

Does CSR affect investment efficiency? The moderating role of company reputation

CSR affecting
investment
efficiency

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Abstract

Purpose – The purpose of the paper is to investigate the association between corporate social responsibility (CSR) and investment efficiency (INE) in Bangladeshi pharmaceutical companies and to explore the moderating role of corporate reputation in this relationship.

Design/methodology/approach – The paper employs a two-step method, with stage 1 involving the development of a theoretical model using the literature's strategic framework and stage 2 using structural equation modelling (SEM) to investigate the relationships between variables. The data set used in the analysis includes 296 responses from senior executives/managers and subordinates at Bangladeshi pharmaceutical firms.

Findings – The study finds that CSR activities that focus on customers, employees and the community significantly affect INE, as well as the extended stakeholders, and that company reputation moderates this relationship. The effect of CSR on INE differs between well-established companies and business firms with favourable reputations.

Practical implications – The paper contributes to understanding the relationship between CSR and INE in a developing country context and highlights the importance of corporate reputation in this relationship. The findings suggest that companies can enhance their INE through CSR initiatives and that a positive reputation can strengthen this relationship further.

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Authors' contributions: AS wrote parts of introduction, literature review and discussion. MMR conducted the research and reviewed literature, developed the research framework, collected data, performed statistical analysis, performed referencing and prepared the drafted report. As the corresponding author, MMR bears full responsibility for the submission and confirms that all authors listed on the title page have contributed significantly to work. Finally, all authors read and approved the final manuscript.



Originality/value – The study adds to the limited literature on CSR and INE in developing countries and provides new insights into the moderating role of corporate reputation in this relationship.

Keywords CSR, Investment efficiency, Company reputation, SEM

Paper type Research paper

1. Introduction

Over the years, a global study has gained considerable interest in the area of corporate social responsibility (CSR) and its effect on investment efficiency (INE) (Alkaraan, 2019; Alkaraan *et al.*, 2023; Anwar and Malik, 2020; Arab *et al.*, 2020; Benlemlih and Bitar, 2018; Cook *et al.*, 2019; Erawati *et al.*, 2021; Fukuyama and Tan, 2021). However, considerable research investigating CSR-investment efficient direct ties has generated inconclusive and contradictory findings (Benlemlih and Bitar, 2018; Cook *et al.*, 2019; Erawati *et al.*, 2021; Samet and Jarboui, 2017). Some experiments have shown that the CSR-INE relationship is optimistic (Shahzad *et al.*, 2018; Zamir *et al.*, 2022; Zeng *et al.*, 2019; Zhong and Gao, 2017); others indicated that a negative association exists (Lee, 2020; Lin *et al.*, 2021; Samet and Jarboui, 2017). According to some scholarly reasoning, there is no connection between the two structures (Cook *et al.*, 2019; Fukuyama and Tan, 2021). Although the prior study has shed light on the direct interaction between CSR and INE, some studies have significant shortcomings, such as failing to account for moderating factors that may affect the CSR-INE relationship.

Aguado and Holl (2018) and Ali and Frynas (2018) discovered that about 53% of research concentrated on the organisational level, about 11% on the stage of institutional level and 5% on the person level. The rest of the 29% dealt with several layers of study. More strategic planning CSR research is expected as less research is carried out on stakeholder perspectives such as workers, consumers and businesses. Prior analysis in a number of management spheres has established three primary dimensions of CSR: CSR towards the society, CSR towards the employee and CSR towards the client (Lin *et al.*, 2021; Liu and Tian, 2021; Mo and Lee, 2019; Samet and Jarboui, 2017). These three dimensions have also been shown to have a beneficial effect on investment performance (Ali and Frynas, 2018; Anwar and Malik, 2020; Arab *et al.*, 2020; Shahzad *et al.*, 2018; Singh and Misra, 2021; Zamir *et al.*, 2022; Zeng *et al.*, 2019; Zhong and Gao, 2017).

As a result of globalisation, multinational corporations have become profoundly obsessed with their image concerning their social and environmental obligations and sustainable development goals culminating in a significant shift towards CSR (Rahman, 2023b; Rahman and Halim, 2022; Rahman *et al.*, 2023b; Singh and Misra, 2021). As a result, businesses are continually engaged in CSR practises to demonstrate and encourage their environmental, social and governance resilience and transparency (Afshar Jahanshahi and Brem, 2018; Aguado and Holl, 2018; Arab *et al.*, 2020; Halim and Rahman, 2022). Since organisations see CSR as a set of sustainability activities implemented through a multi-stakeholder context, it is critical to understand how it affects investment performance. However, relatively little attempt has been made in developing economies to study the affinity between CSR and INE (Cook *et al.*, 2019; Erawati *et al.*, 2021; Fukuyama and Tan, 2021; Lin *et al.*, 2021). There has been no examination of CSR and INE's association in developing countries such as Bangladesh, Bhutan, India and Pakistan. In the case of Bangladeshi pharmaceutical firms, CSR is more active than in the USA as in other developing and emerging economies, the role of the corporate reputation as a moderator between CSR and INE is not understood (Erawati *et al.*, 2021; Mo and Lee, 2019; Singh and Misra, 2021).

Several studies have shown that CSR enhances INE by managing the company's image amongst stakeholders (Afshar Jahanshahi and Brem, 2018; Anwar and Malik, 2020; Benlemlih and Bitar, 2018). Such experiments, however, cannot understand how company

reputation influences the relationship between CSR and investment productivity. Highly reputed companies are best-practice organisations for publishing sustainability knowledge (Alkaraan *et al.*, 2022; Cai *et al.*, 2016; Deb *et al.*, 2023; Hussainey *et al.*, 2022; Rahman, 2023b; Rahman and Islam, 2023b; Schill *et al.*, 2019; Singh and Misra, 2021). Alternatively, according to Camilleri (2017), companies with a good image tend to be more involved in fixing it through CSR. It is assumed that an organisation's socially conscious conduct favourably impacts stakeholders' views.

Corporate reputation can be regarded as a moderating force in the partnership between CSR and INE. According to this article, the association between CSR and an organisation's investment quality varies according to its reputation. This study examines the moderating effect of corporate reputation on the rapport between CSR and INE. This study adapts a similar idea from Singh and Misra (2021) but makes a performance change to efficiency. According to Sanadhya (2017), the determinant of the quality of the output is performance and how well the whole firm or team has functioned is efficiency. Sanadhya (2017) and Gupta *et al.* (2020) argued that efficiency is a combined performance and utilisation measure. Thus, we just replaced the company performance with INE across this study.

It should be noted that well-renowned pharmaceutical companies in Bangladesh are more socially active (Luu, 2020; Yang *et al.*, 2019). Thus, a study of pharmaceutical companies can help illustrate the moderating effect of corporate credibility on CSR-INE linkages. Historically, reputation has been considered a moderator, including CSR, firm results (Singh and Misra, 2021) and CSR and customer perception (Khan and Sukhotu, 2020). Conversely, corporate reputation in the CSR-INE relation has never been empirically investigated. So, the effect of this portion on the CSR-INE association can be investigated sufficiently well. This study aims to analyse data from selected pharmaceutical companies to build a CSR-INE link and take corporate credibility as a moderator. We present an inclusive model based on the CSR-INE relationship with the strategic literature framework. Thus, this analysis is important for examining the inherently complicated connection between CSR and INE, which is moderated by corporate image.

The purpose of the paper is to investigate the association between CSR and INE in Bangladeshi pharmaceutical companies and to explore the moderating role of corporate reputation in this relationship. More specifically, this research seeks answers to the following questions: "How does CSR associate with investment efficiency?" and "How does company reputation moderate the association between CSR and investment efficiency?"

This research makes several significant contributions to the existing knowledge on CSR, INE and corporate reputation. Firstly, it extends our understanding of the impact of CSR on INE, specifically within the context of developing countries. Prior studies in this domain have concentrated mainly on developed economies; thus, this research provides fresh insights into the CSR-INE dynamics in a developing country, specifically Bangladesh. It presents empirical evidence that CSR initiatives focussed on customers, employees and the community significantly influence INE, thereby suggesting the possibility of similar effects in other developing nations. Secondly, this study uncovers the moderating role of corporate reputation in the relationship between CSR and INE, an aspect that has not been thoroughly explored in the existing literature. It illuminates that CSR's impact on INE varies based on the company's reputation, implying that well-established firms and those with favourable reputations experience different outcomes. This nuanced understanding provides a richer and more complete picture of the role of CSR in corporate finance. Thirdly, this research furthers the theoretical understanding by invoking stakeholder theory to explain why CSR affects investment performance. It posits that stakeholders' expectations and reactions to CSR initiatives could shape a company's investment outcomes. Finally, by incorporating the perspectives of senior executives/managers and subordinates in Bangladeshi pharmaceutical firms, the study ensures a holistic view of the phenomena under study, lending greater

credibility and depth to the findings. These multi-level insights can serve as a foundation for future research and practice in CSR and corporate finance.

The following parts include a theoretical basis and method for generating hypotheses for each chosen variable, thus setting the empirical study scene. Following that, the paper discusses the approach and data collection process and the interpretation of the data. The outcomes are then discussed, along with their administrative consequences. The concluding segment addresses the study's shortcomings and proposes potential studies.

2. Theoretical foundation and hypotheses development

2.1 CSR and investment efficiency

CSR is a key field of study in corporate ethics. Existing CSR theories presuppose businesses rely on society for their survival, continuity and development. If companies behave favourably towards society, society is more inclined to favour businesses (Bhandari and Javakhadze, 2017; Rahman *et al.*, 2023a). CSR ideas are founded on values emphasising fostering a robust ecosystem and environment (Rahman and Rahman, 2020; Schill *et al.*, 2019). The CSR stakeholder hypothesis offers the most convincing scientific perspectives for conceptualising CSR and this analysis often embraces the structure of Freeman (2010). According to Freeman (2010), administrators have a fiduciary responsibility to several clients rather than only stockholders. According to Freeman (2010), stakeholders are entities interested in or assert on a company (consumers, employees, dealers, shareholders and the whole society). Encouraged by Freeman (2010), the research employs a three-dimensional CSR system emphasising community, employee and customer-focussed CSR. CSR aimed at society focusses on charitable giving inside families, enhancing the superiority of living and providing economic assistance to society (art, philosophy, health, education). CSR activities aimed at employees are described as the organisation's socially beneficial activities aimed at employee well-being. Consumer-focussed CSR entails providing high-quality facilities, facilitating the exchange of necessary details, resolving customer complaints and ensuring customer loyalty (Singh and Misra, 2021).

The word investment productivity (INE) is historically challenging to describe since companies have many aspects and constantly shifting objectives (Anwar and Malik, 2020; Arab *et al.*, 2020; Benlemlih and Bitar, 2018; Bhandari and Javakhadze, 2017; Cai *et al.*, 2016; Camilleri, 2017). Previously, all tangible and intangible assets were considered INE components (Anwar and Malik, 2020; Benlemlih and Bitar, 2018; Bhandari and Javakhadze, 2017; Cook *et al.*, 2019). Investment productivity has been calculated using several measures, including volume growth, a favourable net present value (NPV), income growth, Tobin's Q and marketing effectiveness. The interaction between CSR and INE has been the topic of extensive study in the literature (Benlemlih and Bitar, 2018; Bhandari and Javakhadze, 2017; Cai *et al.*, 2016; Camilleri, 2017; Erawati *et al.*, 2021; Fukuyama and Tan, 2021; Khan and Sukhotu, 2020; Lee, 2020; Lin *et al.*, 2021; Liu and Tian, 2021). Zamir *et al.* (2022) developed an important positive association between CSR and INE utilising disclosures on social responsibilities. The further CSR operations a company undertakes, the more likely it is to receive the related rewards, as opposed to companies who do not participate in those practises (see also Islam *et al.*, 2023; Lee, 2020; Lin *et al.*, 2021; Liu and Tian, 2021; Zhong and Gao, 2017).

According to Reinert *et al.* (2011), a report by the OECD (organization for economic cooperation and development), a business can profit from engaging in CSR initiatives in a variety of ways, including (a) risk reduction; (b) organisational identification; (c) corporate reputation; (d) enhanced supply network; (e) cost reduction; (f) increased overall efficiency and quality; (g) goodwill creation; (h) job performance; (h) consumer loyalty; and I ethical culture. As a result of robust cooperation and positive organisational identity, CSR is likely to

bring additional resources and shared gains to all stakeholders. Based on the prior study, we conclude that CSR enables a company to capitalise on organisationally promising opportunities by forming a bond between business and society.

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2.2 Stakeholder theory of CSR

The CSR philosophy of stakeholders indicates that people who are affected by the decision and actions of a business have contributed significantly to the social outcomes of the company and its Company (Luu, 2020; Mo and Lee, 2019) (also see the literature review of Singh and Misra (2021)). Previous analysis has established five critical stakeholders: lenders, staff, consumers, vendors and society (Shah *et al.*, 2021). Additionally, some longitudinal study has been undertaken to ascertain the most successful organisational stakeholder relations methods (Awan *et al.*, 2020; Deb *et al.*, 2020; Ramadhini *et al.*, 2020; Shah *et al.*, 2021; Waheed *et al.*, 2020). The stakeholder concept has gained attention because the global economy is so intertwined that decisions made in one company can impact those at another location, with more effects on the economy. As a result, stakeholder philosophy is concerned with coming generations considering economic growth and society's well-being, enhancing a firm's image (Deb *et al.*, 2020). Stakeholder theory concerns an organisation's right to make ethical claims about someone impacted by its actions, whether that person is a client, employee, provider, or society member. Thus, based on stakeholder philosophy, it is argued that promoting socially responsible collaboration improves an organisation's overall efficiency. Since organisations' primary concern is their customers' well-being, they search at any conceivable way to maximise investment productivity in today's dynamic market setting.

2.2.1 CSR towards the community. Community accountability relates to the idea that a corporate entity would partake in actions that benefit society in addition to its primary mission (Jha and Aggarwal, 2019; Santos *et al.*, 2019). General community concerns, rural growth, farming activities, schooling, work training, recycling, environmental stewardship, financing and promotion of art and culture, advocacy for fitness, sport, unemployment, child care and poverty eradication are examples of such activities. There are many explanations for why group responsibility is critical when discussing CSR and the position of stakeholders. To begin, social activities geared towards social service and assistance are aimed at capturing stakeholders' interest, improving the organisation's image and positively affecting stakeholders' decision-making in the organisation's favour (Hsu *et al.*, 2017; Lee, 2020; Lin *et al.*, 2021; Samet and Jarbou, 2017). Zhang *et al.* (2021) and Rehman *et al.* (2020) also discovered that socially conscious practices help businesses manage external perceptions and preserve a positive identity. Second, CSR projects often focus on local social interventions, contributing to expenditure productivity in fiscal, social and environmental terms (Benlemlih and Bitar, 2018). Additionally, those services aid with gaining local governments' approval, enabling every organisation to work (Singh and Misra, 2021).

H1. There is an association between CSR towards community and INE in the context of Bangladeshi pharmaceutical companies.

2.2.2 CSR towards employees. Numerous surveys have identified CSR as a significant competitive device for establishing a bond with society (Ali and Frynas, 2018; Camilleri, 2017; Freeman, 2010; Ramadhini *et al.*, 2020). Despite this, the relationship between CSR and internal stakeholders has generally been ignored (Lee, 2020). Several current theories and academic studies on CSR provide insight into the relationship between CSR behaviours and employee success, providing substantial insight into INE (Zamir *et al.*, 2022; Zhang *et al.*, 2021; Zhong and Gao, 2017). Employees are considered internal partners and often demand organisational attention (Singh and Misra, 2021). As a result, they are distinct from external partners. Because of these findings, this analysis makes the following hypotheses:

H2. There is an association between CSR towards employees and INE in the context of Bangladeshi pharmaceutical companies.

2.2.3 CSR towards customers. Numerous researches indicate that CSR can help increase investment productivity (Lee, 2020; Lin *et al.*, 2021; Rehman *et al.*, 2020; Samet and Jarboui, 2017; Yang *et al.*, 2019; Zhang *et al.*, 2021; Zhong and Gao, 2017). However, a few studies explore the interaction between CSR and the consumer (Singh and Misra, 2021). The theory of institutions and stakeholders suggests that the business's activities call for a multidimensional strategy in which buyers often participate in the market as representatives of the society and the nation they serve as consumers (Freeman, 2010; Shahzad *et al.*, 2018). CSR offers companies opportunities by increasing customer-based engagement, which mainly relies on how consumers view the company or how they believe it is (Singh and Misra, 2021). As a business follows CSR, clients of that company are more identified, and in exchange, the consumers start to buy that business (Lee, 2020). If a company doesn't handle its clients equally, consumer trust in the company can be diminished (Peasley *et al.*, 2021). In contrast, if a company equally serves its clients and maintains high levels of loyalty by staff and management, it is more likely to raise consumer confidence (Wei *et al.*, 2020). This association will serve to boost an organisation's overall identity and maximise INE. The authors then acclaim:

H3. There is a significant connection between CSR towards customers and INE in the context of Bangladeshi pharmaceutical companies.

2.3 Moderating role of company reputation

Business reputation is founded on various company characteristics extracted from its previous behaviour and its willingness to achieve better performance over time (Rahman, 2023a; Rahman and Akhter, 2021). It also concerns the faith of a stakeholder. A company can improve its corporate image by making financially healthy, reliable goods and services, excellent management and industry efficiency. The degree to which organisations gain their reputation from the practice of CSR is substantially different. Some scientists argue that well-known institutions are more CSR focussed than others (Khan and Sukhotu, 2020; Rehman *et al.*, 2020). Besides, several researchers reveal that respectable businesses are more likely to use CSR because they feel they can boost stakeholder expectations regarding their image by exerting CSR initiatives (Ajayi and Mmutle, 2020; Gonzalez-Perez *et al.*, 2020). It has been established that socially responsible action and stakeholders' favourable views will influence CSR's reputation. Increased quality of spending would contribute to a reputation consistent with their corporate social policies. Based on the debate as mentioned earlier, the authors presume:

H4. Company reputation moderates the relationship of firm-level CSR towards community and investment efficiency in the context of Bangladeshi pharmaceutical companies.

H5. Company reputation moderates the relationship of firm-level CSR towards employee and investment efficiency in the context of Bangladeshi pharmaceutical companies.

H6. Company reputation moderates the relationship of firm-level CSR towards customer and investment efficiency in the context of Bangladeshi pharmaceutical companies.

Based on the existing studies review, this study developed the following conceptual model in Figure 1.

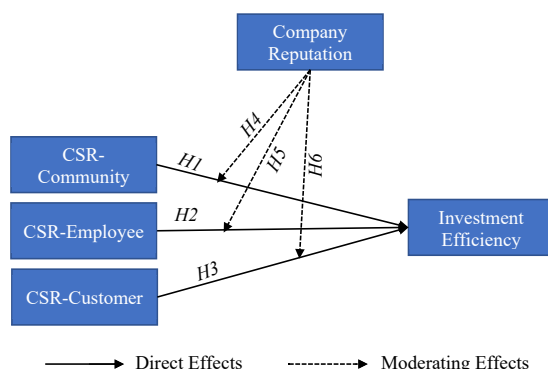


Figure 1.
The conceptual framework developed by the authors

3. Data and methodology

Bangladesh has fast economic development, and when CSR becomes a compulsory prerequisite for companies (Imam, 2020), more businesses have begun to partake in socially conscious activities. Due to its solid regulatory setting, Bangladesh is a suitable place to research CSR's influence on investment productivity because of its significant stakeholder reaction. Most notably, the CSR programmes of pharmaceutical companies in Bangladesh have not been widely analysed before, and most studies carried out in developing countries linked to pharmaceutical companies. Thus, researching CSR's effect on investment productivity from these companies' perspective could help study the pharmaceutical sector directly operating in Bangladesh.

Using sample size calculator [1], we got 14 companies amongst 31 populations (As the date 22nd July 2020 on the Dhaka Stock Exchange website [2]). The sample size calculator includes a 95% confidence level, an interval of 20 and a population of 31. When we use a confidence interval of 20 and 45% of our sample chooses a response, we can be "positive" that if we asked the question of the whole relevant population, between 25% (45-20) and 65% (45 + 20) choose the answer. Further, we employ a random sampling technique to collect the data. We use Random Number Generator [3] to select the number of pharmaceutical firms. We generate 31 random numbers but select the first 14 random numbers to meet the sample size. We sent 25 structured questionnaires to each of the 14 firms. A total of 350 questionnaires were disseminated to senior executives or managers and supervisors of pharmaceutical companies listed on the Dhaka Stock Exchange (e.g. 25 questionnaires were distributed to each of the 14 firms). During data entry, 33 questionnaires were found to be unfinished and 21 answers were found as outliers since the standard deviation (SD) for both responses was nil. As a result, these responses were excluded from the results. Finally, 296 responses (85% response rate) were valid and used in this study.

The target respondents are the senior executives/managers and supervisors. A 19-item questionnaire was developed and distributed to all participants to assess the related variables – CSR, organisational prestige and investment efficiency. The participation was wholly voluntary, and the answers were gathered during the participants' lunch breaks at work. The secrecy of the respondents' details was maintained. The data were collected between July 11 and November 12, 2020. Surveys were handed out personally due to the coronavirus disease 2019 (COVID-19) pandemic, but resulting in a high response rate. We used IBM SPSS version 25 and IBM Amos 24 to analyse the data. Figure 2 shows the research method summary.

This study adopted a two-step approach to data analysis. In the initial phase, IBM SPSS version 25 was employed to carry out descriptive statistics and calculate Pearson's correlation

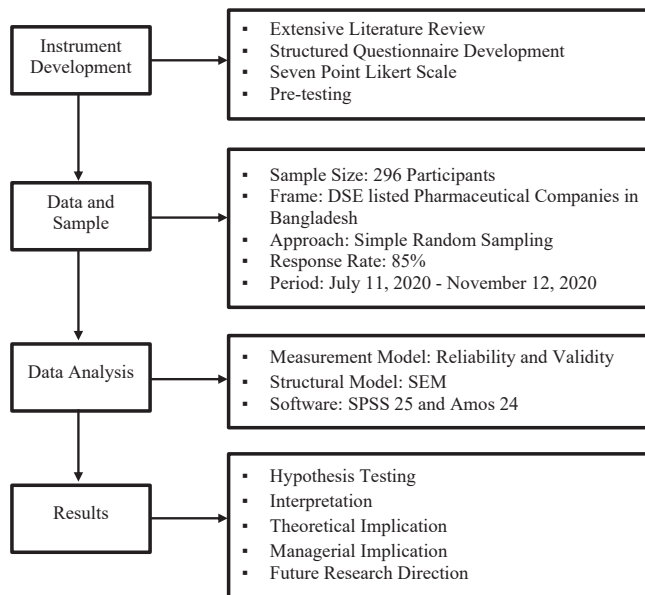


Figure 2. Research method summary developed by authors

matrix. Descriptive statistics provided an overview of the central tendencies and dispersion of the research variables, whilst Pearson’s correlation matrix offered preliminary insights into the bivariate relationships between these variables. In the second phase, IBM Amos 24 was used to perform CFA and structural equation modelling (SEM). CFA was carried out to confirm the research constructs’ factor structure and assess their validity and reliability. This was crucial for ensuring that the measures used in the study accurately represented the constructs they were supposed to measure. The complexity of the relationships between the constructs in the study primarily influenced the choice to employ SEM. SEM is a robust statistical method that allows for the analysis of multiple relationships simultaneously, and it can handle complex models with multiple independent and dependent variables. Furthermore, SEM allows for the modelling of latent variables - constructs that are not directly observable but inferred from other observed or measured variables. This feature is particularly beneficial for this study as constructs such as CSR, corporate reputation and investment efficiency are latent variables typically measured through multiple observed indicators. As [Singh and Misra \(2021\)](#) suggested, SEM is a powerful tool for uncovering structural relationships between variables, making it particularly well-suited to this study’s objective of exploring the relationships between CSR, corporate reputation and investment efficiency.

In the study, a comprehensive methodology was employed to explore the relationships between CSR, corporate reputation and investment efficiency. The research began with an extensive literature review, leading to the development of a structured questionnaire based on a seven-point Likert scale. This questionnaire was disseminated to senior executives, managers and supervisors of pharmaceutical companies listed on the Dhaka Stock Exchange, yielding a robust response rate of 85% from a total of 350 participants. The data collection spanned from July 11 to November 12, 2020 and was meticulously carried out in person, considering the constraints posed by the COVID-19 pandemic. For data analysis, a two-pronged approach was adopted. Initially, IBM SPSS version 25 was utilised for descriptive statistics and Pearson’s correlation matrix to provide preliminary insights.

Subsequently, IBM Amos 24 was employed for a deeper dive into the data. The measurement model analysis was conducted to ensure internal consistency, reliability and validity of the constructs. The structural model analysis was then used for hypothesis testing. Two distinct models were employed in the study: Model 1 aimed to test the relationship between CSR and investment efficiency without considering the moderating effect of company reputation, whilst Model 2 delved into the same relationship but factored in the moderating effects of company reputation. [Figure 2](#) summarises the methodological steps.

3.1 Measurement model analysis

CSR obligations to the community, employee and consumer duties are quantified using twelve elements (4 items each) on a seven-point Likert scale (where 1 indicates strong disagreement and 7 indicates strong agreement). All twelve CSR items from [Rettab et al. \(2009\)](#) were adopted. The company reputation measures are also adopted from [Rettab et al. \(2009\)](#). A 3-item scale on a seven-point Likert technique was applied for the company's reputation. Four items developed by [Samiee and Roth \(1992\)](#) were used to measure investment efficiency. The mean, standard deviation, factor loadings, average variance extracted (AVE), composite reliability and Cronbach's alpha (α) are itemised in [Table 1](#).

The IBM AMOS 24 version was used to test the validity of 19 items employing CFA. The consequences attained through CFA were Chi-square (138) = 226.318 $p < 0.001$; CMIN/DF (minimum discrepancy function by degrees of freedom divided) = 1.163, root mean square error of approximation (RMSEA) = 0.053, normed fit index (NFI) = 0.922, comparative fit index (CFI) = 0.951 and goodness-of-fit index (GFI) = 0.914. [Niemand and Mai \(2018\)](#) suggested that the cut-off points for CMIN/DF, RMSEA, NFI, CFI and GFI have been met accordingly. Each component had a statistically meaningful loading at $p < 0.001$ and factor loading values exceeded the recommended value of 0.50 ([Fornell and Larcker, 1981](#)).

Internal consistency is represented by convergent validity and constructs reliability (CR) metrics. The CR test showed that both structures had a value greater than or equal to the threshold value (0.80, as adopted by [Niemand and Mai \(2018\)](#)) ([Table 1](#)). CR, factor loading and AVE were used to assess convergent validity. All items had high loadings that were statistically significant ([Table 1](#)). This suggests they were both associated with their respective constructs, corroborating the previously proposed associations between constructs and indicators. The AVE measure exceeded the cut-off for all test constructs (0.50; [Fornell and Larcker \(1981\)](#)).

The degree to which one construct differs from the others is referred to as discriminant validity. The AVE should surpass the combined variance of the constructs and the other constructs in the analysis ([Fornell and Larcker, 1981](#)). The constructs of this analysis satisfy this condition: in the model ([Table 2](#)), the diagonal elements (AVE) in the corresponding rows and columns are greater than those in the outer diagonal elements. In summary, the model evaluations showed that the operationalisation of the ideas is valid and reliable.

3.2 Structural equation model analysis

[Figure 3](#) shows the structural equation model (Model 1) where COM, EMP, CUS and INE indicate CSR towards community, employee, customer and investment efficiency, respectively. The results obtained through path analysis without moderating variables were Chi-square (229) = 547.221 $p < 0.001$; CMIN/DF = 1.489, CFI = 0.912, NFI = 0.913, RMSEA = 0.047 and GFI = 0.925. [Niemand and Mai \(2018\)](#) suggested the cut-off points for CMIN/DF, RMSEA, NFI, CFI and GFI, which have been met accordingly. The R-square value was 0.47.

Then, we run the analysis, including moderating variables. [Figure 4](#) shows the structural equation model (Model 2) where moderating variables include COM_CRP, EMP_CRP and CUS_CRP that indicate the interaction term of CSR-community and company reputation, CSR-employee and Company reputation and CSR-customer and company reputation, respectively.

PRR

Cons	Items	Mean	SD	Fact Load	AVE	CR	(α)
CSR-Community	Contribute to charitable organisations in the communities in which we operate	5.90	1.18	0.84***	0.59	0.94	0.91
	Contribute to the enhancement of the quality of life in the communities in which we operate	5.11	1.02	0.79***			
	Contribute financially to community activities (arts, culture, sports)	4.78	1.11	0.88***			
CSR-Employee	Contribute financially to education in the communities in which we operate	6.10	1.03	0.76***	0.67	0.96	0.92
	Treat all employees equally and with respect, regardless of their gender or ethnic origin	5.94	1.01	0.83***			
	Pay all workers' wages that are adequate and just compensation for their jobs	5.68	1.90	0.86***			
	All workers who wish to further their education are encouraged to do so	6.12	1.17	0.91***			
CSR-Customer	Assist all workers in balancing their personal and professional lives	6.37	1.23	0.84***	0.81	0.94	0.93
	Provide a superior level of service to all customers	5.29	1.56	0.78***			
	Distribute information to all consumers in order for them to make informed buying decisions	4.97	1.73	0.82***			
	Resolve all consumer concerns about the firm's goods or services	6.71	1.76	0.86***			
	Adapt goods and services in order to increase consumer loyalty	5.64	1.81	0.88***			
Investment Efficiency	Our growth in sales has improved significantly	5.27	1.77	0.77***	0.62	0.91	0.90
	We have significantly higher returns on assets	5.32	2.11	0.71***			
	We have received a better return on our investment	4.82	1.71	0.83***			
Company Reputation	Our market share was higher	6.39	1.29	0.79***	0.71	0.93	0.91
	Our organisation is generally well reputed	5.47	1.35	0.76***			
	Our company is widely regarded as a reputable business	5.13	1.11	0.69***			
	This company is well-known for offering high-quality goods and services	5.68	1.04	0.87***			

Table 1. Measurement items

Note(s): ***Significance < 0.001
Source(s): Developed by authors

The results obtained through path analysis with moderating variables were Chi-square (302) = 1346.261 $p < 0.001$; CMIN/DF = 2.132, CFI = 0.925, NFI = 0.932, RMSEA = 0.052 and GFI = 0.917. Niemand and Mai (2018) suggested the cut-off points for CMIN/DF, RMSEA, NFI, CFI and GFI, which have been met accordingly. The R-square value was 0.51.

4. Results

4.1 Summary statistics and correlation matrix

The mean and standard deviations and a correlation matrix are provided in Table 3. The results show that all CSR variables and the organisation's credibility have a major

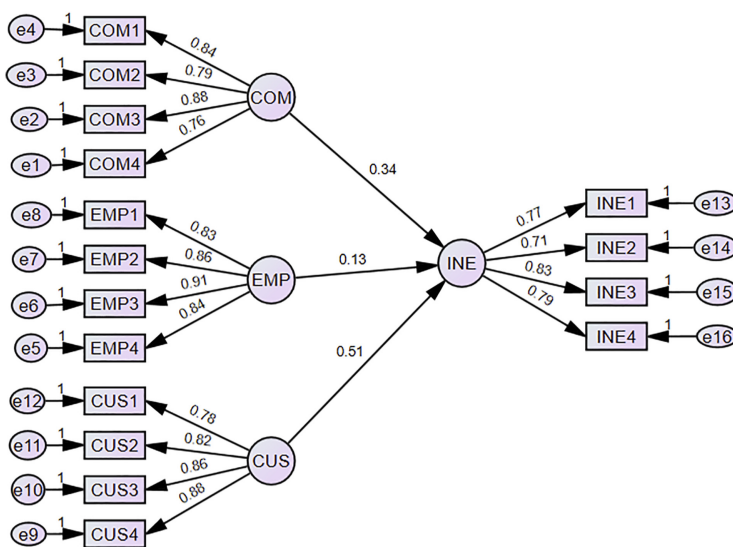
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Variable	1	2	3	4	5
CSR-Community (COM)	0.59				
CSR-Employee (EMP)	0.35	0.67			
CSR-Customer (CUS)	0.08	0.05	0.81		
Investment Efficiency (INE)	0.18	0.27	0.13	0.62	
Company Reputation (CRP)	0.29	0.43	0.11	0.19	0.71

Note(s): AVE connected to the construct is shown diagonally; in the lower left triangle, the square similarities between the constructions are shown

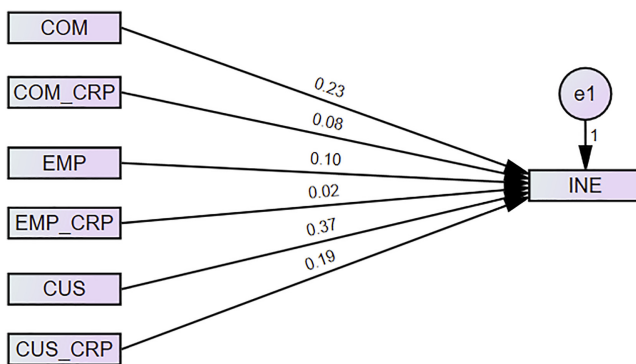
Source(s): Developed by authors

Table 2.
Discriminant validity



Source(s): Created by authors

Figure 3.
Structural equation model 1



Source(s): Created by authors

Figure 4.
Structural equation model 2 with moderating variables

relationship to and with investment performance. This supports the study’s belief that CSR and investment performance interconnect. It was noticed that all three dimensions of CSR were very low to moderate. Therefore, the multiple-linearity problem does not come with a low correlation. The dependent variable INE showed a substantial association with COM, EMP and CUS, which supported the initial first three alternative hypotheses.

4.2 Path results

Table 4 shows Model 1 and Model 2 developed by authors based on Figures 3 and 4. To analyse the relationship between CSR and investment efficacy, a structural equation model was developed. The in the first model, the influence of CSR on investment performance was tested without moderators’ inclusion. Both CSR variables are strongly related to investment performance indicators. Therefore, Model 1 was endorsed for alternative Hypothesis 1, Hypothesis 2 and Hypothesis 3. The findings for measuring credibility on all three dimensions of CSR are in Model 2 (See model 2 in Table 4). The relationship concept had a positive and substantial coefficient value, resulting in an essential R-square shift. Therefore, according to our forecast, the partnership between CSR and investment performance was impacted by corporate credibility. Besides, values of the variance inflation component have been evaluated to eliminate the existence of multicollinearity. The regression model removed the multicollinearity issue because the variances’ variance inflation factor (VIF) values were less than 10 (suggested cut-off point 10; Craney and Surlis (2002)).

Hypothesis 1 (H1): This hypothesis affirmed that CSR initiatives towards the community have a positive effect on investment efficiency within Bangladeshi pharmaceutical companies. The results statistically support this assumption (path coefficient = 0.341, $p < 0.001$). The implication of this finding is substantial as it indicates that firms’ engagement in community-focussed CSR activities contributes significantly to their investment efficiency. As such, pharmaceutical companies in Bangladesh could benefit from an investment perspective by actively incorporating community welfare projects into their CSR agenda.

Hypothesis 2 (H2): This hypothesis proposed a positive association between CSR towards employees and investment efficiency. The data show a statistically significant, albeit smaller, relationship (path coefficient = 0.133, $p < 0.05$). The implication is that whilst employee-oriented CSR initiatives are positively associated with investment efficiency, the impact is less substantial compared to community-oriented CSR activities. Nevertheless, considering the significant role employees play in a company’s overall productivity and performance, continuing to invest in employee-focussed CSR activities remains essential for fostering a motivated and productive workforce.

Hypothesis 3 (H3): This hypothesis posited a connection between CSR towards customers and investment efficiency. The data strongly supports this claim (path coefficient = 0.508, $p < 0.001$). The implication is that customer-focussed CSR initiatives exert a pronounced

Variables	Mean	SD	COM	EMP	CUS	INE	CRP
COM	5.11	1.91	1				
EMP	6.02	2.06	-0.38*	1			
CUS	5.31	1.43	0.31**	0.11*	1		
INE	5.62	0.94	0.41**	0.31***	0.23**	1	
CRP	5.04	1.27	0.18*	-0.06	0.12*	0.29	1

Note(s): ***Significance<0.001; **significance<0.01; *significance<0.05

Source(s): Developed by authors

Table 3.
Statistical summary
and correlation

Path	Path coef	VIF	Alternative hypothesis
<i>Model 1</i>			
CSR-Community → Investment Efficiency	0.341***	4.132	H1: Accepted
CSR-Employee → Investment Efficiency	0.133*	3.859	H2: Accepted
CSR-Customer → Investment Efficiency	0.508***	5.113	H3: Accepted
<i>Model 2</i>			
CSR-Community → Investment Efficiency	0.226**	4.131	H4: Accepted
CSR-Community * Company Reputation interaction → Investment Efficiency	0.079***	4.336	
CSR-Employee → Investment Efficiency	0.096*	4.521	H5: Rejected
CSR-Employee * company Reputation interaction → Investment Efficiency	0.017 n. s	9.115	
CSR-Customer → Investment Efficiency	0.372***	4.192	H6: Accepted
CSR-Customer * Company Reputation interaction → Investment Efficiency	0.186**	4.734	

Note(s): ***Significance<0.001; **significance<0.01; *significance<0.05; n. s. = not significant

Source(s): Developed by authors based on [Figures 3 and 4](#)

Table 4. Testing the hypotheses

impact on the efficiency of a firm’s investments. This finding suggests that pharmaceutical companies in Bangladesh can significantly enhance their investment efficiency by prioritising CSR efforts aimed at enhancing customer welfare and satisfaction.

Hypothesis 4 (H4): This hypothesis suggested that company reputation moderates the relationship between CSR towards the community and investment efficiency. The analysis supports this claim (path coefficient = 0.079, $p < 0.001$). The implication here is that a company’s reputation can amplify the benefits gained from CSR activities aimed at the community. It indicates that well-reputed firms can further increase their investment efficiency by maintaining their strong CSR commitments towards the community.

Hypothesis 5 (H5): This hypothesis proposed that company reputation moderates the relationship between CSR towards employees and investment efficiency. The data did not support this hypothesis (path coefficient = 0.017, non-significant). This finding implies that the company’s reputation does not significantly influence the effect of CSR initiatives towards employees on investment efficiency. This suggests that regardless of a company’s reputation, maintaining a commitment to employee welfare is necessary, not only from an ethical standpoint but also from a performance perspective.

Hypothesis 6 (H6): This hypothesis suggested that company reputation moderates the relationship between CSR towards customers and investment efficiency. The study supports this hypothesis (path coefficient = 0.186, $p < 0.01$). The implication is that the positive impact of customer-oriented CSR on investment efficiency is enhanced for firms with a good reputation. This suggests that companies with positive reputations can further capitalise on this by ensuring robust customer-oriented CSR initiatives, which can significantly augment their investment efficiency.

5. Discussion

The study reveals a notable link between CSR activities and investment efficiency. Specifically, it was found that CSR initiatives focussing on customers, employees and the community significantly enhance a firm’s investment efficiency. This highlights the strategic

value of CSR beyond its inherent ethical and social merits. The adoption of CSR practices may indeed serve as a lever to enhance financial performance, emphasising CSR as a vital component in strategic business decisions. Amongst the three facets of CSR, initiatives directed towards customers substantially impacted investment efficiency. This underscores the importance of maintaining strong customer relationships and considering their interests in the company's CSR strategies. It suggests that customer-oriented CSR initiatives can lead to improved customer satisfaction and loyalty, resulting in higher financial returns.

Meanwhile, CSR initiatives aimed at the community and employees were also found to positively impact investment efficiency, though to a lesser degree compared to customer-oriented initiatives. Nonetheless, these findings underline the significance of incorporating diverse stakeholder interests into a company's CSR strategy to optimise its investment outcomes. Furthermore, the study revealed the influential role of a company's reputation in the relationship between CSR and investment efficiency. It was found that a positive corporate reputation can enhance the beneficial impact of CSR on investment efficiency, demonstrating that the firm's perceived standing in the market can moderate the positive effects of CSR activities. However, this moderating effect was not significant in the case of CSR initiatives directed towards employees.

In this research, the effect of managerial expectations on CSR on investment efficiency was analysed whilst companies' reputation as moderators was regarded. The SEM discusses the above relationship and the moderating influence of firms' reputation. Despite previous research in expenditure efficiencies, financial feasibility and financial determinants, a firm's prime purpose is not profitability but social and environmental priorities. Thus, there are consistent issues. In this sense, it should be important for organisations to behave as responsible actors in society. Empirical findings indicate that CSR substantially impacts spending productivity towards society, employees and customers. The current research thus provides the hypotheses with maximum support. The positive and important interactions between CSR (its dimension) and corporate credibility are a fascinating consequence of the analysis and are close to our forecast. Investment quality has been greatly affected in CSR. Our first three alternatives are supported by CSR's optimistic and statistically important impact on the economy, employee and client in terms of investment performance. These findings are compatible with prior observational research [Cook et al. \(2019\)](#), [Fukuyama and Tan \(2021\)](#) and [Lee \(2020\)](#), which indicate a strong link between CSR activities and investment efficiency in terms of global stakeholders.

This study empirically examined the moderating effects of corporate reputations on the association after analysing the direct interaction between management's perceptions of CSR (dimensions) and business success. The goal was to understand how firms' reputations communicate with CSR (dimensions) to decide the utility of investment. The structural equation model 2 results, as seen in [Table 2](#) suggest that the effect of CSR (dimensions) on the efficiency of investment was contingent on the firm's prestige. CSR explanations were found in this study to distinguish between existing trustworthy businesses. Whilst emerging companies generally consider CSR a positive attribute, the study confirmed that reputable companies consider CSR a pressure – particularly in Bangladesh, where CSR has become a legally binding necessity ([Imam, 2020](#)). The intensity of the connection between all three dimensions of CSR and investment efficiency thus differs according to the extent to which stakeholders respect the company's integrity and trust its significance to investment efficiency. A positive beta (CSR and Corporate Credibility) indicates that the effect on all three CSR dimensions' investment performance was robust in the case of a strong reputation and vice versa.

6. Conclusion, implications and future research directions

6.1 Conclusions

This study has provided valuable insights into the relationship between CSR initiatives, corporate reputation and investment efficiency in the context of Bangladeshi pharmaceutical

companies. Our findings have demonstrated a significant association between CSR activities (specifically those aimed towards the community, employees and customers) and investment efficiency. These results underscore CSR's critical role in enhancing a firm's investment efficiency, thereby contributing to the broader business strategy. In particular, the study has shown that CSR initiatives aimed at customers have the most substantial impact on investment efficiency, followed by those directed towards the community and finally employees. These findings are close to previous studies performed mostly in developing countries, which have found a favourable link between CSR and investment performance (Anwar and Malik, 2020; Awan *et al.*, 2020; Benlemlih and Bitar, 2018; Zhang *et al.*, 2021; Zhong and Gao, 2017). However, all three are important aspects of CSR and contribute to improved investment outcomes. The moderating role of a company's reputation has also been examined. The findings reveal that a favourable company reputation amplifies the positive impact of CSR towards the community and customers on investment efficiency, but does not significantly alter the relationship between CSR towards employees and investment efficiency. These insights offer practical implications for Bangladeshi pharmaceutical firms and other businesses operating in similar contexts. Specifically, firms can boost their investment efficiency by allocating resources towards CSR initiatives aimed at different stakeholders, with an emphasis on customer-oriented activities. At the same time, maintaining and enhancing their corporate reputation can further strengthen this positive impact. This study adds a unique perspective to the existing body of literature on CSR and investment efficiency by exploring these dynamics in a developing country context.

6.2 Implications

The findings from this study carry pivotal implications for business leaders, particularly those in pharmaceutical sectors within developing economies. First, the positive correlation between CSR initiatives and investment efficiency underscores the strategic importance of these activities, emphasising that they are not just ethical and social obligations but also key drivers of financial performance. Accordingly, managers should integrate CSR as a core component of their business strategy to optimise investment efficiency. Second, the study reveals that CSR initiatives directed towards customers yield the highest impact on investment efficiency. This finding directs managers to accord priority to customer-centric CSR initiatives to foster deeper customer relationships, enhance satisfaction and build loyalty, all of which contribute significantly to financial performance. Lastly, the study accentuates the moderating role of corporate reputation in the relationship between CSR and investment efficiency. The implication for managers is to strive towards cultivating a strong corporate reputation as it amplifies the positive effects of CSR initiatives. A robust reputation can be built through transparent communication, ethical business practices and the provision of high-quality products and services.

From a theoretical standpoint, this research contributes significantly to stakeholder theory. The theory posits that corporations have responsibilities towards all stakeholders, not solely shareholders. The research empirically confirms this premise by demonstrating that CSR initiatives towards diverse stakeholder groups (community, employees, and customers) enhance a firm's investment efficiency. Furthermore, this study augments stakeholder theory by delineating the moderating role of corporate reputation in the relationship between CSR and investment efficiency. The results suggest that a firm's impact on its stakeholders and subsequent financial performance is contingent on its CSR activities and significantly influenced by its reputation. This introduces a nuanced understanding of stakeholder theory, integrating the factor of corporate reputation. Moreover, the research enriches stakeholder theory by examining these dynamics in a developing country, specifically Bangladesh. The findings indicate that the premises of stakeholder theory remain

applicable and robust even in different economic contexts, thereby strengthening the global relevance of this theoretical framework.

6.3 Future research direction

Whilst this study provides valuable insights into the association between CSR, corporate reputation and investment efficiency, certain limitations should be acknowledged. Firstly, the research utilises a cross-sectional design, capturing only a snapshot in time, which may not fully account for the potential effects of dynamic changes over time. Secondly, the study is conducted in the specific context of Bangladeshi pharmaceutical companies, and therefore, the generalisability of the findings to other sectors or geographical regions may be limited. Lastly, this study has not examined other potentially important variables such as government regulations, market competition, cultural factors, taxation and international trade, which could influence the explored relationships (Rahman and Islam, 2023a). Future research should seek to overcome these limitations. Longitudinal studies could assess the impact of CSR activities and corporate reputation on investment efficiency over time. Additionally, comparative studies across different sectors and geographical locations would provide a more comprehensive understanding of these relationships. Future research could also consider incorporating other relevant variables to provide a richer and more nuanced understanding of the factors affecting investment efficiency in the context of CSR and corporate reputation.

Notes

1. <https://www.surveysystem.com/sscalc.htm>
2. <https://www.dsebd.org/companylistbyindustry.php?industry=18>
3. <https://www.random.org/>

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