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THE IMPACT OF SUSTAINABLE DEVELOPMENT POLICY ON EBIT GROWTH IN LOGISTICS COMPANIES

WPŁYW POLITYKI ZRÓWNOWAŻONEGO ROZWOJU NA WZROST EBIT W FIRMACH LOGISTYCZNYCH

Sustainability has evolved from a corporate social responsibility (CSR) component into a strategic tool for building competitive advantage, particularly in the logistics industry, which intensively utilizes environmental resources and infrastructure. The aim of this article is to examine the impact of ESG policies on EBIT growth in logistics companies in Europe from 2017 to 2023. This study examines the impact of ESG disclosure and its components – environmental, social, and governance – on EBIT growth in European logistics companies over 1-, 2-, 3-, and 5-year time horizons. Distinguishing between air, sea, and land transport companies, the study explores sector-specific differences in the financial impact of ESG initiatives, addressing a gap in the existing literature, which often focuses on stock market valuation rather than operational performance. The study utilizes heteroscedasticity-corrected OLS models and panel models, enabling the identification of short- and long-term effects. The results show that the implementation of sustainable development policies had a significant impact on EBIT growth, particularly over the 3- and 5-year periods. The strongest effect was observed for the environmental component (EVN), confirming the adoption of pro-environmental measures in the operating system. In maritime transport, the EBIT increase was a result of the synergy of all three ESG elements, while in air transport, the impact of EVN became apparent after just two years. In land transport (rail and road), the ESG effect was visible only in the short term, which may reflect less-developed sustainability strategies in these companies.

Keywords: sustainable development; financial results; logistics companies; EBIT growth
JEL: E01, L91, Q01

Zrównoważony rozwój ewoluował z elementu społecznej odpowiedzialności biznesu (CSR) w strategiczne narzędzie budowania przewagi konkurencyjnej, szczególnie w branży logistycznej, która intensywnie wykorzystuje zasoby i infrastrukturę środowiskową. Celem niniejszego artykułu jest zbadanie wpływu polityki ESG na wzrost EBIT w firmach logistycznych w Europie w latach 2017–2023. W niniejszym badaniu analizuje się wpływ ujawniania danych ESG i ich komponentów – środowiskowych, społecznych i ładu korporacyjnego – na wzrost EBIT w europejskich firmach logistycznych w perspektywie 1, 2, 3 i 5 lat. Rozróżniając firmy z branży transportu lotniczego, morskiego i lądowego, artykuł analizuje różnice w wpływie finansowym inicjatyw ESG w poszczególnych sektorach, wypełniając lukę w istniejącej literaturze, która często koncentruje się na wycenie giełdowej, a nie na wynikach operacyjnych. W badaniu wykorzystano modele OLS

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z korektą heteroskedastyczności oraz modele panelowe, umożliwiające identyfikację efektów krótko- i długoterminowych. Wyniki pokazują, że wdrożenie polityki zrównoważonego rozwoju miało istotny wpływ na wzrost EBIT, szczególnie w okresach 3- i 5-letnich. Najsilniejszy efekt zaobserwowano w przypadku komponentu środowiskowego (EVN), co potwierdza wdrożenie działań proekologicznych w systemie operacyjnym. W transporcie morskim wzrost EBIT był wynikiem synergii wszystkich trzech elementów ESG, natomiast w transporcie lotniczym wpływ EVN stał się widoczny już po dwóch latach. W transporcie lądowym (kolejowym i drogowym) efekt ESG był widoczny jedynie w krótkim okresie, co może odzwierciedlać słabiej rozwinięte strategie zrównoważonego rozwoju w tych przedsiębiorstwach.

Słowa kluczowe: zrównoważony rozwój, wyniki finansowe, firmy logistyczne, wzrost EBIT
JEL: E01, L91, Q01

I. INTRODUCTION

Sustainable development and ESG factors have become essential drivers of corporate strategy, influencing both regulatory compliance and long-term competitiveness. Companies are increasingly expected to address environmental, social, and governance issues, not only to meet stakeholder expectations but also to create enduring value. In this context, examining the financial consequences of ESG activities is particularly relevant in the logistics sector, which is characterized by high capital intensity, operational complexity, and exposure to environmental and regulatory challenges.

This study investigates the relationship between ESG disclosure and financial performance, measured by EBIT growth, in European logistics companies over the period 2017–2023. The research aims to determine whether ESG activities contribute to operational profitability and whether their effects vary across different logistics subsectors, including air, sea, and land transport. By analysing both the overall ESG Index and its components – environmental, social, and corporate governance – the study shows that specific aspects of sustainability have measurable effects on company performance.

The main objective of this study is to examine the impact of ESG disclosure and its individual components on the financial performance of European logistics companies across short and long-term horizons. Beyond this overarching aim, the study pursues both scientific and practical objectives. From a scientific perspective, it seeks to identify the relationship between ESG practices and operational profitability, assess the differential impact of ESG components, and analyse sector-specific variations (Lee, 2022; Lu et al., 2021). This approach contributes to the theoretical discourse by testing the applicability of stakeholder theory, the resource-based view, and legitimacy theory in the logistics context, addressing the limited empirical evidence on operational outcomes of ESG activities in this sector.

From a practical perspective, the study offers actionable insights for managers and investors. By highlighting the timing and magnitude of ESG effects on EBIT, it helps managers design more effective sustainability strategies

and allocate resources to the most impactful ESG initiatives. For investors, it clarifies the relevance of ESG indicators for evaluating the financial potential of logistics companies, supporting more informed investment decisions.

The study addresses a notable gap in the literature, as prior research has predominantly focused on stock market outcomes or cost of capital, while less attention has been paid to operational measures such as EBIT, especially in the logistics sector. Moreover, sector-specific comparisons are scarce, and the timing of ESG effects on financial results has not been thoroughly explored. The originality and value of this research lie in its multi-horizon and multi-component approach, distinguishing between short-term and long-term financial outcomes and evaluating the specific contributions of environmental, social, and governance practices. Additionally, the sectoral analysis reveals how the effectiveness of ESG activities varies depending on logistics subsector characteristics and innovation capacity.

By combining theoretical grounding, rigorous empirical methodology, and practical implications, this study fills an important gap in the literature, providing new insights into ESG-financial performance relationships and offering evidence-based recommendations for corporate strategy and investment decision-making in the logistics sector.

II. LITERATURE REVIEW

1. Sustainable development as an element of the development strategy of European logistics companies

Modern logistics companies in Europe face growing expectations regarding the reduction of their negative impact on the environment and the implementation of the principles of social responsibility (De Schutter, 2008). Sustainability has become a key element of the development strategy of companies from the transport-forwarding-logistics (TSL) sector, both due to the regulatory obligations of the European Union and the growing pressure from consumers and business partners (Ghobakhloo et al., 2022; Larina et al., 2021).

The implementation of the ESG (Environmental, Social, Governance) strategy in logistics mainly includes activities aimed at reducing CO_2 emissions, investments in a low-emission fleet (electric, hybrid, LNG), the development of intermodal logistics, and the digitization of supply chain management processes (Xu, 2024). Logistics companies are increasingly using tools that optimize routing, warehouse management, and carbon footprint tracking (Temizceri & Acar, 2024; Uvet et al., 2025). ESG reports and the integration of the Sustainable Development Goals (SDGs) of the United Nations with long-term strategic plans are becoming increasingly popular (Gürlevük, 2024).

Sustainable development is currently one of the main pillars of European economic policy. The transformation towards a low-emission economy and socially just and transparent corporate governance is reflected in corporate strategies (D'Adamo et al., 2022; Širá et al., 2021). Since 2024, the largest

companies (and from 2026 also SMEs) have been obliged to publish ESG reports in accordance with uniform standards (ESRS) (Megyesiova et al., 2023). Reporting covers greenhouse gas emissions, employee rights, management structure, and social impact. The most advanced activities are found in the financial, energy, and logistics sectors. Smaller companies often implement sustainable activities intuitively, without formal ESG strategies, but their potential increases with access to sustainable financing. European companies are increasingly integrating sustainability policy with both operational and strategic activities. The key issues in this context are the harmonization of regulations, the development of ESG competencies, and digital tools to monitor sustainable goals (Skvarciany & Jurevičienė, 2024; Tarczynska-Luniewska et al., 2024). Further progress will depend on the cooperation of the public and private sectors, the availability of financing, and the social pressure for transparency and corporate social responsibility (Apostu et al., 2023; Macchiavello & Siri, 2022).

2. Short- and long-term EBIT growth in logistics companies: A description of the phenomenon

Short-term EBIT growth (operating profit before interest and taxes) in logistics companies can be the result of several key factors of operational, cost, and strategic nature. First, short-term EBIT growth often results from the optimization of logistics and operational processes, such as streamlining the supply chain, reducing storage costs, or better management of the transport fleet. The introduction of digital tools for logistics management (e.g. TMS or WMS systems) can quickly translate into increased efficiency and reduced losses (Kovacevic & Waterstraat, 2024).

Furthermore, the growing importance of ESG factors in company strategies can affect short-term EBIT growth by improving reputation, easier access to preferential financing, or obtaining new contracts with partners that expect responsible environmental and social practices. Well-communicated ESG activities can also result in increased interest from investors and customers, which affects revenue growth and improves operating margins. In the short term, ad hoc management decisions – such as renegotiating contracts, outsourcing some processes, or reducing fixed costs – are also important, as they can quickly improve operating results, although their long-term effects may be limited (Banerjee & Deb, 2023; Lee et al., 2021).

In the long-term, the growth of EBIT growth in logistics companies is the result of permanent strategic changes and investments that increase operational efficiency, innovation, and the ability to adapt to changing market conditions (Jardak et al., 2022; Quintiliani, 2022). One of the key drivers of EBIT is the consistent implementation of sustainable development policies, including activities related to environmental, social, and governance (Chen et al., 2015; Judge et al., 2002; Lin et al., 2025).

Companies investing in low-emission technologies, a fleet of ecological vehicles, energy-efficient warehouses, or process digitization (e.g. logistics

automation, big data, artificial intelligence) achieve significant operating savings and increase the quality of services over time. These activities also allow companies to meet increasingly restrictive environmental standards and gain a competitive advantage on the European market, where sustainable development is becoming the norm (Andersson et al., 2022; Kuo et al., 2022; Xu 2024).

Over the long term, EBIT also increases due to the building of strong relationships with customers and business partners, greater investor confidence, and stabilized operating costs achieved through effective risk management and process predictability (Boulanger & Mousa, 2022; Nhleko & Schutte, 2024). Companies that engage in social initiatives (e.g. investments in human capital, work safety) and implement transparent management systems are perceived more favourably by stakeholders, which enhances market value and long-term operating profitability (Basiru et al. 2023; Esposito et al., 2025; Rahi et al., 2021). To sum up, long-term EBIT growth results from a long-term strategy of innovation, efficiency, and responsibility, which allows logistics companies to maintain high efficiency and competitive advantage in a dynamically changing economic and regulatory environment (Banerjee & Deb, 2023; Robežnik & Bukvič, 2025).

3. Theoretical framework

The study is grounded in three complementary theoretical perspectives that provide the conceptual basis for analysing the relationship between ESG activities and firms' financial performance, measured by EBIT growth.

The first theoretical foundation is stakeholder theory (Freeman & Phillips, 2002), which argues that companies should create value not only for shareholders but also for a wide range of stakeholders, including employees, customers, regulators, and local communities. From this perspective, ESG activities can be understood as strategic responses to the expectations of different stakeholder groups. By addressing environmental, social, and governance issues, firms enhance their legitimacy, strengthen stakeholder trust, and build reputational capital, which ultimately may translate into improved long-term financial performance. The results of this study confirm this mechanism, showing that the positive effects of ESG on EBIT become evident primarily in the long-term horizon, which is consistent with the stakeholder theory assumption that benefits arise from sustained relationships rather than short-term actions (Johannsdottir & Davidsdottir, 2024).

Secondly, the research also draws on the resource-based view (RBV) (Barney et al., 2001), which considers ESG practices as intangible resources that are valuable, rare, and difficult to imitate. Firms that successfully integrate ESG into their business models create unique strategic assets that improve their competitive advantage. The results of this study highlight that the impact of ESG on EBIT is particularly visible in innovative sectors such as air and maritime transport, where companies are more capable of transforming ESG initiatives into operational and financial outcomes. This supports the

RBV perspective by showing that ESG can function as a distinctive capability enabling superior long-term performance (Paauwe, 2024).

The third theoretical underpinning is legitimacy theory (Suchman, 1995), which suggests that companies engage in ESG activities to gain or maintain societal approval and to ensure compliance with external expectations. While this perspective explains why firms report ESG indicators, the results of this study reveal that legitimacy alone does not necessarily yield immediate financial benefits. Instead, the financial effects become apparent only when ESG practices are strategically embedded and consistently implemented over time. This finding extends the legitimacy theory by indicating that disclosure without integration into the core strategy may not generate measurable financial outcomes (Singhania & Gupta, 2024).

The results of this study enrich the existing theoretical frameworks. They confirm that ESG contributes to value creation primarily in the long term, in line with stakeholder theory and RBV, while also refining legitimacy theory by emphasising the distinction between formal disclosure and substantive implementation (Chipimo et al., 2025). Furthermore, the study highlights that the strength and timing of ESG's financial impact vary across industries, suggesting that sectoral characteristics – such as innovation capacity and regulatory pressure – play a mediating role. In this way, the findings provide an extension of the current theoretical debate on the financial consequences of ESG integration in logistics companies (Palmieri & Geretto, 2024).

III. METHODOLOGY AND RESEARCH SAMPLE

The study was carried out on a group of logistics companies operating in Europe. The period from 2017 to 2023 was adopted for the study because these companies began reporting their ESG activities only from 2017. There were 22 companies classified as logistics companies with headquarters in Europe (8 companies operating in marine, 9 companies operating in air logistics, and 5 companies operating in land logistics). All companies are listed on stock exchanges and have significant market value in various European countries. Furthermore, each company appears only once; that is, if a company operates in both land and air logistics, the dominant business profile is selected and assigned to that group.

The study used annual data. All data used in the study were obtained from the S&P Global Market Intelligence database. Prices were adjusted for changes in equity, such as subscription rights, dividends, and splits. The following data were used for the calculations:

– Pref – measured using EBIT1YrGrowth, EBIT2YrGrowth, EBIT3YrGrowth, and EBIT5YrGrowth

– ESG Index – the S&P Global Market Intelligence ESG Index includes all disclosures regarding environmental factors, social, and governance indicators of the company (i), in the period (t);

– EVN Index – the S&P Global Market Intelligence EVN Index, which measures the disclosure of energy consumption, waste, pollution, protection of natural resources, and treatment of animals in company (*i*) in period (*t*);

– CRS Index – the S&P Global Market Intelligence CSR Index measures the disclosure of business relations, donations, volunteering, health and safety of employees of company (*i*), in period (*t*);

– CG Index – the S&P Global Market Intelligence CG Index measures the disclosure of the corporate governance code of company (*i*) in period (*t*);

– TA – company size; a control variable measured by the total assets of company (*i*) in period (*t*); (Watson et al., 2002);

– Lev – financial leverage; a control variable measured as the ratio of total debt to total assets of company (*i*) in period (*t*); (Hamdan, 2020);

– Turn(TA) – asset turnover, measured by net sales as a percentage of total assets;

– Gr(TA) – asset growth, measured by annual change in total assets;

– CR – current liquidity ratio;

Table 1 presents descriptive statistics for the analysed data used in the study.

Table 1

Summary statistics of all variables

Variables	Mean	Median	Max	Min	S.D.
Current Ratio (x)	1.154	1.05	3.41	0.38	0.50
EBIT, 1 Yr. Growth	42.455	25.07	199.16	0.24	46.38
EBIT, 2 Yr. CAGR	41.399	24.80	254.86	0.25	49.95
EBIT, 3 Yr. CAGR	34.712	19.78	218.08	0.29	41.57
EBIT, 5 Yr. CAGR	22.384	14.43	136.44	0.41	24.32
Turn(TA)	0.791	0.70	2.05	0.07	0.50
TA	11162693.358	2475549.23	93680000.00	285640.38	19732131.28
Lev	62.537	61.44	109.15	18.40	20.64
ESG Index	41.952	39.00	85.00	12.00	19.80
EVN Index	46.711	43.00	95.00	10.00	24.06
SCR Index	42.361	39.50	88.00	9.00	21.15
CG Index	43.720	42.00	81.00	0.00	19.21

Source: the author's own study.

The study tested the following research hypotheses:

1. The growth of EBIT over a 1-year period is influenced by all disclosures regarding environmental, social, and governance indicators of the company (*i*) in period (*t*), as measured by the ESG Index.

2. The growth of EBIT over a 1-year period is influenced by variables that are components of the ESG Index (EVN Index, SCR Index, CG Index).
3. The growth of EBIT over a 2-year period is influenced by all disclosures regarding environmental, social and governance indicators of the company (*i*) in period (*t*), as measured by the ESG Index.
4. The growth of EBIT over a 2-year period is influenced by variables that are components of the ESG Index (EVN Index, SCR Index, CG Index).
5. EBIT growth over a 3-year period is influenced by all disclosures regarding environmental, social, and governance indicators of the company (*i*) in period (*t*), as measured by the ESG Index.
6. The growth of EBIT during the 3-year period is influenced by the variables that are components of the ESG Index (EVN Index, SCR Index, CG Index).
7. EBIT growth during the 5-year period is influenced by all disclosures regarding environmental, social and governance indicators of the company (*i*) in period (*t*), as measured by the ESG Index.
8. The growth of EBIT over the 5-year period is influenced by the variables that are components of the ESG Index (EVN Index, SCR Index, CG Index).

The analysis related to the preferences of companies regarding EBIT growth is presented in the form of parameter estimations using OLS models with heteroscedasticity correction and panel models. Cross-sectional OLS models with heteroscedasticity correction were used, in which the results related to the size of the company, measured by assets, are expressed as a logarithmic variable, reflecting the nonlinearity of this indicator in relation to the explained variables. The study used cross-sectional regression analysis and panel data. Tests for the presence of fixed and random effects were also conducted (redundant fixed effects – Wald test; random effects – Breusch-Pagan test). The methodology used includes panel models with fixed effects, which eliminate the unobservable individual characteristics of companies, and, alternatively, models with random effects, which allow one to capture the lagged impact of ESG indicators on EBIT.

The model for the total sample is presented in the equation below:

$$Pref_{it} = \alpha_0 + \alpha_1 ESG_{it} + \alpha_2 \ln(TA)_{it} + \alpha_3 Gr(TA)_{it} + \alpha_4 \mathrm{Turn}(TA)_{it} + \alpha_5 Lev_{it} + \varepsilon_{it} \quad (1)$$

$$Pref_{it} = \alpha_0 + \alpha_1 EVN_{it} + \alpha_2 CSR_{it} + \alpha_3 CG_{it} + \alpha_4 \ln(TA)_{it} + \alpha_5 Gr(TA)_{it} + \alpha_6 \mathrm{Turn}(TA)_{it} + \alpha_7 Lev_{it} + \varepsilon_{it} \quad (2)$$

The independent variables were not collinear, as most of the VIF values were < 5.

After conducting a descriptive analysis of the variables and testing the assumptions of the regression analysis, we used regression analysis to examine the impact of ESG and its components ([CG, EVN and CSR (independent

variables]) on the growth of the company's EBIT [EBIT1YrGrowth, EBIT2YrGrowth, EBIT3YrGrowth, EBIT5YrGrowth (dependent variables)]. First, using the OLS model with heteroscedasticity correction, the relationship between the companies' preference for the growth of the company's EBIT and the ESG Index and control variables was examined using Equation 1. The study was carried out for all logistics companies regardless of their business profile and divided into companies dealing with air, sea, and land logistics (rail and road).

The RESET test was also used to analyse the model specification, which showed the correctness of the applied model (p-value > 0.05). The results obtained from the RESET test indicate that the model specification of the variables is correct.

IV. RESULTS

The results of this estimation are presented in Table 2. The analysis showed that the ESG Index has a significant impact on long-term EBIT growth, both on the three- and five-year horizon. This effect is visible both in general terms – for the entire sample of logistics companies – and in analyses conducted separately for individual industry groups. These results confirm the hypothesis that the effects of implementing sustainable development policy (ESG) are deferred in time and their full reflection in financial results, such as EBIT, occurs only in the long term, which is consistent with the research of Rahi et al. (2021) and Quintiliani (2022).

The differentiation of effects according to the type of logistics activity indicates that the smallest impact of the ESG Index is observed in the land transport sector (rail and road). This may be due to a lower level of innovation in this segment. In turn, the strongest relationship between the ESG Index and EBIT growth was observed in companies involved in air transport, which may be the effect of faster implementation of advanced environmental and management technologies in this sector. Among control variables, the greatest impact on EBIT growth, both in the short and long term, was exerted by variables related to the operational activity of companies, that is, the annual change in the value of total assets and the asset turnover ratio (calculated as net sales in relation to total assets).

To verify the structure of the panel data, tests were conducted for the presence of fixed and random effects: the Wald test (redundant fixed effects) and the Breusch-Pagan test (random effects). The models with random effects did not show statistical significance, which determined the selection of models with fixed effects for further analysis. The results of the panel regression with fixed effects confirmed the conclusions obtained in the previous cross-sectional-time models, which confirms that the results obtained above are not accidental.

Table 2

Estimation of model parameters from Equation (1) using the OLS method with heteroscedasticity correction

Variables	EBIT 1 Yr Growth	EBIT 2 Yr Growth	EBIT 3 Yr Growth	EBIT 5 Yr Growth
All				
const	−75.5355	−224.586	−211.063***	−57.0343*
Lev	−0.193794	0.033748	0.401181**	0.104263
lnAT	6.59378	11.5704**	11.1584***	3.73049*
Gr(TA)	0.136954**	0.259109	0.499671**	0.247913**
Turn(AT)	24.204	41.695*	45.2463***	39.8867***
CR	14.6975**	67.5866***	33.4386***	10.144
ESG Index	−0.824197	−0.926001*	−1.00468***	−0.979866***
R2	52%	59%	56%	35%
Air				
const	−190.563	−226.194	−27.8456	−43.7126
Lev	0.212922	0.426175	−0.147584	−0.0323742
lnAT	7.90897	9.8239	4.38167	3.88E+00
Gr(TA)	0.176564***	0.202732	0.129411	0.148905
Turn(AT)	1.14722	9.40182	20.6143	15.6349
CR	58.4314**	50.6732***	13.3747	13.1812
ESG Index	−0.122190	−0.131324	−0.960578**	−0.719979***
R2	44%	66%	30%	40%
Marine				
const	−165.780*	−409.028***	−289.587***	−105.425**
Lev	1.74235*	0.737539	0.824046*	−0.573919
lnAT	0.230615	18.8774**	9.98759*	10.9002**
Gr(TA)	0.444746	0.381699	0.508179**	0.696889***
Turn(AT)	71.8087***	45.6658***	46.2356***	39.6121***
CR	3.86	41.0363**	44.9142***	5.15175
ESG Index	1.92979	1.54212	1.00988*	−1.48249**
R2	76%	93%	82%	76%
Ground				
const	96.352**	144.795	371.542**	423.377**
Lev	0.219773	−4.57075**	−0.488492	0.125193
lnAT	−7.30971*	−16.5251	−32.5183**	−35.3033**
Gr(TA)	0.03904	2.16703***	0.879058***	0.545425***
Turn(AT)	−4.09963	467.464***	190.281***	108.115***

Table 2 (*continued*)

Variables	EBIT 1 Yr Growth	EBIT 2 Yr Growth	EBIT 3 Yr Growth	EBIT 5 Yr Growth
CR	−2.00115	174.441***	17.7789**	13.016**
ESG Index	0.286914***	−0.463646	0.425229	0.735903*
R2	92%	99%	99%	99%

Note. */**/*** Indicators are significant at 10% / 5% / 1% respectively.

Source: the author's own study.

Then, using the OLS model with heteroscedasticity correction, the relationship between the company's preference to increase the company's EBIT and the CG, EVN, and CSR indices, as well as control variables, was examined using Equation 2. The study was carried out for all logistics companies, regardless of their business profile, and divided into companies dealing with air, sea, and land logistics (railway and road) logistics.

The RESET test was also used to analyse the model specification, which showed the correctness of the model used (p-value > 0.05). The results obtained from the RESET test confirmed that the model specification of the variables is correct. The results of this estimation are presented in Table 3.

Table 3

Estimation of model parameters from Equation (2) using the OLS method with heteroscedasticity correction

Variables	EBIT 1 Yr Growth	EBIT 2 Yr Growth	EBIT 3 Yr Growth	EBIT 5 Yr Growth
All				
const	−107.678	−337.588***	−138.228*	−41.5204
Lev	−0.122646	0.245431	−0.108467	0.136311
lnAT	9.30367**	20.0441***	8.21135*	2.77261
Gr(TA)	0.126695	0.278156	0.523873**	0.159504*
Turn(AT)	−2.87143	6.46E+00	24.4283	28.93**
CR	12.5763	71.2015***	49.6798***	23.9032***
EVN Index	−0.0947391	−0.383698	0.493066	−0.712371*
SCR Index	−0.0360640	0.039204	0.091036	0.415191
CG Index	−0.307897	−0.542372	−1.53954*	−0.667979
R2	46%	93%	92%	52%
Air				
const	−475.770***	−280.403***	−224.387**	−133.684**
Lev	0.481154	0.515066*	0.448353	0.416192

Table 3 (*continued*)

Variables	EBIT 1 Yr Growth	EBIT 2 Yr Growth	EBIT 3 Yr Growth	EBIT 5 Yr Growth
lnAT	18.7631**	11.7106***	9.26287**	7.08439**
Gr(TA)	0.202825	0.308811**	0.150319	0.119951
Turn(AT)	−27.0061	−7.18022	24.4965	5.8979
CR	154.769***	107.052***	48.8367*	12.6731
EVN Index	−1.16415	−2.70578***	−1.91533**	−1.45026**
SCR Index	0.349711	1.89045***	0.672427	0.345939
CG Index	1.42844	0.595714	1.02169	0.882999
R2	58%	90%	83%	73%
Marine				
const	−324.018*	−352.827*	146.902	125.271**
Lev	2.2493	1.10997	3.36527***	1.44952***
lnAT	14.4791	13.9766	−36.2641**	−18.4660***
Gr(TA)	0.468733	0.069123	0.095425	0.049276
Turn(AT)	−52.9474	42.8679	95.6616***	71.6594***
CR	6.25504	64.4396**	93.1698***	46.1517***
EVN Index	0.792852	−0.521207	2.0549*	−0.446126
SCR Index	−1.79267	3.50565	7.98004***	5.48138***
CG Index	2.92438	−1.62632	−6.51048***	−4.27614***
R2	96%	96%	91%	95%
Ground				
const	23.6637	3319.37**	1773.92*	769.242*
Lev	0.1374	−4.88444*	−0.224743	0.247018
lnAT	−1.88675	−235.724**	−133.577*	−60.2488*
Gr(TA)	−2.55704	−2.77087	−0.284544	0.312511
Turn(AT)	0.047779	691.914**	268.047	149.565*
CR	−17.3021	916.091**	172.344	40.1912
EVN Index	−0.0499881	11.1778**	3.20508	0.477967
SCR Index	0.623585**	−3.74997	5.26254	2.45574
CG Index	−0.0825813	−22.4389**	−7.76681	−1.93001
R2	98%	99%	90%	99%

Note. */**/*** Indicators are significant at 10%/5%/1% respectively.

Source: the author's own study.

As the analysis shows, the components of the ESG Index have a significant impact on long-term EBIT growth (3- and 5-year), both in the case of collectively analysed logistics companies and in relation to their individual industry groups. These results confirm the thesis that the financial effects related to

investments in the area of sustainable development are visible mainly in the long term, which is confirmed by previous analyses – Andesson et al. (2022), Banerjee and Deb (2023), Kovacevic and Waterstraat (2024).

For most of the entities analysed, including companies specializing in air and sea transport, the greatest impact on long-term EBIT growth is demonstrated by the environmental index (EVN Index). In the case of companies from the land transport sector (rail and road), the most important are the environmental and social components (EVN and SCR Index), but their impact is visible only in the shorter two-year period. Importantly, in this group, no significant impact of the ESG Index was found on the three- and five-year horizon.

In the case of maritime companies, all ESG components – EVN, SCR, and CG – have a positive impact on EBIT growth over longer time periods (3 and 5 years). The difference in results between industries may be a consequence of the degree of progress and implementation of ESG strategies in individual logistics industries and differences in the scale of environmental investments.

In the group of companies in the air transport sector, the environmental component (EVN) has the strongest impact, which is already visible in the two-year analysis period. In addition, in the same group, a positive impact of the social component (SCR) was also observed in the short term.

The analysis of control variables reveals that regardless of the type of company, the most important factors for EBIT growth are: current liquidity (CR), asset turnover (Turn (AT)), and the scale of operations measured by the natural logarithm of assets (lnAT). The impact of these factors was significant both in the short and long term in all logistics industries.

The next stage of the study was to verify the presence of fixed and random effects. The Wald redundant fixed effects test and the Breusch-Pagan random effects test were used. The regression models with fixed and random effects for different configurations showed that the models with random effects did not achieve statistical significance. Therefore, only models with fixed effects were used for further analysis, the results of which confirmed earlier observations regarding the impact of ESG on the financial results of companies, in other words the results obtained earlier were not accidental.

V. DISCUSSION AND CONCLUSIONS

The analysis verified the research hypotheses regarding the impact of ESG indicators and their components on EBIT growth both in the short term (1–2 years) and long term (3–5 years). The results clearly indicate that the impact of sustainable development policies on the financial performance of logistics companies is not evident in the short term, but only in the long term. This confirms the study's main thesis that the implementation of ESG practices is reflected in financial results only several years after the initiation of activities (Lee et al., 2021; Chen et al., 2015).

Regarding the first and second hypotheses, which assumed that annual EBIT growth depends on the overall ESG indicator and its components (EVN,

CSR, and CG), the obtained results did not provide sufficient empirical evidence to confirm this relationship. In many cases, the impact of ESG indicators on EBIT in the short term proved statistically insignificant, and where a relationship did exist, it was ambiguous or even negative. Therefore, it can be concluded that both hypotheses regarding the short-term impact of ESG must be rejected. The situation is different for hypotheses 3, 4, 5, and 6, which examined the impact of ESG indicators and their components on EBIT growth over two- and three-year periods. Over a two-year horizon, the impact of ESG appears moderate and clearly varies by sector – particularly evident in air and sea transport, while in land logistics, only a partial impact of environmental and social indicators was identified (Uvet et al., 2025). However, over a three-year horizon, stronger and more consistent results were obtained, indicating a significant relationship between ESG and EBIT growth, which supports hypotheses three to six, particularly for air and sea transport.

The most conclusive results concern hypotheses 7 and 8, which posited that EBIT growth over a five-year period depends on the overall ESG indicator and its components. The empirical analysis confirmed a significant impact of ESG on long-term EBIT growth for both the entire sample of logistics companies and within specific industries. In particular, maritime and air transport showed a strong and positive relationship between ESG components and financial performance, while in land transport, the ESG impact was weaker and less stable. Ultimately, hypotheses 7 and 8 should be considered confirmed.

In summary, the study demonstrated that implementing sustainable development policies and reporting them within ESG indicators does not produce immediate financial results, but in the long term, it significantly enhances companies' capacity to generate operating profits. These findings align with the international research demonstrating the delayed nature of ESG effects. Differences between individual logistics industries highlight the importance of both the pace and the scope of implementing sustainable development practices – more innovative sectors, such as aviation and maritime transport, translate ESG investments into tangible financial benefits more quickly, while land transport continues to lag behind.

The study's findings have significant practical implications for both managers and investors. From the perspective of logistics company management, this means that decisions regarding the implementation of ESG strategies should not be assessed solely in the short term, as financial effects become visible only after several years. When planning pro-environmental initiatives or those related to improving corporate governance, managers should treat them as strategic investments rather than operating expenses. Particularly in sectors where the pace of innovation is high (such as aviation and maritime transport), accelerated implementation of ESG solutions can be a source of competitive advantage and additional financial benefits. In land transport, however, it will be necessary to expand the scale of investments in pro-environmental and social solutions to achieve similar results.

For investors, the key lesson is that when assessing logistics companies in terms of their financial potential, it is important to consider not only current results but also ESG strategies and the pace of their implementation. Companies reporting high levels of ESG indicators, particularly in the area of environmental protection, can offer more stable and higher operating profit growth in the long term. Investors should therefore treat ESG reports as a tool for assessing the future financial health of companies, not merely as a means of meeting regulatory requirements.

It should be emphasized that this study has certain limitations that may impact the scope of interpretation of the results. First, the analysis covered only logistics companies operating in Europe, which limits the generalizability of the findings.

In the future, it would be worth expanding the research to other economic sectors to compare the pace and effectiveness of ESG policy implementation across industries. An interesting avenue for further study could also be analysing the impact of specific subcategories of ESG indicators – such as CO_2 emissions, employee safety, or ownership transparency – on financial performance. The next step could be to apply dynamic panel methods, which would better capture the lagged effects of ESG investments. Furthermore, qualitative research, such as case studies, would be an important complement, providing a deeper understanding of the mechanisms by which ESG policies impact companies' operating profitability.

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