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ESG DISCLOSURE IN THE BALTIC REGION – EVIDENCE FROM A TEMPORAL PERSPECTIVE

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Abstract. *This study is a comprehensive analysis of the environmental, social, and governance (ESG) disclosure levels and board diversity metrics of stock-listed companies in the Baltic states, comparing between two different time points: 2020 and 2022. The approach of the research involves qualitative content analysis of sustainability reports in order to determine disclosure levels, and statistical methods such as t-tests of differences in means to draw conclusions on the differences in disclosure levels based on diversity parameters.*

The results of the study demonstrate that ESG disclosure scores have improved over time. The average ESG disclosure score increased from 40% in the 2020 sample to 47% in the 2022 sample, with this improvement largely driven by an increase in the disclosure of corporate governance topics. Furthermore, this study provides evidence that companies with female board members and larger boards tend to achieve higher ESG transparency levels. The results show that companies with female members on their boards have higher ESG disclosure levels, with an average of 54% for companies with female members on their management boards compared to 42% for those without, and an average disclosure level of 52% for companies with gender-diverse supervisory boards compared to 42% for those with all-male supervisory board members.

The findings of this study contribute to the academic literature by shedding light on the differences in ESG disclosure levels during a time of heightened corporate sustainability awareness, as well as connecting diversity to corporate sustainability.

Keywords: *Baltics, CEE, corporate sustainability, diversity, ESG, sustainability reporting*

JEL Classification: *G30, G32, Q56*

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1. Introduction

While the sustainability agenda across corporations globally continues to rise, academic evidence and data on environmental, social, and governance (ESG) matters are still inconsistent and only partly available. The lack of unified measurability hinders comparability, and many companies still do not have external ESG disclosure or performance scores to aid in evaluation and comparability for financiers (Dorfleitner et al., 2015). An article by Zumente and Lāce (2020) was the first to shed light on the ESG disclosure levels of stock-listed companies in the Baltic states, and provided insights into the correlation between board diversity and ESG disclosure (Zumente & Lāce, 2020). Given the rapid pace of development of corporate sustainability and its regulatory requirements, this article aims to provide an update on previously obtained results and to obtain and analyze data to answer the following research questions:

1. How has the average ESG disclosure level across listed companies in the Baltic states changed from 2020 to 2022?
2. Has the average level of board diversity improved?
3. Does the previous result of higher ESG disclosure for companies with larger and more diverse boards still hold true after 2 years?

While only 2 years have passed between the initial research and this updated contribution, the corporate sustainability landscape has changed significantly. The pace of corporate sustainability development, especially in recent years, has been significant, as indicated by increasing regulatory requirements, wider overall ESG adoption, and increased disclosure practices (UN PRI, 2022).

The EU's sustainability-related regulatory base has evolved across all dimensions, applying not only to companies and specific products but also to the requirements of financial investors and asset managers with respect to investment decisions and processes. Since 2020, impactful regulations such as the EU's Green Taxonomy, Sustainable Finance Package, and Corporate Sustainability Reporting Disclosure (CSRD) have come into force, signaling the rapid development of the regulatory landscape. In particular, in June 2022, the Women on Boards Directive – which aims to foster transparent recruitment procedures in companies, with the goal of having at least 40% of non-executive director posts or 33% of all director posts filled by underrepresented genders – was approved by the European Parliament. This directive will come into force in mid-2026, and EU stock-listed companies will have to comply with and report on this information annually (European Parliament, 2022).

Meanwhile, the share of ESG assets continues to rise. According to Bloomberg Intelligence, ESG assets grew from $22.8 trillion in 2016 to $35 trillion in 2020. These figures are expected to surpass $41 trillion by the end of 2022, nearly doubling in size within a 6-year period. Europe has historically accounted for around half of ESG assets, but the US market has seen significant growth in recent years (Bloomberg, 2022). In addition, ESG assets have proven to be resilient in times of high market turbulence, and growth in the attractiveness of investments in this segment is therefore predicted (Kaminskyi et al., 2022).

Despite the increasing importance of ESG in financial decision-making, Baltic companies are underrepresented in ESG coverage by sustainability rating providers (Zumente & Lāce, 2021), creating a deficit in the academic evidence for the region. To assess ESG disclosure levels, therefore, a qualitative content analysis of sustainability reports (and their equivalents) for 2021 was performed. This involved evaluating the reported information against NASDAQ Baltic stock exchange ESG reporting guidelines and a supplementary list of disclosures compiled from the assessment. This approach is largely based on the work of Roca and Searcy (2012), and allows for the assessment of ESG disclosure without external ratings or formal measurements.

This study provides novel insight into the differences in ESG disclosure levels among Baltic companies listed on stock exchanges during a time of increased corporate sustainability awareness. By analyzing data from 2020 to 2022 – a period during which global discourse on ESG disclosure and sustainability practices has intensified – this research sheds light on the correlation between the board diversity metrics of the largest public companies and non-financial transparency. The findings of this study contribute to the growing body of academic literature connecting board diversity to corporate sustainability and ESG disclosure. The study provides a valuable contribution to the ongoing discourse around the importance of ESG transparency and the role of board diversity in promoting it. Moreover, it serves as a valuable resource for investors, stakeholders, and regulators in their efforts to promote sustainable business practices and responsible investment. The study's findings can also serve as a reference point for future research and policy development aimed at enhancing ESG transparency and sustainable business practices while addressing the gaps in the current academic literature.

The paper is organized as follows: Section 2 provides a summary of relevant academic literature, Section 3 presents the methodology and data used, Section 4 presents and discusses the results, and Section 5 concludes.

2. Literature review

The absence of a universal standard for ESG reporting has caused a wide range of differences in disclosure practices, even between companies in the same industry or operating in the same country. The level of ESG disclosure depends on the specific regulations, norms and standards applied by the company, which can result in a lack of comparability between the ESG reports of different organizations. This lack of uniformity makes it difficult to assess the overall ESG performance of a company and creates uncertainty for investors and stakeholders (Ioannou & Serafeim, 2012). Nevertheless, with increasing ESG-compliant asset levels, overall ESG disclosure is also following a positive trend (Chen & Xie, 2022).

Based on the Voluntary Disclosure theory developed by (among others) Dye (1985) and Verrecchia (1983), which suggests that companies which perform better should also like to voluntarily disclose more, it could be assumed that higher ESG disclosure results in better corporate sustainability performance (Dye, 1985; Verrecchia, 1983). Indeed, according to most academic studies, wider ESG disclosure is generally linked to higher sustainability performance (Fatemi et al., 2018; Lopez-de Silanes et al., 2019). Nevertheless, there is some evidence stressing that ESG disclosure and performance are not directly comparable. For example, the meta-analysis conducted by Whelan et al. (2021) compared the correlation between ESG disclosure and financial performance versus ESG performance measures and financial performance. The findings showed that only 26% of the studies that focused solely on ESG disclosure found a positive correlation with financial performance, while 53% of the studies that analyzed ESG performance measures found a positive correlation, emphasizing the importance of the content of ESG reporting over the form of reporting (Whelan et al., 2021).

The academic literature on measuring the impact of ESG disclosures on financial performance has used various approaches, such as:

1. measuring only the quantity of reported ESG information (i.e., ESG disclosure level) (Atan et al., 2016);
2. using external ESG ratings to evaluate the quality of sustainability performance (Dorfleitner et al., 2015);
3. developing individual methods or performing qualitative/quantitative analysis to assign a relative ESG performance score (Roca & Searcy, 2012).

As external sustainability ratings gain popularity and investors use them to make investment decisions, wider non-financial information disclosure is also necessary for rating providers to consider in their processes. As documented by previous studies on the subject, there is limited coverage of the Baltic companies when it comes to external sustainability rating, leading to the necessity of finding alternative ways for sustainability measurement (Zumente & Lāce, 2021). All of these factors signal the significance of proper ESG disclosure and transparency levels in order to reap the benefits associated with improved sustainability performance.

Corporate governance has a significant impact on ESG disclosure levels. A meta-study by Cucari & Lagasio (2019) that analyzed 24 empirical findings concluded that board independence, board gender diversity, and board size positively contribute to voluntary non-financial transparency (Cucari & Lagasio, 2019). Board diversity is also often linked to improved ESG performance, as a diverse board brings diverse perspectives and human capital resources to decision-making, leading to better alignment between sustainability strategies and long-term value (Hillman & Dalziel, 2003). Rao & Tilt (2016) reviewed the literature and found a positive relationship between board diversity and corporate social responsibility. So far, limited evidence has been provided from similar studies in the context of the Baltic region.

While the recent evidence on the impact of board gender diversity on ESG score and sustainability reporting level is mainly positive and significant, as confirmed by studies such as those of Velte (2016), Tamimi and Sebastianelli (2017), and Kamarudin et al. (2021), some studies find no significant relationship, or suggest that a critical mass of diversity (e.g., at least three females on a board) is necessary for a positive impact (Manita et al., 2018). One study with a similar methodology is that of Bakar et al. (2019), which examined the extent and quality of sustainability reporting among Malaysian publicly listed companies in relation to their board characteristics. The authors used content analysis and *t*-tests to discover that companies with female board members exhibited improved sustainability scores. On the other hand, they found no evidence linking board members' age or ethnic diversity to sustainability reporting (Bakar et al., 2019).

On the business side, the positive impact of board diversity is arguably not fully recognized. A recent Annual Corporate Directors Survey by PwC revealed differences in directors' views compared to previous years in the areas of ESG, diversity & inclusion. Although overall support for board diversity is rising, 58% of directors surveyed believed that diversity was driven by political correctness rather than business decisions (PwC, 2021). Therefore, the level of gender diversity among companies remains imbalanced (European Parliament, 2022).

3. Data and variables

This analysis was based on a sample of 38 companies listed on the NASDAQ Baltic stock exchange as of August 2022, including 32 prime-listed companies and 6 secondary or alternative market-listed companies that published dedicated ESG or CSR reports in their annual disclosures. Compared to the initial sample procured by Zumente et al. (2020), 3 companies were delisted, and 5 new companies were stock-listed. However, 3 companies from the prime list were excluded due to the absence of their 2021 annual reports. This sample has a comparability of 85% with the 2020 sample, and includes 16 Lithuanian, 17 Estonian, and 5 Latvian companies.

The industry split of the sample of companies is presented in Table 1, below.

Table 1. *Industry split of sample companies.*

Industry	Count
Utilities	7
Consumer staples	7
Consumer discretionary	5
Real Estate	5
Finance	4
Infrastructure	4
Industrials	4
Consumer services	2

Source: *compiled by the authors.*

Given the previously reported low coverage of corporate sustainability evaluations of companies operating in the Baltic states, the ESG disclosure score computation approach of Zumente et al. (2020), adopted from Roca and Searcy (2012), was applied. This approach is similar to that used by Bakar et al. (2019) and Al-Tuwaijri et al. (2003), and broadly aligns with Bloomberg's disclosure score calculation method.

The method used for ESG disclosure score computation involves content analysis of company disclosures and checking the inclusion of specific measures and factors. The overall checklist, based on NASDAQ ESG reporting guidelines, GRI reports, the NASDAQ Corporate Governance Code, and the United Nations Sustainable Development Goals, consisted of 106 factors in the 2020 study. This increased to 119 in 2022 due to new indicators and measures, such as EU taxonomy-related information and whistleblowing policy.

The method of qualitative content analysis was performed on the companies' non-financial reports for the year 2021, as well as the reports and disclosures available in the regulatory stock-exchange filings and on the website of the stock exchange. For comparison purposes, information and sustainability disclosures available elsewhere were excluded from the analysis. The reports analyzed included Sustainability Reports, ESG Reports, Social Responsibility Reports, Governance Reports, Non-financial Reports, and specific sections in the Management Reports of the annual disclosures, due to differences in reporting form.

The split between the individual ESG metrics was approximately similar, with 35 indicators corresponding to environmental factors, 45 indicators relating to social aspects, and 38 indicators reporting on corporate governance practices. A point was added to the checklist for each instance in which a company reported on a specific ESG indicator.

Correspondingly, the ESG disclosure score was calculated as:

$$ESG\ Disclosure\ Score = \frac{\text{Sum of individual disclosure items}}{\text{(Max score according to checklist (119))}}$$

The method used for the ESG disclosure score computation only provides information on the relative degree of ESG transparency, and not on the quality or performance of the specific disclosures. The result is expressed as a percentage to facilitate comparison.

The analysis of board diversity in the second part includes variables such as board size (overall count of members across the company's management and supervisory boards), the proportion of female representatives on the management and supervisory boards (proportion of female representatives from the overall board size), and binary variables indicating the presence of at least one female representative at the highest decision-making level.

4. Results

The results of the study reveal that, in line with expectations, Baltic stock-listed companies have improved their overall ESG affinity and are indeed more transparent in their corporate sustainability achievements.

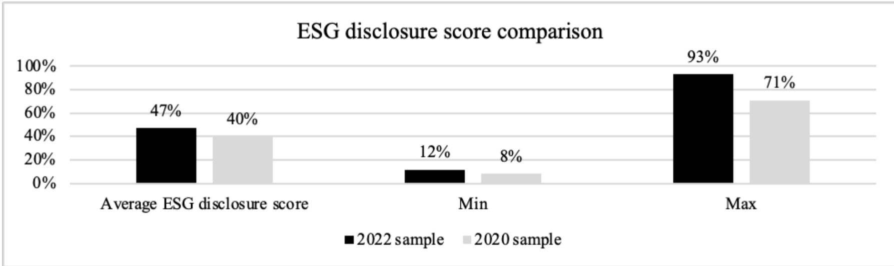

Figure 1. *ESG disclosure score comparison by year.*
Source: *compiled by the authors.*

By evaluating the total volume of reported information against the maximum attainable transparency level, the percentage of the disclosed ESG information was obtained. As visible in Figure 1, the average ESG disclosure score has improved by 7 percentage points – from 40% in the 2020 sample to 47% in the 2022 sample. While there are still companies that disclose insufficient non-financial information (below the 12% minimal disclosure level), there is also a significant improvement in the best performers – with one corporation even achieving a 93% transparency level. This result is in line with the global evidence suggesting that the overall disclosure levels of companies tend to increase over time (Chen & Xie, 2022; Gez & Anagnosti, 2022).

When split between industries, as depicted in Figure 2, the highest ESG disclosure level was achieved by companies in the utilities sector, as was the case in 2020. The average level of disclosure in this sector increased from 61% in 2020 to 63% in 2022. The lowest disclosure scores were achieved by companies in the real estate segment, which present only half of the transparency levels achieved by their peers in the utilities segment.

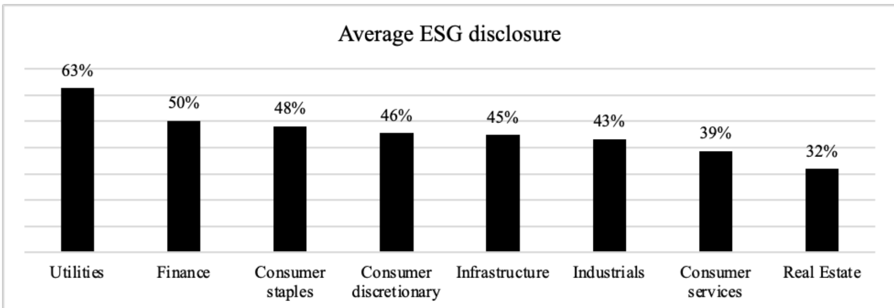

Figure 2. *Average ESG disclosure scores by industries.*
Source: *compiled by the authors.*

The results across these pillars have remained consistent with the patterns observed in 2020 by Zumente et al. (2020), as explained in Figure 3. The highest transparency level was achieved across the governance pillar (60%), followed by social disclosures at the

48% level, and the environmental pillar at 31%. The average disclosure level has increased since 2020 across all ESG factors.

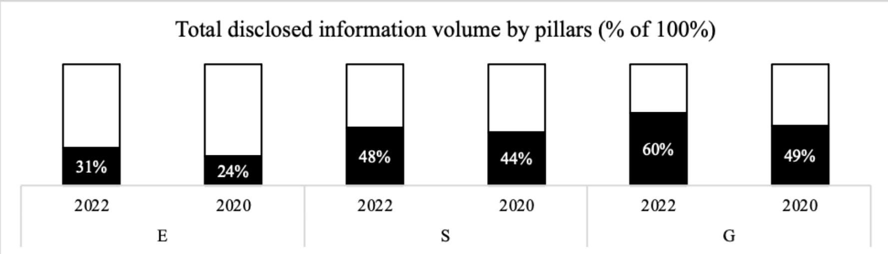

Figure 3. *Disclosed information level across the individual ESG pillars.*
Source: *compiled by the authors.*

While the disclosures in the corporate governance pillar are strongly driven by the requirement for stock-listed companies to publish a dedicated corporate governance report, the environmental pillar is still relatively underrepresented, and this is driven by more complex data measurement. Nevertheless, with the overall trend of higher ESG transparency in the Baltic region, improvements in environmental data disclosure have also been documented. Specific improvement areas relate, for example, to the measurement of emissions levels (57% of the sample companies report on their emissions levels at least in Scope 1 and 2), as well as more quantified information on water consumption, waste generation levels, etc. All in all, however, the availability of environmental information remains the largest pitfall for Baltic corporations, which is confirmed by the vast number of companies disclosing insufficient environmental data (Figure 4). This result contradicts the tendencies among US companies, for example, where a trend among Security Exchange Commission (SEC) listings can be observed: environmental disclosure, with a focus on climate change, moved up from third to first in 2022 (Gez & Anagnosti, 2022), suggesting that this area should be further stimulated by policy-makers.

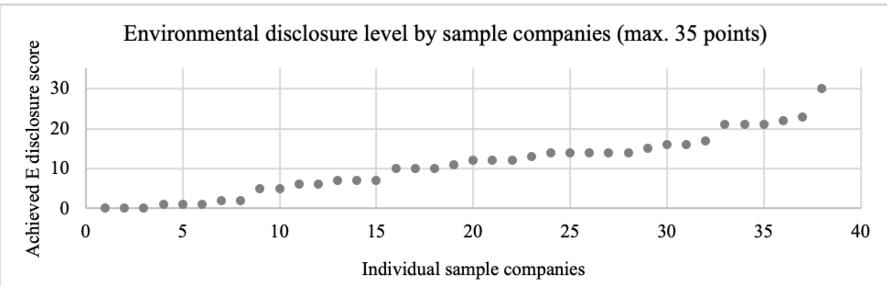

Figure 4. *Environmental disclosure level by companies in the sample (out of max score of 35 points.*
Source: *compiled by the authors.*

With respect to the second research question, additional analysis was performed regarding board characteristics. The board composition of the reporting year was used for this analysis in order to relate it back to the ESG disclosure scores.

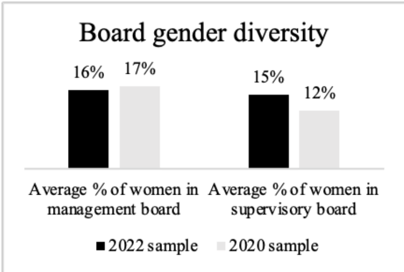

Figure 5. *Board gender diversity of the sample companies.*
Source: *compiled by the authors.*

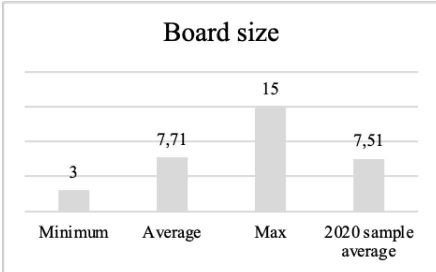

Figure 6. *Board size of the sample companies.*
Source: *compiled by the authors.*

As indicated by Figures 5 and 6, average total board size increased minimally – from 7.51 members in 2020 to 7.71 members in 2022. Board size still shows a wide variance – ranging from a minimum of 3 board members to a maximum of 15 members. With respect to gender diversity, these changes were mixed – while female representation on management boards has slightly decreased from 17% to 16%, there has been a positive trend in the diversity of supervisory boards, which reached 15% in the 2022 sample. All in all, these numbers are still significantly below the threshold of 33% that was foreseen by the Directive of the European Parliament and of the Council on improving the gender balance among the directors of companies listed on stock exchanges. These figures are also noticeably below the European average of 30.6% (European Parliament, 2022).

To determine whether there are significant differences in ESG disclosure scores between companies with female representation on their decision-making boards and those with gender-homogeneous boards, independent sample *t*-tests comparing the differences in means were conducted to evaluate the potential relationship and its statistical significance. These *t*-tests provide a statistical analysis of the data, enabling the researchers to determine whether the differences in ESG disclosure scores are significant. As board size is also believed to impact ESG disclosure, additional *t*-tests were performed to indicate whether board size was below or above the average board size of 7. The results of all *t*-tests are shown in Table 2.

Table 2. *Independent t-test analysis*

	ESG disclosure score			Two-sample *t*-test	
Variables	**Mean**	**St.dev.**	**Observations**	***t*-statistic**	***p*-value**
Women on MB	0.54	0.17	16	2.028	0.05**
No women on MB	0.42	0.18	22		
Women on SB	0.52	0.20	21	1.701	0.09*
No women on SB	0.42	0.15	17		
Board size <=7	0.42	0.18	20	−1.774	0.08*
Board size >7	0.53	0.17	18		

Source: *computed by the authors. MB – management board; SB – supervisory board; * mean difference is significant at the 0.10 (2-tailed); ** mean difference n is significant at the 0.05 level (2-tailed); *** mean difference is significant at the 0.01 level (2-tailed).*

The results indicate that companies with female representation on their boards exhibit higher levels of ESG disclosure. On average, companies with female members on their management board have an ESG disclosure score of 54%, compared to 42% for companies without. In addition, companies with gender-diverse supervisory boards have an average disclosure level of 52%, whereas those with male-only supervisory boards have an average disclosure level of 42%. These differences are statistically significant at the 95% and 90% levels, respectively.

With respect to board size, an additional *t*-test was performed to check the differences across companies with larger boards and those with fewer members (below or equal to 7). The results indicate that there is a significant (at the 90% level) difference between companies having smaller boards, with those companies showing an average ESG disclosure level of 42%, versus companies with larger boards on average achieving a transparency level of 53%.

These results are largely in line with previous literature that has confirmed the positive relationship between higher board diversity measures and corporate sustainability (Kamarudin et al., 2021; Rao & Tilt, 2016; Tamimi & Sebastianelli, 2017; Velte, 2016). The results of the *t*-tests allow an answer to the third research question of this study to be provided, indicating that the previous result of higher ESG disclosure for companies with larger and more diverse boards still holds true after 2 years. In addition, while the previous study did not find significant differences relating to differences in management boards, this study confirms such a conclusion. These findings also support the view that female participation in a company's decision-making bodies correlates with a larger dedication to non-financial activities and their disclosure, as this is confirmed by the sample of Baltic stock-listed corporations.

It must be noted that a different method for the assessment of gender weights could potentially yield slightly different results for corporate governance ratings, as suggested by Nerantzidis (2018). Therefore, such an assessment of different measurement weightings could potentially be encouraged in future research endeavors.

5. Conclusions

Given the unprecedented speed of development of the corporate sustainability agenda and related regulatory requirements, this article aimed to provide an update on the first evidence published in 2020 on the ESG disclosure level and its correlation with corporate governance metrics among NASDAQ-listed companies. The results, based on a qualitative content analysis of the information disclosed in sustainability reports, show that the average ESG disclosure score has improved by 7 percentage points – from 40% in the 2020 sample to 47% in the 2022 sample. The highest transparency level was found in the governance pillar (60%), followed by social disclosures at 48% and environmental disclosures at 31%. The average disclosure level has increased across all ESG factors since 2020, while the range of ESG disclosure has remained wide – from a minimum of 12% to a maximum of 93%.

While the overall increase in sustainability disclosures is in line with expectations from global literature, the fact that environmental data disclosure is at the lowest level of the three pillars contradicts global trends – as observed by SEC filings (Gez & Anagnosti, 2022), for example. This suggests that disclosures in this area should be further stimulated by policy-makers.

Companies with female board members show higher levels of ESG disclosure, with an average of 54% for companies with diverse management boards and 52% for those with diverse supervisory boards, compared to 42% for those without gender diversity. No positive trend was observed for higher diversity levels, but differences based on board diversity have increased since the previous measurement 2 years ago.

Despite the novel insights generated by this study and their relevance to region-wide academic evidence on the level of adoption of corporate sustainability, it is limited in its scope as it measures ESG disclosure rather than ESG performance. To build upon the findings of this study, it is recommended that further research be conducted to assess the relationship between board diversity and ESG performance among Baltic companies. This could involve using third-party ESG performance scores, once they become available, which provide a more robust and comprehensive measure of a company's sustainability performance. Alternatively, novel and original ESG performance calculation methods could be applied.

This study contributes to the specific academic evidence on the corporate ESG disclosure level among stock-exchange listed companies in the Baltic region during a time of increased corporate sustainability awareness. It also contributes to the academic literature measuring the impact of board diversity metrics on non-financial performance. The findings of this study can be used as a reference point for future research and policy development aimed at promoting ESG transparency and sustainable business practices.

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