Exploring Stakeholder ESG Interests for Listed Companies in the EU Healthcare Sector

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This study empirically examines the complex correlation between Environmental, Social, and Governance (ESG) performance and financial dynamics in the European Healthcare industry. Utilizing comprehensive datasets from Refinitiv and EMIS, the study includes 209 publicly traded firms, carefully classified based on the NUTS for easier comparison of ESG ratings across different regions. The research aims to achieve three objectives: firstly, to demonstrate the distribution of ESG metrics using heat-map analysis; secondly, to evaluate the concentration of ESG scores within the healthcare sector; and thirdly, to determine stakeholders' interests by analyzing sector-specific ESG characteristics. The study intends to offer significant insights into the impact of ESG practices on financial performance, with a specific focus on the healthcare sector's unique features. This investigation adds to the expanding pool of knowledge on the subject and thoroughly examines the ESG situation of healthcare companies in Europe. This study provides a contemporary and comprehensive analysis of the interactions between ESG factors and financial performance as firms strive to incorporate sustainable practices.

Keywords: ESG, healthcare sector, stakeholder, finance, companies

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1 Introduction

Over the past three decades, scholars and practitioners alike have been grappling with the intricate nature of contemporary business challenges. In this pursuit, "stakeholder theory" or "stakeholder thinking" has emerged as a transformative narrative aimed at unraveling and addressing three interrelated business predicaments. This study examines companies listed in the EU healthcare sector based on their ESG (Environmental, Social, Governance) indicators, financial indicators, geographical location and stakeholder metrics, with linkage analyses between indicators. Additionally, it examines the potential for stakeholder theory to provide valuable insights into sustainable and ethical value creation while proposing future directions for research in this domain.

Stakeholder theory, at its core, seeks to decipher the complexities surrounding the creation and exchange of value in contemporary business environments. Over the last three decades, this concept has become a critical tool for unraveling the intricate web of relationships between businesses and the various entities affected by their operations. The first challenge it addresses is the fundamental question of how value is created and traded within the business ecosystem. (Bidhan et al., 2010)

Stakeholder theory also serves as a guiding framework for managerial thinking. By recognizing the interdependence between value creation and the ethical dimensions of business, managers can adopt a more holistic approach to decision-making. Through stakeholder theory, managers gain a comprehensive understanding of their role in creating value that extends beyond mere financial gains. (Tullberg, 2013)

As stakeholder theory continues to evolve, future research should explore its potential to provide even more nuanced insights into sustainable and ethical value creation. Further investigations can delve into the dynamics of stakeholder engagement, assessing the effectiveness of different strategies in different contexts. Additionally, research could focus on developing practical tools and frameworks that empower businesses to implement stakeholder-oriented approaches successfully.

2 Literature Review and Methodology

2.1 Literature Review

2.1.1 ESG

The term ESG was first used in 2004. ESG is based on three pillars. The symbol E is the environmental criterion, which includes the energy used by the company, the waste produced, the resources required and the consequences of using them as an outcome. Last but not least, it encompasses carbon emissions and climate change. S is the social criterion, which refers to the company's relationships and the reputation it has in the communities and institutions where it operates. S includes employment relations, diversity and inclusion. G stands for corporate governance, the adaptation of practices, controls and procedures to manage and effectively make decisions in accordance with the law and to meet the needs of external stakeholders. ESG (Environmental, Social, Governance) is the codified expression of all this to investors and shareholders in a transparent and measurable way that allows comparison between companies. It is a useful tool that helps to articulate the company's commitments to environmental and social objectives in an accountable and tangible way. Establishing ESG values and metrics is a company-specific planning process. Some companies may choose to implement qualitative ESG incentive targets even if they have rigorous ESG factor data and reporting. It is critical that ESG stakeholder goals and values are chosen to ensure that ESG targets are met, to increase stakeholder value and not simply to serve as window dressing or greenwashing. (Kay et al., 2020)

2.1.2 Healthcare sector in EU

The notable rise in the participation of large business companies in these projects suggests a shifting landscape of collaboration, potentially driven by the increasing complexity and scale of technological ecosystems. The broadening geographic scope of proposed ecosystems indicates a growing global perspective and impact. Additionally, the shift towards a healthcare application domain, coupled with the transformation of monolithic services into aggregated services, reflects a dynamic response to evolving societal needs. The heightened interest from European initiatives in the development of technological ecosystems related to the health

sector indicates a strategic focus on advancing healthcare technologies. While these findings contribute valuable insights into the current state of technological ecosystems in the health sector. Its adaptability can serve as a valuable template for future mapping studies in diverse research domains. As the technological landscape continues to evolve, ongoing mapping studies will be crucial for staying abreast of emerging trends and guiding future initiatives in the dynamic field of health technology. (García-Holgado et al., 2019)

2.1.3 Shareholders and stakeholders in listed healthcare companies

In the realm of investment decisions, investors engage in rigorous modeling and calculations before determining whether to buy, hold, or sell specific shares. The cornerstone of estimating the intrinsic value of an investment lies in the widely adopted Discounted Cash Flow (DCF) approach, a time-tested method for valuing companies and their shares. Despite the dominance of DCF, the past few decades have witnessed the emergence of innovative techniques, such as the real options theory, in financial literature. The central question addressed is whether these modern alternative methods have the potential to supplant DCF in shaping investor decisions. Through a meticulous analysis of the strengths and weaknesses of each approach, the ultimate conclusion is reached. While acknowledging that modern techniques may present viable alternatives in specific scenarios, the undisputed and empirically supported finding is that the Discounted Cash Flow approach remains the most authentic and reliable method for company valuation. (Ulbert et al., 2017) Entrepreneurship education, fostering knowledge, skills, competencies, and attitudes, seeks to enhance entrepreneurial capacity. The pandemic catalyzed the digital evolution of higher education, giving rise to the NETMIB online incubation platform. This paper introduces NETMIB, a novel solution leveraging online opportunities for skill and attitude assessment. Employing an online survey-based research method, an Entrepreneurial Orientation (EO) Index was devised as a valid scale for gauging entrepreneurial attitudes in online incubation. The study reveals that student idea owners in the online incubation process exhibit significantly higher inclination towards business activities, coupled with a stronger desire for independence and achievement. These insights aid in targeted educational interventions within incubation programs, with the online EO Index serving as a valuable performance measure across diverse incubation initiatives. (Tóth-Pajor et al., 2023)

2.2 Methodology

Based on the study of the literature on entrepreneurial orientation, it can be seen that it is one of the most important influencing factors in the operation of s. Many foreign and European research have been conducted for different countries on how the companies operating there relate to Executive Officer, including innovation, risk-taking, and proactivity. Since no such survey has yet been prepared for healthcare sector businesses, I formulated the following hypotheses for databased on the literature.

My first hypothesis regarding healthcare sector enterprises is related to how likely they are to use ESG criteria system.

H1: Stakeholder value results in a high esg score

My next hypothesis is related to the different orientations within strategic management.

H2: Stakeholder value results in a high e score

H3: Stakeholder value results in a high s score

H4: stakeholder value results in a high g score

From the point of view of risk-taking, I set up two hypotheses, on the one hand, in relation to how risk-taking or risk-avoiding the healthcare sector businesses are, and on the other hand, how risk-taking affects the company's performance.

H5: In the case of healthcare sector, technological innovation is easier to implement than R&D

H6: The majority of healthcare sector s avoid risk

Initially, there were 209 listed European companies, and only those that aligned their financial and calendar year. However, due to Brexit on 1 February 2020, UK companies were excluded, leaving 188 companies after the exclusion, as well as

companies from Switzerland and Norway, bringing the total number of companies to 134. After applying the selection criteria, the reduction was 36% in terms of average number of employees and 34.9% in terms of total number of companies.

3 Results

This dataset serves as a comprehensive baseline overview of health sector-related companies in various European countries, providing key metrics on the number of companies and their respective employee counts. The data represents a foundational snapshot of the healthcare industry landscape as of the specified period.

Table 1: Start Country and Employee data

Country	companies (pcs)	Employeesscal Yr EndPeriod To PeriodAvg
Belgium	8	21 563
Denmark	13	98 405
Finland	4	20 436
France	18	206 851
Germany	20	743 008
Hungary	1	12 981
Ireland; Republic of	1	-
Italy	4	19 041
Netherlands	3	82 526
Norway	2	88
Poland	1	3 771
Slovenia	1	11 687
Spain	6	28 950
Sweden	64	101 366
Switzerland	31	293 596
United Kingdom	32	294 331
SUM	209	1 938 598

Source: Refinitiv and EMIS

The sample encompasses a total of 209 health sector-related companies distributed across multiple European countries. Notable variations are observed in both the number of companies and the size of their workforce. Germany stands out with the highest number of companies (20) and a substantial employee count of 743,008,

underscoring its significant presence in the health sector. Sweden follows closely with 64 companies and 101,366 employees.

While some countries, like Hungary and Poland, have a smaller representation with one company each, others like the United Kingdom and Switzerland feature a more extensive presence, with 32 and 31 companies, respectively.

This baseline dataset not only outlines the distribution of health-related companies but also provides a benchmark for future assessments and comparisons within the dynamic European healthcare industry. The aggregated employee count of 1,938,598 signifies the substantial workforce associated with these health sector companies, setting the stage for ongoing monitoring and analysis to track industry trends and developments.

The European Union (EU) allocates grants to economically disadvantaged regions within member states, aiming to facilitate their convergence with the EU average. Operating under the Objective 1 scheme, NUTS2 regions with a GDP per capita below 75% of the EU average qualify for structural funds from the central EU budget. This structure creates a regression-discontinuity design, leveraging the discrete shift in the likelihood of receiving EU transfers at the 75% threshold. Further intricacies arise when considering smaller regional aggregates, known as NUTS3 regions, nested within NUTS2 mother regions. While some relatively prosperous NUTS3 regions may receive EU funds due to their qualifying NUTS2 mother region, some economically challenged NUTS3 regions may not receive funds if their NUTS2 mother region fails to qualify. Empirical findings reveal positive growth effects resulting from Objective 1 funds, though no discernible impact on employment. A straightforward cost-benefit analysis suggests that not only are Objective 1 transfers effective in fostering growth, but they also demonstrate cost-efficiency. This underscores the significance of the EU's targeted support in aiding the development and convergence of economically disadvantaged regions, contributing to the overall cohesion and success of the European Union. (Becker et al., 2018)

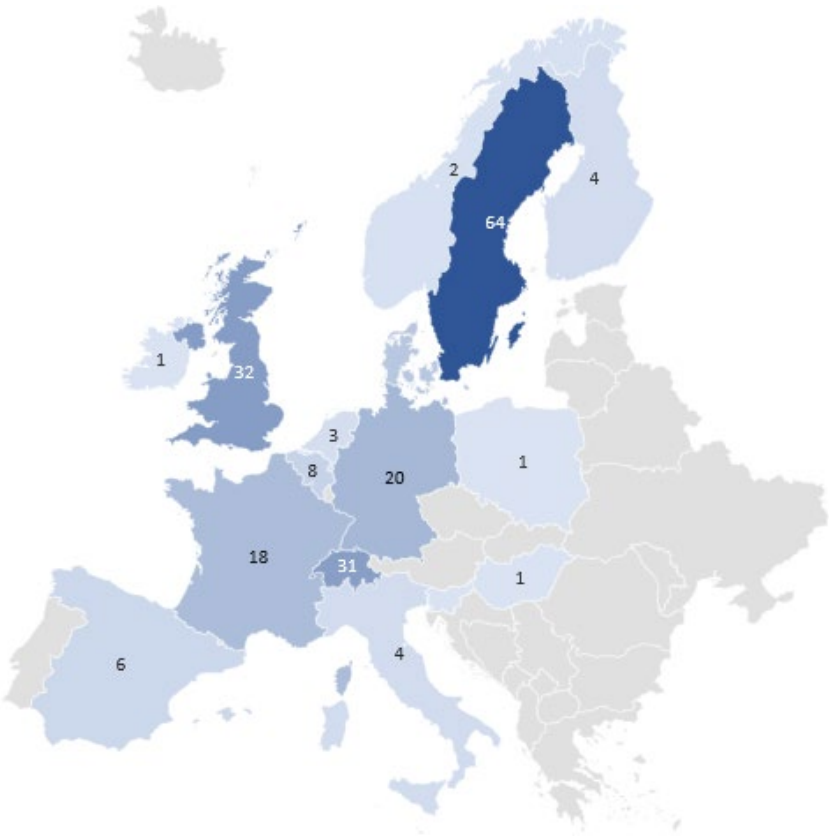

Figure 1: Europe heatmap
Source: self-made figure based on the data in Table 1

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Table 2: After Select criteria Country and Employee data

,	companies (pcs)	Employeesscal Yr EndPeriod To PeriodAvg
Belgium	8	21 563
Denmark	10	82 413
Finland	4	20 436
France	18	206 851
Germany	16	653 747
Hungary	1	12 981
Ireland; Republic of	1	-
Italy	4	19 041
Netherlands	3	82 526
Poland	1	3 771
Slovenia	1	11 687
Spain	6	28 950
Sweden	61	96 625
SUM	**134**	**1 240 589**

Source: self-made figure

Specification 1: Employing Pooled Ordinary Least Squares (OLS) with a dataset comprising 1904 observations. The model incorporates 134 cross-sectional units, with a time-series length of 14 years 2009-2022. The dependent variable under consideration is TRTRESGScore. Robust (HAC) standard errors are utilized to enhance the model's resilience and accuracy. Specification 2: Employing Fixed-effects with a dataset encompassing 1904 observations. The model incorporates 134 cross-sectional units, and the time-series length is set at 14 years 2009-2022. The focal dependent variable is ESGScore.

Table 3: Employing Pooled Ordinary Least Squares (OLS)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	33,2604	11,8564	2,805	0,0058	***
NetIncomeAfterTaxes	−0,239430	0,0735717	−3,254	0,0014	***
TtlCmnSharesOut	0,268024	0,163143	1,643	0,1027	
TotalAssetsReported	−0,0746020	0,0819849	−0,9099	0,3645	
TotalDebtOutstanding	0,0241360	0,0364294	0,6625	0,5088	
TotalEquity	0,241134	0,146183	1,650	0,1014	
PropertyPlantEquipmentTotal	−0,0829046	0,0788708	−1,051	0,2951	
TotalRevenue	0,00581125	0,0691688	0,08402	0,9332	
CapitalExpenditures CFStmt	0,0818802	0,0391737	2,090	0,0385	**
OperatingIncome	0,0329647	0,0967674	0,3407	0,7339	
CashandEquivalents	−0,0202523	0,0341229	−0,5935	0,5538	
WACCCostofEquity	0,0480863	0,0348580	1,379	0,1700	
PriceClose	−0,00905618	0,0427596	−0,2118	0,8326	

Mean dependent var	162,4606		S.D. dependent var	238,5719
Sum squared resid	92254420		S.E. of regression	220,8756
R-squared	0,148255		Adjusted R-squared	0,142850
F(12, 135)	12,55516		P-value(F)	6,74e-17
Log-likelihood	−12972,17		Akaike criterion	25970,33
Schwarz criterion	26042,51		Hannan-Quinn	25996,90
rho	0,800172		Durbin-Watson	0,389254

Source: own calculation

The joint test on named regressors yields a test statistic of F(12, 1756) = 2.53479, resulting in a p-value of 0.00256677. This indicates a statistically significant result, suggesting that the named regressors collectively have an impact on the model.

Table 4 Employing Fixed-effects

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	191,862	23,7421	8,081	<0,0001	***
NetIncomeAfterTaxes	−0,149613	0,0691024	−2,165	0,0305	**
TtlCmnSharesOut	0,186073	0,123403	1,508	0,1318	
TotalAssetsReported	0,00759679	0,0698497	0,1088	0,9134	
TotalDebtOutstanding	0,0405852	0,0181936	2,231	0,0258	**
TotalEquity	−0,0390767	0,119148	−0,3280	0,7430	
PropertyPlantEquipmentTotal	−0,0549622	0,0401898	−1,368	0,1716	
TotalRevenue	−0,0357795	0,0389767	−0,9180	0,3588	
CapitalExpendituresCFStmt	0,0689449	0,0258856	2,663	0,0078	***
OperatingIncome	0,0328888	0,0459769	0,7153	0,4745	
CashandEquivalents	−0,0288061	0,0179025	−1,609	0,1078	
WACCCostofEquity	0,0328642	0,0190249	1,727	0,0843	*
PriceClose	−0,0377042	0,0222465	−1,695	0,0903	*

Mean dependent var	162,4606		S.D. dependent var	238,5719
Sum squared resid	60471033		S.E. of regression	185,5716
LSDV R-squared	0,441697		Within R-squared	0,017027
LSDV F(147, 1756)	9,450651		P-value(F)	1,1e-138
Log-likelihood	−12570,06		Akaike criterion	25436,11
Schwarz criterion	26257,76		Hannan-Quinn	25738,56
rho	0,731543		Durbin-Watson	0,555931

Source: own calculation

Additionally, the test for differing group intercepts involves a null hypothesis that posits the groups share a common intercept. The corresponding test statistic is F(135, 1756) = 6.83665, with a p-value of 2.5648e-89. This extremely low p-value strongly rejects the null hypothesis, providing evidence that the groups exhibit varying intercepts. Overall, these tests contribute valuable insights into the significance of specified regressors and the distinctiveness of group intercepts in the model.

4 Conclusion

The study covered the importance in healthcare sector and the European Union, thereby determining why it would be worthwhile to subject them to a broader analysis both vertically and horizontally.

The current evolution of business is often described as a shift from the long dominant concept of shareholder value maximisation to a more stakeholder-centric model, where the needs of multiple stakeholders, including employees, consumers, investors, communities and the Earth are taken into account. Mapping the different manifestations of purpose based on these stakeholders provides a simple way to understand how they can work together, in harmony, towards a higher purpose. The ESG framework and metrics attempt to capture this higher purpose. ESG-based business practices include adopting sustainable practices, supporting social causes and promoting ethical business behaviour. There are significant changes in ESG priorities in the business community, driven not only by pandemics but also by economic downturns, social unrest and extreme weather events. A focus on multi-stakeholder interests and ethical business practices is essential for businesses to succeed in a modern and dynamic environment.

After a thorough review of the literature, six hypotheses were formulated. These hypotheses will soon be supported by studies of other sectors, which I intend to summarise in my doctoral thesis. It is worth mentioning that some countries, namely Iceland, Norway and Switzerland, although not members of the EU, are members of the European Free Trade Association (EFTA) and actively participate in free trade agreements with EU countries, and therefore the inclusion of these countries in future research is justified.

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