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Article

Impact of Environmental, Social, and Governance Activities on the Financial Performance of Indian Health Care Sector Firms: Using Competition as a Moderator

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Abstract: Environmental, social, and governance (ESG) activities have become essential and viable activities of corporations because of the increase in concern for environmental, social, and governance issues. The motive of this research is to measure the effect of ESG on the financial performance (FP) of healthcare corporations using the market-to-book value (MTB) ratio as a proxy of FP. A sample of 33 pharma companies in India from 2011 to 2020 has been considered. The study relies on the panel data method to assess the association between ESG and FP. The potential moderating role of competition has also been studied to simplify their relationship in this framework. The finding of this study is that there is a significant negative association between ESG and FP, and it is also found that when competition is used as a moderator, it results in a significantly positive impact on the ESG and FP of healthcare companies. This study increases the understanding of the association between ESG and FP and helps corporations to formulate corporate strategies and stakeholders to make investment decisions. The originality of this study is that it addresses the impact of competition on ESG and FP of the healthcare industry and will become foundational literature for future studies.

Keywords: ESG; financial performance; competition; healthcare; corporate governance



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1. Introduction

The depletion of natural resources and alterations in climatic circumstances is impacting the ecosystem. This situation highlights corporate entities' roles and responsibilities in resource depletion and conservation initiatives (Kalia and Aggarwal 2022). Nowadays, people are more aware of environmental and social issues and the role of corporations in society with the help of mass media (Reverte 2009). Stakeholders and Investors are more inclined to identify how a company introduces ESG activities in their business performance and how much of their investment is in ESG activities (Kalia and Aggarwal 2022). In 2019, UAE financial regulator encouraged the listed companies to disclose information on ESG in their reporting procedures, bringing transparency and meeting their investor's pre-requisites (Ellili 2022).

ESG is categorized as a corporate commitment to boost social well-being and bring long-term sustainability to stakeholders. ESG is a company decision process for determining social responsibilities, corporate governance, and environmental performance (Zhao et al. 2018). For better ESG performance, the company focused on sustainable executive tactics rather than short-term owner worth practices that incorporate the interest of diverse stakeholder groups and bring a better future FP (Velte 2017). In 1992, the United Nations Environmental Programme Financial Initiative (UNEP FI) gave recommendations to financial organizations to accommodate ESG factors into the decision-making process.

So, ESG is one of the critical factors in assessing the capability of economic units to adopt sustainability in their practices (Zhao et al. 2018). Various national and international authorities have taken several initiatives to disclose ESG performance and to address ESG performance in the business community (Ademi and Klungseth 2022). As a result, ESG has become a debatable topic for scholars and companies evolving their corporate strategies to increase their competitiveness in the market.

Financial performance can be classified as “for achieving their economic goal company comprehend their financial visibility” (Velte 2017). Capital structure is classified as the essential element that affects the FP of the company (Vätavu 2015). The role of MTB ratios becomes pronounced in capital structure determination. MTB is a financial valuation matrix used to assess the company’s current market value to its book value. MTB helps the investor decide whether to invest in the company, as firms having higher MTB are less likely to depend on debt. Firms with higher MTB give more opportunities to equity shareholders to invest in the companies (Chen and Zhao 2004). ESG also aids investors in assessing and monitoring the investment option by providing various non-financial information about the company (Chouaibi et al. 2021). This situation also found that disclosure of the ESG performance of the telecommunication industry in Malaysia brings a competitive advantage among firms (Jasni et al. 2020). Incorporating ESG while making investment decisions brings competitiveness and ensures investments into better governed and socially and environmentally sensitive firms (Mohammad and Wasiuzzaman 2021).

In India, the healthcare sector is proliferating, attracting various investment options for investors (Acharyulu 2012). The government also take several initiatives to uplift the confidence of all the healthcare sector stakeholder (Rastogi and Sharma 2020). Even though the pandemic affects all the service sectors, the healthcare sector has been affected most severely. Spending on the healthcare sector increased by 73% from Rs. 2.73 lakh crore in 2019–2020 (pre-covid) to Rs. 4.72 lakh crore in 2021–2022 (Economic Survey 2022). According to the National Health Policy of 2017, by 2025, government’s health expenditure will account for 2.5 per cent of GDP. To achieve this goal, the budgeted spending on the health sector by the Central and State Governments in 2021–2022 increased from 1.3 per cent of GDP in 2019–2020 to 2.1 per cent (Economic Survey 2022). There will be enormous possibilities for the growth and development of the Indian healthcare sector due to expanding GDP in absolute terms and rising GDP expenditure on healthcare (Rastogi and Sharma 2020). The attribute of ESG is pointed out due to the impact of sustainability on healthcare FP (El Khoury et al. 2022). The study by Kalia and Aggarwal (2022) examines the outcome of ESG scores on FP of healthcare companies of 33 nations using the variables, i.e., ROA and ROE. The study is based on a holistic perspective, and country-specific factors are ignored. This study concentrates specifically on Indian healthcare companies because the increase in healthcare expenditure contributes toward an increment in the gross domestic product of India (Rastogi and Sharma 2020). Usually, analyzing the FP of healthcare companies relies on financial accounting information and various accounting ratios (Ramesh Bhat 2006). However, only a few studies checked out the effect of ESG on the FP of Indian healthcare companies, which gives all the more reason to readdress the issue. MTB is one of the variables for measuring the FP that is under-explored. Prior studies show that ESG activities can strengthen the organization’s FP (Zhao et al. 2018).

Analyzing the impact of ESG on the FP of an Indian healthcare organization is the aim of this study. The moderating effect of the competition is investigated on the relationship between ESG and the firm’s FP. Analyzing the FP of Indian healthcare companies, the MTB of the company is used. The goals of this research are:

- To analyze the impact of ESG on the FP;
- To assess the effect of variation in competition on the ESG and FP of companies.

The finding of this research has significant implications for ESG stakeholders. From an investor perspective, this research helps the investor make decisions regarding investment in the ESG of Indian healthcare companies. A few previous studies signify the only positive association between ESG and the FP of industries. Still, our studies reveal con-

trary aspects using two different models, i.e., the base model and the interaction model. The base model represents the negatively significant association between ESG and FP; the interaction model represents the significant positive relation between ESG and FP by using competition as a moderator.

The remainder of the study is organized as follows: Section 2 comprises the literature review; Section 3 covers the research methodology and data; Section 4 demonstrates the findings; Section 5 includes a discussion and comparison with earlier research in this area; Section six is the conclusion.

2. Review of Literature and Hypothesis Development

The literature review of this paper can be categorized into four parts: the first part is related to ESG factors on firm performance; the second part is associated with the issues of ESG disclosure on strong competitiveness; the third part considers the effect of ESG on different industries; the fourth part is on the impact of ESG on the FP of healthcare companies.

2.1. ESG Factors on Firm Performance

The plethora of studies signifies the effect of the ESG factor on the FP of the companies. Chelawat and Trivedi (2016) mention that companies now focus more on their sustainability than short-term profitability by including ESG as a goal. Sustainability is a contemporary reporting view that focuses on developing future value related to the policy of the business (Buallay 2019). Abdi et al. (2022) said that ESG brings more accountability to firms by measuring sustainability in continuing courses. Eccles et al. (2014) study the high and lower sustainability portfolios and find that companies with higher sustainability provide a better return. Firms with higher sustainability reduce the negative effect of their performance at the time when the prices of the company fall. Companies with sustainability features tend to focus more on combining ESG factors into their investment decision-making and strategic policies (Boze et al. 2019). For valuation and investment analysis, quality ESG information is required (Efimova 2018).

Chelawat and Trivedi (2016) compare the high ESG and low ESG of 93 Indian companies. Their studies help the investor to evaluate a company's FP based on ESG index performance and make a wise investment decision. ESG aids companies in opting for better corporate strategies too. Velte (2017) studies the ESG performance of German-based companies on accounting and market-based information. The study finds that companies with accounting-based information are significantly positively associated with ESG performance but negatively associated with market-based information. The study is of minimal time, reducing validity and enhancing future studies' scope by adopting different advanced tools to measure ESG performance.

H₁: *Positive association between ESG performance and FP.*

2.2. ESG Disclosure on Strong Competitiveness

Chang and Lee (2021) studied the effect of ESG on firms' value and observe the influence of ESG on the industry's competitiveness. The study finds the positive impact of ESG on the firm's value, and the role of competition as a moderator is significantly positively associated with firm value and ESG activities. Nirino et al. (2021) opine that ESG somehow reduces the negative impact of company controversies on the FP of the company as it is involved at the forefront of ESG practices and stakeholder interaction, strengthening the picture of the corporate. Even in the pandemic crisis, it is observed that ESG performance establishes a positive and significant relationship with firm FP and market valuation (Ademi and Klungseth 2022). At the same time, the firm involved in ESG disclosure enhances its competitiveness, increases investor acceptance and firm image, and strengthens future performance (Mohammad and Wasiuzzaman 2021).

[Martins \(2022\)](#) proclaims a positive association between competition and socially responsible activities. Managers decide to increase their investment in ESG activities because they recognize that these comprise the optimal benefit approach, which improves competition. The role of ESG is to increase the responsibility of corporations toward society. [Ahmad et al. \(2021\)](#) concentrated on the literature relating to how corporate social performance is measured by health, the research on social performance, and with a relationship to firm financial performance and other ESG characteristics. They also perform dynamic and static panel data analysis, which should have been addressed by prior safety, diversity, community, employment quality, and product responsibility.

H₂: *Competition positively moderates the association between ESG performance and FP.*

2.3. Effect of ESG on Different Industries

There are several different studies on different industries for analyzing the impact of ESG on their FP. [Zhao et al. \(2018\)](#) estimate the regression model using the return on capital employed to measure the FP of China's listed power generation corporation. In addition, they observe that good ESG performance enhances the performance of the companies. The research work of [Ellili \(2022\)](#) is specifically on listed corporations in the UAE financial market from 2010 to 2019. The study signified the positive effect of ESG disclosure and reporting the quality of a firm's finances on firm investment efficiency. The sample size is limited and scope is provided for further studies of GCC countries. [Abdi et al. \(2022\)](#) find a negative association between ESG disclosure and the MTB ratio of the airline industry. However, introducing the age and size of the industries as moderators brings out the positive relation between ESG disclosure and the MTB value ratio of the airline industry. The static and dynamic panel study was made on 351 UK firms and found that, in total, there is a positive association between ESG and the FP of the firm. However, the result is mixed when the ESG factor has been assessed individually. It is also found that including firm size as a moderator positively affects and FP of UK firms ([Ahmad et al. 2021](#)). [Egorova et al. \(2021\)](#) study the impact of ESG on the FP of information technology companies and find that ESG is at a nascent stage in this sector: IT companies have an opportunity to improve their FP. Their analysis shows that if the companies opt for ESG activities in their operation, it results in a positive impact on the performance of the company.

2.4. ESG on the FP of Healthcare Companies

[Rastogi and Sharma \(2020\)](#) announced that there is enormous room for growth in the healthcare sector in India. Without corporate support, the government cannot upgrade India's healthcare sector. The negative influence of the pandemic reflects on the stock market, too; investors are looking for alternatives to save their investments. Worldwide, in the stock market, ESG decisions were prominent because ESG envisages the sustainable return, absolution of risk, and responsibility aspects of investment ([Lamba and Jain 2022](#)). Healthcare companies integrate their effort to target substantiality practices to improve the FP of companies ([Meiling et al. 2021](#)). The study of [Kalia and Aggarwal \(2022\)](#) analyzes the impact of ESG scores on the FP of 486 healthcare industries in the context of a 33-country basis. According to the author's point of view, it is one of the first studies on the healthcare industries for the year 2020. Compared to developing nations, ESG activities are performed for a very long time in developed countries and have a more robust institutional framework. ESG activities also decrease the negative impact and reduce implementation costs over time. So, the results signify the positive effects of ESG scores on 19 developed nations and the negative impact on 14 developing countries by using correlation and multivariate analysis. It gives immense scope for further studies in this sector and enhances the existing academic literature.

In this study, we try to understand the influence of ESG on FI having competition as a moderator. Below Figure 1 is the model which visually represents the concept.

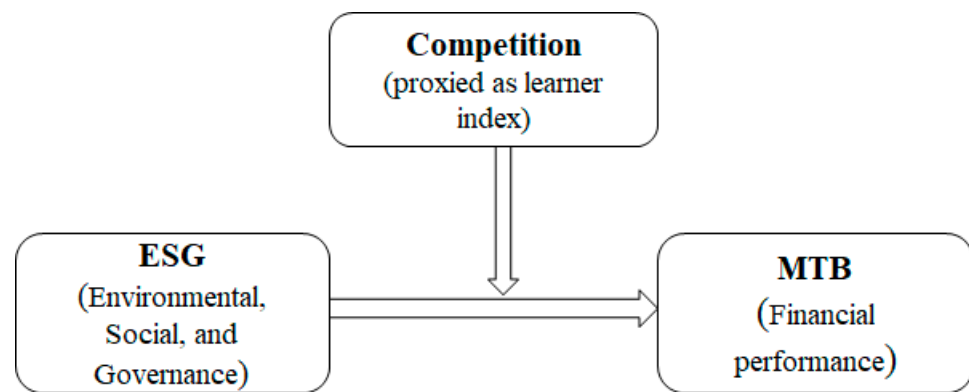


Figure 1. Conceptual Model.

3. Data and Methodology

3.1. Data

A sample of 33 pharma companies is used in this study for analyzing the operation of the Indian healthcare sector. Secondary data on these corporations have been collected for 10 years, from 2011 to 2020. The data has been retrieved from one of the most efficient data sources, CMIE Prowess.

A brief description of each variable of concern in the study is given in Table 1, as shown below.

Table 1. List of Variables.

SN	Variable	Type	Code	Definition	Citations
1	Market to Book Ratio	DV	MTB	MTB is a financial valuation matrix used to assess the company's current market value in relation to its book value	(Chen and Zhao 2004)
2	Environmental, Social, and Governance	IV	ESG	ESG is a company decision process for determining environmental, social, and corporate governance performance	(Zhao et al. 2018)
3	Lerner index	IV	LI	Competition is always examined in the efficiency and customer-focused method relevant to a firm.	(Rastogi et al. 2022)
4	Market capitalization	CV	Mcap	It illustrates the measurement of the valuation of firms and is computed by multiplication of the total quantity of shares of a company by the current retail price of a share.	(Marito and Sjarif 2020)
5	Sales	CV	Sales	It is the volume of trade of services and goods for legal tender, and the natural log value of the sale is used.	(Megginson et al. 1994)

3.2. Methodology

A panel data model (PDM) was used to assist in the analysis conducted for this research. The panel data analysis has the attribute of both cross-sectional and time-series (Hsiao 2007; Baltagi 2008). PDM offers more data than cross-section analysis or time series in the investigation.

The model specifications are given as:

$$MTB_{it} = \beta_0 + \beta_1 ESG + \beta_2 \ln mcap + \beta_3 \ln sales + u_{it} \quad (1)$$

$$MTB_{it} = \beta_0 + \beta_1 dESG + \beta_2 i_dESG_dLI + \beta_3 \ln mcap + \beta_4 \ln sales + u_{it} \quad (2)$$

where *MTB* represents market to book ratio and the dependent variable of this study. Furthermore, the constant term is β_0 , and *ESG_IND* is used for environmental, social, and

governance factors. It is the independent variable in the study. The term used in the second equation, dESG, is the demean of ESG. The next term in the second equation is the interaction term (dESG*dLI), as LI is considered a moderating factor. LI stands for learner index; it is used as a proxy of competition in healthcare companies. Lnmcap and Lnsales are the log values of market capitalization and sales, respectively, and these are the control variables of this study. Lastly, u_{it} is observed as an error term.

4. Results

4.1. Descriptive Analysis and Correlation

The descriptive statistics and correlational values of various variables applied in the study are demonstrated in Tables 2 and 3, respectively. The average value of ESG is 0.4446 with a standard deviation of 0.0636, showing a low expenditure on the pharma corporation's environmental, social, and governance aspects. The mean value of MTB is 6.613 with SD 20.55, which offers an adequate amount of difference between the MTB ratio in the books of firms. LI with mean and SD values of 0.1575 and 0.2476, respectively, show a low average value level with an almost equal amount of deviation from the mean of LI.

Table 2. Descriptive Statistics.

Variables	Mean	SD	Min	Max
MTB	6.613,139	20.55668	−23.2	265.79
ESG	0.4446237	0.0636491	0.2741935	0.5322581
LI	0.1575365	0.2476163	−1.856504	1.001547
Mcap	16,945.78	27,822.84	14.83731	202,702.4
Sales	4013.542	5626.169	28.98	76,947

Note: Mean, SD, Max, and Min are mean value, standard deviation, maximum, and minimum, respectively.

Table 3. Correlation Matrix.

Variables	ESG	Desg	dLI	i_dESG_dLI	Lnmcap	Lnsales
ESG	1.0000					
Desg	1.0000 *	1.0000				
dLI	−0.0589	−0.0589	1.0000			
i_dESG_dLI	−0.0551	−0.0551	0.9944 *	1.0000		
Lnmcap	0.1543 *	0.1543 *	0.1583 *	0.1530 *	1.0000	
Lnsales	0.0076	0.0076	0.3804 *	0.3889 *	0.6986 *	1.0000

Note: * represents at 0.05 a significant correlation coefficient.

In the correlation matrix, the independent variable (ESG) is moderately significant but negatively correlated with the moderating variable (LI), with a value of 0.0589. However, the significant correlation represents all those variables with a value of less than 0.80. The multicollinearity is eliminated in all the significant pairs of the variables except those marked with a star sign in Table 3 (Baltagi 2008).

4.2. Regression Analysis

Result of Model 1 and Model 2

We examined the relationship between MTB (dependent variable) and ESG (explanatory variable) in model 1. The output is shown in Table 4. As per the analysis, a BP test has been performed to determine the random effect. The test turns out to be significant as the value is less than 0.05, resulting in the application of the Hausman test. An insignificant result is obtained from the Hausman test. Therefore, the model compatibility with RE is evident.

Table 4. Result of Regression.

DV: MTB	Model 1 (Base Model)			Model 2 (Interaction Model)		
	Coef.	SE.	p Value	Coef.	SE.	p Value
ESG	−434.73 **	157.38	0.006			
dESG				−120.77	157.71	0.444
dLI				−955.86 *	198.06	0.000
i_dESG_Dli				714.27 **	335.37	0.033
Lnmcap	0.82	1.79	0.646	−11.64	7.97	0.145
Lnsales	−0.68	3.64	0.850	−12.18	11.66	0.296
Cons	198.55 *	79.11	0.012	209.51 ***	123.27	0.089
BP-test (Random effect)		40.14 * (0.0000)			0.00 (1.0000)	
Hausman Test		14.67 * (0.0021)			39.85 * (0.0000)	
F-test		2.83 * (0.0000)			1.56 ** (0.0373)	
Chi-square		58.08 * (0.0000)			62.07 * (0.0000)	
Durbin Chi-2		6.34311 *			14.7407 *	
Wu-Hausman Test		(0.0118)			(0.0001)	
		6.38103 *			15.3365 *	
		(0.0122)			(0.0001)	

Note: The null of the Wald test is that there is no heteroscedasticity. The null value for the Wooldridge test of autocorrelation in the panel is zero (with one lag). The *, **, and *** represent sig levels at 1%, 5%, and 10% respectively.

Further, the Wald test is performed, and it is estimated that the p-value is less than 0.05, resulting in the estimation of robust estimates. In the table, ESG shows a negative coefficient value of 434.73 with a p-value less than 0.05. Hence, the outcome indicates that ESG significantly but negatively affects the market-to-book ratio of pharma companies working in India.

In model 2, the moderating impact of LI on the relationship between ESG (independent variable) and MTB (dependent variable) has been observed. The output of the analysis is depicted in Table 4. BP test has been used for random effects; this turns out to be of no real significance. At the same time, the estimation of the Hausman test resulted in a significant p-value. Thus, the model compatibility with RE is demonstrated. Further, the F-test and chi-square test also resulted in a significant value. After this, the coefficients of the interaction term, i_dESG_dLI, is calculated to be 714.27 with a significant p-value, demonstrating that the interaction variable is significantly and positively impacting the association between ESG and MTB.

4.3. Robustness of the Results

The Wu–Hausman test and the Durbin Chi-square test are performed to check the endogeneity in the study. The results show that ESG, as well as i_dESG_dLI, has resulted in significant p-values (see Table 4). Hence, the robustness of the results is assured as the tests showed that the null hypothesis of no endogeneity is not rejected.

4.4. Interaction Graphs

An interaction graph helps to show a graphical image of the relationship between the variables. In Figure 2, the solid line indicates a low moderating level, and the solid dash line shows a high moderating effect of the interaction variables. For all the interaction terms, ESG acts as the moderator, and LI (Figure 2) is the moderated variable. Furthermore, in Figure 2, an impact of the interaction term (i_dESG_dLI) is visible on the association between MTB and ESG. The graph implies that an increase in competition results in an increase in the ESG and FP of the pharma companies and vice-versa.

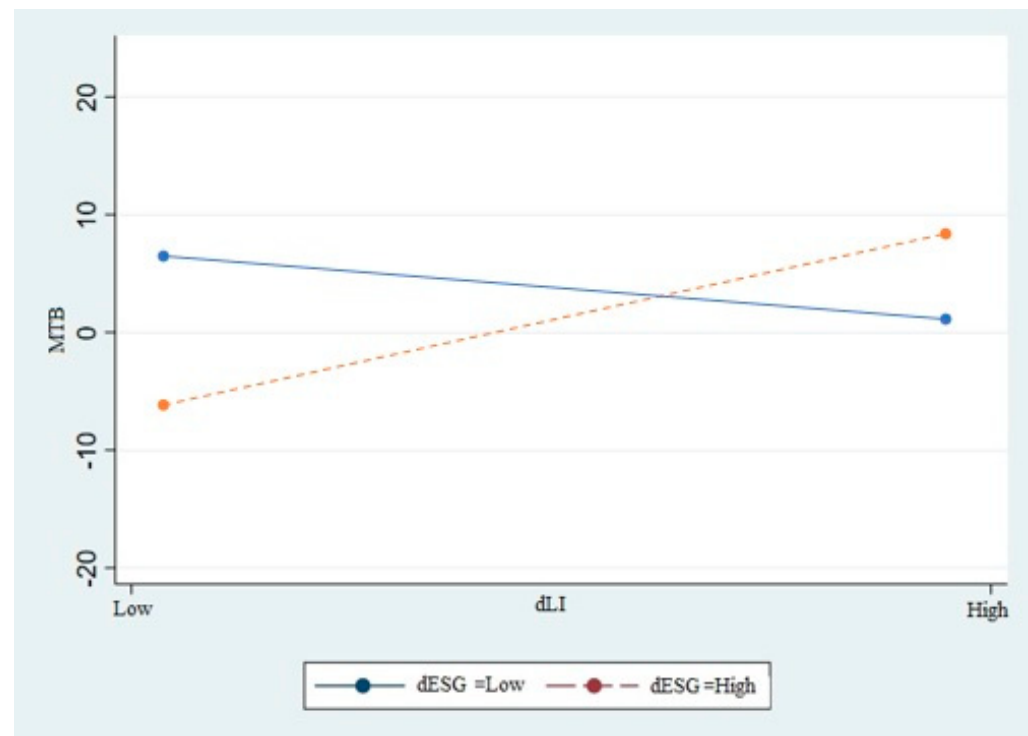


Figure 2. Interaction Graph.

5. Discussion

The primary motive of this research is to assess the implementation of ESG activities in the healthcare industry and their impact on the FP of the company. Many firms aim to implement ESG activities in alliance with the stakeholder objectives and compliance with the government's guiding principles. Thus, companies involve more ESG activities in their operation to enhance their image in the eyes of stakeholders. It is therefore necessary for firms to understand the effect of ESG on the MTB ratio. The study's findings contradict hypothesis H_1 as there is a negative association between ESG and MTB in the healthcare sector. This is supported by the prior research on the airline industry by [Abdi et al. \(2022\)](#), which identifies a negative association between ESG and MTB if the age and size introduced to this association as moderators bring positive results.

Another finding of this study supports hypothesis H_2 that there is a positive and significant relationship between ESG firms and MTB ratios while competition comes into play as a moderator. Therefore, competition is a sustainable factor because it moderates the association between ESG and MTB ratios. This result is supported by prior studies by [Mohammad and Wasiuzzaman \(2021\)](#), who found that ESG disclosure brings a competitive advantage to the firm; even a controversial event does not significantly affect the stakeholder's views regarding firms. When competition is no longer a factor, than this study found a negative association between the ESG and MTB ratios of the firm. This study, also supported by [Chang and Lee \(2021\)](#), found that competition positively moderates the firm value and ESG activities. This result supports the prior study of [Kalia and Aggarwal \(2022\)](#), who found that in developing nations, there is a negative association between ESG activities and the performance of the firm, compared to the positive relationships of developed countries.

This study is based on the Indian context, and India is one of the developing nations of the world. The involvement of various costs makes the implementation of ESG activities a costly affair that negatively impacts the performance of ESG activities on the FP of the company. In the Indian context, this is the initial study to measure ESG's impact on Indian healthcare companies' FP using MTB ratios as a variable. Prior studies estimate the effect of ESG activities on the FP of healthcare industries by using ROA and ROE as variables. In

previous studies, the MTB ratios variable is ignored. This study uses MTB as a variable for measuring companies' FP, which makes this study different from other studies. This study helps the shareholders, creditors, promoters, and employees decide whether to invest in healthcare companies. According to the findings, industries that engage in ESG activities have an advantage because of their competitiveness. Those industries that are more competitive are more positively associated with ESG activities. They enhance their financial performance, and investors receive a better return on their investment.

6. Conclusions

The primary motive of this study is to assess the effect of ESG on the FP of the healthcare industry. Although various studies determine the impact of ESG on the performance of firms, this study is focused on a new sector—the healthcare sector. The prior literature was based on the effect of ESG on the FP of healthcare companies globally. However, this study is based on the pharma companies of India and is thus a more focused country-specific study. Moreover, the role of competition as a moderator is also examined; this study defines how competition affects the association of the ESG and MTB of the pharma companies. The findings from this research are empirical in nature and suggest that ESG impacts a firm's FP in a reverse direction, i.e., we find that ESG negatively impacts the firm's performance. We also find that competition as a moderator has a significant and positive impact on ESG's association with the firms' FP. This result means that competitive advantage can enhance the relationship between ESG and the MTB ratios of the corporation.

This study tries to fill the knowledge gap by understanding the application of deploying ESG for the healthcare sector to enhance the firm's investment efficiency and financial reporting quality. This study's findings are pertinent for providing the existing literature on healthcare corporations with a theoretical framework. We attempt to bridge the knowledge gap by exploring the potential impact of competition. There are, however, some limitations: this study neglects the influence of other moderators on the ESG of Indian healthcare companies; the influence of ESG on other countries utilizing competition as a moderator is not covered in this study, which primarily looks at Indian healthcare companies; innovations are under-explored in this study, and will become a basis for future research—the healthcare sector is now adopting an innovative technique to become more efficient and developed.

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