

Assessing the Impact of Corporate Social Responsibility on Financial Performance. The Healthcare Industry

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Abstract. *This paper aims to investigate how the social performance of companies in a controversial sector influences their financial performance, illustrating the effects of the total social score and how the four components contribute to this relationship. To increase their financial success without eroding social and environmental capital, healthcare organizations are setting new targets for sustainable practices. The main objective of this research, which covers 103 healthcare companies, is to highlight the link between financial performance, as measured by return on assets, and non-financial sustainability, as measured by the social performance score. In the complexity of the results, a pronounced relationship between ROA and the human rights score can be observed. The study enhances the ability to understand the link between social-sustainability implications and financial performance in a sustainability-sensitive industry.*

Keywords: social performance, ROA, sustainability, health sector

JEL classification: G30, M14, Q50

1. Introduction

Addressing sustainability issues is one of the greatest contemporary challenges faced by corporations under the pressure of globalization, a challenge materialized by the establishment of social responsibility procedures and policies (Rezaee, et. al, 2019). As an important part of sustainable performance, social performance determines the degree of success with which a company meets its social goals by implementing corporate policies that are primarily focused on community service or aim to improve social conditions and coordinate its social goals with those of the community in which it operates.

The social dimension is the conceptual basis of sustainability, being interlinked with the other two dimensions, environment and governance, and needs to be understood and quantified. The literature identifies a multitude of indicators of social performance, but a continuous shift in orientation is observed through the adoption of dimensions that focus on working conditions or community engagement (Massuça, Marta-Costa, and Lucas, 2023).

The objective of this research is to investigate the potential relationship between the total social score, its dimensions (workforce, human rights, community, and product responsibility and financial performance in the healthcare sector. The healthcare sector is categorized as a controversial sector in terms of sustainability as it is responsible for 5% of global greenhouse gas emissions, intensive chemical use, and non-recycled waste generation (Rajagopalan, Pronovost, and Al-Kindi, 2023). In light of the above, the healthcare sector has demonstrated active adaptation to changing sustainable norms, although the deployment of ESG actions is a significant barrier due to the intensive use of resources (Petersen, et. al, 2023).

Another argument supporting the choice of the social dimension is highlighted in the statement that a key component of a company's sustainability is represented by its

workforce, customers, and local communities. Achieving social sustainability is necessary for the social license to run a business (Ting, et. al, 2019).

To create a study strategy to answer the hypotheses, this research paper focuses both on the effects of the impact of the four dimensions of the social score on the financial performance of companies that may lead to different directions and on the impact of the total score. Return on assets was used to assess financial performance, with data extracted from the Thomson Reuters Eikon platform. The sample consists of 103 companies part of the healthcare sector of North America on a five-year period (2017-2021), with 3.640 data being extracted and analyzed.

The structure of the current paper presents an overview of the findings on the subject in the first section, underlying the hypothesis, the section that follows focuses on the methodology, detailing the data and describing the results. The conclusions and the limitations of this paper are presented in the last section.

Due to significant corporate concerns about sustainability, the topics of corporate social performance and corporate social responsibility have received international attention. In this regard, humanity is demanding the development of high-quality, value-added goods using methods that minimize harm to stakeholders and the general population (Silva, Fritas and Cândido, 2015). The literature can be considered elusive on the delineation and measurement of the social dimension, as it is the least addressed of the three sustainable dimensions: environmental, social, and governance (Murphy, 2012). As corporate social performance includes practices that are difficult to quantify and for which there is no obvious cost-benefit relationship, it has been examined over time from a variety of perspectives and through a variety of influencing factors. Its impact on financial performance has proved most difficult to estimate.

Social performance is quantified through the social score and encompasses engagement with both the community in which companies activate and the communities beyond. This score also highlights a company's reputation, a crucial element in determining its strength in creating long-term value.

In a research paper that focuses on analyzing the impact of social performance on financial performance as determined by shareholder returns, using a sample of S&P 500 companies over the period 2009-2018, the results showed a negative and significant correlation. This result highlights the higher financial costs of companies engaging in socially sustainable practices resulting in lower financial performance (Alareeni and Hamdan, 2020).

A negative and statistically significant impact of social performance on financial performance is presented by authors Duque-Grisales and Aguilera-Caracuel's (2019) analysis of 104 multinationals in South America. They attribute the result to the fact that companies do not behave responsibly and managers do not focus on the needs of the community at large.

Often social performance is negatively correlated with financial performance, determined by return on assets, when it is not sufficiently visible to stakeholders, and the implementation of socially responsible objectives only generates increased operating costs (Liu, Wu, and Zhou, 2022). These results are supported by Naeem, Cancaya and Bildik (2022) who, in the context of analyzing 383 companies in controversial industries, determined that social performance exhibits a negative and insignificant relationship with return on assets.

There is a potential trade-off between the two performances, explained by the fact that investing in socially responsible activities leads to reduced profitability in the short term, but can achieve a solid reputation that will lead to long-term profitability. This trade-off underlies the results of the authors Rao, et. al (2023), who obtained a negative and significant relationship between social performance and return on equity based on the analysis of 50 companies in India.

Contrary to the above results, Bilyay-Erdogan and Öztürkkal (2023) demonstrate that all the component dimensions of social score positively and significantly affect return on assets over the period 2007-2020 in a sample of companies operating in emerging global markets. The same result between the two performances, but determined from the analysis of 255 non-financial companies and proposed by Rahman, Zahid, and Al-Faryan (2023). The authors conclude that companies' reputation is improved by social performance, results that are in line with the legitimacy theory, and as a consequence better financial performance is obtained through increased sales.

An innovative case for the role of the social component in shaping financial performance shows up in a study of Stoxx Europe 600 companies over the period 2015-2020. At the same time, it is highlighted how an organization's values and moral stance towards society and the environment can lead to adverse reactions from customers and also that social scores are widely applicable and less sector-specific compared to the environmental dimension (Gonçalves, Barros, and Avelar, 2023).

According to the analysis of Ting, et al. (2019), companies need to consider that workforce development, safety and health at the workplace, and job satisfaction initiatives are value-creating leading to improved operational performance expressed through return on equity.

Looking into the healthcare sector, the results continue to be mixed. Piechocka-Kałużna, Tłuczak, and Łopatka (2021) use data from 1.263 companies over the period 2016-2020 and highlight the positive and significant impact of social scores on financial performance. On the other hand, a negative relationship between the two performances is obtained by selecting data from 33 pharmaceutical companies in India over the period 2011-2020 (Agarwal, et al, 2023).

2. Methodology and data

To ascertain whether social performance and financial performance are connected, we use the social score, a total percentage score for the social pillar. Further research will be developed to quantify this in terms of variables related to product responsibility, human rights, community, and workforce. A company's social score:

- assesses its ability to create and maintain positive relationships with suppliers, customers, and employees,
- encompasses the ability to gain and maintain the trust and loyalty of stakeholders.

The social score available on the Thomson Reuters Eikon platform is taken as the agreed independent value for linear regression models. Scores are based on 62 social variables that are divided into the four categories described above, and they range from 0% to 100%. As the information used to calculate these scores is obtained directly from companies, there is a high level of uniqueness and reliability. Financial performance information, represented by return on assets (ROA), is also collected from the Thomson Reuters Eikon platform for companies with accessible social performance indicators. ROA is an indicator based on accounting quantification that can be used to describe the financial performance of a corporation. Furthermore, it indicates how efficiently a company uses its total assets in production and operating processes to produce profit. The sample for statistical analysis consists of 103 North American healthcare companies, automatically selected from the data platform. As the US dollar is one of the major world currencies, all data are presented in this currency.

Hence, the data is restricted to publicly traded healthcare companies in North America, and the current study will cover the five years from 2017 to 2021.

Table 1 summarizes the variables that were used in the statistical analysis:

Table 1. Description of the variables used

Variable name	Symbol variable	Type of variable	Significance
Return on assets	ROA	dependent	company's profitability in relation to its total assets
Social Score	SOC	independent	
Workforce Score	WS	independent	assesses a company's success in fostering a culture of job satisfaction, safe and healthy workplaces, sustaining employee diversity and equal opportunity, and providing opportunities for professional growth.
Human Rights Score	HRS	independent	evaluates how well a corporation adheres to the most important human rights principles.
Community Score	CMS	independent	assesses a company's dedication to upholding its ethical standards as a business and as a responsible member of society.
Product responsibility Score	PRS	independent	illustrates the ability to develop high-quality products and services while incorporating the needs of its clients in terms of their safety, security, and privacy.

Source: own processing

This paper is based on the following primary hypothesis, which aims to ascertain whether social score and financial performance in healthcare organizations are connected:

H1: The financial performance of companies activating in the healthcare sector is influenced by social performance.

The primary hypothesis leads to a number of supporting hypotheses such as:

H1.1: There is a significant impact of the workforce score on the financial performance of companies in the healthcare sector.

H1.2: There is a significant impact of the human rights score on the financial performance of companies in the healthcare sector.

H1.3: There is a significant impact of the community score on the financial performance of companies in the healthcare sector.

H1.4: There is a significant impact of the product responsibility score on the financial performance of companies in the healthcare sector.

The hypotheses mentioned above state that companies with a high rate of social performance are more likely to have better financial performance than companies with little or no activity. This reasoning is summed up in the following hypothesis:

H2: As a company's social factors intensify, so does the impact between social score and financial performance.

3. Results and discussions

Correlation analysis

The correlation analysis is based on the Pearson correlation coefficient between the variables under research. For the social and financial performance score components in SPSS software, the Pearson correlation coefficient is computed on the assumption that the data are normally distributed (Table 2). Symbols ranging from 1 to 5 represent the data analysis for each year of the period 2017–2021 and the final table presents the data analysis for the entire period, with the variable names preceded by the letter T.

Table 2. Correlation of social and financial variables

	SOC1	WS1	HRS1	CMS1	PRS1	ROA1		SOC2	WS2	HRS2	CMS2	PRS2	ROA2
SOC1	1						SOC2	1					
WS1	.841**	1					WS2	.814**	1				
HRS1	.739**	.551**	1				HRS2	.766**	.536**	1			
CMS1	.839**	.755**	.493**	1			CRS2	.827**	.690**	.537**	1		
PRS1	.819**	.518**	.566**	.512**	1		PRS2	.820**	.510**	.580**	.513**	1	
ROA1	0.147	0.073	.307**	0.134	0.181	1	ROA2	0.152	0.114	.263**	0.136	0.177	1

	SOC3	WRS3	HRS3	CMS3	PRS3	ROA3		SOC4	WRS4	HRS4	CMS4	PRS4	ROA4
SOC3	1						SOC4	1					
WRS3	.835**	1					WRS4	.847**	1				
HRS3	.729**	.551**	1				HRS4	.640**	.495**	1			
CMS3	.817**	.680**	.459**	1			CMS4	.778**	.656**	.437**	1		
PRS3	.838**	.562**	.543**	.556**	1		PRS4	.835**	.587**	.392**	.487**	1	
ROA3	0.122	0.118	.387**	0.113	0.127	1	ROA4	0.138	0.148	.419**	.203*	0.048	1

	SOC5	WS5	HRS5	CM5	PRS5	ROA5		SOCT	WST	HRST	CMT	PRST	ROAT
SOC5	1						SOCT	1					
WS5	.789**	1					WST	.842**	1				
HRS5	.490**	.363**	1				HRST	.709**	.541**	1			
CM5	.691**	.533**	.193*	1			CMST	.820**	.709**	.475**	1		
PRS5	.786**	.456**	0.163	.374**	1		PRST	.833**	.560**	.502**	.530**	1	
ROA5	0.068	0.148	0.011	0.063	0.059	1	ROAT	.149**	.135**	.286**	.142**	.142**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: own processing using SPSS software

The Pearson correlation coefficient between social performance - SOC - and return on assets - ROA - has positive but rather small values, which determines the existence of a weakly positive but statistically insignificant relationship for each year analyzed. A weakly positive and statistically significant relationship at the 0.05 level could be observed in the analysis of total values. Therefore, hypothesis H1 is only supported if the long-term effect of social performance is considered. This shows that, in the short term, investing in social aspects could lead to insignificant financial effects.

For the derived variables, a weak-positive and intensifying relationship can also be observed between ROA and human rights score, which supports hypothesis H1.2. This explains why the health sector focuses most on compliance with human rights principles, which could increase a company's reputation. The analysis performed for total values supports hypothesis H2 and provides inconclusive results for hypotheses H1.1, H1.3, and H1.4.

Linear regression

The type of relationship between the independent variables (social score and its components) and the dependent variable (financial performance as evaluated by return on assets) is reflected in linear regression analysis. For the selected sample, linear regression models are run using SPSS statistical software. The social score, SOC results from the WS, HRS, CMS, and PRS scores. For this reason, only the four component variables are used as independent variables and ROA return on assets as the dependent variable in the linear regression to determine the variation of financial performance through social performance. The regression models are applied to each individual component to better observe the impact of social performance on companies' financial performance.

Table 3. Multiple linear regression of the analyzed variables

Year of analysis	Regression Weights	R ²	F	p-value	Hypothesis supported
2017	WS, HRS, CMS, PRS -> ROA	0.114	3.189	0.016	YES
2018	WS, HRS, CMS, PRS -> ROA	0.720	1.918	0.113	NO
2019	WS, HRS, CMS, PRS -> ROA	0.166	4.933	0.001	YES
2020	WS, HRS, CMS, PRS -> ROA	0.200	6.172	0.000	YES
2021	WS, HRS, CMS, PRS -> ROA	0.024	0.616	0.652	NO
Total	WS, HRS, CMS, PRS -> ROA	0.083	11.657	0.000	YES

Source: own processing based on SPSS software

The development and validation of the first hypothesis and its derivatives are supported by the regression analysis's results, which show that the combined social score variables can account for 8.3% of the variation in the financial performance of companies operating in the health sector over the whole analysis period. The results presented in Table 3 show volatility in the increase over time of the R2 value, the intensity of the relationship shows ups and downs in the period 2017-2021, with a decrease in the post-pandemic period due to the lack of involvement of health sector companies in socially-oriented actions, invalidating, however, hypothesis H2 - which argues that the intensity of the relationship between social score and financial performance increases due to the intensification of the action of social factors. The p-value results confirm the linear relationships between total social performance composed of the four dimensions (WST, HRST, CMST, and PRST) and return on assets, being well below the level of acceptability ($p < 0.05$).

According to the results for the period 2017–2021, relative variables predict ROA to a modest degree in some years ($p < 0.001$), indicating that the relative variables that constitute the overall social performance have the potential to play a significant role in shaping ROA. Given the mixed results, hypothesis H1 can be considered true for the period under analysis 2017-2021. Table 4 summarizes the findings.

Table 4. Multiple linear regression coefficients

2017						
Term	Coef	SE Coef	t	p	Collinearity sts.	
					Tolerance	VIF
Constant	-11.45739557	12.34781366	-.928	.356		
RUS1	-0.154513153	0.252103896	-.613	.541	.473	2.112
EMS1	0.454662151	0.259354013	1.753	.083	.507	1.970
INS1	0.606401867	0.184764705	3.282	.001	.896	1.116
2018						
Term	Coef	SE Coef	t	p	Collinearity sts.	
					Tolerance	VIF
Constant	-1.627969676	7.004161284	-.232	.817		
RUS2	-0.174414831	0.174746369	-.998	.321	.395	2.533
EMS2	0.248056442	0.156965976	1.580	.117	.476	2.103
INS2	0.566839774	0.141940785	3.993	.000	.755	1.325
2019						
Term	Coef	SE Coef	t	p	Collinearity sts.	
					Tolerance	VIF
Constant	3.012137271	3.957661149	.761	.448		
RUS3	-0.051699065	0.107784433	-.480	.633	.375	2.664
EMS3	0.0955357	0.100590881	.950	.345	.435	2.298
INS3	0.36571116	0.094051791	3.888	.000	.752	1.330
2020						
Term	Coef	SE Coef	t	p	Collinearity sts.	
					Tolerance	VIF
Constant	1.669837733	4.959609098	.337	.737		
RUS4	-0.037907625	0.142251313	-.266	.790	.389	2.571
EMS4	0.138410522	0.132290409	1.046	.298	.441	2.270
INS4	0.572390305	0.138297103	4.139	.000	.757	1.320
2021						
Term	Coef	SE Coef	t	p	Collinearity sts.	
					Tolerance	VIF
Constant	1.765758761	4.662270951	.379	.706		
RUS5	-0.005565035	0.156566463	-.036	.972	.350	2.857
EMS5	0.104606616	0.153779626	.680	.498	.359	2.783
INS5	0.679156577	0.145101934	4.681	.000	.781	1.281
Total period						
Term	Coef	SE Coef	t	p	Collinearity sts.	
					Tolerance	VIF
Constant	-0.062549734	2.786402979	-.022	.982		
RUST	-0.090449775	0.075739899	-1.194	.233	.375	2.667
EMST	0.195490381	0.072298443	2.704	.007	.420	2.384
INS	0.549521313	0.065107116	8.440	.000	.787	1.271

Source: own processing based on SPSS software

According to Table 4, it can be stated that hypotheses H1.1, H1.3 H1.4 are invalidated because the p-value is in the range [0.143;0.948], although the regression model supports hypothesis H1 for the total period. This means that any change in labor force development, community relations, and product responsibility does not influence

the increase/decrease in total income over the period studied. Hypothesis H1.2 shows mixed results for HRS of a p-value included in the range [0.000;0.005] and it can be assumed that human rights initiatives significantly influence total revenues of healthcare companies in the first three years.

The regression model calculated for the whole period is as follows:
 $REVT = -3.062 - 0.41 * WST + 0.166 * HRST + 0.033 * CMST + 0.002 * PRST$

To test for the presence of autocorrelation errors in the regression model, the Durbin-Watson statistical test is used. Table 5 shows the result of the test.

Table 5. Durbin-Watson statistics

Period	Durbin-Watson value dW
2017	2.050
2018	1.595
2019	1.736
2020	1.765
2021	2.051
Total	1.912

Source: own processing

The results of the test range from 1.595 to 2.051, representing normal values of which fall in the range 1.5-2.5 which leads to the conclusion that there is no first order autocorrelation of errors, the null hypothesis H0 (no autocorrelation of errors) is not rejected.

The multicollinearity test of the WS, HRS, CMS, and PRS variables is shown in Table 4. For the whole period, the inflation factor VIF shows values less than 10 ($-0.41 < VIFix < 0.166$), and the tolerance values τ are greater than 0.1 ($0.422 < \tau_{ix} < 0.606$), denoting the lack of collinearity and the viability of the regression model in the study.

4. Conclusions

This research paper focuses on quantifying the impact of social performance on financial performance in healthcare companies. The findings suggest that the relationship between social performance and financial performance in the healthcare sector is complex, with some dimensions of social performance having a more notable impact than others. The study highlights the importance of considering the long-term effects and heterogeneous nature of social performance when assessing its influence on financial performance within the healthcare sector.

The results of regression and correlation models were slightly inconclusive. The use of two separate models for the analysis increased the certainty of the results on the impact of social performance on financial performance. We could say that the current results partially support the hypotheses initially established. One explanation underlying the results is that sustainability may not be as high a priority as health issues, as the main objective of the health sector is to save lives.

Future research may examine the existence of a relationship between financial performance and social performance in a sample from a different geographical area and also use separate databases, which could lead to different results. It should be emphasized that the current study is limited by the time frame in which the research was carried out; future studies will be developed over an extended period of time to further analyze the relationship between the two performances.

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