Relationship between Environmental, Social, and Governance Factors and Financial Performance in Central European Countries

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Abstract
Measuring financial business performance is a key assumption for the responsible management of a company. Traditionally, financial measures were mainly used, but in recent years the importance of non-financial measures has increased pronouncedly. Currently, companies are encouraged to reflect on their business's sustainability aspect. One way of measuring sustainability performance can be a company's ESG score. This article aims to analyse the relationship between a traditional financial performance measure (return on sales) and a modern measure (ESG score) in Central European countries. The research sample consists of two groups. The first contains 74 companies from the Visegrad Group countries (V4), and the second consists of 214 companies from Germany and Austria. The relationship between those two measures was studied using the Spearman rank order correlation coefficient. Subsequently, the amount of the ESG score was analysed in both of the groups. The research findings indicate no or weak relationship between the ROS and ESG score. However, based on the Levene's F-test, a statistically significant difference was also identified between the two country groups considering the amount of the ESG score.

Key Words
ESG factors, financial performance, return on sales, sustainability

JEL Classification: M14, G30, M21

Introduction

Business performance and its measurement have been the subject of interest for many studies and authors for a long time. Its definition in the professional literature varies. For example, Šulák and Vacík (2005) define business performance as "*the ability of a firm (a business entity) to evaluate best the investments made in its business activities*." This definition is focused on financial performance based on past financial results. However, the company's performance is not only determined by the financial performance measure. Other relevant criteria should also be included in the business performance evaluation. All business performance measures must be set thoroughly and with appropriate weights assigned to them so that the performance measurement system is balanced and interconnected. Therefore, the correct choice of the company's performance evaluation system is a difficult task for the company's management.

The origin of the search for the relationship between Environmental, Social and Governance (ESG) issues or its alternative to Corporate Social Responsibility (CSR) measure and firm performance can be traced back to the early 1970s. ESG performance reflects the sustainability component of the company´s CSR strategy. Since then, scholars

and investors have published hundreds to thousands of empirical studies and several review studies exploring this relationship. In 1970, Friedman (1970) published his "doctrine" about the concept of social responsibility in business and argued that companies' primary responsibility was to maximise profits for shareholders. The article presented his belief that business leaders should focus solely on their economic responsibilities and that any other considerations, such as social or environmental concerns, should be secondary to this objective. This paper is considered a key text in the history of corporate social responsibility and has been the subject of much debate and discussion in the field of business ethics.

Currently, the issue of corporate social responsibility is further focused on the problems of the sustainable functioning of companies. The companies are encouraged to include information about their sustainability in their reporting. Since 2025, it will be compulsory for many companies in the European Union to provide detailed sustainability reports as part of a digital management report based on the Corporate Sustainability Reporting Directive (CSRD). In 2013, an environmental, social and governance (ESG) score emerged as an essential pillar of CSR for developing sustainable strategies that affect the financial performance of multinational firms (Eccles and Serafeim, 2013). ESG score typically includes three components (Sustainalytics, 2021):

a) Environmental: This component assesses a company's environmental impact, including its carbon emissions, waste management practices, and natural resource use.
b) Social: This component evaluates a company's impact on its stakeholders, including its employees, customers, and local communities. It includes factors such as labour practices, human rights, diversity and inclusion, and community engagement.
c) Governance: This component evaluates a company's leadership and management practices, including its board structure, executive compensation, and transparency.

As for the Czech Republic, the Association of Social Responsibility introduced ESG Rating in 2022, and the first data will be provided in November 2023. ESG Rating was created to compare and educate companies in the Czech Republic and measured selected indicators within the individual pillars of ESG. It compares the extent to which domestic companies monitor and communicate their impact on the environment, society and company governance. (ASR, 2022)

The empirical studies examining the relationship between ESG and corporate financial performance use various financial performance indicators as dependent variables, or a mix of more of them: operational performance – return on assets, ROA (Buallay, 2019; Duque-Grisales and Aguilera-Caracuel, 2019), financial performance – return on equity, ROE (Moneva and Ortas, 2009), operating profit margin – return on sales, ROS (Aras et al., 2010), market performance measured by Tobin's Q (Elsayed and Paton, 2005), return on investment, ROI (Montabon et al., 2007), market performance measured by market value and earnings per share (Nisar et al., 2021), net profit margin, operating profit margin, etc.

As independent variables, empirical studies use, for example, the ESG scores retrieved from Thomson Reuters' Asset4 (Duque-Grisales and Aguilera-Caracuel, 2019; Cheng et al., 2014; Nisar et al., 2021), corporate environmental performance provided by Sustainable Investment Research International Company - SiRi Co. (Moneva and Ortas, 2009), Dow Jones sustainability index (López, 2007), total ESG score and a score for

each of the components of total ESG score from Sustainalytics which is the leading independent global provider of ESG and corporate governance research and ratings to investors (Yilmaz, 2021).

Empirical evidence strongly supports the importance of ESG investing for businesses, with approximately 90% of studies demonstrating a nonnegative ESG-CFP relationship; a significant majority of studies report positive results. (Friede et al., 2015). Based on contemporary research, a positive association between ESG and financial performance is widely assumed (Ameer and Othman, 2012; Kapoor & Sandhu, 2010; Eccles et al., 2014; Wang and Sarkis, 2017). Other empirical studies have found a negative relationship (Hussain et al., 2018; Lopez, 2007; Lee et al., 2009). Some authors have even found no link between sustainability and firms' financial performance (Garcia-Castro et al., 2010; Surroca, 2010).

This paper aims to analyse the relationship between a traditional financial performance measure (return on sales) and a modern measure (ESG score) in Central European countries, which can help inform business strategy and policy decisions. Firstly, it tries to determine a relationship between traditional financial performance and sustainability measure in companies residing in Central European countries. Research on this relationship has achieved limited advances in this region, probably due to insufficient data regarding the ESG of individual companies. Secondly, the analysis focuses on the ESG scores' values in both groups of countries. This paper addresses the research gap by focusing on the relationship between corporate financial performance and ESG dimensions expressed through the "ESC score" provided by the Sustainalytics database. Based on the conflicted findings, this study is based on the following hypotheses to investigate the issue further:

H1: No relationship exists between ESG score and operational performance (ROS) in companies from observed Central European countries.

H2: There is no difference in the level of the ESG scores of companies from the V4 group and the Germany+Austria group.

2. Methods of Research

The research sample is composed of two groups of companies. The first group contains 74 companies representing four Visegrad (V4) countries (9 from the Czech Republic, 5 from Hungary, 58 from Poland, and 2 from Slovakia). The second group consists of 32 companies from Austria and 182 German companies. These groups were selected as they incorporated the Czech Republic and neighbouring countries. The distinction between the two groups is based on historical development: the first group of countries consists of four former communist countries (V4 group), and the second group comprises companies operating in the market economies (Austria and Germany). The underlying consideration for selecting the sample of companies was the availability of ESG scores. The data were collected from the Sustainalytics database (2023). The sample only comprised companies with available financial (ROS) and ESG data. The companies with missing data were excluded from the sample.

Since the ROS data are not normally distributed and the ESG data contain outlying observations, the non-parametric test of Spearman's rank order correlation coefficient

was chosen to test the relationship between ROS and ESG, which uses the order of the values in the calculation. For analysing the amount of the ESG score, the two-sample t-test is used to compare the means in the two country groups. Before testing the relationship of means, the data were adjusted for outlying observations and tested for normality using Kolgomor-Smirnov and Shapiro-Wilk tests. Subsequently, before testing the consistency of the means in the two country groups, the equality of variances between the country groups was tested by Levene's F-test.

3. Research Results

Hypothesis H1 about no relationship between ESG score and operational performance (ROS) in companies from observed Central European countries was tested separately in both selected groups.

First, H1 was tested in a group of companies from Germany and Austria. Based on the results of the non-parametric test of Spearman's rank order correlation coefficient, we can state that there is a statistically significant correlation (p-value = 0,035) between the ROS and ESG score in this group of companies. Therefore, hypothesis H1 can be rejected for this group of countries. However, this is a weak inverse relationship (r_s = - 0,145). Detailed statistical testing information is provided in Table 1.

Tab. 1: Spearman's Rank Order Correlation Coefficient: Germany and Austria

		Value	Asymptotic Standard Error	Approximate T	Approximate Significance
Interval by Interval	Pearson´s R	-0.108	0.053	-1.578	0.116
Ordinal by ordinal	Spearman Correlation	-0.145	0.068	-2.126	0.035
N of Valid Cases		214			

Source: authors' calculations in IBM SPSS Statistics 28.0.

In contrast, in the second group, the V4 countries, no statistically significant correlation between the ROS and ESG score was found (p-value = 0,451). The hypothesis H1 cannot be rejected for this group of countries. Detailed statistical testing information is provided in Table 2.

Tab. 2: Spearman's Rank Order Correlation Coefficient: Visegrad countries

		Value	Asymptotic Standard Error	Approximate T	Approximate Significance
Interval by Interval	Pearson´s R	-0.065	0.114	-0.552	0.583
Ordinal by ordinal	Spearman Correlation	-0.089	0.125	-0.757	0.451
N of Valid Cases		74			

Source: authors' calculations in IBM SPSS Statistics 28.0.

Hypothesis H2 assumed no difference in the level of the ESG scores of companies from the V4 group and the Germany+Austria group. Therefore, the normal distribution of the data was tested. Since the p-values for both groups of countries are higher than α, the assumption of a normal distribution of ESG data was not rejected at the 5% significance level (Table 3).

Tab. 3: Normality Tests

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ESG_G+A	0.061	213	0.052	0.988	213	0.063
ESG_V	0.102	73	0.057	0.967	73	0.055

Source: authors' calculations in IBM SPSS Statistics 28.0.

Based on Levene's F-test results, the ESG values variances are statistically significantly different between the two groups of countries. The p-value is 0.019, and Levene's F-test is 5,612. Therefore, the two-sample t-test assuming not equal variances had to be used. As the t-test is 4,001 with a p-value lower than 0.001, we reject hypothesis H3 at the 5% significance level. The mean ESG score is higher by 4.71 points in favour of the group of companies from Visegrad countries. Detailed statistical information is presented in Table 4.

Tab. 4: Independent Samples Tests

	Levene´s Test for Equality of Varinaces		t-test for Equality of Means							
			t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.			One-Sided p	Two-sided p			Lower	Upper
Equal variances not assumed	5.612	0.019	4.001	104.017	<0,001	<0,001	4.71289	1.17803	2.37681	7.04896

Source: authors' calculations in IBM SPSS Statistics 28.0.

Discussion and Conclusion

Based on the data obtained from the Sustainalytics database for companies residing in Central European Countries, a significant relationship between the traditional financial performance measure (ROS) and one selected measure of sustainability (ESG score) couldn't be statistically confirmed (hypothesis H1). Although the relationship can be considered statistically significant by German and Austrian companies, this extremely weak inverse relation is not very meaningful. No statistically significant correlation between the ROS and ESG score was found in Visegrad countries. Nevertheless, this result can shortly change when introducing sustainability measures becomes more common and subsequently compulsory for specific companies. When those measures become crucial for evaluating company performance, company managers will probably be more willing to reflect sustainability measures in their decisions.

Focusing on the ESG score itself, considering the difference between the average value of the ESG score, the ESG values variances were statistically significantly different between the two groups of countries (hypothesis H2). It can be seen that the Visegrad group achieved better results than the group consisting of German and Austrian companies. This result may be influenced by the limited number of companies residing in Visegrad countries for which the ESG score was available. Furthermore, if we focus on the structure of the amount of the ESG score achieved by companies in the two selected groups, the German and Austrian companies achieved lower scores than can be theoretically expected. On the other hand, the companies from Visegrad countries

obtained higher results than anticipated. The situation can change as more data will be available for the Visegrad countries (ASR, 2022).

Further research in this area should focus on the data from more companies, from more European countries, or use other metrics measuring a business's sustainability to finetune the study, eliminate potential shortcomings of such investigation and obtain more representative results.

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