

Article

ESG Disclosure and Firm Performance: Regional Differences Between Western European and Central and Eastern European Firms

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Abstract

This study examines the association between ESG disclosure and corporate financial performance (CFP) and assesses whether this association differs across selected Western European (WE) and Central and Eastern European (CEE) countries. Using Bloomberg data for 4553 firms from 2013 to 2024, this study applies bivariate and multivariate pooled, fixed-effects, and random-effects panel regression models. The Bloomberg ESG disclosure score is used as the independent variable, while return on assets (ROA), return on equity (ROE), EBITDA margin, net profit margin, price-to-book ratio, and shareholder yield represent different dimensions of CFP. The results reveal that ESG disclosure is negatively associated with ROA and ROE, positively associated with shareholder yield, and not significantly associated with the remaining performance measures. Moreover, regional differences are observed only for selected accounting-based measures, with a stronger negative association in CEE countries. This study contributes to the literature by providing comparative evidence from WE and CEE firms and demonstrating that the association between ESG disclosure and CFP varies across performance measures and between the two regional groups.

Keywords: ESG disclosure; corporate financial performance; panel data; Western Europe; Central and Eastern Europe



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1. Introduction

Environmental, social, and governance (ESG) disclosure has become relevant for corporations, regulators, and investors. It is now considered an important element of investment analyses and decision-making. ESG disclosure reduces information asymmetry between companies and their investors (Christensen et al., 2021; Chen & Xie, 2022) and plays an important role in firms' market performance. However, theoretical arguments regarding the relationship between ESG disclosure and corporate financial performance (CFP) remain inconclusive, and empirical evidence is mixed. Broader studies on ESG practices and performance report positive, neutral, and negative associations with CFP (Friede et al., 2015; Busch & Friede, 2018; Khan, 2022; Atz et al., 2023; Bai & Kim, 2024; Rahi et al., 2022; Dossa, 2025). Studies focusing specifically on the relationship between ESG

disclosure and CFP also report inconsistent results, including positive, insignificant, and negative associations (Chen & Xie, 2022; Giannopoulos et al., 2022; Firmansyah et al., 2023).

The comparison between Western European (WE) and Central and Eastern European (CEE) countries was motivated by their different historical, institutional and cultural contexts. Previous research shows that corporate responsibility and sustainability reporting practices are context-specific and that the understanding and relevance of sustainability issues differ between WE and CEE companies (Steurer & Konrad, 2009). Sustainability reporting has traditionally been more established in Western and Northern Europe, whereas its development in CEE has been shaped by the transition from centrally planned to market-based economies and a less mature reporting environment (Horváth & Pütter, 2017; Krasodomska, 2025). Research also indicates that cultural-cognitive, regulatory, and normative country-level factors influence climate-related and other non-financial disclosures across European countries (Panfilo & Krasodomska, 2022). Consequently, the same level of ESG disclosure may reflect different organisational motivations and may be interpreted differently by investors and other stakeholders in the two regions.

Although numerous studies have examined the relationship between ESG and CFP using accounting- and market-based measures, several issues remain unresolved. First, ESG disclosure and performance are not always clearly distinguished, limiting the comparability of prior findings. Second, the association between ESG disclosure and CFP remains mixed and appears to depend on the institutional context and financial performance measure used. Third, direct comparisons between WE and CEE firms remain limited, despite evidence of regional differences in the maturity, quality, and drivers of sustainability reporting (Steurer & Konrad, 2009; Horváth & Pütter, 2017; Panfilo & Krasodomska, 2022; Krasodomska, 2025). Accordingly, the contribution of this study lies not in combining accounting- and market-based measures, which has already been done in prior research, but in focusing specifically on ESG disclosure and examining whether its association with CFP differs between WE and CEE firms. The regional comparison is motivated and interpreted considering institutional differences documented in prior research (for example, Rostamicheri et al. (2026) suggest that ESG performance tends to be more financially relevant in emerging or less mature ESG markets), although individual institutional dimensions are not directly measured in the empirical models used.

Therefore, this study aims to examine the association between ESG disclosure and CFP in selected WE and CEE countries and to test whether this association differs between the two regions. Accordingly, this study addresses the following research questions:

RQ1: Is ESG disclosure associated with corporate financial performance?

RQ2: Does the association between ESG disclosure and CFP differ between WE and CEE firms?

The analysis uses Bloomberg data for 4553 firms from 2013 to 2024. Panel regression models and an interaction term between ESG disclosure and the CEE indicator were used to test the general association and regional heterogeneity. The results show that ESG disclosure is negatively associated with ROA and ROE, positively associated with shareholder yield, and not significantly associated with the other CFP measures. Regional differences are identified only for selected accounting-based profitability measures, with a stronger negative association for CEE firms.

This study contributes to the literature in several ways. First, it focuses specifically on ESG disclosure rather than ESG performance, which is often treated as similar but represents different concepts. Second, the study employs alternative measures of CFP covering several dimensions: ROA and ROE capture accounting-based profitability, the EBITDA margin and net profit margin reflect operating and net profitability, the price-to-book ratio captures market valuation, and shareholder yield reflects shareholder return. The use of alternative

measures allows us to assess whether the findings are sensitive to the choice of CFP measure and whether they are consistent across related performance indicators. Third, it formally tests whether the ESG disclosure–CFP association differs between WE and CEE firms using an interaction term rather than relying only on separate regional regressions. Fourth, it shows that the relationship is not uniform across performance measures, as the results differ between ROA and ROE, sales-based profitability measures, and market-related indicators. Finally, it provides comparative evidence from selected WE and CEE countries and assesses whether regional differences can modify the association between ESG disclosures and CFP.

Therefore, the findings have practical relevance because they show that ESG disclosures should not be interpreted as a uniform indicator of corporate financial performance. The results suggest that higher ESG disclosure is associated with lower ROA and ROE, while its association with other CFP indicators is either positive or statistically insignificant. Accordingly, managers and investors should interpret the ESG disclosure score in relation to the specific dimension of financial performance being assessed rather than treating it as a general indicator of firm performance. For regulators, the limited regional heterogeneity suggests that the differences between WE and CEE firms are concentrated in selected accounting-based profitability measures and should not be generalised across all CFP indicators. Firms should consider the costs of reporting and implementation, while investors and regulators should evaluate ESG disclosures together with firm-specific and institutional conditions.

The remainder of this paper is organised as follows: in Section 2, the theoretical framework is discussed and hypotheses are developed; in Section 3, the data and research design are described; in Section 4, the empirical results are presented; in Section 5, the findings are discussed in relation to prior research; and in Section 6, the conclusions, limitations, and directions for future research are discussed.

2. Literature Review and Hypothesis Development

2.1. Theoretical Background

In the broader ESG literature, ESG-related practices, performance, and disclosure are examined as important non-financial dimensions of corporate activity (Christensen et al., 2021; Rahi et al., 2022; Kim & Kim, 2024; Ali et al., 2025; Da Cunha et al., 2025; Rostamicheri et al., 2026). However, these constructs are not identical to each other. This study focuses specifically on ESG disclosure, understood as the provision of environmental, social, and governance information to external stakeholders, which complements traditional financial reporting and may reduce information asymmetry (Christensen et al., 2021). More broadly, ESG is recognised as “a modern standard of corporate performance” (Ali et al., 2025) and “an essential indicator for measuring corporate sustainability on the international stage” (Bai & Kim, 2024). In this context, ESG disclosure has evolved into a key mechanism through which companies share relevant non-financial information with investors, regulators (Ali et al., 2025), and other stakeholders. On the one hand, such disclosure enhances transparency and supports stakeholder evaluation of firms’ sustainability practices. On the other hand, ESG may generate “benefits for corporations’ economic–financial performance” (Da Cunha et al., 2025) by demonstrating sustainability commitment, risk management practices, and the ability to create long-term value (Vijaya et al., 2026). In the present study, however, the empirical variable is the ESG disclosure score rather than an ESG performance rating.

More specifically, ESG disclosures are highly relevant to investors. On the one hand, ESG disclosure reduces information asymmetry between companies and investors (Christensen et al., 2021; Chen & Xie, 2022; Malik & Kashiramka, 2024; Ali et al., 2025). In other words, ESG reporting improves financial transparency and helps investors estimate

future performance, thereby reducing uncertainty. Companies with higher levels of ESG disclosure tend to face lower risk expectations and a lower cost of capital (Christensen et al., 2021; Malik & Kashiramka, 2024; Ali et al., 2025; Wang et al., 2025; Rostamicheri et al., 2026). Conversely, ESG disclosure plays an important role in firms' market performance. Institutional investors increasingly demand higher ESG transparency, as sustainability-related risks directly affect both company performance and investment returns (Ali et al., 2025). In this context, ESG disclosure signals better risk management, higher transparency, and stronger long-term sustainability, which may enhance firm valuation (Khan, 2022; Velte, 2022).

To justify the relationship between ESG disclosure and CFP, it is necessary to discuss the main theoretical perspectives underpinning it. However, prior studies have not always applied a consistent theoretical framework. As highlighted by Acheampong et al. (2025) in a meta-analysis of 154 studies, 38.96% of the studies apply a single theory, 36.36% apply multiple theories, and 24.68% do not explicitly rely on any theoretical framework. Prior ESG–CFP research has applied a variety of theoretical perspectives, including stakeholder, legitimacy, signaling, agency, resource-based, and institutional theories (Khan, 2022; Bosi et al., 2022; Saini et al., 2023; López et al., 2024). This suggests that, although ESG–CFP relationships are widely analysed empirically, their theoretical grounding remains heterogeneous. In this context, the meta-analysis results indicate that the most frequently applied theories are stakeholder theory, legitimacy theory, signaling theory, agency theory, and resource dependence theory. This is consistent with the findings of other systematic reviews (Acheampong et al., 2025; Khan, 2022; Bosi et al., 2022; López et al., 2024; Wang et al., 2025), suggesting that ESG–CFP relationships are inherently multitheoretical and cannot be fully explained by a single framework. Therefore, a structured discussion of the dominant theories is necessary to better explain the mechanisms through which ESG disclosure may affect firm performance. In this context, the relationship between ESG disclosure and CFP is analysed using the main theoretical frameworks identified in the literature.

Institutional theory suggests that firms adapt their structures and disclosure practices in response to regulative, normative, and cultural-cognitive pressures within their institutional environments (DiMaggio & Powell, 1983). In the context of ESG disclosure, regulative pressures are related to formal disclosure requirements and their enforcement, while normative pressures arise from stakeholder and professional expectations regarding appropriate transparency and sustainability practices. Cultural-cognitive pressures, in turn, are associated with established reporting practices and shared perceptions of legitimate corporate behaviour. Market expectations may further reinforce these pressures through investors' demand for credible ESG information. This theory is particularly relevant to the comparison between WE and CEE firms because the two regions differ in terms of institutional development, reporting traditions, regulatory enforcement, stakeholder expectations, and cultural and historical backgrounds (Steurer & Konrad, 2009; Horváth & Pütter, 2017; Panfilo & Krasodomska, 2022; Krasodomska, 2025). These differences may influence both ESG disclosure practices and the way in which disclosed information is interpreted by investors and other stakeholders. Evidence from emerging markets also suggests that the financial relevance of ESG disclosure may depend on institutional conditions, regulatory fragmentation, and information asymmetry (Cardillo & Basso, 2025). Accordingly, the WE–CEE comparison in this study is interpreted as capturing the combined influence of these broader institutional conditions rather than any single institutional pressure.

Signaling theory, originally proposed by Spence (1973), provides a complementary explanation for the general association between ESG disclosure and CFP. In the ESG context, disclosed ESG information performs a similar role (L. Li et al., 2024; Cardillo & Basso, 2025), i.e., “as a signal of environmental commitment” (Saha & Maji, 2025). By disclosing

ESG information, companies signal (1) strong management quality (Kim & Kim, 2024; Rostamicheri et al., 2026), (2) effective risk management practices (Dossa, 2025), and (3) sufficient resources to invest in sustainability initiatives (Kim & Kim, 2024). Thus, ESG disclosure signals a long-term commitment to sustainable and responsible business activities (Rostamicheri et al., 2026). ESG disclosure may consequently strengthen corporate reputation, investor confidence, and competitive advantage, thereby affecting financial performance and firm value (Saha & Maji, 2025; Kim & Kim, 2024; Dossa, 2025; Rostamicheri et al., 2026).

From the perspective of stakeholder theory, to develop sustainably, firms should build and maintain relationships with multiple stakeholder groups, which are defined as “any group or individual who can affect or is affected by the achievement of the organisation’s objectives” (Freeman, 1984, p. 46, as cited in Elms & Phillips, 2018) rather than focusing solely on shareholders. As companies must meet the expectations of various stakeholders, these expectations may influence their performance. In this context, ESG disclosure serves as a key communication and transparency tool, disseminating relevant non-financial information, reducing uncertainty, and supporting stakeholder decision-making (Malik & Kashiramka, 2024; Ali et al., 2025; Saha & Maji, 2025; Khan, 2022). Firms can develop intangible resources such as reputation, trust, and stakeholder loyalty (Parashar et al., 2025; Malik & Kashiramka, 2024; Dossa, 2025). Overall, these mechanisms suggest that ESG disclosure can improve firm’s financial and market performance (Parashar et al., 2025; Malik & Kashiramka, 2024; Da Cunha et al., 2025).

According to legitimacy theory, organisational legitimacy depends on the congruence between an organisation’s values and those of the broader social system in which it operates (Deegan, 2002). Legitimacy theory assumes that firms operate within a society’s values and norms (Khan, 2022). To survive and be recognised, firms must align their activities with the prevailing social norms and values (Velte, 2022; Ali et al., 2025; Canli & Sercemeli, 2026). In the context of ESG, this theory is grounded in the concept of a “social contract” (Khan, 2022; Parashar et al., 2025), whereby disclosure serves as a strategic tool for securing legitimacy. Through ESG disclosure, firms demonstrate their compliance with environmental, social, and governance expectations and justify their activities to external stakeholders (Khan, 2022; Parashar et al., 2025). Moreover, companies disclose non-financial information in response to social and political pressure (L. Li et al., 2024; Cardillo & Basso, 2025). Overall, these mechanisms suggest that ESG disclosure may contribute to improved CFP by reducing risk (L. Li et al., 2024), strengthening stakeholder support (Kim & Kim, 2024; Ali et al., 2025; Cardillo & Basso, 2025), and enhancing financial outcomes and firm value (L. Li et al., 2024; Parashar et al., 2025).

In this study, institutional theory serves as the dominant framework for explaining why the association between ESG disclosure and CFP may differ between WE and CEE firms. Signaling theory provides a complementary explanation of how ESG disclosure may reduce information asymmetry and influence investors’ assessments. Stakeholder and legitimacy arguments are retained as supporting and complementary perspectives rather than replacing the institutional and signaling explanations applied in this study.

2.2. Hypothesis Development

Empirical evidence on the association between ESG disclosure and CFP is generally mixed, although a substantial body of literature reports a positive relationship. Evidence from the broader ESG literature suggests that ESG-related practices and performance are often positively associated with CFP; however, these findings should be distinguished from studies focusing specifically on ESG disclosure. For example, Friede et al. (2015), based on a meta-analysis of more than 2000 empirical studies, report that most studies

identify a positive relationship between ESG and CFP. Similarly, [Busch and Friede \(2018\)](#) found a highly significant, positive, and robust relationship between corporate social and environmental performance and CFP. More recently, [Bai and Kim \(2024\)](#) reported a low but positive overall correlation between ESG practices and financial performance. These studies provide broader contextual evidence, although they do not exclusively focus on ESG disclosure.

More specifically, studies focusing on ESG disclosure generally report a positive association between ESG disclosure and corporate financial performance ([Wang et al., 2025](#); [Chen & Xie, 2022](#); [Veeravel et al., 2024](#); [Chung et al., 2024](#); [Parashar et al., 2025](#); [Dossa, 2025](#)). However, negative and mixed associations have been reported. For example, [Giannopoulos et al. \(2022\)](#) used an ESG disclosure score and found that ESG disclosure is negatively associated with ROA but positively associated with Tobin's Q. [Cardillo and Basso \(2025\)](#) also argue that selective ESG disclosure may reduce shareholder returns and profitability. [Mustaffa et al. \(2023\)](#), in a meta-analysis of 32 studies on listed companies, found a weak but statistically significant negative association between ESG disclosure and CFP. [Firmansyah et al. \(2023\)](#) used ESG disclosure data and found a significant negative association between ESG disclosure and Tobin's Q, whereas the association with ROE was statistically insignificant. However, some studies report neutral or statistically insignificant relationships between ESG disclosure and corporate financial performance ([Khan, 2022](#); [Atz et al., 2023](#)). Evidence from the broader disclosure literature also points to inconclusive results. For example, [Gallardo-Vázquez et al. \(2019\)](#), based on 95 studies of CSR disclosure and organizational performance, report no practically meaningful overall relationship, although the results vary by region, disclosure type, and firm size. Overall, the evidence synthesised in systematic reviews and meta-analyses suggests that most studies report positive or mixed ESG disclosure–CFP associations, whereas only a minority report negative effects ([Atz et al., 2023](#)).

Therefore, although prior findings are not fully consistent, theoretical arguments and a substantial body of empirical evidence support the expectation of a positive association between ESG disclosure and CFP. Based on the theoretical arguments and prevailing empirical evidence, the following hypothesis is formulated:

Hypothesis 1 (H1). *Higher ESG disclosure level is associated with better corporate financial performance.*

Institutional theory suggests that firms adapt their ESG disclosure practices in response to external institutional pressures, including regulations, market expectations, and societal norms ([DiMaggio & Powell, 1983](#); [L. Li et al., 2024](#); [Cardillo & Basso, 2025](#)). Therefore, the economic relevance of ESG disclosure may differ across institutions and regions. Firms operating in different institutional environments may face varying levels of regulatory, normative, and market pressure related to ESG disclosure. As noted by [Rostamicheri et al. \(2026\)](#), such pressures may affect not only organizational legitimacy but also information asymmetry and financing conditions of firms.

Despite a common regulatory framework, ESG disclosure practices remain uneven across WE and CEE countries owing to differences in economic development, legal systems, cultural traditions, ethical standards, and historical backgrounds.

The gap between WE and CEE countries is associated with factors related to the socialist legacy, relatively high corruption levels, and unresolved environmental and social challenges. Moreover, these regional groups differ in their strategic priorities. As noted by [Belyaeva et al. \(2020\)](#), firms in Western Europe increasingly pursue social and environmental goals alongside financial performance, whereas firms in CEE countries remain more focused on market growth and financial objectives.

In addition to institutional theory, signaling theory explains why the financial relevance of ESG disclosure may differ across institutional environments.

Evidence from the broader ESG literature provides two perspectives. Some studies (e.g., Velte, 2022; Burinskienė et al., 2025; Q. Li et al., 2025) argue that ESG has stronger financial effects in developed institutional environments owing to higher disclosure quality, stronger legal enforcement, and more mature capital markets. Other studies (e.g., Friede et al., 2015; Rostamicheri et al., 2026) suggest that ESG-related information is more financially relevant in less developed institutional environments. This may be because ESG-related information reduces information asymmetry and provides stronger signals to investors. The interaction between ESG-related activities and ESG disclosure may further strengthen these financial benefits in institutional environments. This argument is supported by Cardillo and Basso (2025), who argue that ESG performance, combined with high-quality disclosure, may yield stronger financial benefits in institutional environments characterised by regulatory asymmetries and information gaps.

More specifically, the evidence on ESG disclosure remains mixed. On the one hand, several studies focusing on ESG disclosure report stronger signaling effects in less developed countries. For example, Krasodomska (2025) notes that CEE countries have historically been characterised by lower transparency and greater secrecy than WE countries. Therefore, high-quality ESG disclosure in this region may reduce information asymmetry, strengthen corporate credibility, and increase firms' attractiveness to investors. In addition, Lohia and Maji (2025) found that in countries without mandatory ESG regulations, voluntary ESG disclosure "enables firms to differentiate themselves by demonstrating ESG leadership", whereas mandatory disclosure requirements may reduce competitive differentiation and weaken the financial impact of ESG reporting. In contrast, Wang et al. (2025) found that ESG disclosure has a statistically significant positive effect on the financial performance of firms in developed countries, whereas this relationship is not statistically significant in developing countries. They argue that stronger regulatory systems and stricter legal requirements in developed countries lead to more standardised, comprehensive, and credible ESG disclosure. L. Li et al. (2024) support this argument by emphasising that developed countries generally have more advanced and standardised ESG disclosure systems.

Studies focusing on investor behaviour and financing conditions also support the stronger financial relevance of ESG disclosure in developed markets. Lohia and Maji (2025) suggest that a developed market-based financial system encourages greater ESG transparency among market participants. They also argue that "the institutional investors' emphasis on sustainability helps corporates use ESGD to draw in investment and deploy capital more effectively, improving financial results".

Based on these theoretical arguments and empirical evidence, the following hypothesis (H2) is formulated:

Hypothesis 2 (H2). *The association between ESG disclosure and corporate financial performance differs between WE and CEE countries.*

3. Model Specification

To reach the main goal of this research, that is, to examine the association between ESG disclosure and CFP and determine whether this association differs between mature WE and CEE countries, firm-level data from seven WE countries (Austria, Belgium, Ireland, Luxembourg, Netherlands, France, and Germany) and four CEE countries (Poland, Czech Republic, Hungary, and Slovakia) are further analysed. The countries were selected using both theoretical and data availability criteria. First, all selected countries are EU Member

States and therefore operate under a broadly common European regulatory framework, which improves their comparability. Simultaneously, the WE and CEE groups differ in their historical development, institutional maturity, capital market development, and evolution of sustainability reporting practices, making them suitable for testing whether the institutional context affects the ESG disclosure–CFP association. Second, the final selection was limited to countries for which sufficiently continuous Bloomberg ESG disclosure and financial data were available during the study period. Therefore, the sample does not aim to represent all European countries, rather two institutionally distinct and empirically comparable groups for which consistent firm-level data could be obtained. Thus, the final sample consisted of 4553 companies from the selected WE and CEE countries.

To achieve the main goal of this study, panel data models that allow the analysis of both cross-sectional and temporal variation are employed. Annual firm-level data were collected from the Bloomberg Terminal and analysed using EViews 14 Academic. This study covers the period from 2013 to 2024. The period 2013–2024 was selected because 2013 was the first year for which sufficiently broad and continuous ESG disclosure coverage was available across the selected markets, while 2024 was the latest complete year included in the data. The annual frequency corresponds to the reporting frequency of the ESG disclosure score.

Given that ESG and financial variables are not available for every firm-year observation, the dataset comprises an unbalanced panel. The unbalanced structure was retained as it allowed the use of the largest possible number of firm-year observations and avoided excluding firms solely because they did not report all variables continuously throughout 2013–2024. Missing values were not imputed; each descriptive statistic and regression was estimated using the observations available for all variables, which explains the different numbers of observations across the models. Extreme observations were retained rather than mechanically deleted because they may reflect genuine firm-level heterogeneity. Nevertheless, their possible influence, particularly on EBITDA and net profit margins, is acknowledged as a limitation.

After an extensive analysis of the scientific literature, the dependent variables reflecting CFP were selected for further research: (i) return on assets (ROA); (ii) return on equity (ROE); (iii) EBITDA margin; (iv) net profit margin; (v) price-to-book ratio, and (vi) shareholder yield. The dependent variables represent different dimensions of CFP: ROA is treated as the primary measure of accounting-based profitability, while ROE serves as an alternative profitability measure; the EBITDA margin and net profit margin provide additional evidence on operating and net profitability; and the price-to-book ratio and shareholder yield capture market valuation and shareholder return. Estimating the models with these alternative dependent variables provides a sensitivity assessment of the choice of the CFP proxy.

The ESG disclosure score, calculated and provided by the Bloomberg terminal, was selected as the independent variable. To check if the relationship between ESG disclosure and CFP exists under the control of firm-level control variables, the following control variables were selected: (i) current ratio; (ii) debt-to-assets ratio; and (iii) total assets (log). Moreover, to assess whether the association between ESG disclosure and CFP differs between the WE and CEE groups, a CEE dummy variable is introduced (which is equal to 1 if the country belongs to the CEE region and 0 otherwise), based on which the interaction term (CEE dummy * ESG disclosure score) is calculated and included in the models.

To achieve the main goal of this study, the research was conducted in several steps. Following the approach used by [Rostamicheri et al. \(2026\)](#), [Q. Li et al. \(2025\)](#), and others, panel data models are chosen.

First, to test Hypothesis 1, the association between ESG disclosure and each of the six CFP measures is assessed for the pooled sample of firms from 11 selected WE and CEE countries (Sample 1). Bivariate models are estimated using pooled ordinary least squares (OLS) Equation (1), firm fixed effects Equation (2), and random effects Equation (3).

$$CFP_{k,it} = \alpha + \beta_1 ESGD_{it} + u_{it} \quad (1)$$

$$CFP_{k,it} = \alpha_i + \beta_1 ESGD_{it} + u_{it} \quad (2)$$

$$CFP_{k,it} = \alpha_i + \beta_1 ESGD_{it} + (u_i + v_i) \quad (3)$$

where $i = 1, 2, \dots, N$ and $t = 1, 2, \dots, T$; N —the number of firms; T —the number of periods; $CFP_{k,it}$ —relevant CFP measure for firm i in year t , k —index of CFP measure, where $k = 1, \dots$, corresponds to ROA, ROE, EBITDA margin, net profit margin, the price-to-book ratio, and shareholder yield; β_1 —coefficient measuring the association between the ESG disclosure score and the selected CFP measure, $ESGD_{it}$ is the Bloomberg ESG disclosure score; α_i is the firm-specific intercept; μ_i is the random firm effect; and ε_{it} is the idiosyncratic error term.

After that, to examine whether the association between ESG disclosure and CFP holds while controlling for firm-level variables (firm liquidity, leverage, and size), multivariate panel regression models (pooled OLS, fixed-effects, and random-effects) are estimated in Equations (4), (5), and (6), respectively.

$$CFP_{k,it} = \alpha + \beta_1 ESGD_{it} + \beta_2 CR_{it} + \beta_3 DTA_{it} + \beta_4 SIZE_{it} + u_{it} \quad (4)$$

$$CFP_{k,it} = \alpha_i + \beta_1 ESGD_{it} + \beta_2 CR_{it} + \beta_3 DTA_{it} + \beta_4 SIZE_{it} + u_{it} \quad (5)$$

$$CFP_{k,it} = \alpha_i + \beta_1 ESGD_{it} + \beta_2 CR_{it} + \beta_3 DTA_{it} + \beta_4 SIZE_{it} + (u_i + v_i) \quad (6)$$

where CR —current ratio, DTA —debt-to-assets ratio, $SIZE$ —total assets (log), β_1 —coefficient of the ESG disclosure score, β_2 —coefficient of the current ratio (CR), β_3 —coefficient of the DTA, and β_4 —coefficient of the firm size.

For each specification, pooled OLS, fixed-effects, and random-effects models are estimated, and the final specification is selected using the F test, the Breusch–Pagan Lagrange Multiplier test, and the Hausman test.

Additional diagnostics were performed for the six main full-sample multivariate models: (i) heteroskedasticity was assessed using a residual-based LM test, and (ii) first-order serial correlation in the idiosyncratic errors was examined using the Wooldridge test for large- N panels. The diagnostic results are reported in Appendix A Table A3.

Secondly, to test Hypothesis 2, the previously described panel regression models are constructed separately for WE countries (Sample 2) and CEE countries (Sample 3). First, the bivariate panel regression models are created and analysed. After that, the control variables are introduced in multivariate panel regression models. The results of those models are then compared for Sample 2 and Sample 3.

Finally, to test Hypothesis 2 formally, following the approach of Cardillo and Basso (2025), Rahi et al. (2022), Q. Li et al. (2025), the pooled sample (Sample 1) models are re-estimated by adding the CEE regional indicator and its interaction with the ESG disclosure score ($CEE \times ESGD$) to the set of independent and control variables (Equations (7)–(9)). The interaction term is used to test whether the association between ESG disclosure and CFP differs between WE and CEE firms. A statistically significant interaction coefficient indicates a significant difference between the two regional groups. Separate regional regressions are presented for additional context, while conclusions about regional differences are based on the interaction model.

$$CFP_{k,it} = \alpha + \beta_1 ESGD_{it} + \beta_2 (CEE_{dummy} \times ESGD)_{it} + \beta_3 CR_{it} + \beta_4 DTA_{it} + \beta_5 SIZE_{it} + u_{it} \quad (7)$$

$$CFP_{k,it} = \alpha_i + \beta_1 ESGD_{it} + \beta_2 (CEE_{dummy} \times ESGD)_{it} + \beta_3 CR_{it} + \beta_4 DTA_{it} + \beta_5 SIZE_{it} + u_{it} \quad (8)$$

$$CFP_{k,it} = \alpha_i + \beta_1 ESGD_{it} + \beta_2 (CEE_{dummy} \times ESGD)_{it} + \beta_3 CR_{it} + \beta_4 DTA_{it} + \beta_5 SIZE_{it} + (u_i + v_i) \quad (9)$$

where β_3 measures how the association between ESG disclosure and CFP differs in CEE countries relative to WE countries, β_3 is the coefficient of the current ratio (CR), β_4 —coefficient of the debt-to-assets ratio (DTA), and β_5 is the coefficient of the firm size.

A positive β of the interaction term indicates that the association between ESG disclosure and CFP is stronger or less negative in CEE countries than in WE countries. In contrast, a negative β for the interaction term indicates that the association is less positive or more negative in CEE countries.

The empirical results obtained from the specified panel regression models are presented in the next section.

4. Results

4.1. Testing Hypothesis 1

Before analysing the panel regression results, the correlations among the research variables and their statistical significance are evaluated. The results indicate a very strong positive correlation between Firm Size (Log of Total Assets) and ESG Disclosure Score ($r = 0.891$, $p < 0.001$), suggesting that larger firms disclose substantially more ESG-related information. Overall, the correlation analysis provides preliminary evidence regarding the direction and strength of the relationships among the study variables. These findings provide a useful basis for the subsequent regression analysis, which aims to examine these associations in greater detail.

Table 1 presents the bivariate panel regression results for the full sample and the WE and CEE subsamples in a consolidated format. The results are organised into six panels, one for each dependent variable, which allows the three samples to be compared directly. Model-selection test results are reported in Appendix A Table A1. The subsequent analysis further explores these relationships within a multivariate framework (Table 2).

Table 1. Bivariate panel regression results for the full sample and regional subsamples.

Sample	Coefficient	t-Statistic	Prob.	Model
Panel A. Return on assets (ROA)				
Full sample	−0.042	−2.011	0.044	Fixed effects
WE	−0.020	−0.980	0.326	Fixed effects
CEE	−0.108	−1.527	0.127	Random effects
Panel B. Return on equity (ROE)				
Full sample	−0.172	−3.669	0.000	Fixed effects
WE	−0.119	−2.396	0.016	Fixed effects
CEE	−0.491	−3.657	0.000	Fixed effects
Panel C. EBITDA margin				
Full sample	34.539	0.678	0.497	Random effects
WE	4.861	0.874	0.382	Random effects
CEE	61.797	0.192	0.847	Random effects

Table 1. *Cont.*

Sample	Coefficient	t-Statistic	Prob.	Model
Panel D. Net profit margin				
Full sample	41.429	0.699	0.484	Random effects
WE	5.337	0.833	0.404	Random effects
CEE	79.301	0.210	0.833	Random effects
Panel E. Price-to-book ratio				
Full sample	−0.008	−3.113	0.019	Fixed effects
WE	−0.063	−4.591	0.000	Fixed effects
CEE	−0.188	−1.206	0.228	Fixed effects
Panel F. Shareholder yield				
Full sample	0.944	3.237	0.001	Fixed effects
WE	1.041	3.050	0.002	Fixed effects
CEE	0.321	2.274	0.023	Fixed effects

Note: WE = Western Europe; CEE = Central and Eastern Europe. Model-selection test results are reported in Appendix A Table A1.

Table 2. Multivariate panel regression results for the full sample and regional subsamples.

Variables	Full Sample (WE and CEE)			WE Countries			CEE Countries		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
Panel A. Return on assets (ROA)									
Const	−12.755	−4.298	0.000	−15.638	−5.172	0.000	−12.945	−1.649	0.099
ESG disclosure score	−0.082	−3.643	0.000	−0.064	−3.102	0.002	−0.213	−2.458	0.014
Current ratio	0.040	2.507	0.012	0.019	1.370	0.170	1.527	7.907	0.000
Debt-to-assets ratio	−0.275	−20.877	0.000	−0.335	−22.114	0.000	−0.171	−5.995	0.000
Total assets (log)	8.123	7.904	0.000	9.003	8.988	0.000	9.265	2.708	0.006
R-squared	0.673			0.611			0.776		
Model	Fixed effects			Fixed effects			Fixed effects		
Panel B. Return on equity (ROE)									
Const	−16.520	−2.216	0.026	−10.301	−1.183	0.235	−55.178	−4.135	0.000
ESG disclosure score	−0.235	−4.490	0.000	−0.173	−3.092	0.002	−0.584	−4.137	0.000
Current ratio	0.034	0.963	0.335	0.008	0.231	0.816	2.014	6.480	0.000
Debt-to-assets ratio	−0.892	−17.539	0.000	−0.807	−14.616	0.000	−1.239	−9.712	0.000
Total assets (log)	17.564	6.576	0.000	13.699	4.618	0.000	41.154	6.804	0.000
R-squared	0.038			0.522			0.613		
Model	Fixed effects			Fixed effects			Fixed effects		
Panel C. EBITDA margin									
Const	25,311.09	2.256	0.024	807.764	1.710	0.087	156,026.4	2.546	0.011
ESG disclosure score	45.370	0.583	0.559	−6.182	−0.937	0.348	545.989	1.001	0.316
Current ratio	−4.961	−0.013	0.989	−491.743	−12.400	0.000	805.258	0.584	0.559
Debt-to-assets ratio	−44.040	−0.987	0.323	−8.978	−1.965	0.049	−147.002	−0.859	0.390
Total assets (log)	−84,910.956	−2.138	0.029	166.759	1.038	0.298	−68,613.050	−2.557	0.010
R-squared	0.476			0.430			0.481		
Model	Fixed effects			Random effects			Fixed effects		

Table 2. Cont.

Variables	Full Sample (WE and CEE)			WE Countries			CEE Countries		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
Panel D. Net profit margin									
Const	25.784	2.000	0.046	474.459	0.836	0.402	154,093.4	2.184	0.029
ESG disclosure score	52.450	0.590	0.555	−6.470	−0.858	0.390	589.805	0.939	0.347
Current ratio	−176.284	−0.417	0.676	−469.830	−10.365	0.000	567.090	0.357	0.720
Debt-to-assets ratio	−227.306	−4.433	0.000	−9.451	−1.790	0.073	−579.650	−2.943	0.003
Total assets (log)	−7136.279	−1.600	0.109	265.017	1.333	0.182	−64,594.26	−2.091	0.036
R-squared	0.495			0.476			0.501		
Model	Fixed effects			Random effects			Fixed effects		
Panel E. Price-to-book ratio									
Const	14.501	3.562	0.000	12.017	53.007	0.000	25.007	1.590	0.112
ESG disclosure score	−0.055	−1.866	0.062	−0.043	−2.721	0.006	−0.156	−0.879	0.379
Current ratio	−0.135	−1.341	0.179	−0.066	−1.066	0.286	−0.255	−0.667	0.504
Debt-to-assets ratio	0.051	1.782	0.074	0.018	1.206	0.227	0.243	1.532	0.126
Total assets (log)	−3.242	−2.236	0.025	−2.324	−2.841	0.004	−8.417	−1.179	0.238
R-squared	0.374			0.326			0.388		
Model	Fixed effects			Fixed effects			Fixed effects		
Panel F. Shareholder yield									
Const	12.365	0.274	0.784	20.665	0.347	0.728	7.978	1.466	0.142
ESG disclosure score	1.131	3.372	0.001	1.281	3.233	0.001	0.172	1.449	0.147
Current ratio	0.205	0.113	0.891	1.089	0.479	0.631	−0.464	−1.360	0.174
Debt-to-assets ratio	−0.010	−0.432	0.665	−0.009	−0.337	0.736	0.105	2.895	0.003
Total assets (log)	−17.881	−1.116	0.264	−23.105	−1.4115	0.248	−3.546	−1.396	0.163
R-squared	0.294			0.244			0.422		
Model	Fixed effects			Fixed effects			Random effects		

Note: WE = Western Europe; CEE = Central and Eastern Europe. Model-selection test results are reported in Appendix A Table A2.

The full-sample estimates in Table 1 indicate the following: (i) ESG disclosure score variable appeared to be statistically significantly negatively associated with accounting-based performance measures, namely ROA and ROE; (ii) no statistically significant association with EBITDA margin and net profit margin was found; (iii) the association between the ESG disclosure score variable and price-to-book ratio appeared to be statistically significant and negative, and (iv) the association with shareholder yield has proved to be statistically significant and positive.

Table 2 presents the multivariate panel regression results for the full sample and the WE and CEE subsamples in a consolidated format. The results are organised into six panels, one for each dependent variable, allowing the estimates across the three samples to be compared directly. The corresponding model-selection test results are reported in Appendix A Table A2.

The results in Table 2 indicate the following: (i) the negative association between ESG disclosure and ROA as well as ROE appeared to be statistically significant and stronger after the inclusion of control variables: from -0.042 ($p = 0.044$) to -0.082 ($p = 0.000$) and from -0.172 ($p < 0.001$) to -0.235 ($p = 0.000$), respectively; (ii) the association between

ESG disclosure and EBITDA margin as well as net profit margin remained statistically insignificant; (iii) the association with price-to-book ratio has lost statistical significance after the inclusion of control variables; and (iv) the association with shareholder yield remained statistically significant and positive, and the coefficient increased from 0.944 ($p = 0.001$) to 1.131 ($p = 0.002$). The results also show that the association differs across accounting-based performance measures. The negative association is significant for ROA and ROE, but not for EBITDA margin or net profit margin. This suggests that the association is more clearly reflected in returns on the firm's asset and equity base than in sales-based profitability measures.

The additional diagnostic tests provide no statistically significant evidence of heteroskedasticity or first-order serial correlation in any of the six main multivariate models at the 5% significance level. Thus, the baseline covariance models were retained, and no additional correction was conducted. The diagnostic results are presented in Appendix A Table A3.

Overall, the results indicate that ESG disclosure is consistently associated with lower accounting-based profitability (ROA and ROE) and higher shareholder yield. In contrast, its effects on operating profitability and market valuation are either insignificant or lose significance after controlling for firm-specific characteristics. The negative association identified for ROA is also observed when ROE is used as an alternative accounting-based profitability measure, indicating that the finding is not limited to a single profitability proxy. However, the associations with EBITDA margin and net profit margin are statistically insignificant, while the results for the market-related measures are mixed. Therefore, the finding is robust across ROA and ROE within the accounting-based profitability dimension but not uniform across all CFP dimensions. Thus, Hypothesis 1, which states that higher levels of ESG disclosure are associated with better CFP, cannot be supported.

4.2. Testing Hypothesis 2

Before analysing the panel regression results, the correlations among the research variables and their statistical significance are evaluated. The results for WE countries allow us to state that a strong positive correlation was identified between Firm Size (Log of Total Assets) and ESG Disclosure Score ($r = 0.650$, $p = 0.000$); however, this correlation appeared to be weaker in comparison to the result for Sample 1 ($r = 0.891$, $p = 0.000$). The results for CEE countries indicate a strong positive correlation between firm size and ESG Disclosure Score ($r = 0.682$, $p = 0.000$). It is slightly stronger than Sample 2 but weaker than Sample 1.

The corresponding WE and CEE panel regression estimates are reported alongside the full-sample estimates in Table 1, enabling direct comparison between regional patterns. The results in Table 1 indicate that for the WE: (i) no statistically significant association with ROA can be observed; (ii) the association with ROE is statistically significant and negative, but it appeared to be weaker in comparison to Sample 1 ($\beta = -0.172$, $p = 0.000$ and $\beta = -0.119$, $p = 0.016$, respectively); (iii) no statistically significant association between ESG disclosure and EBITDA margin as well as net profit margin can be observed; (iv) the association between the ESG disclosure score variable and price-to-book ratio was statistically significant and negative and substantially stronger in comparison to Sample 1 ($\beta = -0.063$, $p = 0.000$, and $\beta = -0.008$, $p = 0.019$, respectively); and (v) the association with shareholder yield was statistically significant and positive and slightly stronger than in the full sample ($\beta = 1.041$, $p = 0.002$, compared with $\beta = 0.944$, $p = 0.001$).

Also, the results in Table 1 allow us to state that for the CEE: (i) no statistically significant association with return on assets (ROA) can be observed; (ii) the association with ROE is statistically significant and negative and appeared to be substantially stronger in comparison to Sample 1 and Sample 2 ($\beta = -0.491$, $p = 0.000$, $\beta = -0.172$, $p = 0.000$, and

$\beta = -0.119$, $p = 0.016$, respectively); (iii) no statistically significant association between ESG disclosure and EBITDA margin as well as net profit margin can be observed; (iv) the association between the ESG disclosure score variable and price-to-book ratio appeared to be statistically insignificant, in contrast to Sample 1 and Sample 2, where a statistically significant negative association was identified; and (v) the association with shareholder yield was statistically significant and positive but weaker than in both the full sample and the WE subsample ($\beta = 0.321$, $p = 0.023$, compared with $\beta = 0.944$, $p = 0.001$, and $\beta = 1.041$, $p = 0.002$, respectively). The corresponding multivariate estimates for the WE and CEE subsamples are reported together with the full-sample estimates in Table 2.

The estimates in Table 2 indicate that, after the inclusion of control variables in the WE subsample: (i) the association between ESG disclosure and ROA became statistically significant and negative (from -0.020 ($p = 0.326$) to -0.064 ($p = 0.002$)); (ii) the negative association between ESG disclosure and ROE remained statistically significant and became stronger (from -0.119 ($p = 0.016$) to -0.173 ($p = 0.002$)); (iii) the association between ESG disclosure and EBITDA margin as well as net profit margin remained statistically insignificant; (iv) the negative association with price-to-book ratio remained statistically significant although weakened (from -0.063 ($p = 0.000$) to -0.043 ($p = 0.006$)); and (v) the association with shareholder yield remained statistically significant and positive and became stronger, increasing from 1.041 ($p = 0.002$) to 1.281 ($p = 0.001$)).

Moreover, the estimates in Table 2 indicate that, after the inclusion of control variables in the CEE subsample: (i) the association between ESG disclosure and ROA became statistically significant and negative (from -0.108 ($p = 0.127$) to -0.213 ($p = 0.014$)); (ii) the negative association between ESG disclosure and return on equity (ROE) remained statistically significant and became stronger (from -0.491 ($p = 0.000$) to -0.584 ($p = 0.000$)); (iii) the association between ESG disclosure and EBITDA margin as well as net profit margin remained statistically insignificant; (iv) the association with price-to-book ratio remained statistically insignificant; and (v) the positive association with shareholder yield lost its statistical significance after the inclusion of control variables (from 0.321 ($p = 0.023$) to 0.172 ($p = 0.147$)). Comparing the results for WE countries, it can be observed that (i) the negative association between ESG disclosure and ROA as well as ROE appeared to be stronger in Sample 3 ($\beta = -0.213$ and $\beta = -0.064$; $\beta = -0.584$ and $\beta = -0.173$, respectively); (iii) the negative association between ESG disclosure and price-to-book ratio remained statistically significant only in Sample 2; and (v) the positive association with shareholder yield appeared to be statistically significant in Sample 2 but insignificant in Sample 3. The negative association between ESG disclosure and accounting-based profitability is considerably stronger in CEE countries. In contrast, the positive association between ESG disclosure and shareholder returns is stronger in WE countries. Thus, Hypothesis 2, which states that the relationship between ESG disclosure and CFP differs between WE and CEE countries, is partially supported.

Finally, Table 3 presents the pooled multivariate models, including the $\text{CEE} \times \text{ESG}$ disclosure interaction term, which provides the formal test of whether the association between ESG disclosure and CFP differs between WE and CEE firms.

Notably, the interaction terms provide a formal inferential test for regional heterogeneity. Accordingly, a regional difference is concluded only when the coefficient of $\text{CEE} \times \text{ESGD}$ is statistically significant; differences in the magnitude or statistical significance of coefficients estimated separately for the WE and CEE subsamples are treated as descriptive rather than conclusive evidence of a between-group difference.

Table 3. Results of multiple panel regression analysis for Sample 1 with interaction term (WE and CEE countries).

Variables	Coefficient	t-Statistic	Prob.
Dependent variable—Return on assets (ROA)			
Const	−13.305	−2.974	0.003
ESG disclosure score	−0.065	−2.729	0.006
Current ratio	0.039	2.505	0.012
Debt-to-assets ratio	−0.273	−20.765	0.000
Total assets (log)	8.272	8.039	0.000
CEE dummy * ESG disclosure score	−0.137	−2.383	0.017
R-squared		0.674	
F test		0.000	
Breusch–Pagan LM test		0.000	
Hausman test		0.000	
Model		Fixed effects	
Dependent variable—Return on equity (ROE)			
Const	−17.457	−2.336	0.019
ESG disclosure score	−0.205	−3.723	0.000
Current ratio	0.034	0.962	0.336
Debt-to-assets ratio	−0.885	−17.368	0.000
Total assets (log)	17.785	6.654	0.000
CEE dummy * ESG disclosure score	−0.232	−1.783	0.074
R-squared		0.535	
F test		0.000	
Breusch–Pagan LM test		0.000	
Hausman test		0.000	
Model		Fixed effects	
Dependent variable—EBITDA margin			
Const	24,294.66	2.162	0.031
ESG disclosure score	82.243	1.005	0.314
Current ratio	−2.773	−0.007	0.994
Debt-to-assets ratio	−41.468	−0.929	0.352
Total assets (log)	−8228.308	−2.114	0.034
CEE dummy * ESG disclosure score	−279.716	−1.452	0.145
R-squared		0.476	
F test		0.000	
Breusch–Pagan LM test		0.000	
Hausman test		0.000	
Model		Fixed effects	
Dependent variable—Net profit margin			
Const	24,735.58	1.915	0.055
ESG disclosure score	89.127	0.955	0.339
Current ratio	−174.240	−0.412	0.679
Debt-to-assets ratio	−224.685	−4.379	0.000
Total assets (log)	−6860.085	−1.536	0.124
CEE dummy * ESG disclosure score	−282.131	−1.275	0.204
R-squared		0.495	
F test		0.000	
Breusch–Pagan LM test		0.000	
Hausman test		0.000	
Model		Fixed effects	

Table 3. Cont.

Variables	Coefficient	t-Statistic	Prob.
Dependent variable—Price-to-book ratio			
Const	14.092	3.456	0.000
ESG disclosure score	−0.039	−1.274	0.202
Current ratio	−0.136	−1.354	0.175
Debt-to-assets ratio	0.053	1.880	0.060
Total assets (log)	−3.142	−2.166	0.034
CEE dummy * ESG disclosure score	−0.126	−1.669	0.106
R-squared			0.375
F test			0.000
Breusch–Pagan LM test			0.000
Hausman test			0.000
Model			Fixed effects
Dependent variable—Share-holder yield			
Const	−2.487	−0.203	0.838
ESG disclosure score	0.694	3.043	0.002
Current ratio	0.362	0.341	0.733
Debt-to-assets ratio	−0.009	−0.518	0.603
Total assets (log)	−8.118	−1.748	0.080
CEE dummy * ESG disclosure score	0.179	0.708	0.479
R-squared			0.375
F test			0.000
Breusch–Pagan LM test			0.049
Hausman test			0.566
Model			Random effects

The results in Table 3 indicate whether the association between ESG disclosure and CFP differs between WE and CEE countries. These results indicate the following: (i) in the case of ROA, the interaction term is negative and statistically significant ($\beta = -0.137$, $p = 0.017$), indicating that the negative association between ESG disclosure and ROA is significantly stronger in CEE countries (Sample 3) than in WE countries (Sample 2); (ii) in the case of ROE, the interaction term is also negative ($\beta = -0.232$), but statistically significant only at the 90% confidence level, thus a stronger negative association in CEE countries can be confirmed only with a lower confidence level; and (iii) for the rest of the dependent variables, no statistically significant differences between the two regional groups can be identified.

These findings differ from previous studies that suggest that ESG-related information may have stronger positive financial relevance in emerging or less mature institutional environments (Friede et al., 2015; Cardillo & Basso, 2025; Lohia & Maji, 2025; Rostamicheri et al., 2026), whereas others report stronger benefits in developed markets with more mature regulatory and capital-market systems (Wang et al., 2025; Q. Li et al., 2025). In this research, the interaction results do not indicate a uniformly stronger positive association in either region: regional heterogeneity is concentrated in selected accounting-based measures: the negative association between ESG disclosure and ROA is significantly stronger in CEE countries, while the difference for ROE is only weakly significant. No statistically significant regional differences were identified for EBITDA margin, net profit margin, the price-to-book ratio, or shareholder yield.

5. Discussion of Results

The results of the research suggest that the association between ESG disclosure and CFP depends on the performance measure considered. With respect to the first research

objective and RQ1, the results show that ESG disclosure is associated with CFP, although the direction and significance of this association differ across the performance measures considered. Therefore, H1 is not supported across all measures. The negative associations with ROA and ROE suggest that the potential benefits of greater ESG transparency, including reduced information asymmetry and stronger stakeholder confidence, may not always be sufficient to offset the reporting, compliance, and organisational costs associated with ESG disclosure. The negative associations with ROA and ROE are consistent with a broader strand of ESG research reporting adverse profitability outcomes, although some of these studies examine ESG practices or performance rather than disclosure specifically (Rahi et al., 2022; Dossa, 2025; Rostamicheri et al., 2026). More directly comparable evidence was provided by Giannopoulos et al. (2022), who used an ESG disclosure score and reported a negative association with ROA. One possible explanation for the negative association with ROA and ROE is that firms with more extensive ESG disclosure may also face higher reporting, monitoring, compliance, and sustainability-related costs. These costs may reduce returns on the firm's asset and equity bases, especially when the financial benefits of greater transparency are insufficient to offset the related expenditures. The financial effect of these costs may also differ across organisational settings. Firms operating in more mature ESG reporting environments may already have established reporting systems, internal controls, specialised staff, and stronger stakeholder demand for sustainability information. In such settings, the additional cost of extending ESG disclosure may be lower, while the reputational and informational benefits may be easier to achieve. By contrast, firms operating in less mature reporting environments may need to invest more in data collection, internal processes, staff expertise, and compliance systems. As a result, the costs associated with greater disclosure may place stronger pressure on ROA and ROE.

On the other hand, these results contrast with Friede et al. (2015), Busch and Friede (2018), Chen and Xie (2022), Chung et al. (2024), and Parashar et al. (2025), who identified an overall positive association between ESG disclosure and CFP. The different results across accounting-based measures may be explained by the fact that they capture different dimensions of profitability. ROA and ROE measure returns relative to the firm's asset and equity base, while EBITDA margin and net profit margin measure profitability relative to sales. ESG-related reporting and organisational requirements may affect the use of assets, equity, and financial resources without producing a sufficiently large change in sales margins. In addition, EBITDA excludes interest, taxes, depreciation, and amortisation, while ROE is more sensitive to leverage and capital structure. Net profit margin may also strongly depend on sector-specific operating conditions, pricing, interest expenses, and taxation. These factors may weaken the direct association between ESG disclosure and sales-based profitability measures.

Based on this, it can be stated that ESG disclosure should not be viewed as a mechanism that uniformly and automatically improves CFP, as its association differs across performance measures. The association between ESG disclosure and accounting-based profitability depends on the financial dimension captured by each measure. Therefore, the results should not be interpreted as evidence that ESG disclosure is associated with all profitability measures in the same way.

The statistically insignificant associations with EBITDA margin and net profit margin are consistent with prior disclosure-based research reporting no clear relationship between selected CFP measures and these measures (Gallardo-Vázquez et al., 2019; Firmansyah et al., 2023). Broader ESG reviews also show that the relationship may depend on the research context and the performance measure used (Khan, 2022; Atz et al., 2023; Bai & Kim, 2024). The loss of significance of the price-to-book ratio after the inclusion of control variables suggests that market valuation may depend more strongly on firm-specific characteristics,

such as size, liquidity, and leverage, than on ESG disclosure alone. This may also indicate that investors do not interpret a higher level of ESG disclosure as an independent valuation signal once the firm's financial position is considered.

The positive association with shareholder yield may be explained from the perspective of stakeholders and signaling theories. Greater ESG transparency may strengthen investor confidence, reduce information uncertainty, and signal stronger governance and commitment to shareholders. These factors may support shareholder-oriented financial policies.

Overall, the results indicate that ESG disclosure does not uniformly improve CFP; therefore, H1 is not supported.

With respect to the second research objective and RQ2, the results for the WE and CEE subsamples and the interaction models indicated regional differences and at least partially supported H2, which posits that the relationship between ESG disclosure and CFP differs between WE and CEE countries. More specifically, the interaction term indicates a statistically significant regional difference for ROA, a weaker difference for ROE, and no statistically significant regional differences for the remaining CFP measures.

This finding is consistent with institutional theory and with DiMaggio and Powell (1983), L. Li et al. (2024), Cardillo and Basso (2025), and Krasodomska (2025), who argue that the financial relevance of ESG disclosure depends on the institutional environment. Differences in regulatory enforcement, stakeholder and professional expectations, established reporting practices, and market expectations may represent possible mechanisms through which the institutional context matters. These findings are consistent with the possibility that regional institutional context shapes selected ESG disclosure–CFP associations. However, because individual institutional characteristics are not directly included in the models, the results should be interpreted as evidence of regional heterogeneity rather than as a direct test of specific institutional mechanisms. Accordingly, the results do not allow us to determine whether the observed regional differences are mainly related to regulative, normative, cultural-cognitive, or market-related pressures.

The stronger negative association observed for ROA and, to a lesser extent, ROE in CEE countries may reflect differences in both institutional and organisational conditions. Firms in less mature ESG reporting environments may have less developed reporting systems, fewer specialised sustainability resources, and higher costs of collecting, verifying, and reporting ESG information. Weaker enforcement and lower stakeholder demand may also reduce the reputational and informational benefits that could offset these costs. In contrast, firms in more mature reporting environments may integrate ESG disclosure more efficiently into established governance and reporting processes. Overall, the results suggest that regional differences are more clearly reflected in the association with returns on assets and equity than in sales-based or market-related performance measures.

6. Concluding Remarks

Analysis of prior research suggests that ESG disclosure can create financial value for both firms and investors by reducing information asymmetry and strengthening stakeholder trust; however, these associations may vary depending on firm-specific characteristics and the institutional environment. This research shows that the association between ESG disclosure and corporate financial performance is measure-specific rather than uniformly positive or negative.

In the pooled sample, ESG disclosure is negatively associated with ROA and ROE, not significantly associated with EBITDA margin or net profit margin, and positively associated with shareholder yield. The initially negative association with the price-to-book ratio becomes statistically insignificant after firm-level controls are included. These findings demonstrate that ESG disclosure is meaningfully associated with selected dimensions of

corporate financial performance, although the present research design does not aim to identify the underlying causal mechanisms.

The results provide limited evidence of regional heterogeneity: The negative association between ESG disclosure and ROA is significantly stronger in CEE countries, whereas the corresponding regional difference for ROE is only weakly significant. No statistically significant regional differences were identified for EBITDA margin, net profit margin, or the price-to-book ratio. The association with shareholder yield is significant in the WE subsample but not in the CEE subsample; however, the insignificant interaction term indicates that this difference is not statistically confirmed. Thus, the results support a measure-specific regional difference in selected accounting-based profitability indicators, but not a generally stronger ESG disclosure effect in either WE or CEE countries.

These results suggest that the association between ESG disclosure and two selected accounting-based profitability measures is more negative in CEE countries. This pattern may reflect differences in institutional maturity, reporting practices, stakeholder expectations, or implementation costs, although these mechanisms were not directly tested.

The findings provide several theoretical implications. First, they do not support the view that greater ESG disclosure automatically improves CFP. The different results across CFP measures suggest that signaling benefits may not be strong enough to offset the costs of reporting, compliance, and organisational adjustment in all cases. Second, the regional differences provide partial support for institutional theory, as the association between ESG disclosure and selected profitability measures appears to vary across broader institutional and organisational contexts. Third, the findings suggest that stakeholder and signaling effects may be more visible in market-related outcomes, such as shareholder yield, than in all accounting-based measures. Overall, the results support a context-dependent interpretation of the ESG disclosure–CFP relationship.

The findings also have practical implications. Managers should not assume that increasing ESG disclosure will automatically improve all dimensions of financial performance. Greater disclosure may require additional investment in data systems, internal controls, staff expertise, and compliance processes. Therefore, firms should integrate ESG reporting into existing governance and management systems rather than treating it only as an external communication exercise. Investors should also evaluate ESG disclosure alongside firm-specific financial characteristics, as disclosure alone may not provide a complete signal of profitability or market value. For regulators and standard setters, the results suggest that firms in less mature reporting environments may need clearer guidance, implementation support, and proportionate reporting requirements to reduce transition and compliance costs. This may be particularly important for firms in CEE countries, where reporting systems and specialised sustainability resources may be less developed.

This study has several limitations. First, the country sample was partly determined by Bloomberg data availability and does not represent all WE and CEE countries, which may limit the generalisability of the findings. Second, the unbalanced panel, available-case estimation, and retention of extreme observations may affect the precision of the estimates. Third, the study uses an aggregate ESG disclosure score and does not examine environmental, social, and governance dimensions separately. In addition, the analysis does not directly test the costs, investments, leverage, or organisational mechanisms that may explain the differences in results across performance measures. The findings may also be influenced by country-, industry-, and period-specific factors, as the 2013–2024 period included major economic and regulatory changes in the EU. Future research could therefore use broader country samples, compare industries and firm types, examine separate ESG dimensions and sub-periods, and test the robustness of the results using alternative treatments of extreme observations and more detailed explanatory variables. Finally, the WE–CEE re-

gional classification, using the CEE regional dummy variable, is used as a broad proxy for differences in institutional context documented in prior literature. However, it does not directly measure individual institutional dimensions or exclude the influence of country- and industry-specific factors. In addition, future research could extend its geographical coverage and incorporate direct country level measures of regulatory quality, institutional enforcement, capital market development, and sustainability reporting maturity.

The countries' sample does not represent all WE and CEE countries, which may limit the generalisability of the findings. Future research could extend the geographical scope and examine the relationship separately across countries, industries, and firm types.

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Abbreviations

The following abbreviations are used in this manuscript

CEE	Central and Eastern European countries
CFP	Corporate financial performance
ESG	Environmental, Social and Governance
ROA	Return on Assets
ROE	Return on Equity
WE	Western European countries

Appendix A

Table A1. Bivariate panel model-selection tests for the full sample and regional subsamples.

Sample	F Test Prob.	Breusch–Pagan LM Test Prob.	Hausman Test Prob.
Panel A. Return on assets (ROA)			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.000
CEE	0.000	0.000	0.052
Panel B. Return on equity (ROE)			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.000
CEE	0.000	0.000	0.000

Table A1. *Cont.*

Sample	F Test Prob.	Breusch–Pagan LM Test Prob.	Hausman Test Prob.
Panel C. EBITDA margin			
Full sample	0.000	0.000	0.071
WE	0.000	0.000	0.262
CEE	0.000	0.000	0.218
Panel D. Net profit margin			
Full sample	0.000	0.000	0.067
WE	0.000	0.000	0.262
CEE	0.000	0.000	0.219
Panel E. Price-to-book ratio			
Full sample	0.000	0.000	0.003
WE	0.000	0.000	0.001
CEE	0.000	0.009	0.023
Panel F. Shareholder yield			
Full sample	0.000	0.921	0.023
WE	0.000	0.992	0.064
CEE	0.000	0.000	0.028

Table A2. Model-selection tests for the multivariate panel regressions.

Sample	F Test Prob.	Breusch–Pagan LM Test Prob.	Hausman Test Prob.
Panel A. Return on assets (ROA)			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.000
CEE	0.000	0.000	0.000
Panel B. Return on equity (ROE)			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.000
CEE	0.000	0.000	0.000
Panel C. EBITDA margin			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.067
CEE	0.000	0.904	0.000
Panel D. Net profit margin			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.564
CEE	0.000	0.724	0.000
Panel E. Price-to-book ratio			
Full sample	0.000	0.000	0.000
WE	0.000	0.000	0.000
CEE	0.000	0.104	0.007

Table A2. Cont.

Sample	F Test Prob.	Breusch-Pagan LM Test Prob.	Hausman Test Prob.
Panel F. Shareholder yield			
Full sample	0.000	0.889	0.536
WE	0.000	0.985	0.711
CEE	0.000	0.000	0.604

Table A3. Diagnostic Tests for six main multivariate models.

Dependent Variable	Selected Model	Residual Based Test LM Statistic	p-Value	Wooldridge F-Statistic	p-Value	Diagnostic Conclusion
ROA	Fixed effects	5.201	0.266	2.444	0.118	No correction applied
ROE	Fixed effects	5.068	0.280	0.462	0.496	No correction applied
EBITDA margin	Fixed effects	1.034	0.904	2.445	0.118	No correction applied
Net profit margin	Fixed effects	0.792	0.939	0.835	0.360	No correction applied
Price-to-book ratio	Fixed effects	5.203	0.267	3.446	0.063	No correction applied
Shareholder yield	Fixed effects	5.068	0.280	3.293	0.069	No correction applied

References

- Acheampong, O., Tauringana, V., Asare, N., & Okyere, G. A. (2025). Sustainability reporting determinants: A systematic review of trends, challenges, and opportunities. *Journal of African Business*, 27, 200–232. [\[CrossRef\]](#)
- Ali, N. B. M., Hussin, H. A. A. A., Mohammed, H. M. F., Mohmmmed, K. A. A. H., Almutiri, A. A. S., & Ali, M. A. (2025). The effect of environmental, social, and governance (ESG) disclosure on the profitability of Saudi-listed firms: Insights from Saudi vision 2030. *Sustainability*, 17, 2977. [\[CrossRef\]](#)
- Atz, U., Van Holt, T., Liu, Z. Z., & Bruno, C. C. (2023). Does sustainability generate better financial performance? Review, meta-analysis, and propositions. *Journal of Sustainable Finance & Investment*, 13, 802–825. [\[CrossRef\]](#)
- Bai, H., & Kim, J. (2024). Do ESG practices promote financial performance? Comparison of English, Chinese, and Korean papers through bibliometric and meta-analysis. *Sustainability*, 16, 9810. [\[CrossRef\]](#)
- Belyaeva, Z., Rudawska, E. D., & Lopatkova, Y. (2020). Sustainable business model in food and beverage industry: A case of western and central and eastern European countries. *British Food Journal*, 122, 1573–1592. [\[CrossRef\]](#)
- Bosi, M. K., Lajuni, N., Wellfren, A. C., & Lim, T. S. (2022). Sustainability reporting through environmental, social, and governance: A bibliometric review. *Sustainability*, 14, 12071. [\[CrossRef\]](#)
- Burinskienė, A., Grybaitė, V., & Lapinskienė, G. (2025). The link between ESG factors and corporate profitability: Evidence from resource-intensive industries in Europe and the USA. *Sustainability*, 17, 10714. [\[CrossRef\]](#)
- Busch, T., & Friede, G. (2018). The robustness of the corporate social and financial performance relation: A second-order meta-analysis. *Corporate Social Responsibility and Environmental Management*, 25, 583–608. [\[CrossRef\]](#)
- Canli, S. N. O., & Sercemeli, M. (2026). The impact of environmental, social and governance (ESG) disclosures on corporate financial performance. *International Journal of Energy Sector Management*, 20, 423–447. [\[CrossRef\]](#)
- Cardillo, M. A. D. R., & Basso, L. F. C. (2025). The ESG disclosure-performance paradox in BRICS: Evidence from shareholder returns and firm value. *Sustainable Futures*, 10, 101510. [\[CrossRef\]](#)
- Chen, Z., & Xie, G. (2022). ESG disclosure and financial performance: Moderating role of ESG investors. *International Review of Financial Analysis*, 83, 102291. [\[CrossRef\]](#)
- Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies*, 26, 1176–1248. [\[CrossRef\]](#)
- Chung, R., Bayne, L., & Birt, J. (2024). The impact of environmental, social and governance (ESG) disclosure on firm financial performance: Evidence from Hong Kong. *Asian Review of Accounting*, 32, 136–165. [\[CrossRef\]](#)
- Da Cunha, Í. G. F., Policarpo, R. V. S., De Oliveira, P. C. S., Abdala, E. C., & do Nascimento Rebelatto, D. A. (2025). A systematic review of ESG indicators and corporate performance: Proposal for a conceptual framework. *Future Business Journal*, 11, 106. [\[CrossRef\]](#)

- Deegan, C. (2002). Introduction: The legitimising effect of social and environmental disclosures—A theoretical foundation. *Accounting, Auditing & Accountability Journal*, 15, 282–311. [\[CrossRef\]](#)
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 147–160. [\[CrossRef\]](#)
- Dossa, J. V. (2025). Can sustainability pay off? Evaluating ESG disclosure and financial outcomes in Chinese health care firms. *Business Strategy & Development*, 8, e70061. [\[CrossRef\]](#)
- Elms, H., & Phillips, R. A. (2018). 'Stakeholder', the Palgrave encyclopedia of strategic management (M. Augier, & D. J. Teece, Eds.). Palgrave Macmillan UK. [\[CrossRef\]](#) [\[PubMed\]](#)
- Firmansyah, E. A., Umar, U. H., & Jibril, R. S. (2023). Investigating the effect of ESG disclosure on firm performance: The case of Saudi Arabian listed firms. *Cogent Economics & Finance*, 11, 2287923. [\[CrossRef\]](#)
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5, 210–233. [\[CrossRef\]](#)
- Gallardo-Vázquez, D., Barroso-Méndez, M. J., Pajuelo-Moreno, M. L., & Sánchez-Meca, J. (2019). Corporate social responsibility disclosure and performance: A meta-analytic approach. *Sustainability*, 11, 1115. [\[CrossRef\]](#)
- Giannopoulos, G., Fagernes, R. V. K., Elmarzouky, M., & Hossain, K. A. B. M. A. (2022). The ESG disclosure and the financial performance of Norwegian listed firms. *Journal of Risk and Financial Management*, 15, 237. [\[CrossRef\]](#)
- Horváth, P., & Pütter, J. (Eds.). (2017). *Sustainability reporting in central and Eastern European companies: International empirical insights*. Springer.
- Khan, M. A. (2022). ESG disclosure and firm performance: A bibliometric and meta analysis. *Research in International Business and Finance*, 61, 101668. [\[CrossRef\]](#)
- Kim, S., & Kim, K. (2024). The compounding effect of mandatory GHG Emissions disclosure and voluntary ESG disclosure on firm value in Korea. *Journal of Asian Business and Economic Studies*, 31, 378–391. [\[CrossRef\]](#)
- Krasodomska, J. (2025). Closing the gap with western counterparts: Sustainability reporting under the new regulatory regime in central and Eastern Europe. *Social and Environmental Accountability Journal*, 45, 95–123. [\[CrossRef\]](#)
- Li, L., Saat, M. M., Khatib, S. F. A., Chu, P., & Sulimany, H. G. H. (2024). Navigating the impact: A comprehensive analysis of ESG disclosure consequences through systematic review. *Business Strategy & Development*, 7, e382. [\[CrossRef\]](#)
- Li, Q., Liu, C., & Lin, Y. (2025). ESG and firm value: The moderating effects of corporate transparency and institutional environment. *International Journal of Finance & Economics*, 31, 1582–1605. [\[CrossRef\]](#)
- Lohia, P., & Maji, S. G. (2025). ESG disclosures, legal systems and market value in high-impact economies: A stakeholder capitalism perspective. *Corporate Social Responsibility and Environmental Management*, 32, 6181–6199. [\[CrossRef\]](#)
- López, E. B., Jorge, M. L., Aguilar, N. G., & Carril, M. C. C. (2024). SOEs' commitment to transparency: Voluntary disclosure as a driver of mandatory disclosure. *Annals of Public and Cooperative Economics*, 95, 883–917. [\[CrossRef\]](#)
- Malik, N., & Kashiramka, S. (2024). Impact of ESG disclosure on firm performance and cost of debt: Empirical evidence from India. *Journal of Cleaner Production*, 448, 141582. [\[CrossRef\]](#)
- Mustaffa, A. H., Muda, R., Bahrudin, N. Z., & Malik, H. K. A. (2023). A meta-analysis of ESG disclosure and listed companies' financial performance. In J. Said, D. Daud, N. Erum, N. B. Zakaria, S. Zolkafil, & N. Yahya (Eds.), *Building a sustainable future: Fostering synergy between technology, business and humanity* (Vol. 131, pp. 655–669). European Publisher. [\[CrossRef\]](#)
- Panfilio, S., & Krasodomska, J. (2022). Climate change risk disclosure in Europe: The role of cultural-cognitive, regulative, and normative factors. *Accounting in Europe*, 19, 226–253. [\[CrossRef\]](#)
- Parashar, M., Jaiswal, R., & Sharma, M. (2025). A quantitative analysis of ESG disclosure and financial performance in renewable energy companies: A two-step approach. *International Journal of Energy Sector Management*, 19, 1186–1212. [\[CrossRef\]](#)
- Rahi, A. F., Akter, R., & Johansson, J. (2022). Do sustainability practices influence financial performance? Evidence from the Nordic financial industry. *Accounting Research Journal*, 35, 292–314. [\[CrossRef\]](#)
- Rostamicheri, P., Popescu, V., Birau, R., & Bărbăcioru, I. C. (2026). ESG score and firm performance: A comparative analysis of Nordic and European companies. *Sustainability*, 18, 1707. [\[CrossRef\]](#)
- Saha, R., & Maji, S. G. (2025). Does environmental, social, and governance (ESG) disclosure matter for carbon intensity? Evidence from S&P 500 firms. *Journal of Environmental Management*, 387, 125809. [\[CrossRef\]](#) [\[PubMed\]](#)
- Saini, M., Aggarwal, V., Dhingra, B., Kumar, P., & Yadav, M. (2023). ESG and financial variables: A systematic review. *International Journal of Law and Management*, 65, 663–682. [\[CrossRef\]](#)
- Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87, 355–374. [\[CrossRef\]](#)
- Steuier, R., & Konrad, A. (2009). Business–society relations in Central-Eastern and Western Europe: How those who lead in sustainability reporting bridge the gap in corporate (social) responsibility. *Scandinavian Journal of Management*, 25, 23–36. [\[CrossRef\]](#)
- Veeravel, V., Sadharma, E. K. S., & Kamaiah, B. (2024). Do ESG disclosures lead to superior firm performance? A method of moments panel quantile regression approach. *Corporate Social Responsibility and Environmental Management*, 31, 741–754. [\[CrossRef\]](#)

- Velte, P. (2022). Archival research on integrated reporting: A systematic review of main drivers and the impact of integrated reporting on firm value. *Journal of Management and Governance*, 26, 997–1065. [\[CrossRef\]](#)
- Vijaya, A., Qadri, F. D., Angreani, L. S., & Wicaksono, H. (2026). From fragmentation to interoperability: How semantic models transform Environmental, Social, Governance (ESG) reporting, knowledge, and sustainability governance. *Journal of Innovation & Knowledge*, 13, 100924. [\[CrossRef\]](#)
- Wang, K., Bai, Y., Dong, Z., & Zhu, J. (2025). Heterogeneous impact of ESG disclosure: A meta-analysis. *Journal of Cleaner Production*, 516, 145804. [\[CrossRef\]](#)

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