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The relation between the adherence of integrated reporting to the IIRC framework and economic performance

La relación entre la adhesión de los informes integrados al *framework* del IIRC y el desempeño económico

A relação entre a aderência dos relatos integrados ao *framework* do IIRC e o desempenho econômico

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Abstract

Purpose: Analyzing the adherence of the Integrated Reports of a sample composed by three Brazilian companies to the IIRC (International Integrated Reporting Council) Framework. Also, understanding the quality contribution of these reports to the generation of economic performance for the adopting companies.

Methodology: The companies were selected from the IIRC database. Using the method presented by Kiliç and Kuzey (2018) as a reference, a Disclosure Index model was adapted, through the content analysis technique, to measure the level of adherence of the Reports to the Framework. After calculating the Disclosure Index, the Coefficient of Variation of the companies' liquidity and solvency ratios and the macroeconomic performance of the researched period were analyzed, aiming to verify whether the Integrated Reports adhering to the Framework are associated with the economic performance of those companies.

Results: The results indicate that it is not possible to state that the high levels of adherence to the Framework are associated with the economic performance of companies. The Coefficient of Variation calculation of the financial indexes during the publication period of the Integrated Reports does not present a better result when compared to the period prior to these publications.

Contributions of the Study: Recent research on the topic of Integrated Reporting does not show a relationship between compliance with publications and the economic performance of Brazilian companies. Thus, this study proves to be relevant when researching the content of the Integrated Reports published by Brazilian companies and the relationship of this information with economic performance, verifying whether the Integrated Reports fulfill the promise of delivering economic benefits to the model's adopters.

Keywords: Integrated Reporting. Framework. Adherence. Disclosure Index. Economic Performance.

Resumen

Objetivo: Analizar la adherencia de los Informes Integrados de una muestra compuesta por tres empresas brasileñas al *Framework* del IIRC (International Integrated Reporting Council) y comprender la contribución del nivel de calidad de estos informes al desempeño económico de las empresas adoptantes.

Metodología: Las empresas fueron seleccionadas de la base de datos del IIRC. Tomando como referencia el método presentado por Kiliç y Kuzey (2018), se adaptó un modelo Índice de Divulgación, mediante la técnica de análisis de contenido para medir el nivel de adherencia de los Informes al Marco. Después del cálculo de los Índices de Divulgación, se analizó el Coeficiente de Variación de los índices de liquidez y solvencia de las empresas y el desempeño macroeconómico del período investigado, con el objetivo de verificar si la adhesión de los Informes Integrados al *Framework* esta asociada con el desempeño económico de las empresas.

Resultados: Los resultados muestran que no es posible afirmar que altos niveles de adhesión al *Framework* de referencia estén asociados al desempeño económico de las empresas. El cálculo del Coeficiente de Variación de los índices financieros durante el período de

publicación de los Informes Integrados no presenta menor dispersión al compararlo con el período anterior a la publicación de los Informes Integrados.

Contribuciones del Estudio: Investigaciones recientes sobre el tema de Informes Integrados no muestran una relación entre la adhesión de las publicaciones al *Framework* del IIRC y el desempeño económico de las empresas brasileñas. Así, este estudio demuestra ser relevante al investigar el contenido de los Informes Integrados publicados por empresas brasileñas y la relación de esa información con el desempeño económico, verificando si los Informes Integrados cumplen la promesa de entregar beneficios económicos a los adoptantes del modelo.

Palabras clave: Informes integrados. *Framework*. Adherencia. Índice de divulgación. Desempeño Económico.

Resumo

Objetivo: Analisar a aderência dos Relatos Integrados (RIs) de uma amostra composta por três empresas brasileiras ao *Framework* do IIRC (*International Integrated Reporting Council*) e compreender a contribuição do nível de qualidade desses relatórios para o desempenho econômico das empresas adotantes.

Metodologia: As empresas foram selecionadas no banco de dados do IIRC. Utilizando como referência o método apresentado por Kiliç e Kuzey (2018), foi adaptado um modelo de ID (Índice de Divulgação), através da técnica de análise de conteúdo, para mensurar o nível de aderência dos Relatos ao *Framework*. Após o cálculo dos IDs, foram analisados o Coeficiente de Variação (CV) de índices de liquidez e solvência das empresas e o desempenho macroeconômico do período pesquisado, objetivando constatar se os RIs aderentes ao *Framework* estão associados ao desempenho econômico das empresas.

Resultados: Os resultados da análise apontam que não é possível afirmar que elevados níveis de aderência ao *Framework* estão associados ao desempenho econômico das empresas, haja vista que o cálculo do CV dos índices financeiros, durante o período de publicações dos RIs, não apresenta uma dispersão menor quando comparados ao período anterior a tais publicações

Contribuição do estudo: As pesquisas recentes a respeito do tema Relato Integrado não apresentam uma relação entre a aderência das publicações ao *Framework* do IIRC e o desempenho econômico de empresas brasileiras. Desse modo, este estudo demonstra-se relevante ao pesquisar o conteúdo dos Relatos Integrados publicados por empresas brasileiras e o relacionamento dessas informações com o desempenho econômico, verificando se os Relatos Integrados cumprem a promessa de entregar benefícios econômicos aos adotantes do modelo.

Palavras-chave: Relato Integrado. *Framework*. Aderência. Índice de Divulgação. Desempenho Econômico.

1 Introduction

The first social and environmental reports began to be published on a voluntary basis, however, through long and complex documents that had no connection with traditional financial statements. (Villidi & Unman, 2014). The main objective of publishing these reports is to present to society the company's commitment to the guidelines related to the socio-environmental context (García-Sánchez & Noguera, 2017). In addition, it aims to meet the demand of stakeholders, sharing more complete information about the activities of organizations (Crisóstomo, Forte & Prudêncio, 2020).

In this way, it became essential to verify if the reports would, in fact, be aligned with the best international practices (Reis, Rigo & Farinon, 2020). After different groups tried to increase, in a structured way, the integration of financial and non-financial information, a global coalition, formed in 2010, with the objective of developing a framework for Integrated Reporting (IR) and promoting its use, gave rise to to the *International Integrated Reporting Council* (IIRC) (*International Integrated Reporting Council* [IIRC], 2013; Brown & Dillard, 2014; Zhou, Simnett, & Green, 2017).

In 2013, the IIRC published a Framework with the potential to significantly change traditional corporate reporting. In that document, it was discussed how financial, environmental and social resources should relate to create business value over time. (Zhou et al., 2017). By reconciling, in a single publication, all the variables that impact a company's results, IR seeks to improve the reach of existing corporate reports, since the use of cohesive language ensures investors a broader perspective and a a more efficient lease of capital (IIRC, 2013).

In this way, the adoption of the IIRC Framework would be associated with the sharing of more qualified information for stakeholders and, also, with the creation of capital market benefits for companies that adhere to the model, for example, a lower cost of capital. (García-Sánchez & Noguera-Gámez, 2017; Zhou et al., 2017).

Previous research has investigated the relationship between the quality level of Integrated Reporting and the market value of companies, the economic and financial performance, and the accuracy of the analysts' projection in the South African context (Rambe & Mangara, 2016; Barth, Cahan, Chen & Venter, 2017; Matemane & Wentzel, 2019). Other studies, considering a broader international sample, investigated the impact of the quality of the IR disclosure on the company's performance, in its market value and in its cost of capital. (Pavlopoulos; Magnis & Iatridis, 2019; Vitolla; Salvi; Raimo; Petruzzella & Rubino, 2020).

In the Brazilian context, there is little research on Integrated Reporting. Some studies were carried out in order to verify the quality of the dissemination of the IR by companies participating in the IIRC pilot program. (Peixoto & Martins, 2015; Alves; Kassai; Lucas & Ferreira, 2017; Teixeira, Rech, Zanolla & Couto, 2021). Other studies have verified the relationship between the disclosure of the IR and economic and financial indicators (Albuquerque, Rodrigues, Miranda & Sampaio, 2017; Gonçalves; Anjos & Freitas, 2019).

Taking this into account, this article is premised on answering the following problem question: **are the levels of adherence of IRs to the IIRC Framework associated with the economic performance of companies in the Brazilian context?**

Through the analysis of the adherence of the IRs of a sample composed of three Brazilian companies to the IIRC Framework, the objective of this article is to understand the contribution of this adherence to the economic performance of the adopting companies. In this sense, this research contributes to the development of the theme, by presenting a Disclosure Index (DI) to investigate the level of adherence of the Reports to the IIRC Framework, in order

to verify if these information are associated with the economic performance of companies, since recent research do not address this association in the context of the Brazilian market.

2 Literature Review

2.1 Integrated Reporting

According to Camodeca, Almici and Sagliaschi (2018), information related to sustainability are relevant to organizational value, since companies with good environmental and social practices have less volatility in their results, having a lower risk in their operations when compared to those that do not adopt sustainable practices. In addition, the limitation of non-financial information prevents reports from correctly presenting how intangible assets are used in the value creation process of companies (Albertini, 2019).

Corporate reports that do not connect different types of information are incomplete and are not linked to long-term goals (Abeysekera, 2013; Zhou et al., 2017), making it difficult to understand the different dimensions of an organization's performance with regard to social, environmental and economic aspects (Melloni, Caglio & Perego, 2017; Pistoni, Songini & Bavagnoli, 2018).

In this sense, according to Villiers, Venter and Hsiao (2017), the IR is seen as an emerging initiative capable of facing the limitations of current corporate reports, which are commonly criticized for not presenting the possible impacts related to operational risks in the long term. Thereby, in addition to correcting the criticism of traditional models, it can improve the ability of investors to assess the future prospects of companies.

This is because the adoption of IR, in addition to producing more complete documents, creates the opportunity for the development of more inclusive and responsible business models, promoting more sustainable practices and improving the quality of information provided to shareholders and society. (Villiers et al., 2017).

Leading companies in their sectors have already published the IR in a concise and coherent format, facilitating investor decision-making, in addition to meeting the interests of other stakeholders (Aceituno, Ariza & Sánchez, 2013). Thus, the main objective of an IR is to show providers of financial capital how an organization is capable of generating value in the short, medium and long term, besides containing relevant information for everyone impacted by the organizations' activities. (IIRC, 2013).

To this end, the IR uses integrated thinking that allows the simultaneous reporting of the entire network of interactions and implications of organizational activities, ensuring better decisions and lower reputational risk, strengthening financial stability and directly collaborating for a more responsible society. (Abeysekera, 2013; Eccles & Serafeim, 2011). In addition, the Integrated Reporting works with the concept of materiality to highlight the organization's current transactions, focusing on the most relevant issues and aspects related to the transparency of information. (Adams & Simnett, 2011).

This way, the IR presents, in a more effective way a company's business model (Abeysekera, 2013; Eccles & Serafeim, 2011) that must create and sustain value for the *stakeholders* and *shareholders* (Abeysekera, 2013). Therefore, changes in this model can change the organization's relationship with the risks and uncertainties in its operating environment. (Abeysekera, 2013; Pistoni et al., 2018).

In order to close the gap between financial and non-financial reporting, (Cheng, Green, Conradie, Konishi & Romi, 2014; Lodhia, 2015), the IIRC has developed a globally accepted

Framework, whose main objective is to show providers of financial capital how an organization is able to generate value in the short, medium and long term. (IIRC, 2013).

The application of the Framework provides an opportunity to recognize the interconnections between the financial, social and environmental issues of business performance, always seeking to achieve a more inclusive reporting model. (Brown & Dillard, 2014; Kiliç & Kuzey, 2018). In this way, the IIRC seeks to align corporate behavior and the allocation of financial capital in pursuit of broader objectives of financial stability and sustainable development. (Coulson, Adams, Nugent & Haynes, 2015).

The IIRC *Framework* concepts are anchored in two pillars: the guiding principles and the content elements. Content elements should not serve as a standard structure, with their information in a fixed sequence, or as isolated or autonomous sections. (IIRC, 2013). Also according to the IIRC (2013), the content elements are: organizational overview and external environment, governance, business model, risks and opportunities, strategy and resource allocation, performance, perspectives and basis for preparation and presentation.

The use of the Framework, with its content elements, serves to directly collaborate with the quality of the IR, emphasizing the interconnections between the different types of information that are currently reported in separate documents. (Zhou et al., 2017). The content elements present in the Framework guide companies in the process of preparing the IR, since the structure is based on the view that documents must contain fundamental concepts (Cheng et al., 2014), but there is no single way to sequence them and present them (IIRC, 2013).

The Integrated Reporting presents itself as an opportunity to integrate, in a clear and concise way, all the relevant information of an organization. In this way, it promises the investor to be an important tool for decision making and investment allocation. However, through the interrelationships between its capitals, the IR is able to qualify information for all interest groups, not just investors. So, it is important to research whether companies that publish their reports guided by the IIRC Framework are capturing the benefits promised by the initiative.

2.2 Previous Studies

Most of the international research that studies the implications of the adoption of Integrated Reporting has been carried out in the South African context. According to Baboukardos and Rimmel (2016), South Africa offers an interesting and unique scenario for the development of empirical investigations since it was the first country to make the publication mandatory, from 2014 onwards, of integrated reports by companies, offering considerable time to review the relevance of the value of accounting information after the adoption of IR.

The results of these surveys are inconclusive, but there are findings that show that the quality of IR is positively associated with the evaluation of companies (Q de Tobin) (Barth et al., 2017; Lee & Yeo, 2016), corresponding to an increase in the stock market prices (Rambe & Mangara, 2016), in the improvement of liquidity, in the accuracy of the analysts' projection and in the reduction of the capital cost (Barth et al., 2017; Zhou et al., 2017).).

On the other hand, some results show that the quality of IR does not affect the performance of companies, or even that IR affects it negatively. Baboukardos and Rimmel (2016) identified that the book value of equity was reduced after the adoption of IR, while Conway (2019) and Matemane and Wentzel (2019) found evidence that there is a drop in ROA (*Return on Assets*), in ROE (*Return on Equity*) and in Q of Tobin from companies that disclose the IR. Barth et al. (2017) found no evidence of a relationship between the quality of IR and the cost of capital. Furthermore, Willows and Rockey (2018) found evidence that financial

disclosures generate statistically significant average abnormal returns in a way superior to those generated by IR.

Recently, other studies have investigated the relationship between the IR adoption and financial performance in other countries on an individual basis. Gal (2019) examined the relationship between integrated reporting, external verification, and financial performance for US companies between 2011 and 2016. The results provide evidence that there is a significant positive association between integrated reporting and the stock market price, with an impact on ROA and ROE. Furthermore, this positive effect is enhanced when the integrated reports are secured and audited by the accounting firms.

Helmina, Ghozali, Isgiyarta and Sutomo (2019) investigated the effect of the integrated reporting framework, including financial and non-financial information on the value of companies listed on the Indonesian stock exchange. The authors found that non-financial information have a significant effect on a company's book value.

Jaffar, Nor and Selamat (2019), in turn, examined the effect of voluntary disclosure of the eight IR content elements on the relevance of corporate information value of Malaysian companies, investigating differences in the relevance of the value of corporate information in the pre- and post- issuance periods of the IR framework. This study identified that there is a significant difference in the relevance of the value between the pre- and post- issuance of the IR. However, the level of voluntary disclosure of information related to the eight IR content elements does not significantly influence the relevance of the companies' corporate information value.

Other surveys worked with an international sample, most part constant in the IIRC database. Giorgino and Supino (2017) found evidence that IR publications produce significant effects on stock prices, a finding corroborated by Cortesi and Vena (2019). Pavlopoulos et al. (2019) identified that IR disclosure is associated with better business performance when evaluating ROA, noting a high share value and abnormal returns, especially in a context where adoption is mandatory, for example, in South Africa. These results may be related to the improvement in the organization's level of communication and transparency in relation to the market and expectations, which reduces information asymmetry and increases shareholder expectations regarding business performance (Giorgino & Supino, 2017).

The results of Flores, Fasan, Silva and Sampaio (2019) suggest that the IR improves the ability of analysts to make accurate projections. Such results are corroborated by García-Sánchez and Noguera-Gámez (2017), who, in addition to indicating greater assertiveness in projections, also identified a reduction in the cost of capital as an effect resulting from the adoption of IR, which may be related to the decrease in information asymmetry (Cortesi & Vena, 2019; García-Sánchez & Noguera-Gámez, 2017).

In Brazil, studies of this type are very scarce. Albuquerque et al. (2017) noted that the participating companies have better profitability through the results of ROI and ROE indicators, a greater participation of third-party capital and lower liquidity. Gonçalves et al. (2019) proved the increase in value relevance (market value/number of shares) for companies participating in the IIRC pilot program in the Brazilian market.

3 Research Methodology

3.1 Strategy and Research Method

This current research uses descriptive statistics to analyze the results. As for the strategy, secondary data analysis was used, coming from the Integrated Reports and the Income

Statements for the Year, both extracted from the sample company websites, in the investors relation section.

3.2 Population and Sample

The sample was selected from the IIRC's IR database, in partnership with Black Sun Plc, a communications agency focused on corporate reporting. The criteria used for the selection of the sample were: (i) Brazilian companies listed on the Brazilian stock exchange B3; (ii) Integrated Reports available for consultation on the companies' website, considering the period from 2014 to 2017; (iii) companies operating in different markets and similarity in the structure and arrangement of contents. Thus, among the 11 initial companies available in the database, only three were selected. They are: Light, CCR and BRF. In addition to meeting the selection criteria, the reports from the three companies had the structure and organization of the content in a similar format, facilitating the search for information.

3.3 Database Definition

The use of the IIRC database is justified by the storage of IRs that are considered by the Council itself as examples of Reports produced in accordance with the recommended Framework. As this research seeks to understand the contribution of the quality level of these reports to the economic performance of adopting companies, the IIRC database becomes an appropriate source for the selection of the sample.

3.4 Data Processing and Analysis

This study used the technique of content analysis, a flexible method that allows analyzing data within a qualitative and descriptive perspective, being especially useful for examining document trends and patterns (Stemler, 2014; White & Marsh, 2006). In this way, it became possible to analyze the voluminous published documents in a more structured and assertive way.

Content analysis requires the definition of units of analysis, which is the classification of information disclosed in a source document into categories of items capable of capturing the aspects of specific information that one wants to search for. (Setia, Abhayawansa, Joshi & Huynh, 2015). The content elements of an IR, listed in the Framework, were chosen as the units of analysis for this research.

As illustrated by Table 1, adapting the method presented by Kiliç and Kuzey (2018), the units of analysis were organized in a table that divided the content elements into topics. To each of the topics, subtopics were associated to organize the reading of the reports according to the questions of the content elements. This organization was important for the calculation of the Disclosure Index (DI), which indicated the percentage of adherence of the reports to the Framework.

Table 1

Distribution of content subtopics

	ORGANIZATIONAL OVERVIEW		STRATEGY AND RESOURCE ALLOCATION
V1	Mission and vision statement	ES33	Short, medium and long term strategic objectives (no term)
V2	General explanations about organizational culture, ethics and values	ES34	Short, medium and long-term strategic objectives (with term)

V3	Code of conduct/ethics	ES35	Strategies implemented to achieve strategic objectives
V4	Pperational structure	ES36	Measuring achievements and desired outcomes
V5	Competitive landscape and market positioning	ES37	Ability of the organization to adapt to changes to achieve goals
V6	Number of employees	ES38	Link between strategy and the main capitals
V7	Organization's geographic area of operation		
	EXTERNAL ENVIRONMENT		PERFORMANCE
A8	Risks and opportunities	D39	KPI's of financial measures
A9	Legal factors	D40	KPIs that combine financial measures with other components
A10	Political factors	D41	Link between past and current performance
A11	Social factors	D42	Comparison between regional and/or sectoral benchmarks
A12	Market forces	D43	Financial implications of significant effects on other capital
A13	Main stakeholders		
A14	Environmental factors		
	GOVERNANCE		*OUTLOOK*
G15	List of Directors	O44	Expectations about the future or explanations of uncertainty
G16	Board and/or Board experience or skills	O45	Projections on KPI's
G17	Culture, ethics and values are reflected in the use of capital	O46	Assumptions related to these projections
G18	Actions taken to monitor strategic direction	O47	Current performance and perspective of the organization
G19	Compensation policies		
	INPUTS		OUTCOMES
E20	Main inputs	R29	Organizational reputation
E21	Product Differentiation (Competitive Advantage)	R30	Revenue and/or cash flow
E22	distribution channels	R31	Customer satisfaction
E23	After-sales service (dialogue with the consumer)	R32	Increase or decrease in capital (creation or decrease in value)
E24	Innovation		
E25	Employees training		
	OUTPUTS		
S26	Main products and services		
S27	Greenhouse gas emissions		
S28	Water use		

Source: *Adapted from Kiliç and Kuzey (2018).*

The DI consists of calculating the number of items related to the information that a report contains, based on a list of contents that must be identified in the reports (Bukh, Nielsen, Gormsen & Mouritsen, 2005). According to Bukh et al. (2005), it is a tool that has been frequently applied to quantify the extent of disclosure in annual reports, commonly used in the content analysis technique, to analyze the presence or absence of specific items of information (Patten, 2002). Related research also used DI as a content analysis tool, such as: Haji and Anifowose (2017); Oliveira; Rodrigue and Craig (2010) and Setia et al. (2015).

The rationale for calculating the DI was done as follows: assign 1 point for each subtopic of content found at least once in each report, and 0, if there was no mention of the subtopic. As the table lists 47 subtopics, the total score could range from 0 to 47 points. The subtopics found

were added and divided by the total number of subtopics that could be disclosed, that is, 47. Thus, the results could vary from 0 to 1. Therefore, the closer to 1, the greater the adherence of the IR to the Framework.

The formula for calculating the DI:

$$DI = \frac{\sum_{i=1}^{t} IDi}{t}$$

Therefore:

- IDi = 0 or 1
- IDi = 0, unpublished subtopic;
- IDi = 1, subtopic published at least once;
- T = 47, total of subtopics (t = 47);

Annual DIs were calculated for the period from 2014 to 2017 for all companies in the sample, allowing to analyze whether there was an evolution in the level of adherence to the Framework and to verify if there is a growth trend in the alignment of publications to the IIRC Framework.

After calculating the DIs, some profitability indices were used, such as ROA and ROE, and solvency indices that reflect the company's liquidity, such as Current Liquidity and General Liquidity. While solvency ratios inform the company's ability to pay its obligations, the profitability ratios indicate how efficiently the company uses its assets and manages its operations, focusing on the last line of the income statement, or that is, net income (Ross, Westerfield & Jordan, 1998).

The indices were extracted from data obtained through the balance sheets and income statements of the companies for the period from 2010 to 2017. The study was divided into 32 quarters and the data taken from the companies' websites in the Investor Relations area.

Using the results of the profitability and solvency indices of the companies, the coefficients of variation were calculated for the two periods, the 4 years prior to the release of the Framework, released at the end of 2013, from 2010 to 2013, and the 4 years after the release, from 2014 to 2017.

The coefficient of variation of the results of the indices was used to verify if, after the publications of the IRs, the indices presented more stable results, that is, if they reflected a smaller dispersion. This could indicate that the IRs collaborate in some way with the results of the indices. More stable indicators may reflect the market's confidence in the companies' management and numbers.

The percentages obtained by the coefficient of variation indicate the level of data dispersion, according to the empirical rules below (Martins, 2005).

- CV > 15% there is low dispersion.
- 15% ≤ CV< 30% there is average dispersion.
- CV ≥ 30% there is high dispersion.

The calculation of the coefficient of variation is given by the formula below (Martins, 2005).

$$CV = \frac{S}{\overline{X}}.100$$

Therefore:

$\underline{S}$ = sample standard deviation

$\overline{X}$= sample mean

Finally, the results of calculation of the coefficient of variation were analyzed together with macroeconomic indicators, since they also influence the behavior of the data. Thus, the Gross Domestic Product (GDP) and the Broad Consumer Price Index (BCPI) for the period were analyzed, both measured by the Brazilian Institute of Geography and Statistics (IBGE).

The IPCA is produced continuously and systematically by the National System of Consumer Price Indexes (SNIPC), and measures the inflation of a set of products and services sold in retail. GDP, on the other hand, is a measure of the flow of new final goods and services produced during a period, which works as a summary indicator of an economy.

4 Presentation and Analysis of Results

The DI calculation served to assess the quality of published reports. In this work, quality is represented by the percentage of adherence of each document to the *Framework*. Subsequently, the DI was analyzed together with the CVs of the profitability and liquidity indices of the companies, to verify the existence of an association between adequate reports to the IIRC and the economic performance of the companies.

An improvement in economic performance would be indicated by the reduction in the dispersion of the results of the indices, which could signal that the reports collaborated with more resilient numbers in the face of fluctuations in the economic scenario, thus contributing to better results.

Table 2, below, presents the annual DIs by company. With the exception of 2017, when CCR presented a DI of 68.10%, all companies had results above 70% in the other periods, especially BRF, which always presented results above 80%.

Table 2

Disclosure index of analyzed companies

Year	BRF	Light	CCR
2014	83,00%	76,60%	70,20%
2015	83,00%	76,60%	70,20%
2016	83,00%	74,50%	74,50%
2017	85,10%	74,50%	68,10%

Source: *Research data.*

Table 3, below, presents the CVs of the companies' current liquidity ratios in two periods: from 2010 to 2013, period prior to the reports, and from 2014 to 2017, period of publication of the reports.

Table 3
Coefficient of variation of current liquidity ratios

Current liquidity 2010-2013				Current liquidity 2014-2017			
Quarter	BRF	Light	CCR	Quarter	BRF	Light	CCR
1° t. 2010	1,93	1,59	1,44	1° t. 2014	1,17	1,16	0,66
2° t. 2010	1,89	1,50	1,44	2° t. 2014	1,34	1,14	0,62
3° t. 2010	1,88	1,27	0,97	3° t. 2014	1,46	1,07	0,51
4° t. 2010	1,73	1,09	0,57	4° t. 2014	1,58	1,01	0,59
1° t. 2011	1,87	1,11	0,60	1° t. 2015	1,88	1,10	0,68
2° t. 2011	1,72	1,41	0,68	2° t. 2015	1,77	1,08	0,52
3° t. 2011	1,58	1,01	0,61	3° t. 2015	1,83	0,43	0,51
4° t. 2011	1,39	1,37	0,47	4° t. 2015	1,65	0,90	0,50
1° t. 2012	1,41	1,39	0,40	1° t. 2016	1,63	0,88	0,51
2° t. 2012	1,51	1,16	0,46	2° t. 2016	1,38	0,78	0,50
3° t. 2012	1,53	1,41	0,40	3° t. 2016	1,41	0,71	0,64
4° t. 2012	1,55	1,12	0,43	4° t. 2016	1,49	0,74	0,59
1° t. 2013	1,05	1,07	0,40	1° t. 2017	1,54	0,80	0,94
2° t. 2013	1,11	1,88	0,53	2° t. 2017	1,62	0,61	0,75
3° t. 2013	1,13	1,98	0,45	3° t. 2017	1,52	0,62	0,99
4° t. 2013	1,57	1,09	0,55	4° t. 2017	1,29	0,75	1,09
Deviation	0,28	0,29	0,34	Deviation	0,19	0,22	0,19
Average	1,55	1,34	0,65	Average	1,53	0,86	0,66
Coef. Var.	18%	22%	52%	Coef. Var.	13%	25%	28%
Dispersion	Average	Average	High	Dispersion	Low	Average	Average

Source: *Research data.*

The results presented in Table 3 generally point to a reduction in the Coefficient of Variation in the period of publication of the IR. BRF and CCR showed a significant reduction, including a change in the dispersion status. Light, on the other hand, had a higher Coefficient of Variation, but maintained the status of dispersion, with the classification of Medium dispersion.

Table 4, below, presents the CVs of the general liquidity ratios in these two periods.

Tabela 4
Coefficient of variation of general liquidity ratios

General Liquidity 2010-2013				General Liquidity 2014-2017			
Quarter	BRF	Light	CCR	Quarter	BRF	Light	CCR
1° t. 2010	1,00	0,74	0,77	1° t. 2014	0,84	0,72	0,56
2° t. 2010	1,00	0,72	0,77	2° t. 2014	0,87	0,70	0,54
3° t. 2010	1,01	0,69	0,67	3° t. 2014	0,86	0,69	0,47
4° t. 2010	1,02	0,69	0,52	4° t. 2014	1,09	0,72	0,43
1° t. 2011	1,05	0,70	0,53	1° t. 2015	1,00	0,74	0,49
2° t. 2011	1,05	0,67	0,55	2° t. 2015	0,97	0,73	0,48
3° t. 2011	1,04	0,62	0,50	3° t. 2015	0,92	0,73	0,51
4° t. 2011	0,99	0,63	0,52	4° t. 2015	0,91	0,75	0,46

1° t. 2012	0,99	0,65	0,55	1° t. 2016	0,86	0,75	0,49
2° t. 2012	0,97	0,61	0,51	2° t. 2016	0,81	0,74	0,46
3° t. 2012	0,96	0,66	0,47	3° t. 2016	0,81	0,76	0,52
4° t. 2012	0,95	0,62	0,45	4° t. 2016	0,80	0,76	0,49
1° t. 2013	0,82	0,67	0,52	1° t. 2017	0,79	0,76	0,65
2° t. 2013	0,81	0,70	0,53	2° t. 2017	0,78	0,74	0,58
3° t. 2013	0,82	0,72	0,50	3° t. 2017	0,80	0,75	0,62
4° t. 2013	0,94	0,71	0,51	4° t. 2017	0,77	0,80	0,58
Deviation	0,08	0,04	0,10	Deviation	0,09	0,03	0,06
Average	0,96	0,67	0,55	Average	0,87	0,74	0,52
Coef. Var.	8%	6%	17%	Coef. Var.	10%	4%	12%
Dispersion	Low	Low	Average	Dispersion	Low	Low	Low

Source: *Research data.*

During the period of publication of the IR, reductions in the CVs of the liquidity ratios were identified, with emphasis on CCR, which showed a drop in the current and general liquidity ratios, both with a reduction in the dispersion classification. In terms of current liquidity, Light was practically stable in both periods. The same happened with BRF in general liquidity.

Considering the data examined, this research cannot attribute the improvement in these indicators only to the level of adherence of the reports to the Framework, given that the CCR obtained the greatest reductions in the dispersion of indices despite having the worst adherence to the *Framework*. Light's numbers point to this lack of association between the result of the indicators and the quality of the IR, since it was the company that presented the lowest Disclosure Rates, but had the greatest reductions in the Variation Coefficients.

The adoption of IR, regardless of its quality, may have contributed to the more stable performance of liquidity ratios. This result is in agreement with the work by Albuquerque et al. (2017), who found that companies that adhered to the IR, among other results, had an improvement in the participation of third-party capital, one of the components of the calculation of general liquidity. This analysis is also close to the work by Jaffar et al. (2019), which indicates that the quality of the level of disclosure related to the eight IR content elements does not significantly influence the relevance of the value of corporate information of companies.

Figure 1, below, shows the behavior of GDP and IPCA to contextualize the macroeconomic scenario for the period. It can be seen that the IR period was marked by negative GDPs, with a recovery only being observed in the fourth quarter of 2016.

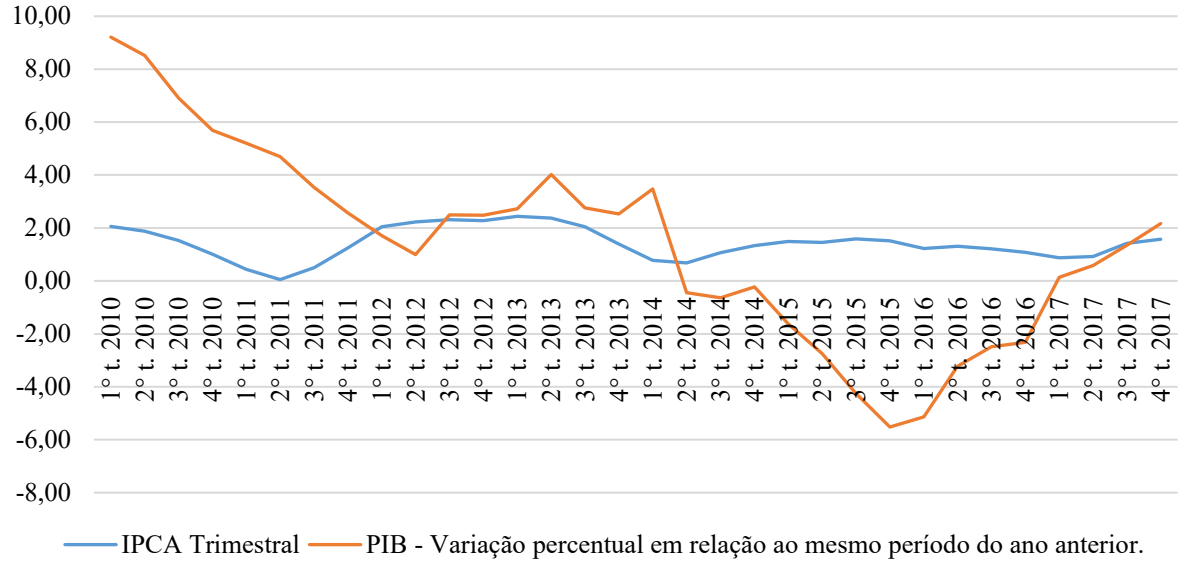

Figure 1: Macroeconomic performance of Brazil in the period studied.
Source: *Research data.*

From the analysis of the CVs of the companies' liquidity ratios, it is identified that, in general, all three organizations responded positively to the presence of the IR. However, when the results of the profitability indices are observed, this research does not find similar numbers to previous studies, such as Albuquerque et al. (2017), who compared the performance of companies participating in the pilot project in Brazil with companies that did not adhere to this initiative, in order to identify the influence of IR on the performance of companies. According to Albuquerque et al. (2017), pioneer companies in the disclosure of IR in Brazil have better profitability indicators, greater participation of third-party capital and lower current liquidity ratio.

Tables 5 and 6, below, present the ROA and ROE CVs.

Table 5
Coefficient of variation of profitability indices

ROA 2010-2013				ROA 2014-2017			
Quarter	BRF	Light	CCR	Quarter	BRF	Light	CCR
1° t. 2010	0,0022	0,0238	0,0143	1° t. 2014	0,0101	0,0135	0,0230
2° t. 2010	0,0062	0,0109	0,0157	2° t. 2014	0,0080	0,0012	0,0181
3° t. 2010	0,0078	0,0143	0,0400	3° t. 2014	0,0189	-0,0041	0,0201
4° t. 2010	0,0130	0,0062	0,0157	4° t. 2014	0,0295	0,0381	0,0200
1° t. 2011	0,0137	0,0173	0,0135	1° t. 2015	0,0127	0,0089	0,0106
2° t. 2011	0,0172	0,0047	0,0125	2° t. 2015	0,0098	-0,0041	0,0094
3° t. 2011	0,0124	-0,0002	0,0210	3° t. 2015	0,0219	0,0026	0,0118
4° t. 2011	0,0040	0,0092	0,0230	4° t. 2015	0,0350	-0,0048	0,0113
1° t. 2012	0,0052	0,0127	0,0219	1° t. 2016	0,0009	0,0001	0,0109
2° t. 2012	0,0002	0,0036	0,0161	2° t. 2016	0,0007	-0,0041	0,0066
3° t. 2012	0,0029	0,0071	0,0217	3° t. 2016	0,0004	-0,0042	0,0483
4° t. 2012	0,0183	0,0136	0,0243	4° t. 2016	-0,0107	-0,0135	0,0069
1° t. 2013	0,0117	0,0067	0,0259	1° t. 2017	-0,0066	0,0017	0,0119
2° t. 2013	0,0067	0,0045	0,0229	2° t. 2017	-0,0035	-0,0037	0,0236

3° t. 2013	0,0092	0,0248	0,0288	3° t. 2017	0,0028	0,0042	0,0164
4° t. 2013	0,0064	0,0099	0,0218	4° t. 2017	-0,0173	0,0061	0,0107
Deviation	0,0054	0,0070	0,0069	Deviation	0,0142	0,0115	0,0101
Average	0,0086	0,0106	0,0212	Average	0,0070	0,0024	0,0162
Coef. Var.	62%	66%	33%	Coef. Var.	202%	484%	62%
Dispersion	High	High	High	Dispersion	High	High	High

Source: *Prepared by the authors. Research data.*

Table 5, above, shows an increase in the Coefficient of Variation numbers, for all companies, during the period of publication of the IR. Although the numbers from the period prior to the IR already show a high dispersion, the numbers worsened between the years 2014 to 2017.

Table 6

Coefficient of variation of profitability indices

ROE 2010-2013				ROE 2014-2017			
Quarter	BRF	Light	CCR	Quarter	BRF	Light	CCR
1° t. 2010	0,0047	0,0750	0,0450	1° t. 2014	0,0209	0,0494	0,0868
2° t. 2010	0,0130	0,0318	0,0495	2° t. 2014	0,0177	0,0046	0,0674
3° t. 2010	0,0157	0,0459	0,1462	3° t. 2014	0,0407	-0,0162	0,1071
4° t. 2010	0,0264	0,0179	0,0637	4° t. 2014	0,0653	0,1433	0,1046
1° t. 2011	0,0273	0,0476	0,0530	1° t. 2015	0,0311	0,0342	0,0489
2° t. 2011	0,0350	0,0136	0,0483	2° t. 2015	0,0240	-0,0155	0,0449
3° t. 2011	0,0258	-0,0005	0,0906	3° t. 2015	0,0616	0,0101	0,0526
4° t. 2011	0,0086	0,0312	0,0918	4° t. 2015	0,1023	-0,0194	0,0627
1° t. 2012	0,0107	0,0417	0,0824	1° t. 2016	0,0028	0,0004	0,0711
2° t. 2012	0,0004	0,0124	0,0617	2° t. 2016	0,0024	-0,0162	0,0405
3° t. 2012	0,0064	0,0271	0,1052	3° t. 2016	0,0014	-0,0175	0,2436
4° t. 2012	0,0386	0,0529	0,1034	4° t. 2016	-0,0377	-0,0578	0,0409
1° t. 2013	0,0239	0,0253	0,0911	1° t. 2017	-0,0240	0,0073	0,0390
2° t. 2013	0,0143	0,0190	0,0770	2° t. 2017	-0,0142	-0,0154	0,0750
3° t. 2013	0,0194	0,0968	0,1276	3° t. 2017	0,0110	0,0177	0,0527
4° t. 2013	0,0142	0,0371	0,0878	4° t. 2017	-0,0670	0,0265	0,0387
Deviation	0,0109	0,0245	0,0290	Deviation	0,0414	0,0441	0,0505
Average	0,0178	0,0359	0,0828	Average	0,0149	0,0085	0,0735
Coef. Var.	62%	68%	35%	Coef. Var.	278%	521%	69%
Dispersion	High	High	High	Dispersion	High	High	High

Source: *Research data.*

Table 6, above, shows results similar to those illustrated by Table 5, with the worsening of the dispersion of results from 2014 to 2017. The dispersion was already high in the period before the reports, but it increased significantly in the period of publications. Despite finding some positive association between reports and liquidity, this research does not find the same association for profitability indices. In this aspect, it is similar to the work of Matemane and Wentzel (2019), who found evidence of a decline in ROI, ROE and Tobin's Q of companies that disclose IR.

Figures 2 and 3, below, show the behavior of ROA. Note that the results in the period prior to the IR are more controlled, despite the high dispersion. Therefore, the quality of the IRs also seems not to have been able to mitigate the worsening of the results. In fact, the company with the lowest DIs, CCR, was the one with the lowest dispersion in the results.

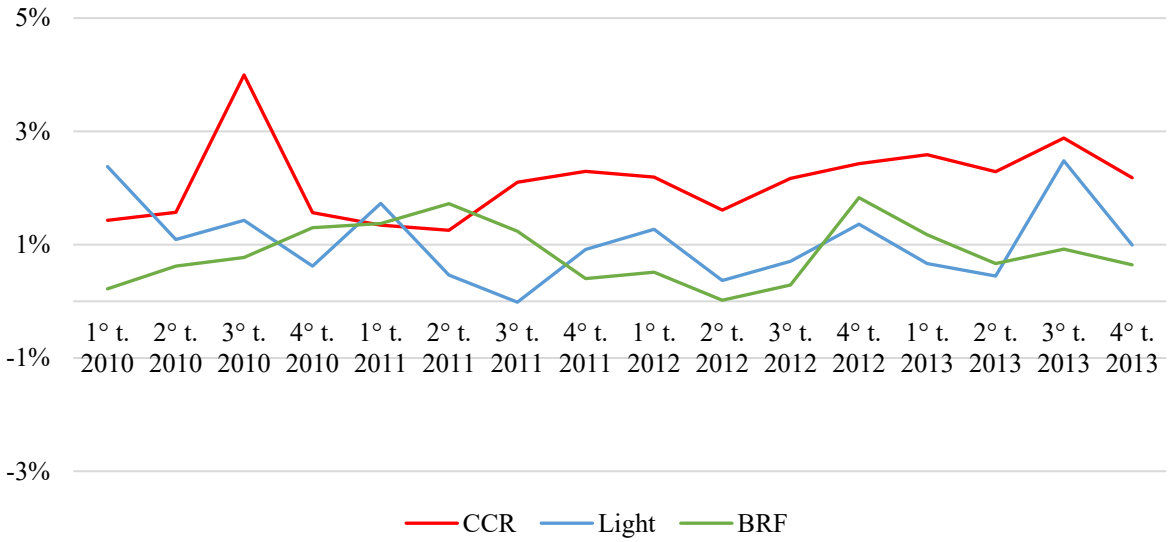

Figure 2: *ROA behavior before Integrated Reporting implementation.*
Source: *Prepared by the authors. Research data.*

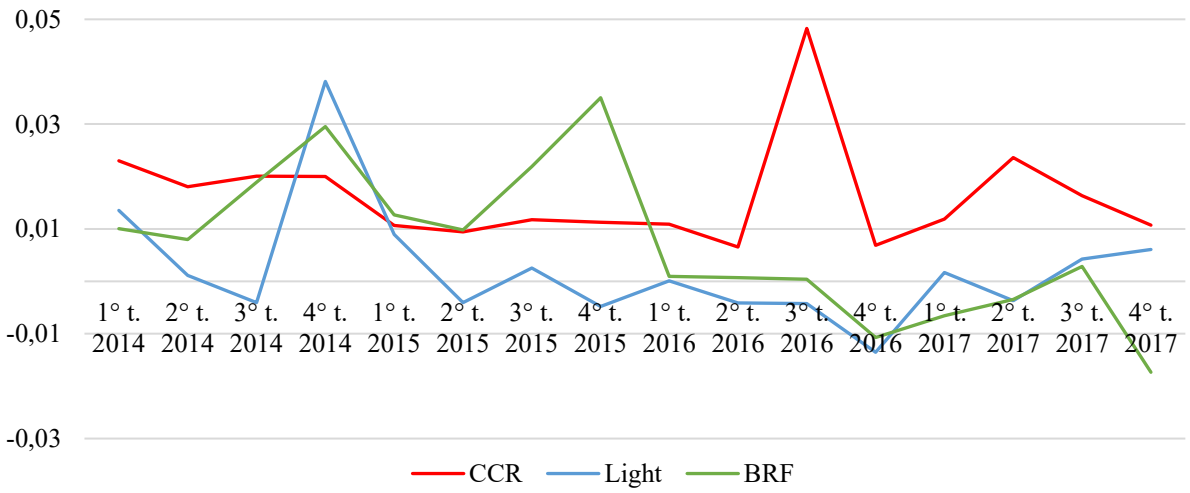

Figure 3: *ROA behavior after the implementation of Integrated Reporting*
Source: *Research data.*

Figures 4 and 5, below, show the performance of the ROE, which behaves similarly to the ROA, that is, the period of publication of the IRs was marked by a worsening in the dispersion of numbers.

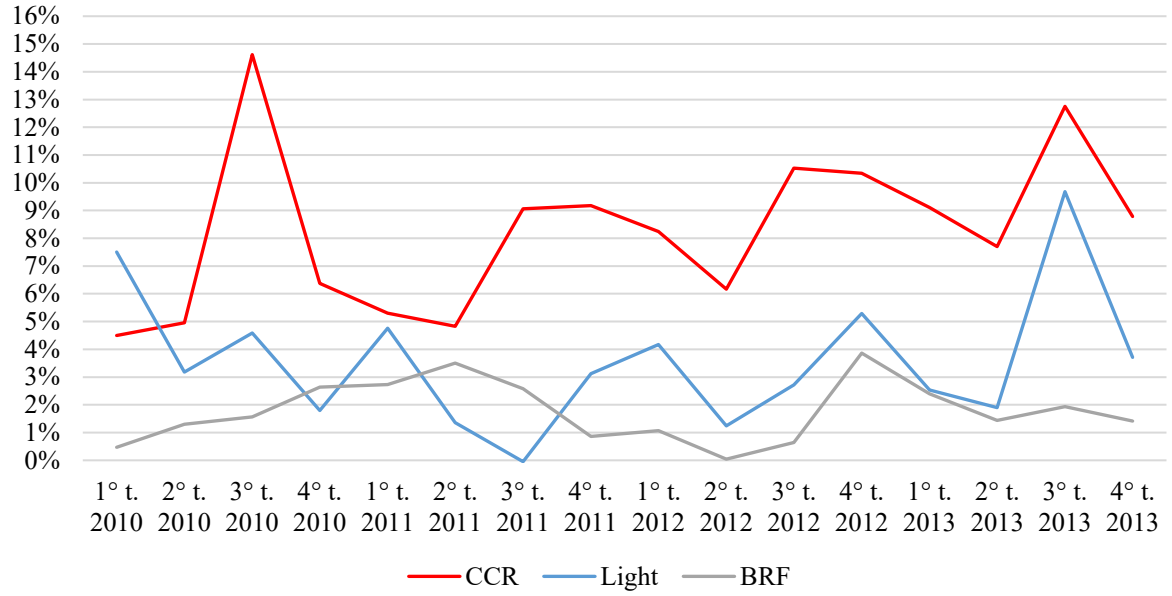

Figure 4: *ROE behavior before Integrated Reporting implementation.*
Source: *Prepared by the authors. Research data.*

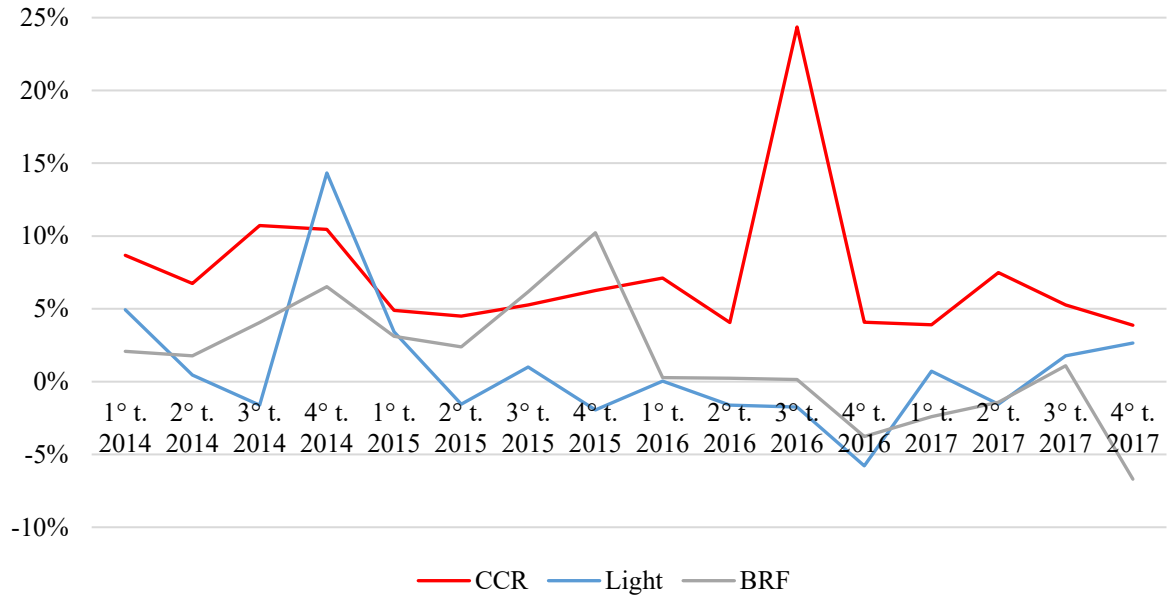

Figure 4: *ROE behavior after Integrated Reporting implementation.*
Source: *Prepared by the authors. Research data.*

The period prior to the IRs presented mostly positive results, while the period of publications had some quarters of negative results. Again, CCR was the company that presented the smallest dispersion in the results, even with the worst DIs.

It was expected that in the face of fluctuations in the behavior of the economy, documents more aligned with the IIRC could collaborate with the generation of more stable results, giving signs of recognition from the capital market, according to the work of García-Sánchez and Noguera-Gámez (2017) and Zhou et al. (2017). According to the information

contained in the IRs of the companies themselves, these results seem to be more associated with the macroeconomic conditions of the periods.

In this sense, according to the information contained in the reports of the companies themselves, the results of the indices seem to be more associated with the macroeconomic conditions of the periods surveyed. BRF, for example, describes the difficulties imposed by the macroeconomic situation, such as the downturn in the economy and the impacts on consumers' budgets. Light, in turn, highlights the increase in costs generated by the intensive use of thermal plants, while CCR explains that its results are related to significant changes in the company's cost structure, altered by the increase in interest rates and access to more restrictive to credit.

Thus, not even the voluntary adoption of a document that aims to clarify the organization's value creation process and the way in which it uses its resources to achieve its objectives, as well as clarify the potential risks and how to circumvent them, initially failed to overcome political and macroeconomic obstacles and maintain stability in business results, as expected and defended by García-Sánchez and Noguera-Gámez (2017).

This way, the results do not present evidence of a positive association between the levels of adherence of the IRs to the Framework and a smaller dispersion in the results of the studied indices. Therefore, it is not possible to establish a relationship between the levels of adherence of IRs and economic performance.

5 Final Considerations

This research contributes to the maturing of the debate regarding the gains arising from the adoption of Integrated Reporting as a methodology for publishing corporate reports. As recent research on the subject does not study the relationship between the adherence of publications to the IIRC Framework and the possible impacts on the economic performance of adopting companies, in the context of the Brazilian market, this study contributes by researching the content of reports published in Brazil and the possible impacts on the economic performance of companies.

The results indicate that there is room for the published reports to show greater alignment with the Framework. As it is a recent approach, the models are possibly still in their maturation time, as well as companies are still looking for the best way to integrate their information, making them more useful to groups interested in organizational performance, taking into account promise to capture value.

In response to the problem question, the joint analysis of the numbers presented by the DI and the Variation Coefficient shows that the percentage of adherence to the Framework is not directly associated with an economic performance with better results. The study expected to find evidence that documents more aligned with the Framework would be positively associated with the economic performance of companies, reflecting in a lower dispersion of the results of the Coefficients of Variation of the indices used in the analysis.

It was expected to find a smaller dispersion in the Variation Coefficients calculated during the period from 2014 to 2017, indicating a sign of possible market recognition and, as a consequence, better economic performance. As the analysis does not point to this association, it cannot be said that the IRs studied are attracting benefits from the market, or that the publications collaborate with the improvement of economic performance.

In view of the results obtained through the calculation of the Coefficients of Variation and the information published by the companies surveyed, economic performance does not seem to be associated with DIs. The research shows that the financial ratios fluctuate according to the economic scenario and the operations of each company within its segment. Thus, in the

face of recessionary economic scenarios, the publication of IR aligned with the IIRC Framework did not translate into more resilient economic performance, not being able to capture benefits from the market.

As the sample used is a reduced sample and selected for convenience, the results cannot be generalized, which is a limitation of the study. For future publications, it would be interesting to expand the sample of companies under study, including comparing the results of these and other adopting companies with those of their peers. In addition, the use of econometric models to investigate a possible relationship between the quality of reports and the generation of value by companies would also be relevant for the advancement of the area. Furthermore, research that seek to understand which information is most relevant to the market would be of great value to help companies become more assertive in their reports without abandoning the holistic approach, the elements and principles of IR.

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