

Corporate Sustainability Reporting in Central and Eastern European Companies

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Chapter 4

Sustainability Reporting in Croatia

Sustainability Reporting Approach and
Progress Analysis

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Sustainability Reporting Approach and Progress Analysis

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Introduction

Non-financial reporting has come to the forefront in the last few decades, largely due to the increasing emphasis on corporate social responsibility. It can be related to great stakeholder interest in gaining insight into business operations about the issues of the environmental, social, and governance (ESG) triangle. The term non-financial reporting appeared and evolved due to the existing global sustainability policies and was embedded in the EU with the introduction of Directive 2014/95/EU, also known as the Non-Financial Reporting Directive (NFRD). Dated 2014 and already enacted for the financial year 2017, the NFRD rules non-financial aspects such as the environment, social and employee matters, human rights and anti-corruption, and diversity large companies need to disclose.

The NFRD was integrated into Croatian laws through the Accounting Act in 2016, assigning non-financial reporting for large public-interest companies with over 500 employees from 1 January 2017. This legal framework represented an important milestone for the advancement of companies as it encouraged the organised processes of non-financial reporting in Croatian firms. The adoption of the NFRD also laid the groundwork for the EU's subsequent Directive 2022/2464 – Corporate Sustainability Reporting Directive (CSRD), which was introduced in 2022 to address shortcomings in non-financial reporting practices, including gaps in sustainability risk disclosures and data reliability. The CSRD redefines non-financial reporting as “sustainability reporting”, underscoring its financial and operational relevance while expanding the scope of entities required to report.

In Croatia, the CSRD has been incorporated into national law through amendments to the Accounting Act, Audit Act, and Capital Market Act from July 2024 (Ministry of Finance, n.d.). This will widen the reporting requirements and will apply to more companies, including small and medium-sized enterprises (SMEs) with securities listed on EU-regulated markets. By doing so, Croatia will follow the EU's harmonised approach to sustainability reporting

to improve the transparency, comparability, and reliability of the ESG information disclosed.

The non-financial reporting framework in Croatia is based on the Accounting Act, which sets out reporting requirements, among other things, for all business entities. Public interest entities, including companies listed on regulated markets, financial institutions, and entities designated by the government, have stricter reporting requirements. After Croatia joined the EU in 2013, the national legislation was aligned with EU Directives, including the NFRD and non-financial reporting, which became mandatory for some companies in 2017.

The adoption of the Accounting Act amendments in 2016 required eligible entities to disclose ESG information annually, which was a big step towards more transparent corporate behaviour. Early assessments, such as those by Dečman and Rep (2018), highlighted the substantial gaps in non-financial reporting prior to the legislation. While companies increasingly recognised the importance of integrated reporting, many had yet to adopt systematic approaches. In that context, Rep, Dumančić, and Piršić (2023) highlighted the importance of education and awareness in promoting non-financial and sustainability reporting, noting that limited understanding among future business leaders could impede progress in aligning corporate practices with international standards.

The CSRD represents the next phase in the evolution of non-financial reporting, expanding the scope of entities required to disclose ESG information and broadening the thematic focus to include detailed sustainability risks, climate impacts, and biodiversity concerns. Croatia's adoption of the CSRD into national legislation introduces reporting obligations for companies meeting at least two of the following criteria: total assets of €25 million or more, net revenue of €50 million or more, or an average of 250 or more employees. Additionally, SMEs with listed securities will also fall under these requirements.

Exemptions to the CSRD include microenterprises, non-listed SMEs, and certain financial entities like UCITS funds and pension funds. The CSRD requires companies to disclose information across the following areas: business models and strategies, sustainability goals, management board roles, sustainability policies, sustainability programmes, descriptions of the due diligence processes, supply chain impacts, measures undertaken, associated risks and risk management strategies, and relevant key performance indicators. These changes aim to enhance the comprehensiveness and quality of sustainability in Croatia, ensuring alignment with EU-wide standards and promoting a more sustainable economic model.

This regulatory transition underscores Croatia's commitment to aligning corporate practices with international sustainability objectives. By transitioning to a comprehensive sustainability reporting framework, Croatian companies are better positioned to respond to stakeholder demands, improve ESG performance, and contribute to broader global sustainability goals.

Literature Review on Non-Financial and Sustainability Reporting Practices in Croatia

Croatia's non-financial reporting and sustainability practices have undergone notable transformations, especially following the implementation of the NFRD into Croatian legislation. However, despite evident progress, Croatian companies still face challenges in aligning with international standards, such as the GRI Standards, Integrated Reporting (IR) Framework, and UN Sustainable Development Goals (SDGs), while reporting on ESG issues. This literature review synthesises research on non-financial and sustainability reporting practices in Croatia, analysing trends, methodologies, and findings. It also highlights sector-specific dynamics and regulatory impacts.

Croatian researchers have predominantly employed content analysis and descriptive statistics to examine non-financial disclosures (e.g., Peršić and Halmi, 2018; Rep, Žager, and Oliveira, 2019; Načinović Braje, Pavić, and Ferjanić Hodak, 2020; Galant and Kontošić Pamić, 2020; Rep, Sever Mališ, and Dumančić, 2022), supplemented by inferential methods such as logistic regression (e.g., Galant and Černe, 2017; Rep, Žager, and Oliveira, 2019; Rep, Sever Mališ, and Dumančić, 2022) and Pearson correlation (e.g., Galant and Černe, 2017; Krivačić, 2017; Peršić, Halmi, and Severović, 2018; Dragija Kostić, Čičak, and Ljubić, 2022). Studies often focus on disclosure quality, regulatory compliance, and stakeholder engagement, emphasising the influence of company characteristics like size (usually based on the number of employees), profitability, and ownership structure on reporting practices (e.g., Mijoč, Pekanov Starčević, and Mijoč, 2017; Krivačić, 2017; Rep, Sever Mališ, and Dumančić, 2022; Dragija Kostić, Čičak, and Ljubić, 2022).

Non-Financial Reporting before the Binding Legal Prescriptions

Even before the mandatory requirements for large public-interest entities, introduced in 2017, non-financial reporting practices existed in Croatia. However, these practices were largely voluntary and inconsistent. A small number of companies chose to disclose information about their environmental and social impacts, often driven by corporate social responsibility initiatives or market pressures (often presented as a company's voluntary actions with an impact on the local community). The following section reviews key studies that assessed non-financial reporting practices in Croatia before the reports for 2017, revealing the challenges and limited adoption of such practices during this period.

Mijoč, Pekanov Starčević, and Mijoč (2017) conducted an in-depth analysis of corporate social responsibility reporting among Croatian listed companies, highlighting the early state of non-financial disclosures. The research using a structured questionnaire was conducted in 2015. Their findings revealed that only 35% of listed companies prepared corporate social responsibility reports, and an even smaller percentage, 30%, publicly disclosed this information. The

study identified major barriers to reporting, including the absence of legal obligations and insufficient stakeholder demand for corporate social responsibility-related disclosures. Statistical analysis showed that companies voluntarily engaging in corporate social responsibility reporting demonstrated a higher degree of corporate social responsibility implementation. That indicates that such disclosures could influence business practices, although not widely accepted at the time.

Similarly, the quality of non-financial disclosures among Croatian companies before the implementation of mandatory regulations was examined by Peršić and Halmi (2018). Their content analysis on reports from 2015 and 2016, guided by the GRI Standards, revealed low overall quality scores for non-financial reports, particularly regarding reliability and comparability. The highest scores were noted for timeliness, accuracy, and clarity, indicating that companies prioritised fundamental reporting attributes while overlooking more intricate qualitative factors.

Krivačić (2017) investigated sustainability reporting practices among Croatian companies, focusing on disclosed environmental and social indicators between 2013 and 2015. Reports from 2014 alone comprised 74% of the total analysed. It was observed that smaller companies faced several challenges, including a lack of available resources and expertise. The analysis also pointed out that disclosures often focused on easily measurable metrics, such as energy consumption and waste management, while more complex indicators, like biodiversity impacts, were seldom addressed.

Several studies highlighted that company size was one of the most relevant factors contributing to differences in non-financial reporting behaviour. Galant and Černe (2017) found evidence for a positive relationship between company size and the probability of non-financial disclosure. The larger the company, meaning having more employees, revenue, and total assets, the greater the likelihood of taking up non-financial reporting. Logistic regression analysis confirmed that company size was a significant predictor of reporting practices. Further, they noted that profitable and efficient companies were also more likely to disclose non-financial information. In the same vein, Krivačić (2017) noted that larger companies were more likely to adhere to international frameworks such as the GRI Standards, mainly because of the increased resources and capability to fulfil reporting requirements.

Some researchers have investigated the impact of sectors on non-financial reporting practices, underlining certain challenges and opportunities in specific sectors. Galant and Černe (2017) established that the level of engagement in non-financial reporting was low across all sectors. Sectors with high natural resource dependence, such as tourism and accommodation, were found to have very low levels of engagement in disclosures dealing with sustainability issues despite having significant environmental impacts. This indicated a greater need for customised programs to encourage sustainability reporting in such sectors. On the other hand, Galant and Černe (2017) identified that the manufacturing sector exhibited higher reporting levels than others. This was attributed to the

international exposure of the sector and the influence of foreign investors, who generally expect increased disclosure on non-financial performance.

Osmaniagić Bedenik et al. (2019) focused on the hospitality industry and found that non-financial reporting in this industry was extremely underdeveloped. Only three of the 30 largest hotel companies in Croatia published their sustainability reports before 2017, all of which were in 2016. These companies had emphasised environmental and economic indicators but paid little attention to social disclosures. Although they are innovators in the Croatian tourism industry, they still face many difficulties in complying with integrated sustainability reporting frameworks. The research also identified the potential of IT systems to improve the effectiveness of collecting and reporting information. Additionally, it confirmed the crucial role of controlling in the economic domain, while its importance in the social domain was less pronounced.

In addition, Gulin, Hladika, and Mićin (2017) examined non-financial reporting by the most liquid non-financial companies at the Zagreb Stock. Their research revealed inconsistencies in disclosures, with notable gaps in areas such as corporate governance and environmental sustainability. These findings showed that EU membership made a difference in reporting matters. However, most Croatian companies have not succeeded in fulfilling the basic requirements of voluntary frameworks like the GRI.

These findings together indicate that the non-financial reporting landscape in Croatia was still growing but immature before 2017. Larger companies and those in sectors with higher external pressures showed higher non-financial reporting rates, while smaller firms and certain industries lagged, often constrained by resource limitations and a lack of regulatory incentives. However, that period laid the groundwork for the more systematic and regulated approach to non-financial reporting introduced later.

Non-Financial Reporting after the NFRD Implementation

The implementation of the NFRD in 2017 marked a significant milestone in advancing non-financial and, thus, sustainability reporting practices while emphasising corporate accountability in Croatia. By demanding large public-interest entities with more than 500 employees to disclose information on their ESG practices, the NFRD provided a framework for structured and transparent reporting. Research conducted after the NFRD implementation demonstrates the evolving practices and challenges of non-financial reporting, highlighting the impact of company size, sectoral variations, and key topics disclosed.

The two national studies provide essential insights into non-financial reporting practices in Croatia, showing progress in compliance and the quality of disclosures after the implementation of the NFRD. The study conducted on non-financial reports for 2017 and 2018 highlights that 92% of analysed companies described their ESG policies and analysis procedures, which content is prescribed by the law, while 87% reported non-financial key performance indicators

relevant to their business. However, challenges remain, as only 21% set measurable goals, and 28% identified significant risks related to climate and social impacts, although also prescribed by the law (Ministry of Finance with partners, 2019). The other study, conducted on non-financial reports for 2019 and 2020, reflects a continued positive trend, with a notable increase in companies reporting alignment with the UN SDGs – from 18% in the previous period to 46% (Ravlić Ivanović et al., 2021). Regarding the description of ESG policies and analysis procedures, the disclosures rose by one percentage point, while non-financial key performance indicators remained at the same level. Furthermore, measurable goals rose from 21% to 38% of companies' disclosures and principal risks from 28% to 34% (Ravlić Ivanović et al., 2021). These findings underscore Croatia's evolving non-financial reporting landscape, driven by regulatory changes and growing awareness of the importance of sustainability.

Many international studies have been carried out with regard to company size as a factor affecting the quality of non-financial reporting. As expected, larger companies (with higher revenues, total assets, and a larger number of employees) provide higher quality non-financial disclosures. The same trend can be seen in Croatian companies. For instance, Meeh-Bunse, Rep, and Schomaker (2019) found that larger companies are more capable of investing in extensive non-financial reporting. Similarly, Rep, Žager, and Oliveira (2019) investigated intellectual capital disclosure among Croatian high-tech companies. Their findings indicated that the firm size, measured by total assets and revenues, had a statistically significant positive effect on the Intellectual Capital Disclosure Index (ICDI). The importance of company size in determining reporting practices is further tested by Rep, Sever Mališ, and Dumančić (2022), who confirmed these results in their analysis. They employed a linear regression model to demonstrate that company size significantly impacts the comprehensiveness and transparency of non-financial reporting. These findings also support the study by Dragija Kostić, Čičak, and Ljubić (2022), who found that the number of employees positively influences non-financial reporting in state-owned enterprise (SOEs). On the other hand, the study pointed out that state ownership is negatively associated with reporting quality, highlighting the specific challenges that SOEs in Croatia face.

All these findings align with stakeholder theory, suggesting that larger companies face greater pressure from diverse stakeholder groups to enhance their ESG performance and reporting transparency. In addition, studies collectively highlight the key role of company size in shaping non-financial reporting practices, emphasising that larger companies are not only more likely to engage in such reporting but also tend to produce higher quality disclosures. Linear regression analysis has been the predominant method used to validate these relationships before (see Galant and Černe, 2017; Krivačić, 2017) and after the NFRD implementation, offering robust statistical evidence of the positive impact of company size on disclosure quality and comprehensiveness.

Sectoral differences persist as a determinant of non-financial reporting practices even under the NFDR regime. The hospitality industry, for instance,

remains backwards in implementing broad reporting structures despite being environmentally vulnerable. Načinović Braje, Pavić, and Ferjanić Hodak (2020) analysed employee-related disclosures and found some improving trends in reporting practices after 2017, although at a significant gap. Similarly, Osmanagić Bedenik et al. (2019) highlighted the potential of IT systems in streamlining data collection and reporting within this sector, emphasising the role of technology in improving sustainability disclosures.

Based on the research conducted, it could be concluded that the implementation of the NFRD has not significantly influenced the thematic focus of non-financial reports in Croatia, remaining the same as before. Companies publish the data they have, and the explanations are mostly general. This trend is supported by the findings of Krivačić (2017), who noticed that companies prefer disclosure of metrics that are easily quantifiable, very often omitting the wider dimensions of sustainability. On the other hand, studies by Remlein and Roška (2020) and Omazić, Hlebar, and Uroić (2024) document the peripheral nature of climate change as an issue in Croatian corporate reporting. Although the information disclosed typically includes environmental protection, support for local communities, and improving working conditions for employees (Remlein and Roška, 2020), only 28% of companies address climate risks, and less than 10% involve senior management in climate-related strategies (Omazić, Hlebar, and Uroić, 2024). These gaps highlight the need for more robust regulatory frameworks to ensure comprehensive climate-related disclosures as well as disclosures on other topics.

While size most often significantly influences reporting practices, other factors such as ownership structure, auditor type, and regulatory pressures also play a role. Dragija Kostić, Broz Tominac, and Ljubić (2023) explored the public sector's motivations for non-financial reporting, revealing that transparency and legal obligations are the primary drivers. However, the lack of familiarity with reporting standards poses a significant barrier to widespread adoption. Redmayne, Vašiček, and Čičak (2022) provided comparative insights, noting that Croatian SOEs perform better than their Serbian counterparts but lag behind Slovenian enterprises in adhering to the reporting standards and frameworks.

The post-NFRD era has accelerated improvements in non-financial reporting practices across Croatia. While larger companies and those in specific sectors have embraced these changes, gaps remain in disclosure comprehensiveness and quality. More companies have integrated advanced reporting frameworks, but some reporting challenges remain. Future research should address these gaps and support smaller enterprises in adopting comprehensive non-financial reporting practices, especially as the transition to CSRD comes.

After analysing prior research, the following hypotheses are proposed to guide the analysis of non-financial reporting among Croatian companies:

- H1** There is a statistically significant positive difference in the disclosures in non-financial reports in 2022 compared to 2017.

H2 Companies that voluntarily prepare non-financial reports in both observed years (2017 and 2022) disclose higher quality and more comprehensive non-financial information.

H3 A company's industry affects the disclosures in non-financial reports.

Statistical Analysis Methodology

The study examines Croatian companies' non-financial disclosure practices, including mandatory and non-mandatory non-financial reporting. Namely, the analysis is conducted to explore, among others, the differences in disclosures between two types of companies: those with mandatory non-financial reporting (MNFR companies) and those with voluntary non-financial reporting (VNFR companies). This research employs a comparative approach to analyse the progress in sustainability reporting among Croatian companies between 2022 (the last available data when conducting the study) and 2017 (the first mandatory reporting year). The focus is on comparing non-financial disclosures to assess improvements in transparency and compliance with sustainability reporting requirements prescribed in Directive 2014/95/EU and transposed to the Croatian Accounting Act.

The selection of companies was based on specific criteria. The first sample comprises MNFR companies, which include large public interested entities. Using the Annual Financial Statements Registry, managed by the Croatian Financial Agency, large public interested entities were ranked based on the 2017 total revenue. Subsequently, 20 companies with the highest total revenue in 2017 were selected. Each company was checked for publishing non-financial statements or other sustainability reports, such as sustainability reports or CSR reports. Since 2 in 20 companies did not publish a non-financial report for 2017, the list was enlarged with the following companies based on the total revenue. If a company published a non-financial report but also a separate sustainability report that is more informative, the more representative one was analysed. However, the non-financial statement was also analysed if the representative report did not include all required disclosures according to Directive 2014/95/EU. For 2022, the same 20 companies from 2017 were examined to maintain the consistency of the analysed companies. If a company's 2022 report was unavailable, the 2021 report was used instead.

Additionally, 20 companies that voluntarily published non-financial statements or sustainability reports for both years were selected randomly for another sample. These additional companies are not yet required to report on non-financial matters but could soon be affected by the new Directive. This approach allowed for comparing practices across diverse companies, including potential newcomers under new Directive requirements. In the end, 80 non-financial statements and sustainability reports were analysed. All of them were found either in the Annual Financial Statements Registry or on the company's official websites.

After having the full sample, the analysis was conducted using the content analysis method. In addition to general variables that provide context and general information about the companies (such as company size, industry, stock exchange quotation, standards used, etc.), disclosure quality variables that measure the extent and quality of the non-financial information disclosed were employed.

Shapiro-Wilk's normality test showed deviations from normality for most of the variables analysed. In addition, the same companies were measured on two different occasions, and the sample was small in several analyses conducted. Accordingly, since the data did not meet the assumptions required for parametric tests, the Wilcoxon Signed Rank Test was employed to assess overall and category-specific improvements in non-financial reporting and was used for H1 and H2. This non-parametric statistical test is appropriate for comparing two related samples or repeated measurements on a single sample to determine if their population mean ranks differ. On the other hand, the Kruskal-Wallis test was used for testing H3 since the sample for this analysis includes companies categorised into different industries, while the goal is to compare the non-financial disclosures across the industries to identify any significant differences.

Statistical Analysis Methodology

For the purpose of this chapter, companies are characterised by size (micro, small, medium-sized, and large), number of employees (companies with up to 10, 11–50, 51–250, and more than 250 persons employed), industry (trade, manufacturing, services, financial sector, and other), and whether their shares are listed on a stock exchange. Furthermore, this chapter defines non-financial reporting of the company in terms of whether non-financial reporting is mandatory or voluntary. It was already mentioned that the full sample comprises 20 companies obliged to publish non-financial statements. At the same time, the remaining 20 were chosen randomly from those who published such reports voluntarily. Two reports per company (for 2017 and 2022) were analysed, making up 80 analysed reports.

Specifically, in 2022, according to size, one company was medium-sized, while the rest of the 39 companies were large. Furthermore, according to the number of employees, all the analysed companies had more than 250 employees. According to the industry, 17 companies were from the manufacturing industry, two were from trade, 15 dealt with services, three were from the financial sector, and three were placed in the category "other" (other meaning that they operate in a specific sector or cover several industries). Also, 26 analysed companies were listed on the stock exchange, and 14 were not. Comparing the variables from 2022 with those from 2017, differences appear only in the stock exchange segment, with one more quoted company in 2017. All this is summarised in Table 4.1.

Table 4.1 Characteristics of Sampled Companies

Analysed characteristics of sampled companies		MNFR companies & VNFR companies		MNFR companies		VNFR companies	
		2017 (n = 40)	2022 (n = 40)	2017 (n = 20)	2022 (n = 20)	2017 (n = 20)	2022 (n = 20)
Size	Micro	—	—	—	—	—	—
	Small	—	—	—	—	—	—
	Medium	—	1	—	1	—	—
	Large	40	39	20	19	20	20
Number of employees	≤10	—	—	—	—	—	—
	11–50	—	—	—	—	—	—
	51–250	—	—	—	—	—	—
	>250	40	40	20	20	20	20
Industry	Manufacturing	17	17	11	11	6	6
	Trade	2	2	—	—	2	2
	Services	15	15	8	8	7	7
	Financial sector	3	3	—	—	3	3
	Other	3	3	1	1	2	2
Stock exchange	Not listed	15	14	—	—	15	14
	Listed	25	26	20	20	5	6

According to the Accounting Act (n.d.), obligators should publish a non-financial statement within the management report. Still, some of them publish a separate standalone report. In that context, the study was conducted by analysing 20 non-financial statements primarily published within the annual report, 29 (corporate) sustainability reports, eight integrated reports, four social responsibility reports (three of which were within the annual reports), two reports on responsible business, and one social and environmental report, while the remaining 16 just disclosed some non-financial information under the management or annual without structuring it in the form of a report. As expected, most reports (44) were based on the GRI standards as the framework used. Twenty companies used them in both analysed years, while four did not use them in 2017 but did in 2022. UN Global Compact principles were used in four reports (by two companies), while the remaining 32 reports did not mention the framework used.

In addition, two groups of variables were selected to assess the quality of non-financial disclosures. Both are based on the Directive 2014/95/EU requirements. One comprises disclosures regarding environmental, social, and employee-related matters; respect for human rights; and anti-corruption and bribery matters, while the other focuses on the business model, policies related to the issues, the outcome of the policies, principal risks related to the matters, and non-financial KPIs. The variables are measured on a nominal scale, namely

information disclosed (1) or not disclosed (0). A variable reflecting the quality of the information required to be disclosed (“the level of disclosure”) was employed for each above-described group, summarising the informativeness of a set of non-financial information disclosed. They are measured on an ordinal measurement scale. Namely, the set of non-financial information the company provides can be evaluated as specific (coded as 2), semi-specific (1), or general (0), which does not give company-specific information but rather the one applicable to most companies. Table 4.2. summarises information about disclosed non-financial areas.

The sample of 40 Croatian companies described above and their 80 published non-financial statements/reports were analysed using non-parametric techniques. Namely, the Wilcoxon signed rank test and the Kruskal-Wallis test were employed. The results of the analyses are presented below. The statistical analyses were conducted using IBM SPSS and JASP statistical software.

Table 4.2 A Review of Disclosed Non-financial Areas

<i>Disclosed non-financial areas</i>	<i>MNFR companies and VNFR companies</i>		<i>MNFR companies</i>		<i>VNFR companies</i>	
	<i>2017</i>	<i>2022</i>	<i>2017</i>	<i>2022</i>	<i>2017</i>	<i>2022</i>
	<i>(n = 40)</i>	<i>(n = 40)</i>	<i>(n = 20)</i>	<i>(n = 20)</i>	<i>(n = 20)</i>	<i>(n = 20)</i>
Environmental information	33	38	16	19	17	19
Social and employee-related issues	33	38	18	19	15	19
Respect for human rights	30	38	15	19	15	19
Anti-corruption and bribery issues	23	32	9	16	14	16
Level of disclosure:						
general	8	3	3	1	5	2
semi-specific	7	9	4	4	3	5
specific	25	28	13	15	12	13
Business model	37	37	17	17	20	20
Description of policies	33	37	14	18	19	19
The outcome of the policies	30	36	11	17	19	19
Principal risks	25	32	10	14	15	18
Non-financial KPI	25	33	9	14	16	19
Level of disclosure:						
general	3	2	2	1	1	1
semi-specifics	15	8	8	4	7	4
specific	22	30	10	15	12	15

First, the authors wanted to explore whether there was a statistically significant positive difference in the disclosures in Croatian companies' non-financial reports in 2022 compared to 2017. Hypothesis H1 aims to determine whether there has been an overall improvement in the comprehensiveness (non-financial matters and additional non-financial information measured as disclosed or not disclosed) and quality (entity-specific disclosure level by matters and by additional non-financial information ranked from 0 (general) to 2 (specific)) of non-financial information disclosed by companies over the five years, that is, comparing 2022 and 2017.

The non-parametric Wilcoxon Signed Rank Test was conducted to compare the non-financial disclosures of Croatian companies between 2017 and 2022. The test was set up by pairing each category's 2017 and 2022 data. Given that the hypothesis states there is a positive difference in the disclosures in non-financial reports in 2022 compared to 2017, the test's hypotheses were set up as follows:

Null Hypothesis: There is no significant difference, or the difference is not positive in non-financial reporting disclosures between 2017 and 2022.

Alternative Hypothesis (H1): There is a significant positive difference in non-financial reporting disclosures in 2022 compared to 2017.

The results for each category are summarised in Table 4.3.

Table 4.3 The Wilcoxon Signed Rank Test Results for Testing H1 on Croatian Companies' Non-financial Reporting Disclosures (2022 vs. 2017)

	<i>Category</i>	<i>p-value</i>
Non-financial matters	Environmental matters	0,036**
	Social and employee matters	0,036**
	Respect for human rights	0,007***
	Anti-corruption and bribery matters	0,002***
Entity-specific disclosure level by non-financial matters		0,026**
Additional non-financial information	Business model	0,681
	Policies for non-financial matters	0,065*
	The outcome of the policies	0,021**
	Principal risks related to the matters	0,005***
	Non-financial KPIs	0,003***
Entity-specific disclosure level on additional non-financial information		0,004***
All the non-financial matters and additional non-financial disclosures		0,001***
Entity-specific disclosure level by non-financial matters and additional non-financial information		0,001***

* Significant at a 10% significance level.

** Significant at 5% significance level.

*** Significant at 1% significance level.

A Wilcoxon Signed Rank Test revealed a statistically significant improvement in most categories of non-financial reporting in 2022 compared to 2017. Specifically, significant improvements were observed in all categories other than the business model category. Observing all the non-financial matters and additional non-financial information together (representing the disclosure comprehensiveness), as well as entity-specific disclosure level (representing the disclosure quality), there has been a significant improvement, at a 1% significance level, in non-financial reporting of Croatian companies in 2022 compared to 2017. Finally, the results support hypothesis H1, confirming that non-financial reporting has been significantly improved; that is, non-financial information disclosed by Croatian companies has been more comprehensive and of higher quality, on a 1% significance level.

To further understand the differences in non-financial reporting among Croatian companies, the analysis was extended to compare two distinct groups: companies with MNFR requirements and those that voluntarily prepared non-financial reports in both 2017 and 2022. To test the hypothesis H2, which states that voluntarily reporting companies disclose higher quality and more comprehensive non-financial information since it is not an obligation but their will, the Wilcoxon Signed Rank Test was again employed due to its suitability for comparing related samples and its robustness in handling non-normally distributed data.

The hypotheses for the H2 analysis are formulated as follows:

Null Hypothesis: There is no significant difference, or the difference is not positive, in the non-financial reporting disclosures in voluntarily reporting companies compared to mandatory reporting companies in both 2017 and 2022.

Alternative Hypothesis: There is a significant positive difference in the non-financial reporting disclosures in voluntarily reporting companies compared to mandatory reporting companies in 2017 and 2022.

The Wilcoxon Signed Rank Test was applied separately for non-financial matters and additional non-financial information (representing the disclosure comprehensiveness) and entity-specific disclosure level (representing the disclosure quality) for each year to assess any differences in their reporting practices. The results for each category are summarised in Table 4.4.

The results indicate that companies voluntarily preparing non-financial reports in both observed years disclosed significantly more comprehensive non-financial matters and additional non-financial information than MNFR companies, on a 1% significance level ($p = 0,001$ and $p = 0,005$, respectively). Besides, they improved disclosures' comprehensiveness by 12% in 2022 compared to 2017. This suggests that voluntary reporting companies have been making noteworthy efforts to enhance the comprehensiveness of their

Table 4.4 The Wilcoxon Signed Rank Test's Results for Testing H2 on Croatian Companies' Non-financial Reporting Disclosures (Mandatory vs. Voluntary)

<i>Category</i>	<i>Year</i>	<i>p-value</i>
Non-financial matters and additional non-financial information	2017	0,001***
Entity-specific disclosure level on non-financial matters and additional non-financial information	2017	0,505
Non-financial matters and additional non-financial information	2022	0,005***
Entity-specific disclosure level on non-financial matters and additional non-financial information	2022	0,714

*** Significant at 1% significance level.

non-financial disclosures. On the other hand, although mandatory reporting companies disclosed less information on non-financial matters and additional non-financial information, they also improved their disclosures by disclosing 29% more information related to non-financial matters and additional non-financial information in 2022 compared to 2017.

However, the analysis did not find a statistically significant higher quality of non-financial disclosures disclosed by voluntary reporting companies than mandatory reporting companies, as measured by the specificity of the non-financial information provided. This could imply that while voluntary reporting companies are more comprehensive in covering various non-financial topics, the depth and detail of the information are relatively equal to those disclosed by mandatory reporters.

Summarising all the analysed results, it can be concluded that there is partial support for this hypothesis. The findings also suggest that while voluntary reporting companies are covering more non-financial topics, their reports' level of detail and specificity has not improved as significantly as the comprehensiveness of disclosures of the mandatory reporting companies. For both types of companies, there is room for improving the quality of the non-financial disclosures. This highlights an area for potential enhancement in future reporting practices to ensure that the quality of non-financial disclosures matches the span of topics covered.

To investigate whether a company's industry affects the disclosures in non-financial reports, hypothesis H3, which states significant differences in non-financial disclosures are present across different industries, has been analysed. Since the Brown-Forsythe test indicated a violation of the homogeneity of variances assumption ($p = 0,012$), meaning the variances in disclosure comprehensiveness and disclosure quality are not equal across industries, the non-parametric Kruskal-Wallis test was employed. The test was run two times to test the effect of industry on both disclosure comprehensiveness and disclosure quality. The hypotheses are formulated as follows:

Table 4.5 Kruskal-Wallis Test Results for Testing H3 on Croatian Companies' Non-financial Reporting Disclosures Across Industries

<i>Dependant variable</i>	<i>Factor</i>	<i>Statistic</i>	<i>df</i>	<i>p-value</i>
Comprehensiveness	Industry	10,859	4	0,028**
Quality	Industry	7,697	4	0,103

** Significant at 5% significance level.

Null Hypothesis (H0): There is no significant difference in the comprehensiveness/quality of non-financial reporting disclosures across different industries.

Alternative Hypothesis (H1): There is a significant difference in the comprehensiveness/quality of non-financial reporting disclosures across different industries.

The results are summarised in Table 4.5.

The p-value of 0,028 indicates a statistically significant difference in the comprehensiveness of non-financial disclosures across different industries. This result supports the alternative hypothesis (H1), suggesting that the comprehensiveness of non-financial reporting disclosures varies significantly by industry. On the other hand, the p-value of 0,103 indicates no statistically significant difference in the quality of entity-specific non-financial disclosures across different industries. This result supports the null hypothesis (H0), suggesting that the quality of entity-specific disclosures does not vary significantly by industry. This suggests that some industries may focus more on covering a wider range of non-financial topics since statistically significant differences have been revealed, while others may prioritise the specificity of the information disclosed.

Discussion and Conclusion

The aim of this study was to investigate the progress and differences in non-financial reporting among Croatian companies in the period from 2017 to 2022. In testing the overall improvement, differences between mandatory and voluntary non-financial reporters, and the influence of industry on non-financial disclosures, three main hypotheses were set. The findings give an insight into the state of sustainability reporting in Croatia and highlight areas for further improvement.

The results of the conducted analysis for hypothesis H1 indicate a significant overall improvement in the comprehensiveness and quality of non-financial information disclosed by Croatian companies in 2022 compared to 2017. This improvement is evident across various categories of non-financial disclosures, showing the effectiveness of regulatory frameworks and increased awareness

among companies regarding the importance of sustainability reporting. In particular, there have been significant enhancements in environmental matters, social and employee matters, respect for human rights, anti-corruption and bribery matters, outcome of the policies, principal risks related to the matters, and non-financial KPIs. However, no significant improvements were noted in the business model and policies for non-financial matters, suggesting that some aspects of non-financial reporting have remained relatively unchanged. These findings suggest an enhanced commitment to transparency and compliance with sustainability reporting standards, although there is room for improvement in the coming years.

The analysis was continued by testing H2, by which the authors wanted to check whether companies that voluntarily prepared non-financial reports in both observed years (2017 and 2022) disclosed higher quality and more comprehensive non-financial information. The comprehensiveness was measured by disclosing non-financial matters and additional non-financial information. In contrast, the entity-specific disclosure level measured the quality of these non-financial matters and additional non-financial information. The results from the Wilcoxon Signed Rank Test provide partial support for this hypothesis. There was a significant positive difference in the comprehensiveness of voluntary reporting companies' non-financial disclosures in both years, at a 1% significance level, compared to mandatory reporting companies. However, no significant difference was found in the quality of these disclosures among mandatory and voluntary reporters. This suggests that while voluntary reporting companies cover more non-financial topics, the level of detail and specificity in their reports did not significantly differ from the mandatory reporting companies in both observed years. For both types of companies, there remains room for improvement in the comprehensiveness and quality of non-financial disclosures, highlighting an area for potential enhancement in future reporting practices.

Finally, the analysis ended by testing the influence of a company's industry on the disclosures in non-financial reports (H3). The results from the Kruskal-Wallis test on disclosure comprehensiveness support this hypothesis, indicating significant differences across industries. Specifically, the comprehensiveness of non-financial disclosures varies significantly by industry. However, the test for entity-specific disclosure quality did not find significant differences across industries. This suggests that while some industries may focus more on covering a wider range of non-financial topics, the depth and detail of the information disclosed are relatively equal across different industries.

Although the authors conducted an in-depth content analysis on the sample of 80 non-financial reports and provided several relevant statistical tests for testing the hypothesis set, several limitations should be noted in this study. Although the compliance test was made at the beginning of the analysis, the researchers' subjective judgement in evaluating the relevance and quality of the disclosed non-financial information may have influenced the results. Furthermore, the small sample size limits generalisability, mainly when analysing variables like industry. The study has covered just two observed years, 2017

and 2022, which may not capture the specifics of the whole six-year period. Furthermore, the current regulatory framework has not strictly defined the content and comprehensiveness of the disclosed information, which may affect the consistency and comparability of the reports. That required authors to focus on measuring progress rather than just the number of disclosed items.

The findings of this study are relevant to various stakeholders. Regulators and policymakers can use the results to evaluate the effectiveness of regulatory frameworks and identify areas where further guidance and oversight may be needed to enhance non-financial reporting practices. The findings could help companies understand the current state of non-financial reporting in Croatia and find areas that may require an improvement in their reporting practices. Investors and analysts will better understand Croatian companies' non-financial performance and sustainability practices, which might be useful for their evaluation purposes. Researchers can follow the concept of the study to extend the research in the future and provide broader perspectives.

Further research might extend the scope of this study by increasing the number of companies analysed, at least per industry, which would enhance the robustness and generalisability of the results. The study period could be extended by increasing the years involved and analysing longer-term trends in non-financial reporting practices, thus extending the overall understanding of outstanding areas and areas for improvement. The motives and challenges behind companies issuing non-financial reporting could be explained more clearly by incorporating financial and non-financial data and quantitative and qualitative methods. Finally, the evaluation of the effects of upcoming uniform sustainability reporting requirements and respective external audits on compliance in the context of non-financial disclosure will improve comprehension of this important aspect.

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