

# How CSR and Sustainability activities in the pharmaceutical sector influence ecosystems and human health

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## INTRODUCTION

This paper aims to study the inter-relationship among corporate social responsibility (CSR), sustainability and organizational performance in the pharmaceutical sector influencing health and environment.

## METHODOLOGY

In depth analysis of organizational performance, CSR and sustainability activities of selected 8 pharmaceutical companies was undertaken for a period of consecutive 5 years from 2016 to 2020. This included data collection for the organizational performance variables net income, annual sales and stock market performance parameters (market capitalization, price-to-earnings ratio and market price per share) for each year. A cumulative score based on the number of activities performed under CSR and sustainability agenda, a score was calculated for each selected company for each year. This followed a linear regression analysis to identify whether there is an existence of a relationship among the three parameters. Additionally, the activities under 17 SDGs (sustainable development goals) were compared to identify gaps.

## RESULTS

Both sustainability and CSR positively influence organizational performance in terms of annual sales, and net income (before and after-tax). However, market capitalization and market price per share were negatively influenced by both CSR and sustainability. Another interesting finding showed that price-to-earnings ratios are not influenced by CSR and sustainability. Key activities under SDG 3 (good health and well-being) aimed to increase access to medicine and under SDG 12 (responsible consumption and production) include the application of green chemistry to make the manufacturing process more environmentally friendly. A few examples include the use of renewable sources of energy and the processing of toxic waste before release in nature. SDG 1 (no poverty) remains the least target across all companies.

## HYPOTHESIS TESTING

Objectives	Main Hypothesis	Sub-Hypothesis	Outcome
2. To study the influence of CSR practices on organizational performance of pharmaceutical companies	1. H <sub>01</sub> : The CSR practices do not significantly influence organizational performance	(i) H <sub>01b</sub> : CSR practices do not significantly influence net income (after tax)	Rejected
	2. H <sub>11</sub> : The CSR practices significantly influence organizational performance.	(i) H <sub>11b</sub> : CSR practices significantly influence net income (after tax)	Accepted

$$Y (\log_{10}NIA) = 1.903 + 0.048 (\pm 0.013)(CSR \text{ score}), N= 34; R = 0.545; F = 13.507; p = <0.001,$$

Objectives	Main Hypothesis	Sub-Hypothesis	Outcome
2. To study the influence of CSR practices on organizational performance of pharmaceutical companies	1. H <sub>01</sub> : The CSR practices do not significantly influence organizational performance	(i) H <sub>01c</sub> : CSR practices do not significantly influence annual sales	Rejected
	2. H <sub>11</sub> : The CSR practices significantly influence organizational performance.	(i) H <sub>11c</sub> : CSR practices significantly influence annual sales	Accepted

$$Y (\log_{10}AS) = 3.186 + 0.035 (\pm 0.012)(CSR \text{ score}), N= 34; R = 0.462; F = 8.691; p = 0.006$$

Objectives	Main Hypothesis	Sub-Hypothesis	Outcome
3. To study the influence of Sustainability practices on organizational performance of pharmaceutical companies	3. H <sub>02</sub> : The Sustainability practices do not significantly influence organizational performance	(i) H <sub>02b</sub> : Sustainability practices do not significantly influence net income (after tax)	Rejected
	4. H <sub>12</sub> : The Sustainability practices significantly influence organizational performance.	(i) H <sub>12b</sub> : Sustainability practices significantly influence net income (after tax)	Accepted

$$Y (\log_{10}NIA) = 1.878 + 0.045 (\pm 0.013)(Sustainability \text{ score}), N= 34; R = 0.532; F = 12.632; p <0.001$$

Objectives	Main Hypothesis	Sub-Hypothesis	Outcome
3. To study the influence of Sustainability practices on organizational performance of pharmaceutical companies	3. H <sub>02</sub> : The Sustainability practices do not significantly influence organizational performance	(i) H <sub>02c</sub> : Sustainability practices do not significantly influence annual sales	Rejected
	4. H <sub>12</sub> : The Sustainability practices significantly influence organizational performance.	(i) H <sub>12c</sub> : Sustainability practices significantly influence annual sales	Accepted

$$Y (\log_{10}AS) = 3.063 + 0.035 (\pm 0.011)(Sustainability \text{ score}), N= 34; R = 0.491; F = 10.174; p = 0.003$$

Depicting only four equations for CSR and sustainability. Similar methodology has been adopted while testing the hypothesis for their influence on price-to-earnings ratio, market capitalization and market price per share. Possible reasons for negative influence of CSR and sustainability activities on market capitalization and market price per share could be the extreme volatile nature and fluctuations in the market price of share during course of time. Market capitalization is directly related to market price of share and hence also shows to be negatively influenced by CSR and sustainability activities. This further signifies that our study results are consistent and can also be grounded on the basic concepts.

## CONCLUSION

The new insights obtained in the study have further provided evidence to support that both CSR and sustainability improve long-term profits and can be considered investments into the future in the pharmaceutical sector. The pharmaceutical sector is intrinsically linked to the health of individuals and is a significant contributor to the overall cost of medical care. This sector is always appreciated for its efforts and contribution to society by developing medications to curb illnesses. This study has also provided an overview of the pharmaceutical sector's acknowledgement and adherence to 17 SDGs developed by the United Nations. Results highlights the SDGs least addressed and provides an opportunity for peer-learning. It also provides evidence for policymakers to advocate the integration of CSR and sustainability in companies both to promote environment-friendly manufacturing processes and improve long-term profits.