Human Capital as a Key Factor for Organizations' ESG Goals

Adrian Petre and Doru Alexandru Plesea
The Bucharest University of Economic Studies, Romania

petreadrian10@stud.ase.ro
pleseadoru@gmail.com

Abstract. The integration of Environmental, Social and Governance (ESG) in the long-term development strategies of companies is a mandatory condition for ensuring their sustainability and for maintaining competitiveness on the market. Thus, the main objective of this empirical work is to analyze the extent to which European companies currently manage to fulfill certain specific requirements related to ESG and the role played by highly qualified human capital in this process of sustainable development. To achieve this goal, a diverse research methodology is used, consisting of critical comparative analysis of the specialized literature, interpretation of statistical data, and econometric analysis. Our analysis is based in particular on European companies data from various fields of activity and different sizes, extracted by Eurofound through a complex survey. The main results demonstrate how European Union Member States are clustered and ranked based on different ESG pillars, with Sweden, Denmark, Estonia or Finland as the best performers and Greece and Cyprus as the weakest performers. At the same time, the research highlights the limited role of highly qualified human capital in supporting the development of the ESG pillars included in the analysis. We also pointed out the effect on companies' competitiveness and resilience, as well as the need for underperforming companies to develop and integrate human capital in the process of long-term sustainable and inclusive development, being the basic resource of any organization. The article may have a contribution to the literature because it demonstrates how EU Member States can be grouped according to specific ESG criteria of domestic companies, and also the role of highly qualified in boosting these criteria. Our study also may have possible practical implications, both for the academic environment, and also for the managers involved in the development of the business sector. We consider that our empirical results may contribute to the decision-making process regarding the future investments of the organizations.

Keywords: Human capital, ESG, sustainability, Tertiary education

1. Introduction

Geopolitical developments, climate changes, increased urbanization or massive industrialization are just some of the factors that highlight the need for radical transformations in business models. The business environment represents one of the pillars of any economy and society, which is why it becomes imperative that they respond effectively to such challenges and adopt a proactive, responsible, and sustainable attitude.

In order to be sustainable, competitive and inclusive on long-run, the companies must fulfill different Environmental, Social, and Governance (ESG) requirements.

In this context, *the main objective* that we have set for this work is to analyze the current degree of fulfillment of some of the ESG requirements by companies in the European Union (EU) Member States and to test the role of highly qualified human capital in stimulating their achievement.

We consider that through this research, we can make a contribution to the state of knowledge in the field by demonstrating empirically how EU companies manage to fulfill certain specific criteria related to sustainability, the way in which the countries of origin can be grouped according to common characteristics, at the same time testing the ability of smart human capital to positively influence these specific ESG pillars.

The paper is structured as follows: Section 1 presents a summary of the state of knowledge in the field, Section 2 describes the applied research methodology, and Section 3 details the obtained results. The paper concludes with the authors' general conclusions.

2. Literature Review

At the scientific literature level, numerous studies analyze the link between ESG regulations and organizations' performance. On the other hand, other researches analyzes the role of human capital in this process.

Lee and Rhee (2023) analyzed the impact of corporate ESG management on the brand, and their results showed that social and governance activities have a positive effect on brand loyalty, image, and attitude.

Zeng and Jiang (2023) tested the link between ESG and the performance of companies in the agricultural and forestry sectors, and concluded that the two variables are significantly and positively correlated, and that higher ESG ratings are beneficial to improving corporate performance.

Espinosa- Méndez, Maquieira and Arias (2023) analyzed the impact of ESG performance on the value of family firms, and their results showed that only environmental and social performances have a statistically significant positive effect on firm value. Similar results were obtained by Yu and Xiao (2022) based on Chinese A-share listed companies, and by Aras and Kazak (2022) through an analysis carried out at the level of the banking sector in OECD countries.

Galletta, Mazzù and Naciti (2022) highlight also that ESG performance is an increasingly important topic for banking industry.

In a study by Shakil (2021), the impact of ESG on financial risk for oil and gas companies was examined, revealing an adverse effect of ESG performance on total risk. Additionally, the study found that board gender diversity adversely influences both total and systematic risk. In connection to this, Shakil (2021) demonstrates that board gender diversity plays a catalytic role in the relationship between ESG and financial risks.

In addition, Chebbi and Ammer (2022) and Eliwa, Aboud and Saleh (2023) demonstrated that board composition and workplace diversity have a significant impact on ESG responsibility.

Likewise, Suciu, Noja and Cristea (2020) emphasized the importance of diversity, social inclusion, and human capital development for risk mitigation and improving financial performance of companies, using statistical data from 1.722 European companies. Similar results were obtained by Cho, Kim and Mor Barak (2017) for social enterprises, showing that both workforce diversity and management diversity are fundamental factors with a positive influence on organizational performance.

On the other hand, Wu and Li (2023) conducted a study on the impact of digitalization on the ESG performance of companies in China, and their results demonstrated that digital transformation can improve corporate ESG performance.

Alternatively, Popescu et al. (2022) underscore the need for social innovation, circularity, and energy transition in implementing environmental, social, and governance practices.

3. Methodology

The research methodology used in this paper is diversified.

First of all, we used the method of investigating the scientific literature to identify some of the most representative conclusions obtained by other researchers who have analyzed this subject.

Further, we applied the method of econometric analysis to analyze how EU Member States are currently clustered depending on certain factors associated with human resources which most influence the organizations' ESG goals.

The variables used in this analysis are the following:

- Share of persons subject to discrimination at work (%);
- Management quality index (%);
- Employees who had on-the-job training in the last 12 months (%);
- Equal numbers of men and women with the same job title (%);
- The percentage of male bosses (%);
- The percentage of employees who spend more than 60 minutes travelling to and from work (%);
- Organisations that have a health and safety delegate or committee (%).

For our purpose, we used the *principal components analysis* method (PCA), which is used to transform an extended set of variables into a reduced set (namely principal components), which contains most of the information from the extended set.

After observing how the EU Member States are clustered according to the principal components, we will analyze the link between these components (dependent variables) and the employed persons with tertiary education - % of total employment (independent variable), to see the extent to which highly qualified human capital can influence the growth of the degree of achievement of the organizations' ESG objectives.

This relationship will be tested through a correlation analysis.

The data used in the paper are taken according to the mentioned sources and are the most recent official values available at the time of this research, except the employed persons with tertiary education, where the data refer to the year 2021 for comparability. To apply the described methodology we used XLSTAT software.

It should be noted and taken into account in the interpretation of the results that the data were collected by Eurofound based on a survey that took place in 2021, in the context of the COVID-19 pandemic.

4. Results

This section presents the main results obtained, based on the previously presented research methodology, regarding the grouping of EU Member States according to different factors associated with human capital that influence part of the ESG objectives of the organizations, with an emphasis on the social pillar, as well as the role of highly qualified human capital on these factors.

In the first step, we applied the Bartlett's sphericity test and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy in order to assess the suitability of the data for PCA, and the results are presented in Table 1.

Table 1: Bartlett's Sphericity Test and Kaiser-Meyer-Olkin Measure of Sampling Adequacy Results

Bartlett's sphericity test:	
Chi-square (Observed value)	69.089
Chi-square (Critical value)	32.671
DF	21
p-value (Two-tailed)	**<0.0001**
alpha	0.05
KMO	**0.715**

Source: Author's calculations based on Eurofound data

https://eurofound.link/ewcts2021data

As we can see, the p-value in Bartlett's sphericity test indicates that the variables are suitable for PCA (p-value is lower than the significance level alpha=0.05). The model's robustness is also demonstrated by the value of KMO (0.715), which is close to 1, indicating that the variables are highly correlated and suitable for factor analysis or PCA. Further, we determined the eigenvalues for each factor, as well as their contribution to the total variability (Table 2).

Table 2: Eigenvalues

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**
Eigenvalue	3.195	1.487	0.751	0.725	0.347	0.332	0.163
Variability (%)	45.642	21.250	10.730	10.355	4.955	4.742	2.327
Cumulative %	45.642	66.891	77.621	87.977	92.931	97.673	100.000

Source: Author's calculations based on Eurofound data

https://eurofound.link/ewcts2021data

Based on the values in Table 2, we see that only two main components (F1 and F2) have supraunitary eigenvalues.

To simplify the interpretation of the resulting components, and to ensure that the variance of the loadings is equal across all components, we used Varimax rotation with Kaiser normalization. (Table 3).

Table 3: Percentage of Variance After Varimax Rotation

	D1	**D2**	**F3**	**F4**	**F5**	**F6**	**F7**
Variability (%)	35.787	31.105	10.730	10.355	4.955	4.742	2.327
Cumulative %	35.787	66.891	77.621	87.977	92.931	97.673	100.000

Source: Author's calculations based on Eurofound data

https://eurofound.link/ewcts2021data

The results in Table 3 also show that there are two principal components with cumulative variability of 66.89%. Starting from these results, we determined the factor loadings in order to analyze the extent to which each original variable contributes to each principal component (Table 4).

Table 4: Factor Loadings After Varimax Rotation

	D1	D2
Share of persons subject to discrimination at work	-0.025	**0.759**
Management quality index	-0.163	**0.608**
Employees who had on-the-job training in the last 12 months	**0.858**	-0.096
Equal numbers of men and women with the same job title	-0.066	**0.832**
The percentage of men bosses	-0.451	**0.689**
The percentage of employees who spend more than 60 minutes travelling to and from work	**0.813**	-0.206
Organizations that have a health and safety delegate or committee	**0.934**	-0.111

Source: Author's calculations based on Eurofound data

https://eurofound.link/ewcts2021data

Typically, factor loadings greater than 0.4 are considered significant. The values presented in Table 4 indicate that three variables, namely *Employees who had on-the-job training in the last 12 months*, *The percentage of employees who spend more than 60 minutes travelling to and from work* and *Organizations that have a health and safety delegate or committee* are strongly associated with the first principal component, while the other variables (*Share of persons subject to discrimination at work, Management quality index, Equal numbers of men and women with the same job title* and *The percentage of men bosses*) are strongly associated with the second principal component and makes a substantial contribution to its definition.

Based on these results, we can define the two principal components as follows:

- *D1* - operativity and security in organization;
- *D2* - variety and culture in organization.

Next, we will proceed to cluster the countries included in the analysis according to *D1* and *D2* in order to observe what are the fundamental characteristics that define them in relation to ESG pillars (Table 5).

Table 5: The Clustering of EU Member States Based on Factor Scores After Verimax Rotation

	D1	D2
Observation	**Cluster**	**Cluster**
Austria	3	3
Belgium	2	3
Bulgaria	4	2
Cyprus	3	4
Czechia	3	2
Germany	2	3
Denmark	1	2
Estonia	2	1
Greece	4	4
Spain	3	3
Finland	1	2

	D1	D2
Observation	**Cluster**	**Cluster**
France	2	2
Croatia	3	3
Hungary	4	2
Ireland	1	3
Italy	4	2
Lithuania	4	1
Luxembourg	2	3
Latvia	3	1
Malta	2	4
Netherlands	2	2
Poland	3	2
Portugal	4	2
Romania	3	3
Sweden	1	2
Slovenia	3	2
Slovakia	2	2

Source: Author's calculations based on Eurofound data

https://eurofound.link/ewcts2021data

We have divided the EU Member States into 4 performance clusters, where Cluster 1 includes the best-performing states, while Cluster 4 includes the least-performing states.

The results in Table 5 indicate that Sweden, Denmark, Finland, and Ireland record the best performances in terms of D1, being included in Cluster 1, while at the opposite pole are countries such as Greece, Bulgaria, Hungary, Italy, Lithuania and Portugal (Cluster 4). This suggests that companies in countries located in Cluster 1 tend to have good job security and well-trained employees. On the other hand, the high length of employee commutes is also a booster for their ESG goals because these countries constantly promote and develop the necessary conditions for bicycle transportation.

This indicates that through work security and the development of employees' skills, companies from such countries manage to improve their ESG goals.

In conclusion, we can affirm that companies in these states have business models that emphasize the importance of human capital and succeed in integrating this resource as an important factor for fulfilling ESG objectives.

Regarding the second principal component (D2), we observed that the highest performance is registered by Nordic states, such as Estonia, Lithuania and Latvia (Cluster 1) , while the lowest performance is registered by Cyprus, Malta and Greece (Cluster 4), the position of these countries in the ranking being influenced especially by the share of persons subject to discrimination at work and by the percentage of male bosses.

By positioning the states in clusters depending on the two principal components, we can see that Denmark, Sweden, Estonia and Finland are the leading countries, having the best performances in terms of both principal components.

On the other side, Cyprus and Greece have the worst performances, according to both variables. The companies located in these states have difficulties in the development of ESG pillars and the role of human capital in this process is reduced.

Up to this point, the results of our research have highlighted which of the selected variables represent strengths or weaknesses for companies in EU Member States in the context of sustainable development with a focus on the role of human capital.

Building on these conclusions, we will now try to identify possible solutions to improve the ESG performance of European companies, especially for those located in countries with lower performance.

The premises that we consider are focused on the role of human capital with higher education.

In this regard, based on a correlation analysis we will test the impact that employed persons with tertiary education have on the other variables of which the two principal components, D1 and D2, are made up.

The results of the correlation analysis are showed in Table 6.

Table 6: Correlation Analysis (Pearson (n-1))

Variables	Share of persons subject to discrimination at work	Management quality index	Employees who had on-the-job training in the last 12 months	Equal numbers of men and women with the same job title	The percentage of men bosses	The percentage of employees who spend more than 60 minutes travelling to and from work	Organizations that have a health and safety delegate or committee
Employment – tertiary education (% of total employment)	0.278	-0.001	**0.477**	0.034	-0.379	**0.406**	0.344

Source: Author's calculations based on Eurofound and Eurostat data

https://eurofound.link/ewcts2021data

https://ec.europa.eu/eurostat/data/database

As we can see, there is a weak connection between employed persons highly qualified and the variables that form D1 and D2, meaning that currently the employed persons with tertiary education are not necessarily a booster for our ESG pillars in many cases.

The strongest correlations are registered in relation with *employees who had on-the-job training in the last 12 months* and *the percentage of employees who spend more than 60 minutes travelling to and from work*.

The first correlation suggests that highly educated individuals are more interested on long life learning, understand much better the benefits of continuous development and therefore seek out companies that offer such programs.

The second correlation may be explained by the fact that many higher-paying jobs are offered by companies located in major cities, making the employees who can apply for such jobs to spend a longer time commuting.

Considering these aspects, we can state that currently highly qualified human capital does not have a significant role on the ESG pillars included by us in this research.

5. Conclusions

Our research centered on assessing the level of company development in EU Member States based on diverse ESG criteria, while also exploring the influence of highly skilled human capital in driving this development.

The main results showed that the highest performances, both in terms of job security and operativity, as well as job variety and culture, are recorded by companies in Nordic countries such as Sweden, Denmark, Estonia, or Finland, while those in Greece and Cyprus are at the opposite end of the spectrum.

Regarding the role of highly skilled human capital in stimulating the ESG pillars included in the analysis, the research has shown that it has an overall limited influence, with significant correlations being recorded only in relation to employees who had on-the-job training in the last 12 months and the percentage of employees who spend more than 60 minutes traveling to and from work.

We can also conclude that companies that fail to develop their ESG pillars are subject to certain risks, both in terms of profitability and competitiveness, as well as of sustainable development and resilience in relation to

external shocks. Many companies from different EU Member States must find concrete solutions and strategies in order to stimulate these sustainability pillars and to integrate much more human capital in this process, being the basic resource of any organization.

Given the results obtained, we consider that we have achieved the main research objective.

This study presents a series of limitations related to the availability of statistical data for other types of variables characteristic of the ESG components of companies.

Future research can be focused on other ways of stimulating the ESG variables used in this research, and on the other hand, what would be the ESG variables significantly influenced by human capital, especially in the context of the knowledge-based and innovation economy.

Acknowledgements

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program.

References

Aras, G. and Evrim, H.K. (2022) "Enhancing Firm Value through the Lens of ESG Materiality: Evidence from the Banking Sector in OECD Countries", *Sustainability*, Vol. 14, No. 22: 15302. https://doi.org/10.3390/su142215302

Chebbi, K. and Mohammed, A.A. (2022) "Board Composition and ESG Disclosure in Saudi Arabia: The Moderating Role of Corporate Governance Reforms", *Sustainability*, Vol. 14, no. 19: 12173. https://doi.org/10.3390/su141912173

Cho, S., Kim, A. and Mor Barak, ME. (2017) “Does diversity matter? exploring workforce diversity, diversity management, and organizational performance in social enterprises”, *Asian Soc Work Pol Rev*., Vol. 11, No. 3, pp 193– 204. https://doi.org/10.1111/aswp.12125

Eliwa, Y., Aboud, A. and Saleh, A. (2023) “Board gender diversity and ESG decoupling: Does religiosity matter?”, *Business Strategy and the Environment*, pp 1– 22. https://doi.org/10.1002/bse.3353

Espinosa-Méndez, C., Maquieira, CP. and Arias, JT. (2023) "The Impact of ESG Performance on the Value of Family Firms: The Moderating Role of Financial Constraints and Agency Problems", *Sustainability*, Vol. 15, No. 7: 6176. https://doi.org/10.3390/su15076176

Eurofound (2023) *European Working Conditions Telephone Survey 2021 dataset*, Dublin. Available online: https://eurofound.link/ewcts2021data (Accessed on April 2023).

Eurostat database (2023) Available online: https://ec.europa.eu/eurostat/data/database (Accessed on April 2023).

Galletta, S., Mazzù, S. and Naciti, V. (2022) “A bibliometric analysis of ESG performance in the banking industry: From the current status to future directions”, *Research in International Business and Finance*, Vol. 62, 101684. https://doi.org/10.1016/j.ribaf.2022.101684

Lee, H.J. and Rhee, T. (2023) "How Does Corporate ESG Management Affect Consumers’ Brand Choice?", *Sustainability*, Vol. 15, No. 8: 6795. https://doi.org/10.3390/su15086795

Popescu, C., Eglantina, H., Alba, K. and Egla, M. (2022) "Social Innovation, Circularity and Energy Transition for Environmental, Social and Governance (ESG) Practices—A Comprehensive Review", *Energies,* Vol. 15, No. 23: 9028. https://doi.org/10.3390/en15239028

Shakil, M. S. (2021) “Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and board gender diversity”, *Resources Policy*, Vol. 72, 102144. https://doi.org/10.1016/j.resourpol.2021.102144

Suciu, M.C., Noja, G.G. and Cristea, M. (2020) “Diversity, Social Inclusion and Human Capital Development as Fundamentals of Financial Performance and Risk Mitigation”, *Amfiteatru Economic*, Vol. 22, No. 55, pp. 742-757.

Wu, S. and Li. (2023) "A Study on the Impact of Digital Transformation on Corporate ESG Performance: The Mediating Role of Green Innovation", *Sustainability*, Vol 15, No. 8: 6568. https://doi.org/10.3390/su15086568

Yu, X. and Xiao, K. (2022) "Does ESG Performance Affect Firm Value? Evidence from a New ESG-Scoring Approach for Chinese Enterprises", *Sustainability*, Vol. 14, No. 24: 16940. https://doi.org/10.3390/su142416940

Zeng, L. and Jiang, X. (2023) "ESG and Corporate Performance: Evidence from Agriculture and Forestry Listed Companies", *Sustainability*, Vol. 15, No. 8: 6723. https://doi.org/10.3390/su15086723