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An assessment of CSR disclosures in Polish listed companies

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Abstract: Identifying, measuring and evaluating reporting information provided by economic entities is a challenge for its recipients. So far, scientific research has only dealt with evaluating information contained in financial statements, namely financial data. However, economic entities report non-financial information in addition to financial information. Global studies attempt to measure non-financial information, using disclosure indices. The objective of this article was to determine the relations of the information provided in the reports of the studied companies regarding corporate social responsibility (CSR) with selected financial results and to determine the degree of linguistic difficulty with statistical analysis of the studied text. The study was conducted on a selected group of 70 companies listed on the Warsaw Stock Exchange in Poland between 2013 and 2018. In total, 420 financial statements and 420 CSR reports were studied. The research employed three readability indices: the FGL index, the FOG index (three variants) and Pisarek's index (six variants) and a statistical analysis of the text was performed. In the next study phase, a panel regression model was used to examine the relationship between non-financial information and financial information. The main conclusion that emerged from the study was that there are differences between disclosure indices and the scale of disclosure in Polish listed companies. Furthermore, in some cases, non-financial information showed a relation with financial information.

Keywords: CSR, readability indices, FOG index, FGL index, Pisarek's index

1. Introduction

Apart from their core business activities, economic entities are increasingly expected to show activity in solving environmental or social problems (Anuszkiewicz and Marona, 2012). This means the consistent implementation of their activities and openness to the needs of specific individuals, organisations and entities from their environment (Borowiec, 2013). Thus, a modern economic entity should not only be driven by the desire for profit (Remlein, 2019) but also – in its actions – should take

responsibility for its activities in the social or environmental area; for many investors, such actions represent the basis for evaluating their business activities (Mazurczak, 2012). Therefore, there is a growing awareness of the impact of non-financial information on the economic entity's activities, which can lead to a change in the entity's image in the local community, an increase in public confidence, an improvement in cooperation with social self-government bodies, an enhanced image of the entity in the local media, positive changes in the local environment, an increase in investor confidence and growing social activity (Węgrzyńska, 2013). Managing these relationships is one of the basic tasks faced by economic entities that are aware of the importance of conducting their activities in accordance with the principles of the corporate social responsibility (CSR) concept (Polish Non-Financial Information Standard, 2017).

The European Commission of the European Union defines CSR as a concept according to which economic entities voluntarily integrate social and environmental issues into their business activities apparently promoting the social good beyond the interest of the economic entity as required by law (Commission of the European Communities).I In essence, CSR is corporate or social behaviour that goes beyond the legal or regulatory requirements of the relevant market(s) and/or economy(ies) (Kitzmueller and Shimshack, 2012; Lee et al., 2019). CSR is most closely reflected in the social responsibility standard ISO 26000 published in November 2010 by the International Organization for Standardization (ISO), according to which, social responsibility is a commitment by an organisation to integrate social and environmental aspects into its decision-making and to take responsibility for the social and environmental impacts of its decisions and activities. Seven key social responsibility areas are identified in this standard (Raczyński, 2012) namely: corporate/organisational governance, human rights, workplace practices (employer–employee relations), environment, market practices, consumer issues, social commitment and community development (Mikulska and Michalczuk, 2014). In the subject literature the concept of corporate social responsibility (CSR) has been defined by many authors, for example as making profits while taking into account actions in the social and environmental sphere and implies maintaining harmony between three areas: economics (economic viability), ecology (corporate responsibility), ethics (social responsibility) (Węgrzyńska, 2013). In addition, CSR expresses the constant commitment of the economic entity to behave ethically and contribute to the economic development of and improvement to the lives of employees and their families, as well as the local community and society as a whole (Holme and Watts 2000). Thus, the message becomes a more ethical and responsible multifaceted approach of the economic entity towards social groups and the environment it interacts with through its activities. Corporate social responsibility can also be defined on the basis of the premise as an activity undertaken by economic entities aimed at the implementation of broadly defined pro-social and pro-environmental objectives; it is an activity undertaken on their own initiative and going beyond the applicable standards or legal requirements, which takes into account the expectations of stakeholders and brings real benefits, so it cannot be limited to apparent activities (Raczynski, 2012; Mikulska and Michalczuk, 2014). One has to agree with Śnieżek (2017, p. 31), who argued that economic entities should realise that responsibility does not mean conducting one or two social and environmental actions; CSR is not just about meeting legal and formal requirements, but about increased investment in environmental protection, human resources and other relations of the economic entity with the environment.

In Poland, a significant proportion of economic entities already have theoretical CSR knowledge. They try to implement it in practice, and it is assumed that the management systems of these entities will be increasingly oriented towards recognising social responsibility as the basis of their activities in strategic terms and in operational activities. These activities must be settled within the environment and communicated effectively, with business reports possibly being used as a communication tool for economic entities (Fiałkowska, 2012). Thus, the contemporary reporting of economic entities should be understood as communicating to the public the content on CSR activities and referring it to financial information, which enables readers to comprehensively understand the most important aspects of the economic entity's operation (Mućko, 2018; PwC, 2007). As a result, relationships are built based on communication between the organisation and relevant stakeholders, whilst social and environmental

initiatives are included in the corporate strategy and implemented. Consequently, the reporting of economic entities changes depending on the expectations of information users interested in the entity's current and future situation and its development prospects.

Changes in the scope of providing stakeholders with comprehensive information on the organisation's activities and results, including social and environmental, were introduced in connection with the adoption of Directive 2014/95/EU of the European Parliament and of the Council (Krasodomska and Szychta, 2017). The introduced obligation to report CSR activities and a set of instruments in the form of various standards now create increasingly better conditions for research into the content of the presented reports, and thus meeting stakeholders' expectations of how their objectives are being met. Due to its relevance and the ongoing evolution of stakeholder expectations, the scope of research is constantly changing (Skoczylas, 2019) and this is related to the diversity in which CSR is reported. Currently, there are four groups of studies related to the concept of corporate social responsibility (Bek-Galik and Rymkiewicz, 2015a): group one – CSR reporting (Hohnen, 2012; Wong, 2013; Frost et al., 2012; Jones, 2012; Sherman, 2009), group two – the role of accounting in CSR (Unerman et al., 2014; Larrinaga-Gonzalez et al., 2001; Ferguson and Unerman, 2013), group three – the impact of CSR on financial performance measures (Brine et al., 2006; Cheng et al., 2014; Cochran and Wood, 1984; Fiori et al., 2007; Mittal et al., 2008; Ngwakwe, 2009; Orlitzky et al., 2003; Tang et al., 2012; Vance, 1975), group four – the impact of CSR on goodwill (Fiori et al., 2007; Vance, 1975; Serveas and Tamayo, 2013).

Due to the increase in the scope of the information presented in the reports of economic entities related to the implementation of corporate social responsibility, a research problem arises, namely the need to study relations between the information provided in the reports on the implementation of the CSR concept and selected financial results of economic entities, identifying the linguistic structure of the studied reports and determining the degree of linguistic difficulty describing these relations. Therefore, the **main objective** of the article was the determination of relations between the information provided in the CSR reports of the studied companies and the selected financial results, and identifying the degree of linguistic difficulty with a statistical analysis of the studied text.

In pursuit of the main objective, the following **specific objectives** (cognitive and empirical) were formulated:

1) an evaluation of the linguistic difficulty of individual economic entity reports in presenting and disclosing CSR information,
2) an evaluation and analysis of the linguistic structure in the studied CSR reports,
3) an evaluation of the extent to which the content provided in CSR reports is related to selected financial results of the studied companies.

Subsequently, the following **research hypotheses** were set up:

Hypothesis 1: *Texts of CSR reports are written in simple language (H1).*

Hypothesis 2: There are significant differences in the linguistic structure in the studied CSR reports (H2).

Hypothesis 3: There is a relationship between CSR information and financial results (H3).

To achieve the set objectives and test the formulated research hypotheses, triangulation in research was applied by using different research methods which include:

1. an analysis of national and foreign literature, results of foreign and Polish studies,
2. an analysis of the content of annual reports of companies listed on the Warsaw Stock Exchange,
3. statistical and econometric methods using a statistical program.

The research subject of this paper were the reports of the surveyed companies regarding CSR, while the research entities included economic entities listed on the Warsaw Stock Exchange. With regard to theoretical considerations, the study did not have an explicit time frame, while the time frame of empirical research covered the period 2013–2018. The research problem and the objective determined

the nature and structure of the paper, which is theoretical and empirical and provides an introduction to research issues, which covers the main objective, specific objectives, hypotheses and research methods. Subsequently, a review of the current literature on the subject was conducted, and then the materials and research methods used in the study were described. The sample of companies participating in the study was determined, and the sources of information on CSR in the reports of the studied entities were indicated. Furthermore, the original concept of the econometric model used in the study was indicated, and qualitative and quantitative variables were specified. The qualitative variables included the FGL index, the FOG index, Pisarek's index and three areas of text analysis were identified: text in numbers (four variables), average length of text units (three variables), text in percentages (six variables); seven quantitative variables were also identified. The main part of the article is a section presenting the conducted research results and a discussion of the results, concluding with a summary.

The article highlights an important issue related to the attempt to answer the identification of relations between the information provided in the CSR reports of the studied companies and selected financial results, and the determination of the degree of linguistic difficulty with a statistical analysis of the studied text.

The conclusions indicated contribute to the literature on CSR disclosure, as CSR disclosure reports are the only publicly available sources of information on CSR, making them accessible to different stakeholder groups. This study has important implications in terms of enabling stakeholders to make more informed decisions about actual CSR performance. The current arrangements may, for example, make it easier for stakeholders to carry out initial evaluations of the actual CSR performance of an economic entity, without the need to study hard-to-access data further. This article also makes a methodological contribution to the CSR disclosure literature, using methods developed from an evaluation of text complexity (i.e. readability and size) in the context of CSR disclosure. While contributing to the literature on the relationship between actual performance and disclosure, it also builds a foundation for larger-scale research by using text analysis methods to evaluate the reliability of the full range of CSR disclosure documents. To the best of the author's knowledge, the study is the first to use Pisarek's index, which examines the readability of studied CSR reports, yet it has its limitations as it only focuses on companies listed on the Warsaw Stock Exchange. Future research could examine the results in a sample from other regions such as Europe, Asia, North and South America. The article is based on the analysis of publicly available sources such as public reports, websites; however, economic entities may choose to disclose CSR information through other channels such as media, industry associations etc. Future research can also assess whether the results have been consolidated, especially after the COVID-19 pandemic.

2. Literature review

Scientific publications focused on the study of CSR reports or the study of the relation between the information provided in CSR reports and the financial results of the examined companies are conducted using a variety of research methods. In these studies, many difficulties are encountered due to the multidimensionality of CSR, which covers a wide variety of organisational behaviour and activities, methodological problems related to measuring CSR from both the social side and the impact on finances, or contextual factors, which include the economic entity size, the market, economic conditions and the law (Wierciński 2011). Some of the most common research methods include charity measurement, monitoring of CSR disclosures, measurement based on reputation indices and databases, surveys, text readability measurement and financial result measurement.

Charity measurement has been used by many authors, such as Brammer and Millington (2008), who compared real spending on charity activities with the amount expected on the basis of variables such as economic entity size, sector, R&D expenditure, marketing expenditure, profitability, debt, labour

intensity and cash availability. Harjoto and Jo (2016) pointed to a positive relation between corporate governance mechanisms together with CSR engagement to reduce conflicts of interest between managers and stakeholders. In addition, the authors highlighted that CSR engagement positively affects the operational results and the value of an economic entity. Furthermore, Iatridis (2015) identified the relevance of charity activities to investors' perceptions and the future profitability and growth of an economic entity. The study indicated a positive relation between spending for charitable purposes and income manipulation. The results also reveal that the adoption of structured philanthropic initiatives and the use of in-kind donations encourages economic entities to give money. These results were proved by Navarro (1988), who confirmed that charity activities maximise financial results, and by Lin et al. (2017), who analysed the determinants of charity activities in Taiwan according to agency cost and value growth concepts. The results led to the following conclusions. Firstly, the entity growth value was higher than the agency cost. In addition, the authors determined that charity activities were used as a business strategy to signal the financial or management stability of an economic entity. Other studies pointed to a negative impact of charity activities. Masulis and Reza (2015) argued that as charity activities increase, shareholders reduce their interest in an economic entity, while charity activities are driven by the entity manager's preference. At the same time, they highlighted that donations from economic entities favour the interests of CEOs and suggest a misuse of corporate resources that reduce the economic entity value. Neua et al. (1998) conducted a study to better understand the role and functioning of environmental disclosures, and suggested that the level and type of environmental disclosures included in annual reports are primarily affected by the organisation's respective groups of recipients, and that the communication strategies adopted by the organisation depend on the multiplicity and strength of these various groups of recipients. The analysis implies a relationship between environmental disclosures and operating methods, as disclosures will attempt to highlight environmental success. Finally, the authors stressed that other social disclosures in the annual report complement environmental disclosures by providing a positive framework for the organisation's activities. Cecily et al. (2011) identified the difficulty in presenting the effects of environmental activities, emphasising that managers and stakeholders are increasingly aware of the importance of the environmental impact of an economic entity when evaluating risk and trying to determine future profitability. Unfortunately, financial accounting systems often do not fully disclose these environmental costs. The reasons underlying such incomplete disclosures are countless – from measurement issues to the structure of the economic entity's chart of accounts. The authors proposed an environmental cost reporting model that provides managers and stakeholders with greater transparency of the environmental impact of business activities. Gray et al. (1995) attempted to develop methodological assumptions related to emerging methodological issues in economic practice that are related to the disclosure of social and environmental activities, and tried to build a database of disclosures that both refine and develop previous attempts to capture and interpret such disclosures. McWilliams and Siegel (2000) used measurements based on reputation indices and databases to analyse the relation between corporate social responsibility and financial results on a sample of 524 US companies. The study revealed that the CSR level is strongly correlated with the R&D spending level, which in turn significantly determines financial results. In the research, emphasis should be placed on those that measure CSR at individual level, i.e. refer to individual organisation participants, and those that aim to measure CSR at the level of the entire organisation (Turker, 2009; Wąsowska and Pawłowski, 2012). Wilmshurst and Frost (2000) examined the correlation between respondents' statements, factors influencing environmental disclosure decisions, and actual reporting practices. Environmental disclosures in the respondents' annual reports were reviewed and an analysis conducted to determine the relationships between actual reporting practices and the importance ratings assigned to various factors. The results pointed to some significant correlations between the perceived importance of several factors and environmental reporting practices. Moreover, text readability is measured using readability indices, which aims to determine the degree of text accessibility. The most popular readability indices include the FOG index, the FGL index and Pisarek's index. In the first phase of scientific research, only the readability of the reports was examined, but

then researchers could analyse the relations between text readability and the performance of economic entities. Such studies were conducted by Feng Li (2008), among others, to examine the relationship between annual report readability, economic entity results and earnings persistence. The readability of the annual reports of listed companies was measured using the FOG index, where it was stated that the annual reports of economic entities with worse performance are more difficult to read, i.e. they have a higher FOG index and are longer, while economic entities whose annual reports are easier to read have more persistent positive earnings. Qiao Xu et al., (2018) used the FOG index to assess text readability. The authors supported the view that older CEOs and executives are more capable of explaining operating complexities and staying ethical in reporting, thus leading to more readable financial reports. Based on the study conducted by Lang and Stice-Lawrence (2015), the following conclusions were drawn: textual attributes are predictably associated with regulations and incentives for transparent disclosure, IFRS adoption had a significant impact on textual disclosure attributes, textual disclosure is correlated with economic outcomes such as liquidity, analyst following and mutual fund ownership. This method formed the basis for the formulation of two research hypotheses.

Hypothesis 1: Texts of CSR reports are written in simple language (H1).

Hypothesis 2: There are significant differences in the percentage of different parts of speech in the studied CSR reports (H2).

In the case of the financial performance measurement method, accounting measures are usually used, i.e. return on assets (ROA), return on equity (ROE) (Russo and Fouts, 1997) and return on sales (ROS) (Hart and Ahuja, 1996). Market measures are also used, e.g. price-earnings (P/E) ratio (Menguc and Ozanne, 2005), price-to-book value (P/BV) (Pava and Krausz, 1996; Wąsowska and Pawłowski, 2012). Very interesting research results were obtained by Eom and Nam (2017), who studied the impact of including an economic entity in the socially responsible investing (SRI) index on its cost of equity (COE) and goodwill. The study results showed no significant link between the inclusion of the SRI index and the cost of equity. In addition, there was no statistically significant correlation between the inclusion of SRI and goodwill. When the measures of financial results are included, a negative relationship between the measures and CSR was found (Crisóstomo et al., 2011). The study revealed that in Brazil, the CSR concept destroys value, and a significant negative correlation was observed between CSR and goodwill. In addition, the mutual effect of CSR and the results presented in the profit and loss account of studied companies is characterised by a neutral relationship. In their study, Hail and Luzi (2002) pointed to a negative relationship between disclosure quality and cost of equity. Empirical work in this area, however, faces serious methodological drawbacks as neither disclosure level nor cost of equity can be directly observed, and somewhat misleading results have been documented so far. The results hold even after taking into account other potentially influential variables such as risk characterisation and company size. Lopez et al. (2007) analysed the relationship between CSR and some performance indicators and examined whether there are significant differences in performance indicators between European economic entities. The relationship between these variables was found to be negative. Further studies of CSR reports of economic entities indicating a connection between environmental reporting and environmental performance were conducted by Al-Tuwaijri et al. (2008), Neu et al. (1998), Patten (1992), Wiseman (1982) and Nazari et al. (2017). This method formed the basis for the formulation of the third research hypothesis:

Hypothesis 3: There is a relationship between CSR information and financial results (H3).

The diversity of the studies discussed in the review and of the obtained results proves the difficulties in studying the issue of the impact of social responsibility on an economic entity. In the author's opinion, the fundamental and most important one is to properly define CSR research methods in relation to the performance of an economic entity.

3. Materials and methods

3.1. Data source

The main objective of the study was to determine the degree of relations between the information provided in the CSR reports of the studied companies and selected financial results, as well as to determine the degree of linguistic difficulty with a statistical analysis of the studied text in companies listed on the Warsaw Stock Exchange in Poland in the period from 2013 to 2018 and also their relation to selected variables, i.e. the economic results of the studied companies. The economic entities in the study are from the main floor of the Warsaw Stock Exchange (Table 1). Seventy companies were selected for the study according to the size of their percentage share on the main floor.

Table 1. List of stock indices with the number of companies participating in the study (2013–2018)

Stock indices	2013	2014	2015	2016	2017	2018	Total
Media	1	1	1	1	1	1	6
Food industry	5	5	5	5	5	5	30
Banking	14	14	14	14	14	14	84
Clothing	3	3	3	3	3	3	18
Construction	6	6	6	6	6	6	36
Energy	5	5	5	5	5	5	30
Production	5	5	5	5	5	5	30
Finance	5	5	5	5	5	5	30
Chemical	6	6	6	6	6	6	36
Fuel	6	6	6	6	6	6	36
Automotive	4	4	4	4	4	4	24
Mining	3	3	3	3	3	3	18
Insurance	4	4	4	4	4	4	24
Telecommunications	3	3	3	3	3	3	18
Total	70	70	70	70	70	70	420

Source: author's own elaboration.

Another criterion for sample selection was CSR information published in accordance with the GRI Standards in the form of a report on the implementation of corporate social responsibility (CSR) in the period from 2013 to 2018.

Table 2 presents the sources of information on CSR. Polish listed companies report activities related to the implementation of the corporate social responsibility concept in various forms: non-financial statement, responsibility report, CSR report, sustainable development report, integrated report, environmental report, annual report, non-financial report, executive report or on the company's website. CSR information was collected directly from the websites of the selected companies.

Table 2. Sources of CSR information of Polish listed companies between 2013 and 2018

Name	2013	2014	2015	2016	2017	2018	Total
Non-financial statement	2	3	2	3	4	3	17
Responsibility report	11	9	10	9	7	4	50
CSR report	11	11	14	17	11	7	71
Sustainable development report	10	7	7	7	3	3	37
Integrated report	7	11	8	5	10	9	50
Environmental report	6	6	4	4	3	3	26
Annual report	5	5	5	5	7	2	29
Non-financial report	1	1	2	2	8	12	26
Executive report	7	7	9	9	9	19	60
Website	10	10	9	9	8	8	54
Total	70	70	70	70	70	70	420

Source: author's own elaboration.

In the next step, annual consolidated financial statements prepared in accordance with International Accounting Standards/International Financial Reporting Standards (IAS/IFRS) were downloaded from the Emerging Markets Information Service (EMIS) database for every studied company. In total, 420 annual consolidated financial statements and 420 reports on the implementation of the CSR concept were analysed. Based on the financial statements obtained, the variables used in the study were calculated.

To test the first hypothesis: *Texts of CSR reports are written in simple language (H1)*, text readability test tools were used in the studied CSR reports. To determine text readability, the FGL index and the FOG index were used, which – despite being in English – have their equivalent in Polish. Next, Pisarek's index was employed for the first time for research carried out in Poland. In the author's opinion, the index has not been used in scientific research in economics and finance before.

3.2. The FGL index (Flesch–Kincaid Grade Level)

Flesch–Kincaid readability tests were designed to indicate how difficult a passage is to understand. These readability tests are used extensively in the field of education. The Flesch–Kincaid Grade Level Formula presents a score as a US grade level, making it easier for teachers, parents, librarians and others to judge the readability level of various books and texts. It can also mean the number of years of education generally required to understand this text, relevant when the formula results in a number greater than 10. The grade level is calculated using the following formula (Flesch, 2016; Kincaid et al., 1975):

$$FGL\ index = 0.39\left(\frac{total\ words}{total\ sentences}\right) + 11.8\left(\frac{total\ syllables}{total\ words}\right) - 15.59. \quad (1)$$

Scores can be interpreted as shown in Table 3 below (Flesch, 2016).

Table 3. Text difficulty scale according to the FGL index

Score	School level	Notes
100–90	5th grade	Very easy to read. Easily understood by an average 11-year-old student.
90–80	6th grade	Easy to read. Conversational English for consumers.
80–70	7th grade	Fairly easy to read.
70–60	8th & 9th grade	Plain English. Easily understood by 13- to 15-year-old students.
60–50	10th to 12th grade	Fairly difficult to read.
50–30	College	Difficult to read.
30–0	College graduate	Very difficult to read. Best understood by university graduates.

Source: author's own elaboration.

3.3. The FOG index

The FOG index is used to determine the degree of text accessibility (Gunning, 1952). Its value indicates the number of education years needed to understand the text, e.g. a value of FOG=9 of a text means that the text will be understood by a junior secondary school graduate and a person with secondary education. The original FOG index was formulated for the English language, but there is also a variant adapted to the Polish language (jasnopis.pl). The FOG value formula is as follows:

$$FOG\ index = 0.4\left(\frac{total\ words}{total\ sentences} + 100\left(\frac{\text{number of long words}}{total\ words}\right)\right). \quad (2)$$

The interpretation of the FOG index results is given in Table 4 (Gunning, 1952).

Table 4. Interpretation of results – FOG index

FOG	Required education level of the reader (indicatively)	Interpretation
1-6	1st to 3rd grade of primary school	Extremely easy
7-9	3rd to 6th grade of primary school	Very easy
10-12	Junior secondary school	Easy; understandable to an average Pole
13-15	Secondary school	Slightly more difficult; understandable to people with secondary education or people with an extensive life experience
16-17	Bachelor degree	More difficult; understandable to educated people
>18	MSc degree	Difficult to understand for an average Pole

Source: (Gunning, 1952).

Three variants of the FOG index were calculated, i.e. FOG: Lemmas, FOG: As used in text, and FOG: Rare lemmas (Table 5).

Table 5. FOG variants used

FOG forms	Interpretation
Lemmas	'Difficult words' mean those with four or more syllables in the corresponding lemma. For instance, if the Polish word 'podmiotami' (the instrumental case for 'podmioty'[entities]) is found in the text, it is not considered to be difficult because its lemma has only two syllables: pod-miot [entity].
As used in text	Difficult words are those with four or more syllables, as used in text. In this case, 'podmiotami' is considered to be a difficult word.
Rare lemmas	Difficult words are those with four or more syllables in the corresponding lemma (just like in the first variant), except for words in common usage. 'Words in common usage' refer to the 5,000 words most commonly found in Polish texts or words with a high level of what is referred to as "subjective likelihood."

Source: author's own elaboration.

3.4. Pisarek's index

Pisarek's index was calculated in two variants: according to the linear variant (L in the index name) and according to the original variant (non-linear: NL), and according to the formula below:

$$T = \frac{\sqrt{T_s^2 + T_w^2}}{2}, \tag{3}$$

where T_w is the average number of words in a sentence, and T_s is the percentage of four-syllable or longer words.

Each of these indices was calculated in three variants analogous to the variants of the FOG index: L-Pisarek: Lemmas, L-Pisarek: As used in text, L-Pisarek: Rare lemmas, NL-Pisarek: Lemmas, NL-Pisarek: As used in text, NL-Pisarek: Rare lemmas.

Other readability indices such as Flesch–Kincaid Reading Ease (FRE), Coleman Liau (CLI), SMOG (SMOG), Automated Readability (AR), Average (AVE) were not used, as most of these text readability indices are adapted to English. All information on CSR implementation in the studied and analysed documents was in Polish. Therefore, other readability indices could not be used.

To test the second research hypothesis: *There are significant differences in the percentage of different parts of speech in the studied CSR reports (H2)*, the Jasnopis program (Jasnopis.pl) was used, which enables a statistical analysis of the studied text contained in CSR reports.

Statistical analysis was conducted in three areas: text in numbers, average text length, text in percentages (Table 6):

Table 6. Statistical text analysis

Area		Description
Text in numbers	Number of paragraphs	A paragraph is any section of text between paragraph marks (in MS Word, this is the ¶ mark).
	Number of sentences	Calculated on the basis of punctuation marks and end-of-paragraph marks. Punctuation marks that indicate the end of a sentence are: full stops (except those after abbreviations or numbers), question marks and exclamation marks. A sentence is also considered to be any part of text that begins with a new paragraph or starts after a punctuation mark that indicates the end of a sentence and ends with an end-of-paragraph mark.
	Number of words	A word is any sequence of letters or digits not separated by a space or a punctuation mark (a hyphen is also considered to be a punctuation mark).
	Number of difficult words	Difficult words are lemmas that consist of four syllables or more and that are not commonly known, i.e. they are not among the 5,000 most frequently used words in Polish texts, and they are not words with a high so-called subjective probability.
Average length of text units	Average length of word	A number obtained by dividing the number of all syllables in a given text by the number of all words in the text. The greater the average length of words, the more difficult the text is to understand.
	Average length of sentence	The result of dividing the number of all words in a text by the number of sentences.
	Average length of paragraph	The result of dividing the number of all words in a text by the number of paragraphs.
Text in percentages	Percentage of difficult words	Calculated as the number of words that are considered to be difficult divided by the total number of words in the text times 100%.
	Percentage of nouns	Calculated as the number of different types of nouns found in a text divided by the number of total words times 100%. Nouns also include the so-called gerunds, i.e. verbal nouns such as reading, splitting, noun names of attributes such as innocence, transparency, and words such as 'chory' (Polish adjective for 'sick') used as a noun (e.g. "W sali leżało dwóch chorych" [English: There were two sick (persons) lying in the room]).
	Percentage of difficult nouns	Calculated as the number of difficult nouns in a text divided by the number of all words times 100%.
	Percentage of verbs	Calculated as the number of different types of verbs in a text divided by the number of all words times 100%. Adjectival and adverbial participles are not considered to be types of verbs.
	Percentage of difficult verbs	Calculated the same way as the percentage of difficult nouns.
	Percentage of adjectives	Calculated as the number of different types of adjectives in a text divided by the number of all words times 100%.
	Percentage of difficult adjectives	Calculated the same way as the percentage of difficult nouns.

Source: author's own elaboration.

In the next step, information derived from CSR information published by the studied companies and financial data from annual consolidated financial statements were processed using a panel regression model with the weighted least squares (WLS) method using 420 observations in 70 cross-sectional units to test the third research hypothesis: *There is a relationship between CSR information and financial results (H3).*

The following quantitative variables were used in the model (Table 7).

Table 7. Quantitative variables used in panel regression models

Quantitative variable	Description
$INST_{it}$	measured by the percentage of equity shares owned by institutional investors of company i in year t
$SIZE_{it-1}$	measured by the natural logarithm of the company's total assets as of the end of fiscal year t-1
$CURRAT_{it}$	the total current assets divided by the total current liabilities of company i in year t

$CAPEX_{it-1}$	measured as capital expenditure on product development or system implementation, but only to the extent capital is used to maintain the listed company's revenue-generating capacity (applicable to company i at the end of year t-1)
LEV_{it-1}	the total debt at the end of fiscal year t-1 divided by total assets at the year of the same fiscal year
ROA_{it}	income before extraordinary items in year t divided by the total assets at the end of fiscal year t-1
ROE_{it}	measured as the ratio between profits (after taxes) and average level of equity of company i in year t
$ROIC_{it}$	the return on invested capital was determined based on the following formula: $$ROIC = \frac{EBIT\ (1-T)}{Invested\ capital} = \frac{NOPAT}{Invested\ capital}$$ with T being the corporate income tax rate applicable in Poland. EBIT is not present in statements produced as per the International Financial Reporting Standards/International Accounting Standards. Instead, operating profit was used in the calculations. This is a simplification used by many analysts. First, NOPAT was calculated by multiplying the operating profit by *1-T*. The value of invested capital was estimated next. This was followed by calculating the total of equity and of interest-bearing debt, less cash and cash equivalents. Invested capital was calculated based on information from the statement of financial position of the economic entities concerned. The second component of the ROIC formula is operating profit, a part of the P&L account. The ROIC formula includes the average level of invested capital. It is calculated as the arithmetic mean of invested capital at the beginning and end of the year. Data from the beginning of the period is information recorded at the end of the previous reporting period. In this case, the formula was written as: $$ROIC = \frac{NOPAT}{Avarage\ level\ of\ invested\ capital}$$
Net $cash_{it}$	measured as the value stated in the cash flow statement at the end of the financial year
Book $value_{it}$	measured as the difference between the company's assets and liabilities, it is equal to equity

Source: author's own elaboration.

The panel regression model using the WLS method used in the study took the following form (Formula 4):

$$\begin{aligned} CSRPer_{it} = &\beta_0 + \beta_1 INST_{it} + \beta_2 SIZE_{it-1} + \beta_3 CURRAT_{it} + \beta_4 CAPEX_{it-1} + \\ &\beta_5 LEV_{it-1} + \beta_6 ROA_{it} + \beta_7 ROE_{it} + \beta_8 ROIC_{it} + \beta_9 net\ cash_{it} + \\ &\beta_{10} book\ value_{it} + \sum_{j=1}^{14} \emptyset_j Industry + \sum_{k=1}^{6} \lambda_k Year + \varepsilon_{it} \end{aligned} \quad (4)$$

Next, based on Formula 4, the following models used in the study were proposed (Table 8).

Table 8. Table of panel regression models used in the study

No.	$CSRPer_{it} =$		Specification
Model 1	FGL index		$=\beta_0 + \beta_1 SIZE_{it-1} + \beta_3 CURRAT_{it} + \beta_4 CAPEX_{it-1} + \beta_5 LEV_{it-a} + \beta_6 ROA_{it} + \beta_7 ROE_{it} + \beta_8 ROIC_{it} + \beta_9 net\ cash_{it0} + \beta_{10} book\ value_{it} + \sum_{j=1}^{14} \emptyset_j Industry + \sum_{k=1}^{6} \lambda_k Year + \varepsilon_{it}$
Model 2	FOG index	FOG	
Model 3		Lemmas	
Model 4		As used in text	
Model 5		Rare lemmas	
Model 6	Pisarek's L index	Lemmas	
Model 7		As used in text	
Model 8		Rare lemmas	
Model 9	Pisarek's NL index	Lemmas	
Model 10		As used in text	
Model 11		Rare lemmas	

Source: author's own elaboration.

4. Results

4.1. Descriptive statistics

To test the first hypothesis: *Texts of CSR reports are written in simple language (H1)*, text readability test tools were used and descriptive statistics were presented. The text readability test results were prepared using the jasnopis.pl program. Based on the analyses obtained, descriptive statistics were determined for selected text readability indices. Table 9 shows the descriptive statistics results for selected readability indices of the companies participating in the study in the period 2013–2018. The highest average value for the FGL index was 20.22, followed by the FOG lemmas index at 13.62 and the FOG as used in the text index at 11.98. The lowest average readability index value was determined for the FOG index (5.66) and Pisarek's NL rare lemmas index (6.13).

Table 9. Descriptive statistics for the readability indices used in the study

Variable		Mean	Median	Min	Max	Standard deviation
FGL		20.22	20.76	0.00	55.07	14.51
FOG	FOG	5.66	6.00	0.00	12.22	2.11
	Lemmas	13.62	10.44	0.00	1,089.00	65.06
	As used in text	11.98	12.60	0.00	19.58	4.47
	Rare lemmas	6.68	7.32	0.00	14.43	2.97
Pisarek's L	Lemmas	8.74	9.42	0.00	13.92	3.15
	As used in text	10.47	11.21	0.00	16.72	3.76
	Rare lemmas	6.12	6.73	0.00	10.96	2.42
Pisarek's NL	Lemmas	8.52	9.21	0.00	13.81	3.09
	As used in text	10.70	11.52	0.00	17.27	3.86
	Rare lemmas	6.13	6.67	0.00	19.32	2.74

Source: author's own elaboration.

Based on the text analysis according to the prepared readability indices, it was indicated that, in the case of the FGL index, the companies used language that was very difficult to understand for a non-graduate. In contrast, in the case of the FOG readability index, it was determined that the text presented in the CSR reports was quite simple, already understandable to secondary school students for the "as used in text" type of the index. In this variant, 'difficult words' were considered to be those whose forms in the text have four syllables or more, meaning that they did not contain words with more than four syllables according to the methodology for calculating this index. In the case of the FOG index, in the rare lemmas variant, difficult words were considered to be those whose lemmas have four syllables or more except for common words. 'Common words' are those belonging to the 5,000 most frequently used words in Polish texts, or words with a high so-called subjective probability. In this case, the CSR reports used very simple language, already understandable to primary school pupils. The analysis of the texts of the CSR reports using Pisarek's index (linear variant) revealed that for lemmas, the text used in the reports is simple and already understandable to junior secondary school students. In the case of the "as used in text" index and the rare lemmas index, the results showed similar values as for these variants in the FOG index. For the last index, namely Pisarek's index (non-linear variant), CSR text readability was similar to that of the linear variant. This analysis enabled to conclude that texts of CSR reports in the studied companies in 2013–2018 are difficult to understand in regard to the FGL index, while in the case of the other results for the FOG index and Pisarek's index, the text is easy to read for a reader with at least junior secondary or secondary education. This partially confirms the hypothesis: *Texts of CSR reports are written in simple language (H1).*

To test the second research hypothesis: *There are significant differences in the linguistic structure in the studied CSR reports (H2)*, a statistical text analysis of the CSR reports of the studied companies from 2013 to 2018 was conducted (Table 10).

Table 10. Statistical text analysis in the studied companies from 2013 to 2018

Variable	Mean	Median	Min	Max	Standard deviation
Number of paragraphs	1,226	981	0	6,122	1,187
Number of sentences	1,952	1,810	0	8,231	1,660
Number of words	23,024	20,293	0	69,901	16,690
Number of difficult words	1,980	839	0	34,298	5,518
Average length of word [syllables]	3	2	0	19	4
Average length of sentence [words]	13	14	0	61	10
Average length of paragraph [words]	20	21	0	90	15
Percentage of difficult words	6%	4%	0	8%	9%
Percentage of nouns	30%	46%	0	61%	15%
Percentage of difficult nouns	6%	6%	0	17%	7%
Percentage of verbs	45%	26%	0	49%	8%
Percentage of difficult verbs	19%	1%	0	2.1%	1.1%
Percentage of adjectives	15%	8%	0	23%	7%
Percentage of difficult adjectives	18%	0.6%	0	5.8%	0.84%
Noun-to-verb ratio	7	6	0	19	4

Source: author's own elaboration.

Over the study period, the average number of paragraphs was 1,226, while, the average number of sentences was 1,952, where the average number of words was 23,024; the average number of difficult words was 1,980 and the average word length by syllables was 3. Interestingly, the average sentence length calculated as the number of words in a sentence was 13. The maximum number of paragraphs in the studied reports was 6,122, while the maximum number of sentences was 8,231. As for the percentage of parts of speech, it was found that verbs were used the most in the text – 45% – including 19% of difficult verbs, whilst 30% of nouns were identified in the studied texts of the CSR reports, 6% of which were difficult ones. Adjectives were used the least frequently and the studied CSR reports contained 15% of them, 18% of which were difficult ones.

In the next step, descriptive statistics for the quantitative variables of the studied companies for the period 2013–2018 are presented (Table 11). The highest average value was indicated for two variables, i.e. book value$_{it}$ and the SIZE$_{it-1}$ variable. The lowest average value was found for the net cash$_{it}$ variable and was negative.

Table 11. Descriptive statistics for quantitative variables

Variable	Mean	Median	Min	Max	Standard deviation
INST$_{it}$	1.03	0.07	-0.01	97.88	8.23
SIZE$_{it-1}$	15.45	15.27	-18.08	22.56	3.43
CURRAT$_{it}$	1.43	1.26	0.00	11.09	1.18
CAPEX$_{it-1}$	0.25	0.06	-2.81	8.07	1.11
LEV$_{it-1}$	0.38	0.22	0.00	6.61	0.51
ROA$_{it}$	0.02	0.02	-0.55	0.23	0.09
ROE$_{it}$	0.017	0.09	-6.94	1.02	0.59
ROIC$_{it}$	0.05	0.05	-1.11	0.46	0.16
Net cash$_{it}$	-87.38	-1.24	-2,250.00	0.15	335.30
Book value$_{it}$	48.69	1.48	-0.23	2,114.50	266.29

Source: author's own elaboration.

The maximum variable value was determined for the book value$_{it}$ variable – 2,115.50 – and the INST$_{it}$ variable. The SIZE$_{it-1}$ variable reached a maximum value of 22.56. The minimum negative value was determined for the net cash$_{it}$ variable and was equal to 2,250.

4.2. Evaluation of the relationship between CSR disclosure indices and the performance results of the studied listed companies

Table 12 contains a list of the results of panel regression conducted using the WLS method for the proposed models from 1 to 11. For the variable $INST_{it}$ measured as the percentage of equity shares owned by institutional investors of company i in year t, a strong negative relationship between all readability indices, except the FGL index, was identified. This implies that economic entities use a kind of technique to describe this relationship in CSR reports, meaning that the higher the $INST_{it}$ value, the simpler the text in the reports. In contrast, when companies observe a lower value of the percentage of equity shares owned by institutional investors of company i in year t, the text in their reports is more difficult. Next, for the $SIZE_{it-1}$ variable denoting the total asset value, it was found that there was a strong positive relationship for four models, i.e. for the FGL index, the FOG index (lemmas) and for Pisarek's index (linear and non-linear variants) in rare lemmas. This means that economic entities recording an increase in the total asset value describe this phenomenon in a more difficult language. In this case, there was no negative relationship between the variables. In contrast, for the $CURRAT_{it}$ variable referring to total current assets divided by the total current liabilities of company i in year t, a strong positive relationship was identified for all readability indices with the exception of the FGL index. Thus, for an increased value of this variable, texts published in the CSR reports become more difficult to read, i.e. the higher the FGL, the higher the text difficulty scale. For the $CAPEX_{it-1}$ variable denoting capital expenditure on product development or system implementation, but only to the extent capital is used to maintain the listed company's revenue-generating capacity (applicable to $company_i$ at the end of $year_{t-1}$), no strong, moderate or weak relationships were identified. This means that the value of this variable did not affect the text difficulty scales used in the studied CSR reports. The LEV_{it-1} variable indicated a strong negative relationship with all the readability indices used in the study, except the FGL index and the FOG index. This means that with the increase in total debt at the end of fiscal $year_{t-1}$ divided by total assets at the year of the same fiscal year, the readability of the studied CSR reports becomes more accessible.

For the ROA_{it} variable, which indicates the ability of an economic entity to generate profits and the efficiency with which it manages its assets, a strong negative relationship was identified for the FOG index (rare lemmas), Pisarek's index (linear variant) in lemmas and as used in text. These results indicate that as the economic entity's ability to generate profits increases, the texts of their CSR reports become easier to read by their recipients. For the other indices, no relationship between the studied variables was identified. In the case of the $ROIC_{it}$ variable, which is an indicator of how effectively an economic entity uses the invested money to generate profits, i.e. what is the efficiency (profitability) of the capital invested in the company, a strong negative relationship was determined between the variables which are the FOG index, FOG index – lemmas, Pisarek's index (linear variant) – lemmas, as used in text, rare lemmas and Pisarek's index (non-linear variant) – lemmas and as used in text. This means that as the economic entity's effectiveness in using invested money to generate profits increases, CSR reports become clearer. The net $cash_{it}$ variable reported in the cash flow statement shows strong negative relationships for the FGL index, the FOG index (rare lemmas), Pisarek's index (linear variant) – rare lemmas, and Pisarek's index (non-linear variant) – rare lemmas. This means that as net $cash_{it}$ increases, the text in CSR reports becomes easier to understand by their recipients. Different results were obtained for the net $cash_{it}$ variable for the FOG index – as used in text, Pisarek's index (linear variant) – as used in text and Pisarek's index (non-linear variant) – lemmas and as used in text, where a positive strong relationship was identified, which means that the higher the level of net cash in the cash flow statement, the more difficult the text in CSR reports becomes. For the book $value_{it}$ variable, a negative strong relationship was indicated in relation to the FOG index – rare lemmas as well as in the case of Pisarek's index (linear variant) – rare lemmas, which means that the higher the variable value of the economic entity's book value, the more readable the text in reports. This was only the case for Pisarek's index (non-linear variant) – rare lemmas, that there was a strong positive relationship, meaning that the higher the book value of an economic entity, the more complex the description in reports.

Table 12. Panel regression using the WLS method for listed companies in Poland from 2013 to 2018

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
const	7.2547**	6.1770***	8.1395***	10.7874***	4.8405***	8.3277***	10.7286***	4.8117***	8.2769***	11.3395***	4.2344***
$INST_{it}$	(0.2159)*	(0.0605)***	(0.1298)***	(0.1800)***	(0.0704)***	(0.1237)***	(0.1494)***	(0.0733)***	(0.1085)***	(0.1399)***	(0.0824)***
$SIZE_{it-1}$	0.7294***	(0.0287)	0.1135***	0.1107**	0.0980**	0.0533	0.0292	0.0846***	0.0434	0.0205	0.1058***
$CURRAT_{it}$	(0.8212)	0.2417***	1.0396***	1.0679***	0.8718***	0.6378***	0.6248***	0.5562***	0.5697***	0.4262***	0.9298***
$CAPEX_{it-1}$	(0.1688)	0.1252	0.0303	0.0678	(0.1192)	0.0522	0.0828	0.0146	0.0542	0.0760	(0.0171)
LEV_{it-1}	4.4062**	(0.1890)	(2.0631)***	(2.0023)***	(1.6572)***	(1.2381)***	(1.3278)***	(1.5504)***	(1.4066)***	(1.0254)***	(1.9883)***
ROA_{it}	7.7529	0.6706	(3.3524)*	(7.25968)***	1.5586	(4.1377)***	(5.2131)***	(0.2904)	(2.2273)	(2.6857)	(1.9862)
ROE_{it}	2.0887	(0.0200)	(0.3855)*	(0.43338)	(0.2268)	(0.3222)	(0.3017)	(0.2264)	(0.0635)	(0.2392)	(0.4198)
$ROIC_{it}$	(5.7952)	(2.1772)***	(2.5163)**	(3.29358)***	(0.6032)	(2.3642)***	(3.0157)***	(1.4782)***	(2.0776)***	(2.8929)***	(1.1104)
Net $cash_{it}$	(0.0208)***	(0.0001)	0.0006	0.00293***	(0.0019)***	0.00084	0.0025***	(0.0017)***	0.0010***	0.0033***	(0.0015)***
Book $value_{it}$	(0.0343)***	0.00008	(0.0002)	0.00069	(0.0015)***	(0.0000)	0.0006	(0.0014)***	(0.0000)	0.0009***	(0.0013)
F	8.7058	7.6275	9.2539	35.30718	11.2383	29.2150	44.0679	10.5744	28.1543	47.3630	11.2720
Adjusted R-squared	0.7526	0.7244	0.75233	0.799701	0.7089	0.75199	0.7528	0.7948	0.7424	0.8693	0.7096
P-value for F-test	8.7058	2.00e-10	3.27e-35	2.12e-40	1.87e-15	3.54e-35	4.84e-47	1.46e-14	3.30e-34	2.55e-49	1.69e-15

Source: author's own elaboration.

The study results presented in Table 14 do not support the third hypothesis: *There is a relation between CSR information and financial results (H3)*, as the study obtained contradictory results indicating that, in many cases, quantitative variables can be described with varying degrees of linguistic difficulty or, as with the ROE_{it} variable and the readability indices, did not indicate a statistically significant relationship.

5. Discussion of the results

The study made it possible to test the research hypotheses. In the case of the first research hypothesis: *Texts of CSR reports are written in simple language (H1)*, which was partially confirmed, reference should be made to numerous empirical studies confirming the thesis. Miller (2010) stated that less-readable annual reports are costly for small investors to process and, therefore, investors may elect to avoid processing such complex reports. These higher information-extraction costs will lead to delays in making investments in response to complex reporting and lower stock trading volumes. Lee (2012) indicated that less-readable reports are associated with a delayed market reaction to the publication of the performance results of an economic entity. Additionally, disclosing more information does not necessarily help investors unless such disclosure is easy to understand. Lang and Lundholm (1993) also provided evidence that in the case of satisfactory entity performance results, entity managers use clearer language when disclosing non-financial information. Note the study by Merkl-Davies and Brennan (2007), which demonstrated that entity managers use language in such a way as to adapt to circumstances and for immediate benefits to control stakeholder impressions. At this point, it is worth mentioning the studies by Neu et al. (1998), who provided evidence of impression management, arguing that environmental disclosures in annual reports aim to change influential stakeholders' impressions of CSR performance. Lundholm et al. (2014, pp. 1453-1485) undertook research on published text readability, stating that foreign companies, i.e. non-US companies listed in the US, present reports with more figures that are more understandable than their US counterparts. In their study, they used the FOG index. Finally, the most widely cited publication on the comprehensibility of narrative information contained in the annual report, including in particular the activity report, was by Li (2008), who using the FOG index, analysed the activity reports (MD&A) of US companies. The results showed that companies producing reports that are more difficult for users to understand perform worse financially (Krasodomska, 2016). The findings are contradictory and depend on a number of factors. It would be necessary to develop a research methodology that would standardise obtained results.

Testing the second research hypothesis: *There are significant differences in the linguistic structure in the studied CSR reports (H2)* does not fully confirm the hypothesis. It should be emphasised that a text that is easy and logical to read cannot resemble an endless string of characters. At this point, reference should be made to the study by Leuz and Schrand (2009) pointing to a relationship between an increased length and number of pages in annual reports and increased transparency of disclosures and reduced capital cost for an economic entity. The results contradicted the literature and revealed that a large number of disclosures points to high disclosure complexity. It is clear that the desire to convey information influences sentence length. By splitting a sentence, the perception is clearer and the meaning stays the same. Callena et al. (2013) demonstrated that there is a delayed increase in the share price of economic entities with a high FOG index, similarly to an increased word count, which is consistent with longer reports containing more information. Lang and Stice-Lawrence (2015) stated that long disclosure is associated with better economic results such as liquidity. Furthermore, Guaya et al. (2016) found that entity managers use voluntary disclosure to mitigate the negative impact of complex financial statements on the information environment. Dhaliwal et al. (2012) argued that the CSR disclosure length may indicate greater credibility and transparency as longer CSR reports contain more information. However, many studies indicate that an increased number of CSR disclosures is an unreliable and misleading indicator, as economic entities may manipulate the amount of disclosure by

emphasising the positive aspects of their CSR activities while minimising negative social and environmental aspects. For this study, the average sentence length was thirteen words. In contrast, a natural Polish sentence contains up to about 10 words, which supports the statement that the examined companies deviated slightly from the accepted standard of building sentences in Polish. In addition, words differ in meaning, pronunciation, parts of speech and also in length (Laufer, 1990). Word length can be objectively measured by, for example, the number of syllables, while words that are used most frequently tend to be shorter than those that are used less frequently, which is consistent with Zipf's law (Laufer, 1990, pp. 297-298; Ellis, 2002; Reeves et al., 2005, p. 184; Seretny, 2006, 2016; Siegfried et al., 2004). Short words are processed faster and thus are easier to remember. They also have fewer substitutions, as Andersen (2002) showed in his study (Moździerz, 2020). For the Polish language, difficult words are assumed to be words with more than three syllables (Seretny, 2006). It is generally assumed that longer words are more difficult and shorter words are easier (Lado, 1955). This means that long words did not occur in the studied CSR reports, as the average number of syllables in a word was also three. In terms of the results defining the percentage of selected parts of speech, a high proportion of verbs was identified in the CSR reports, namely 45%, possibly indicating that the studied economic entities wished to emphasise their CSR activities, as the verb is a part of speech used to represent actions and conditions taking place. Verbs are the names of actions that living beings, tools or machines perform at a given time, and the names of conditions in which these beings or objects are in (Bąk, 1978), i.e. previous, current or future conditions, and states that have already ended or will end. The percentage of nouns was at 30%. It should be remembered that nouns denote things, objects, places, persons, activities, phenomena (PWN Encyclopaedia), and a noun in Polish mainly has the function of a subject in a sentence, hence this may indicate that entities considered themselves as the subject that implements social responsibility activities. The lowest percentage was determined for adjectives, which was 15%. An adjective is a part of speech that describes characteristics of living beings, things, phenomena, concepts and conditions (Bąk, 1978). These parts of speech received little emphasis in the studied CSR reports. The percentage of different parts of speech may indicate that entities took a factual approach to describing the entity's CSR activities as evidenced by the percentage of nouns and verbs. Therefore, it was determined that CSR reports in Polish listed companies between 2013 and 2018 mostly use verbs and nouns, which may point to their expertise. The most frequently used parts of speech reveal that there are differences in the percentage of individual parts of speech, which confirms the second research hypothesis, i.e. *There are significant differences in the percentage of different parts of speech in the studied CSR reports (H2).*

The last research hypothesis: *There is a relation between CSR information and financial results (H3)* indicates that information on corporate social responsibility is partially related to the financial results of economic entities. The literature review reveals that such relations can be negative (Waddock and Graves, 1997; Jensen and Meckling 1976; Barnea and Rubin, 2010; Brown et al. 2006) and/or positive (Preston and O'Bannon 1997; Jo and Harjoto 2011), but they also point out that CSR disclosures depend on other factors such as the political system or legal regulations. The research on Polish companies found that it is not possible to state unequivocally whether the impact of non-financial information is dependent on financial results or not. In Nazari et al. (2017), the results of the quantitative variables were at similar levels, i.e. $INST_{it}$, $SIZE_{it-1}$, $CURRAT_{it}$ and ROA_{it}. In contrast, the results for the LEV_{it-1} variable differed significantly. Maqbool et al. (2017) attempted to examine the relationship between corporate social responsibility and financial results in the Indian context. Secondary data were collected for 28 Indian commercial banks listed on the Bombay Stock Exchange (BSE) for a period of 10 years (2007–2016). The results indicated that CSR has a positive impact on the financial results of Indian banks. The following variables were used in the study: ROE, ROA, SIZE. In the case of Polish companies, this study is contradictory for ROA and ROE, as the relationship is negative there, whereas for the SIZE variable, it is positive. Kao et al. (2018) conducted research on Chinese companies and found differences in market response to CSR engagement by type of economic entity ownership. This means that the market responds positively to CSR. Chinese economic entities can link their CSR activities to company performance over time, presumably recognising long-term CSR benefits. They

also indicated that ownership structure can explain the positive and negative relations between performance and CSR. Another study of Chinese companies confirmed that companies reporting CSR suffer a decline in profitability. In addition, they suggest that mandatory CSR disclosure changes corporate behaviour and generates positive externalities at the expense of shareholders (Chen et al., 2018). Interesting conclusions were also drawn by Wang et al. (2018), who tried to answer another aspect of non-financial publications in CSR reports, namely whether political conditions influence the spread of CSR practices in China. They used panel data from 14,419 listed annual observations of companies in China from 2008 to 2014. The results showed that politically embedded companies, especially centrally politically embedded companies, are more likely to issue CSR reports than companies without political support, and also suggested that, on average, such entities report better CSR performance than those non-politically embedded. Furthermore, it turns out that for politically embedded companies, CSR performance is more negatively related to financial results than for companies without political embedding. An interesting study by Martinez-Ferrero J. et al. (2021) examined CSR disclosures in the context of ethics in accounting in order to analyse if sustainable companies show a higher quality of accounting information, identified by a lower tendency to carry out earnings management. This relation was tested for an unbalanced sample of 1,960 multinational non-financial listed companies from 26 countries for the period 2002–2010. The use of simultaneous equations for panel data via the GMM estimator proposed by Arellano and Bond (1991) highlights the existence of a negative relationship between both variables. The results obtained are robust for different measures of earnings management and corporate social responsibility. In addition, research on Iranian entities pointed to a new relation, i.e. that a direct relationship between CSR and company performance indirectly affects its many factors. Therefore, the study addressed sustainable competitive advantage, reputation, and customer satisfaction as three probable mediators in the relationship between CSR and company performance. The findings from 205 Iranian manufacturing and consumer products companies revealed that the link between CSR and company performance is a fully mediated relationship. The positive effect of CSR on company performance is due to the positive effect that CSR has on competitive advantage, reputation and customer satisfaction (Saeidi et al., 2015). Other studies also confirm that the examination of the relationship between CSR disclosures and financial results can be interpreted in various ways.

6. Conclusions

In summary, the obtained study results are in many aspects consistent with those obtained by other authors. The findings in the financial disclosure literature regarding whether disclosure length indicates greater readability, transparency or complexity are not conclusive. Both the obtained research results and the literature studies reveal how difficult it is to correctly and reliably determine the impact of corporate social responsibility on financial results. A variable to describe corporate social responsibility in a measurable way remains to be identified. The issue of which indicators should be regarded as key as financial measures of performance still needs to be determined. There is no doubt that the topic of the impact of CSR reports on financial results is extremely important and interesting, and the need for further research in this area appears to be obvious.

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