play a role in altering the perception of market

participants to legitimize companies' actions, aiming to increase their market value.

Finally, positive emotion showed a negative and statistically significant association with the cost of capital. In the case of the cost of capital, the coefficient of determination indicates that approximately 80% of its variation can be explained by the variables in the model. The result supports hypothesis H₃ that the emotional content of integrated reporting is associated with the companies' cost of capital.

Given hypothesis H₃, it would be expected that positive emotion would be negatively associated with the cost of capital, which was confirmed by the findings of this study. Disclosure Theory suggests that firms with good news would reduce the cost of capital through efficiency-based disclosure, which reduces information asymmetry (Verrecchia, 1983; Dye, 1985).

This result is similar to those of previous studies, such as that by Borges and Malaquias (2022), in which the predominance of positive expressions in CSR reports was associated with a decrease in the cost of capital. The study by Rjiba et al. (2021) showed that the relationship between the complexity of the annual report and the cost of equity is greater when the tone of disclosure is more negative or more ambiguous. Finally, the research by Jian et al. (2024) revealed that the higher the company's cost of equity, the more positive the tone of the annual report.

Therefore, when analyzing positive and negative emotions together, the findings suggest that, in addition to narratives with positive tones, the association with economic performance variables should be observed. The findings indicated that the emotional content in integrated reporting, whether positive or negative, was associated with the economic performance of companies listed on B3. Negative emotion showed significant associations with return on assets and market value, suggesting that stakeholders may be more sensitive to negative narratives, even when positive emotion predominates in the documents.

For the sake of robustness in the face of possible problems arising from endogeneity, and as a way of verifying whether the findings would remain the same in models with other methodological specifications, the

tests presented in Table 3 were re-estimated with the inclusion of instrumental variables using the two-stage least squares method, as suggested by Borges (2022) and Santos (2022). In this case, the independent variables of interest, corresponding to positive and negative emotions, were instrumentalized based on a first-order time lag. The results of the robustness tests are shown in Table 4.

Table 4 shows that the results for the models estimated by the two-stage least squares method with instrumental variables were equivalent to those obtained with the ordinary least squares tests, as shown in Table 3. This is because, as shown in Table 4, negative emotion in integrated reporting was negatively associated with the profitability and market value of firms, while emotion remained negatively associated with the cost of capital.

Table 4
Robustness tests with instrumental variables

	ROA		ROE		WACC		VRM(ln)	
POSE	0.81006		2.95649		-3.81803	***	21.33222	
NEGE	-6.22150	**	-18.45069		-0.32397		-218.16740	***
SIZ(ln)	0.00267		0.02105		-0.00200		0.74307	***
LEV	-0.11401	***	-0.03047		-0.09014	***	-1.31837	***
GRO	0.11228	***	0.57113	***	0.00357		-0.04647	
ESGS	0.00049	*	0.00277	**	0.00024		0.00753	**
COVID	0.00111		-0.00895		0.02538	***	-0.18916	
Constant	0.02158		-0.50131		0.26729	***	7.37088	***
N	110		110		110		110	
R ²	0.3535		0.2525		0.1106		0.5820	

Notes: ROA = return on assets; ROE = return on equity; WACC = weighted average cost of capital; VRM(ln) = market value; POSE = positive emotion; NEGE = negative emotion; SIZ(ln) = company size; LEV = leverage; GRO = growth outlook; ESGS = ESG score; N = number of observations.

*** statistically significant at the 1% level; ** = statistically significant at the 5% level; * statistically significant at the 10% level.

Source: Prepared by the authors.

5. FINAL CONSIDERATIONS

This study examined the association between the emotional content of integrated reporting and the economic performance of Brazilian companies listed on B3. The final sample consisted of 160 company-year observations from 2014 to 2022. The Dictionary of Emotion Terms in Accounting and Finance was used to assess the emotional content of integrated reporting. The data were analyzed using descriptive statistics and multivariate linear regression models with stacked data. For robustness purposes, the models were re-estimated

using the two-stage least squares method, with the inclusion of instrumental variables.

The study's findings indicate a significant association between the emotional content of integrated reporting and the economic performance of Brazilian companies listed on B3, within the limits exposed by this research. The results indicated that both positive and negative emotions have some type of association with the performance metrics considered, specifically profitability, cost of capital, and market value.

Positive emotion showed a negative association with cost of capital, suggesting that more (less) positive narratives would be associated with a lower (higher) cost of capital. Negative emotion revealed a negative association with profitability and market value, indicating that less (more) negative narratives would be associated with higher (lower) profitability and market value.

The results provided insights into implications for accounting literature by discussing the emotional content in integrated reports, contributing to new areas of study that are not limited to traditional and predominant analyses of financial reports. As practical implications, it is understood that the intensity of use of positive or negative emotion, applied for the purpose of manipulating and directing stakeholder decisions, must be combated. Regulatory and standard-setting bodies should monitor this potential indication of interference and react by prescribing conduct to protect investors and other stakeholders.

Research is not usually free from limitations, which is also the case in this study. Because it examines voluntary disclosures, the study is dependent on the availability of publications, at the discretion of the companies, resulting in the absence of reports from certain companies in some years. It is also limited to analyzing integrated reports of firms that declared their intention to follow the IIRC framework guidelines in the reference form filed with the CVM. In addition, some methodological and statistical criteria were adopted due to the use of the Dictionary of Emotion Terms and the availability of data for the variables examined.

In line with digital transformations, future studies may innovate in terms of methodology by using machine language or artificial intelligence, instead of automated dictionaries, to investigate emotional content in accounting narratives. In addition, emotions from other types of voluntary reports can be added, as well as other performance metrics to test whether the relationships found persist.

REFERENCES

- Albitar, K., Abdoush, T., & Hussainey, K. (2022). Do corporate governance mechanisms and ESG disclosure drive CSR narrative tones? *International Journal of Finance and Economics*, 28(4), 3876-3890. <https://doi.org/10.1002/ijfe.2625>
- Anantharaman, D., Huang, D., & Zhao, K. (2021). The mix of soft and hard information in ESG. *Reports and Impression Management*.
- Aouadi, A., & Marsat, S. (2016). Do ESG controversies matter for firm value? Evidence from international data. *Journal of Business Ethics*, 151, 1027-1047. <https://doi.org/10.1007/s10551-016-3213-8>
- Baditoiu, B. R., Ioan, R., Munteanu, V. P., & Buglea, A. (2023). Investors' reactions on the publication of integrated reports. Evidence from European stock markets. *E & M Economics and Management*, 26(2), 158-171. <https://doi.org/10.15240/tul/001/2023-2-010>
- Barth, M. E., Cahan, S. F., Chen, L., & Venter, E. R. (2017). The economic consequences associated with integrated report quality: capital Market and real effects. *Accounting, Organizations and Society*, 62, 43-64. <https://doi.org/10.1016/j.aos.2017.08.005>
- Borges, D. M., Jr. (2022). Corporate governance and capital structure in Latin America: empirical evidence. *Journal of Capital Markets Studies*, 6(2), 148-165.
- Borges, D. M., Jr. & Malaquias, R. F. (2019). Restrições de Resgate em Fundos de Ações, Liquidez dos Ativos e Desempenho. *Revista de Administração de Empresas*, 59(1), 43-56. <https://doi.org/10.1590/S0034-759020190105>
- Borges, D. M., Jr., & Malaquias, R. F. (2022). O tom da divulgação importa? Uma análise dos efeitos do tom do disclosure de RSC no Desempenho das Firmas. *Revista Contemporânea de Contabilidade*, 19(53), 2-18. <https://doi.org/10.5007/2175-8069.2022.e84552>
- Buallay, A. (2019). Between cost and value: Investigating the effects of sustainability reporting on a firm's performance. *Journal of Applied Accounting Research*, 20(4), 481-496. <https://doi.org/10.1108/JAAR-12-2017-0137>
- Caglio, A., Melloni, G., & Perego, P. (2020). Informational content and assurance of textual disclosures: Evidence on integrated reporting. *European Accounting Review*, 29(1), 55-83. <https://doi.org/10.1080/09638180.2019.1677486>
- Christensen, D. M., Serafeim, G., & Sikochi, A. (2022). Why is Corporate Virtue in the Eye of The Beholder? The Case of ESG Ratings. *Accounting Review*, 97(1), 147-175. <https://doi.org/10.2308/TAR-2019-0506>
- Consoni, S., Colauto, R. D., & Lima, G. A. S. F. (2017). A divulgação voluntária e o gerenciamento de resultados contábeis: evidências no mercado de capitais brasileiro. *Revista Contabilidade & Finanças*, 28(74), 249-263. <https://doi.org/10.1590/1808-057x201703360>
- Deegan, C. (2002). Introduction: The legitimising effect of social and environmental disclosures—A theoretical foundation. *Accounting, Auditing & Accountability Journal*, 15(3), 282-311. <https://doi.org/10.1108/09513570210435852>
- Du, S., & Yu, K. (2021). Do corporate social responsibility reports convey value relevant information? Evidence from report readability and tone. *Journal of Business Ethics*, 172, 253-274. <https://doi.org/10.1007/s10551-020-04496-3>
- Dye, R. A. (1985). Disclosure of Nonproprietary Information. *Journal of Accounting Research*, 23(1), 123-145. <https://doi.org/10.2307/2490910>
- Dye, R. A. (2001). An evaluation of "essays on disclosure" and the disclosure literature in accounting. *Journal of Accounting and Economics*, 32(1-3), 181-235. [https://doi.org/10.1016/S0165-4101\(01\)00024-6](https://doi.org/10.1016/S0165-4101(01)00024-6)

- Fernandes, R. B., & Barbosa, A. (2022). Factors associated with the voluntary disclosure of the integrated report in Brazil. *Journal of Financial Reporting and Accounting*, 20(3-4), 446-471. <https://doi.org/10.1108/JFRA-07-2020-0220>
- Ferreira, T. S. V., & Martins, O. S. (2024). Relato integrado e criação de valor para os acionistas: evidências internacionais. *Revista Contabilidade & Finanças*, 35(95), e1896. <https://doi.org/10.1590/1808-057x20241896.pt>
- Flores, E., Fasan, M., Mendes-da-Silva, W., & Sampaio, J. O. (2019). Integrated reporting and capital markets in an international setting: The role of financial analysts. *Business Strategy and the Environment*, 28(7), 1465-1480. <https://doi.org/10.1002/bse.2378>
- Funchal, B., Lourenço, D., Motoki, F. Y. S. (2016). Sofisticação dos investidores, liberdade de movimentação e risco: Um estudo do mercado brasileiro de fundos de investimento em ações. *Revista de Contabilidade e Organizações*, 10(28), 45, 1-13. <https://doi.org/10.11606/rco.v10i28.121505>
- Grassmann, M. (2021). The relationship between corporate social responsibility expenditures and firm value: The moderating role of integrated reporting. *Journal of Cleaner Production*, 285, 124840. <https://doi.org/10.1016/j.jclepro.2020.124840>
- Henry, E. (2008). Are investors influenced by how earnings press releases are written?. *The Journal of Business Communication* (1973), 45(4), 363-407. <https://doi.org/10.1177/0021943608319388>
- Hossain, A., Bose, S., & Shamsuddin, A. (2022). Diffusion of integrated reporting, insights and potential avenues for future research. *Accounting & Finance*, 63(2), 2503-2555. <https://doi.org/10.1111/acfi.12981>
- Hsiao, P. C. K., de Villiers, C., & Scott, T. (2022). Is voluntary International Integrated Reporting Framework adoption a step on the sustainability road and does adoption matter to capital markets? *Meditari Accountancy Research*, 30(3), 786-818. <https://doi.org/10.1108/MEDAR-08-2020-0978>
- Huang, X., Teoh, S. H., & Zhang, Y. (2014). Tone management. *The Accounting Review*, 89(3), 1083-1113. <https://doi.org/10.2308/accr-50684>
- Jayasiri, N. K., Kumarasinghe, S., & Pandey, R. (2022). 12 years of integrated reporting: A review of research. *Accounting & Finance*, 63(2), 2187-2243. <https://doi.org/10.1111/acfi.12958>
- Jian, J., Yang, F., Liu, M., & Liu, Y. (2024). Cost of Equity Capital and Annual Report Tone Manipulation. *Emerging Markets Finance and Trade*, 60(3), 519-540. <https://doi.org/10.1080/1540496X.2023.2226320>
- Kos, S. R., & Scarpin, J. E. (2021). Desempenho econômico-financeiro versus conteúdo emocional do relatório da administração: uma estratégia de persuasão. *Enfoque: Reflexão Contábil*, 40(2), 63-84. <https://doi.org/10.4025/enfoque.v40i2.49981>
- Kos, S. R., Scarpin, J. E., & Pinto, J. S. D. P. (2020). Proposta de um dicionário de termos de emoção em textos financeiros. *Revista de Ciências da Administração*, 21(55), 147-164. <https://doi.org/10.5007/2175-8077.2019v21n55p147>
- KPMG. (2020). *The times has come: The KPMG Survey of Sustainability Reporting 2020*. <https://assets.kpmg.com/content/dam/kpmg/llk/pdf/2020/12/the-time-has-come-survey-of-sustainability-reporting.pdf>
- Leuz, C., & Wysocki, P. D. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of accounting research*, 54(2), 525-622. <https://doi.org/10.1111/1475-679X.12115>
- London Stock Exchange Group (LSEG) (2023). *Environmental, social and governance scores from LSEG*. https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf
- Loughran, T., & McDonald, B. (2011). When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *The Journal of finance*, 66(1), 35-65. <https://doi.org/10.1111/j.1540-6261.2010.01625.x>
- Melloni, G. (2015). Intellectual capital disclosure in integrated reporting: an impression management analysis. *Journal of Intellectual Capital*, 16(3), 661-680. <https://doi.org/10.1108/JIC-11-2014-0121>
- Melloni, G., Caglio, A., & Perego, P. (2017). Saying more with less? Disclosure conciseness, completeness and balance in Integrated Reports. *Journal of Accounting and Public Policy*, 36(3), 220-238. <https://doi.org/10.1016/j.jaccpubpol.2017.03.001>
- Melloni, G., Stacchezzini, R., & Lai, A. (2016). The tone of business model disclosure: an impression management analysis of the integrated reports. *Journal of Management & Governance*, 20, 295-320. <https://doi.org/10.1007/s10997-015-9319-z>
- Nag, T., & Bhattacharyya, A. K. (2016). Corporate social responsibility reporting in India: Exploring linkages with firm performance. *Global Business Review*, 17(6), 1427-1440. <https://doi.org/10.1177/0972150916653032>
- Rababah A., Al-Haddad L., Sial M. S., Chunmei Z., Cherian J. Analyzing the effects of COVID-19 pandemic on the financial performance of Chinese listed companies. *Journal of Public Affairs*, 20, e2440. <https://doi.org/10.1002/pa.2440>
- Rjiba, H., Saadi, S., Boubaker, S., & Ding, X. S. (2021). Annual report readability and the cost of equity capital. *Journal of Corporate Finance*, 67, 101902. <https://doi.org/10.1016/j.jcorpfin.2021.101902>
- Santos, J. E. (2022). Composição dos conselhos de administração, redes sociais corporativas e eficiência dos investimentos. *Revista Universo Contábil*, 18, 1-22. <https://doi.org/10.4270/ruc.2022106>
- Songini, L., Pistoni, A., Comerio, N., & Tettamanzi, P. (2023). A decade of integrated reporting studies: state of the art and future research implications. *Accounting, Auditing & Accountability Journal*, 36(9), 226-252. <https://doi.org/10.1108/AAAJ-10-2021-5490>
- Teixeira, A. C., Zanolla, E. Rech, I. J., & Couto, M. H. de A. (2021). Nível de divulgação das informações não financeiras das empresas participantes do projeto piloto de relato integrado. *Revista Contemporânea de Contabilidade*, 46, 16-31. <https://doi.org/10.5007/2175-8069.2021.e62657>

- Vena, L., Sciascia, S., & Cortesi, A. (2020). Integrated reporting and cost of capital: The moderating role of cultural dimensions. *Journal of International Financial Management & Accounting*, 31(2), 191-214. <https://doi.org/10.1111/jifm.12113>
- Verrecchia, R. E. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-194. [https://doi.org/10.1016/0165-4101\(83\)90011-3](https://doi.org/10.1016/0165-4101(83)90011-3)
- Verrecchia, R. E. (2001). Essays on disclosure. *Journal of Financial Economics*, 32, 97-180. [https://doi.org/10.1016/S0165-4101\(01\)00025-8](https://doi.org/10.1016/S0165-4101(01)00025-8)
- Virtania, L. O., & Siregar, S. V. (2017, November). The effect of environmental disclosure on cost of equity. In: *International Conference on Business and Management Research (ICBMR 2017)* (pp. 95-104). Atlantis Press. <https://doi.org/10.2991/icbmr-17.2017.9>
- Vitolla, F., Raimo, N., & Rubino, M. (2019). How pressure from stakeholders affects integrated reporting quality. *Corporate Social Responsibility and Environmental Management*, 26(6), 1591-1606. <https://doi.org/10.1002/csr.1734>
- Yekini, L. S., Wisniewski, T. P., & Millo, Y. (2016). Market reaction to the positiveness of annual report narratives. *The British Accounting Review*, 48(4), 415-430. <https://doi.org/10.1016/j.bar.2015.12.001>
- Yuthas, K., Rogers, R., Dillard, J. F. (2002). Communicative Action and Corporate Annual Reports. *Journal of Business Ethics*, 41(1), 141-157. <https://doi.org/10.1023/A:1021314626311>
- Zaro, E., Flores, E., Fasan, M., Murcia, F. D. R., & Zaro, C. S. (2022). Voluntary adoption of integrated reporting, effective legal system and cost of equity. *Corporate Governance: The International Journal of Business in Society*, 22(6), 1197-1221. <https://doi.org/10.1108/cg-03-2021-0096>

DATA AVAILABILITY STATEMENT

The datasets related to this article will be available upon request to the corresponding author.