





“Does ESG disclosure enhance firm performance during COVID-19? Evidence from Nifty 500 firms”

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DOES ESG DISCLOSURE ENHANCE FIRM PERFORMANCE DURING COVID-19? EVIDENCE FROM NIFTY 500 FIRMS

Abstract

Market turmoil caused by COVID-19 has weakened firms' financial performance, highlighting the prominence of sustainable business practices by incorporating Environmental, Social, and Governance performance and their disclosure. Though past studies investigated COVID-19's impact on firm performance, there is consensus on the role of firms' Environmental, Social, and Governance disclosures between firm performance and the pandemic. With this view, the study aims to examine the impact of COVID-19 on firms' financial performance with the moderating role of Environmental, Social, and Governance performance disclosure. To do so, the study retrieved data of Nifty 500 index companies from the Bloomberg database for a sample period ranging from 2016 to 2022. To this end, the study performed the fixed-effect regression and GMM model. The findings reveal a significant negative impact of the pandemic on Return on Assets ($\beta = -4.812$), Return on Equity ($\beta = -.675$), and Earnings Per Share ($\beta = -2.875$), highlighting the unfavorable effect of the pandemic on firm performance. Further results showed that firms' Environmental, Social, and Governance performance disclosure positively moderates the connection between COVID-19 and Return on Assets ($\beta = 3.231$), Return on Equity ($\beta = 0.032$), and Earnings Per Share ($\beta = 1.523$), respectively. This indicates that companies actively involved in Environmental, Social, and Governance disclosure are less likely to suffer during the pandemic in terms of financial performance due to their ESG disclosures.

Keywords

COVID-19, Environmental, Social, and Governance performance, financial performance, panel data, India, Nifty 500

JEL Classification

Q56, C23

INTRODUCTION

Globally, the COVID-19 pandemic has had an unfavorable effect on the environment, politics, business, society, and health. To combat the pandemic, some nations imposed strict lockdowns and restrictions that have disrupted various national and international economic activities. The countries were under pressure to stimulate the economy due to the COVID-19 problem getting worse and posing a challenge to managing economic shocks that impact the financial sector (Johnstone, 2021).

The pandemic has also made it more difficult for businesses to prioritize profit maximization due to financial, social, and ethical obligations to their stakeholders (Amosh & Khatib, 2023). During emergencies such as the COVID-19 pandemic, it is even more crucial for businesses to participate in charitable and socially conscious endeavors though this emphasizes the importance of paying attention to financial performance in times of crisis.

Although previous studies have examined different facets of Environmental, Social, and Governance (ESG) performance during

the pandemic, much focus has been given to firm performance (FP) in the long run. Conversely, the understanding of the role of companies' ESG disclosure in the nexus between FP and COVID-19 is of paramount importance to the business world. With this view, the empirical investigation to unveil the importance of ESG disclosure on the relationship between FP and COVID-19 is considered to be prominent.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Scholarly works have examined the observations through a variety of theoretical lenses in response to the COVID-19 pandemic. However, much of the literature currently lacks a strong theoretical basis (Loof et al., 2022; Gregory, 2022; Rababah et al., 2020; Pavlova & de Boyrie, 2022). In this way, Crisis theory holds that people will always experience a variety of crises, from diseases to social and psychological upheavals (Roberts, 2000). As a result, people need to adjust and deal with these crises through the channels at their disposal. To lessen the effects of current crises and increase resilience against future ones, Aguilera (1998) underlined the significance of addressing existing crises. Adequate decision-making abilities and bravery to control risks and accomplish immediate goals are necessary for crisis management (Shrivastava, 1993). This is especially true in light of the current COVID-19 pandemic (Dabbagh, 2020). As a result, businesses might take firm action to maintain respectable standards of ESG performance in line with the goals of various stakeholders. Engaging in such activities can improve a business's standing and lead to increased revenue and customer loyalty, particularly for companies that exhibit strong social responsibility policies. Thus, embracing a management philosophy that prioritizes making wise decisions in times of crisis offers businesses a tactical chance to show compassion for their stakeholders and the community at large.

Since companies operate in settings with a wide range of stakeholders, their actions affect both the environment and society (Bahadori et al., 2021). According to stakeholder theory, businesses have an obligation to the communities in which they operate, and this obligation must be met by showing stakeholders that they are benevolent and taking voluntary action (Zamil et al., 2021; Ananzeh

et al., 2022; Khatib et al., 2021, 2022). This implies striking a careful balance between the company's primary profit-generating activity and its social and environmental obligations (Gallego-Álvarez, 2020; Amosh & Mansor, 2021). Although putting measures in place to improve FP may come with a hefty price tag and no quick cash payout, these endeavors meet the needs of stakeholders and support sustainable development (Amosh & Khatib, 2021; Jaka et al., 2018).

According to stakeholder theory, a powerful tactic for obtaining a competitive edge is for corporations to connect themselves with their stakeholders (Freeman, 2010). Additionally, firms' FP is improved by cultivating high levels of stakeholder confidence (Velte, 2022). Thus, it is essential to incorporate the various demands of stakeholders into COVID-19 recovery methods (Fasan et al., 2021). Businesses that put the needs of their stakeholders first are better positioned to create value and see long-term financial success (Canhoto & Wei, 2021).

The COVID-19 pandemic showed a significant impact on the world's different economic sectors, which led scholars to investigate its implications. Most of the literature that currently exists has examined the connection between ESG and FP in businesses. Interestingly, the conducted research between ESG and FP during COVID-19 has depicted mixed results. From an institutional standpoint, the crisis has hindered lines of communication between boards and corporate divisions, which jeopardizes the efficacy of supervisors and decision-making in the face of uncertainty. Furthermore, the pandemic has been shown to impair governance frameworks that could result in financial mismanagement in many businesses (Janssen & Van, 2020). To maintain business performance in times of crisis, it is essential to strengthen governance mechanisms. For example, increasing gender diversity can reduce additional financial risks and use women's experiences to im-

prove stakeholder communication, representation, and the quality of decision-making (Shakil, 2021).

Friede et al. (2015) showed that the market value, Return on Equity (ROE), and Return on Assets (ROA) of banks operating are positively impacted by ESG performance across its three dimensions in regions such as North Africa, Middle East, and Turkey. Across a range of companies, a plethora of empirical research has repeatedly revealed positive ESG effects on financial outcomes (Gregory, 2022). This indicates that during the COVID-19 epidemic, companies' FP tends to increase with increasing levels of ESG performance. Furthermore, following social responsibility guidelines lead to improving the firm's overall performance and financial stability (Tanjung, 2021; Ramzan et al., 2021).

Given the worst pandemic situation, a reduction in sustainability investments was witnessed in the previous studies (Laronde et al., 2022). However, it has been highlighted how important ESG practices are in reducing financial consequences and pandemic-related constraints (Zhang et al., 2023). Studies conducted in a variety of settings, including the Korean market, have demonstrated that businesses with better ESG performance typically see slower drops in profitability (Hwang et al., 2021). Further evidence evinced the correlation between higher stock returns and high-ESG-performing corporations, indicating that ESG performance can reduce financial risks during the pandemic (Broadstock et al., 2021; Loof et al., 2022). Further research indicated that, during the pandemic period, social and environmental responsibility attracted investors and gave corporations trust more than governance performance in terms of good stock performance (Engelhardt et al., 2021).

Due to travel limitations and other issues, the pandemic has caused supply chain disruptions that have an impact on the production and delivery of goods and services (Ivanov, 2021; Magableh, 2021). Businesses with intricate global supply chains or those that depend significantly on imports and exports are most affected by this interruption. Furthermore, lower demand for goods and services has resulted in lower sales and profits for businesses in hard-hit industries including tourism, hospitality, and aviation. Problems with liquidity and cash flow have also surfaced, espe-

cially for businesses that have had to shut down or scale back operations which have further impacted their FP (Almeida, 2021).

Conversely, in times of crisis, companies' voluntary efforts become more important as they demonstrate their dedication to their social duties in a variety of situations. Furthermore, stakeholders find that ESG performance is a useful tool for coordinating with the goals of the companies (Alketbi et al., 2022). Furthermore, strong disclosure of ESG policies is essential for reaffirming the connection between long-term performance and corporate strategies (Amosh & Khatib, 2022) pressing the importance of ESG to enhance the performance. Since ESG performance increases stakeholder trust and strengthens company loyalty in times of crisis, it is expected to change the link between COVID-19 effects and FP (Khan et al., 2021).

Moreover, ESG performance strengthens risk management procedures, encourages reporting openness, and supports governance frameworks to support efficient decision-making in the face of uncertainty (Broadstock et al., 2021). The ESG performance may also make it easier to spot new business opportunities, including creating cutting-edge goods or services to meet the requirements of consumers during the pandemic.

On the other hand, there was a notable decline in the pandemic-related FP of Chinese publicly traded companies (Rababah et al., 2020). In a similar vein, Pavlova and Boyrie (2022) discovered that sustainable mutual funds and stocks did not significantly benefit or suffer from the pandemic suggesting that more sustainability in investments did not protect against monetary losses. Furthermore, it has contended that ESG performance neither boosts profits during the crisis nor provides financial safety for companies during the COVID-19 pandemic (Demers et al., 2021). Thus, it has been observed that despite the numerous studies in connection with ESG and FP during COVID-19, there exist mixed findings that curate for further research in this realm.

Therefore, the study intends to examine the COVID-19 impact on FP with the moderating role of ESG performance.

The study, based on the literature and theoretical background, formulated the hypotheses as follows:

H1: *The COVID-19 pandemic has a significant negative effect on companies' FP.*

H2: *The ESG has a moderating effect on the relationship between the COVID-19 pandemic and companies' FP.*

2. METHODOLOGY

The data on ESG scores and other pertinent characteristics for listed firms (Nifty 500), as well as detailed yearly financial reports, including income statements and balance sheets, were obtained for this study from the Bloomberg database between 2016 and 2022. The study includes the effect of COVID-19 as a dummy variable. The period selected includes the years preceding and including the early 2019 pandemic. Accordingly, the study sought to investigate and ascertain the effect of COVID-19 on FP by concentrating on this time frame.

The study developed the following regression models for direct effects (Eq. 1), moderation (Eq. 2), and robustness (Eq. 3):

$$FP_{it} = \alpha_0 + \beta_1 Cov_{it} + \beta_2 Siz_{it} + \beta_3 Lev_{it} + \beta_4 DPS_{it} + \beta_5 GENDIV_{it} + \beta_6 GDP_{it} + \beta_7 ESG_{it} + yeardummy + industrydummy + \varepsilon_{it}, \quad (1)$$

$$FP_{it} = \alpha_0 + \beta_1 Cov_{it} + \beta_2 Siz_{it} + \beta_3 Lev_{it} + \beta_4 DPS_{it} + \beta_5 GENDIV_{it} + \beta_6 GDP_{it} + \beta_7 ESG_{it} + \beta_8 ESG_{it} \cdot Cov_{it} + yeardummy + industrydummy + \varepsilon_{it}, \quad (2)$$

$$FP_{it} = \alpha_0 + \beta_1 FP_{it-1} + \beta_2 Cov_{it} + \beta_3 Siz_{it} + \beta_4 Lev_{it} + \beta_5 DPS_{it} + \beta_6 GENDIV_{it} + \beta_7 GDP_{it} + \beta_8 ESG_{it} + \beta_9 ESG_{it} \times Cov_{it} + \varepsilon_{it}. \quad (3)$$

In these equations, FP_{it} represents Financial Performance as measured by ROA, ROE, and EPS, and the independent variables used in the regres-

sion models are Cov_{it} , which is a dummy variable indicating the COVID-19 period, taking a value of one during 2020–2021 and zero otherwise; Siz_{it} represents the size of a firm measured by the natural logarithm of total assets; Lev_{it} represents financial leverage calculated as total debt divided by total equity; DPS_{it} represents dividend per share computed as total dividends paid divided by shares outstanding; $GENDIV_{it}$ represents gender diversity and is expressed as the percentage of females on boards; GDP_{it} indicates Gross Domestic Product; and ESG_{it} represents the total ESG performance score per year. Additionally, ε_{it} denotes the stochastic term, and β signifies the estimations from the regression models. The study included a series of dummy variables in the models to control for year and industry effects.

3. RESULTS

The descriptive statistics are shown in Table 1. The financial data show that the sample companies have a reasonably high ROE mean of 0.157, but on average, they are modestly profitable. This is indicated by the mean values of ROA and EPS, which are 0.030 and 1.508, respectively. With a mean of 42.521%, the ESG scores span from 0.665% to 86.236%, suggesting a considerable difference in the sample companies' ESG performance. The other variables included show a consistent pattern for the mean as shown in the extant literature and do not seem to deviate much from the mean. Therefore, this confirms the stability of the data employed for the analysis.

Table 1. Results of descriptive statistics

Variable	Observation	Mean	Standard Deviation	Min	Max
ROA	3240	.030	.218	-10.236	2.323
ROE	2231	.157	1.212	-10.123	70.610
EPS	3010	1.508	4.165	-22.526	106.756
ESG Score	3240	42.521	20.123	.665	86.236
COVID-19	3240	.340	.402	0	1
FSIZE	3240	20.525	2.085	11.223	28.003
LEV	3240	.247	.836	-.001	76.326
DPS	3240	.032	.085	0	.302
GEND	3240	21.112	13.12	0	69.485
GDP Growth Rate	3240	4.991	4.645	-5.83	9.05

The relationships between several sets of variables, such as FP, ESG, COVID-19 pandemic, and control variables, are shown in Table 2. It is interesting to note that the ESG score shows a positive correlation with market-based performance metrics like EPS but a negative correlation with accounting-based company performance metrics like ROE ROA. In addition, COVID-19 shows negative relationships with both EPS and ESG performance supporting the overall concept. Furthermore, correlations are noted between some of the study's control variables. For example, there is a significant association between gender diversity on a firm's board and GDP, and between firm size and dividends per share and ESG performance. Nevertheless, since no correla-

tion coefficient is more than 0.8 – the threshold Gujarati (2004) recommended for suspecting multicollinearity concerns – there is no sign of significant multicollinearity problems. Additionally, the tests for “Durbin-Watson and Breusch-Godfrey” rule out the existence of autocorrelation, and the “Variance Inflation Factor” (VIF) test verifies that there are no problems with multicollinearity. The regression analysis can therefore be performed on the variables in this study.

Prior to performing regression analysis, the Hausman test was used to determine which model is most appropriate between fixed and random effect regressions. Based on Table 3, it was conclud-

Table 2. Correlation matrix result

Variable	VIF	ROA	ROE	EPS	ESG	COVID-19	FSIZE	LEV	DPS	GENDIV	GDP
ROA	–	1.000									
ROE	–	.562	1.000								
EPS	–	.020	.057	1.000							
ESG	3.201	–.168	–.045	.122	1.000						
COVID-19	2.029	.016	.002	–.052	–.078	1.000					
FSIZE	1.224	–.223	–.018	.133	.389	–.128	1.000				
LEV	3.037	–.228	–.068	–.029	.140	–.015	.123	1.000			
DPS	2.176	–.039	.105	.007	.159	–.123	.389	.137	1.000		
GENDIV	1.085	–.061	.038	.209	.323	–.010	.004	.066	.025	1.000	
GDP	1.28	.227	.062	–.223	–.489	.112	.128	–.172	–.145	–.447	1.000

Table 3. Regression results of the impact of COVID-19 on FP

Variables	ROA			ROE			EPS		
	(1) OLS	(1) FE	(1) RE	(2) OLS	(2) FE	(2) RE	(3) OLS	(3) FE	(3) RE
COVID-19	–.013** (–2.137)	–.020*** (–4.812)	–.017*** (–4.459)	–.012 (–.560)	–.020* (–.675)	–.012 (–.527)	–.570** (–2.120)	–.605*** (–2.851)	–.453** (–2.758)
FSIZE	–.007*** (–6.563)	.080*** (11.851)	0 (–.162)	–.010*** (–2.523)	.140* (1.852)	–.010*** (–2.123)	.422*** (9.86)	–1.192*** (–3.078)	.422*** (7.533)
LEV	–.070*** (–7.523)	–.232*** (–12.023)	–.116*** (–9.563)	–.040 (–1.148)	–.695*** (–3.563)	–.042 (–1.856)	–1.862*** (–4.869)	–.27 (–.252)	–1.50*** (–3.195)
DPS	.503*** (8.856)	.017 (.236)	.205*** (3.853)	.755*** (3.863)	.032 (.012)	.755*** (3.855)	–9.885*** (–3.28)	10.326 (1.669)	–5.959* (–1.786)
GENDIV	.001*** (5.053)	0 (–1.852)	0*** (2.236)	.001** (2.856)	0 (–.012)	.001** (2.412)	.017*** (2.536)	–.02* (–1.685)	.009 (1.47)
GDP	.020*** (9.358)	–.035* (–1.685)	.018*** (6.283)	.020*** (2.321)	–.28 (–.885)	.020*** (2.859)	–.351*** (–3.959)	2.185** (2.252)	–.49*** (–4.523)
Constant	–.170*** (–3.213)	–2.008** (–2.123)	–.236*** (–3.236)	.039 (.236)	1.329 (.229)	.028 (.123)	–5.231*** (–3.286)	84.754 (.926)	–2.239 (–1.259)
Industry (dummy)	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year (dummy)	Included	Included	Included	Included	Included	Included	Included	Included	Included
No. of Observations.	3240	3240	3240	2231	2231	2231	3010	3010	3010
R-squared	.068	.19		.025	.017		.043	.025	

Note: *t*-values are in parentheses. If the *p*-value of the Hausman test is greater than 0.05, then the random effects model is considered appropriate. If the *p*-value is less than 0.05, then the fixed effect model is considered appropriate. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

ed that the fixed effect model was the most suitable model for this investigation. Even though the results were comparable between the two estimation methods, the interpretation of the research findings based on the Hausman test using the fixed seemed to be more appropriate. At a significance level of .01, the regression analysis demonstrated a significant negative impact of the COVID-19 period on FP measures (ROA, ROE, and EPS) for companies. Nevertheless, during the COVID-19 period, EPS for larger corporations declined. During the pandemic, financial leverage showed a negative impact on ROA and ROE.

Notably, financial leverage did not affect EPS, defying earlier research's predictions about the possible harm that higher debt dependence could have to shareholder profitability. Furthermore, the findings showed that dividend policies affected stock value where excessive dividend distribution decreased self-financing and increased debt dependence increased EPS. These factors may have exposed companies to default risks and decreased EPS during the COVID-19 pandemic. Therefore, the predicted hypothesis 1 is accepted due to the significant negative effect of COVID-19 on FP.

Table 4. Result of the moderating effect of ESG on the relationship between COVID-19 and FP

Variables	(1)	(2)	(3)
	FE-ROA	FE-ROE	FE-EPS
COVID-19	-.035*** (-5.458)	-.020* (-1.912)	.162 (.521)
ESG	.041** (1.236)	.000*** (.05)	.002*** (.523)
COVID-19 × ESG	.008*** (3.231)	.015 (.032)	.02* (1.523)
FSIZE	.084*** (12.756)	.15* (1.822)	-1.123*** (-2.985)
LEV	-.223*** (-12.059)	-.626*** (-3.235)	-.223 (-.236)
DPS	.032 (.408)	.038 (.025)	10.123 (1.235)
GENDIV	-.004 (-1.342)	-.007 (-.012)	-.028* (-1.752)
GDP	-.026 (-1.223)	-.252 (-.858)	2.628*** (2.239)
Constant	-2.221** (-2.212)	1.217 (.159)	84.621 (.98)
Industry (dummy)	Included	Included	Included
Year (dummy)	Included	Included	Included
No. of Observations.	3240	2231	3010
R-squared	.123	.017	.027

Note: *t*-values are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table 4 shows a moderation effect of ESG between COVID-19 and FP. This implies that ESG performance mitigates the negative association between COVID-19 and FP. Moreover, during the pandemic, businesses with strong ESG performance account for positive outcomes. The presence of ESG enhances the detrimental impact of COVID-19 on FP, as indicated by the predicted significant positive coefficient for the moderation variable. Thus, the predicted hypothesis 2 is accepted due to the significant positive effect of ESG between COVID-19 and FP.

The study used fixed-effects estimation to estimate the core model to account for unobserved heterogeneity among the model's several categories. Nonetheless, endogeneity issues continue to be raised in the literature on FP, which may affect how variables are interpreted in relation to one another or how much of their lag values matter. The robustness analysis used the system GMM approach following earlier research (Alsahlawi et al., 2021) to lessen this problem. In addition, the study included a lagged dependent variable as described by Arellano and Bond (1991).

Table 5. Two-step GMM results for robustness

Variables	ROA	ROE	EPS
Lag of ROA	.325*** (2.462)		
Lag of ROE		.0312*** (.092)	
Lag of EPS			.042** (1.926)
COVID-19	-.018* (-5.623)	-.018 (-1.758)	-.512 (-5.126)
ESG	.067* (-3.212)	.005*** (-.353)	.003*** (.428)
COVID-19 × ESG	.008*** (2.927)	.003* (.238)	.002* (.548)
FSIZE	.002 (.458)	-.008*** (-4.856)	.312*** (3.789)
LEV	-.128*** (-5.009)	-.059* (-1.689)	-1.126*** (-2.759)
DPS	.212*** (3.215)	.785*** (3.856)	-3.269 (-1.070)
GENDIV	.000 (1.123)	.001** (2.285)	.014* (1.923)
GDP	.012*** (6.312)	.018*** (2.89)	-.094* (-1.236)
Constant	-.223*** (-3.589)	.027 (.253)	-2.323 (-.986)
Industry (dummy)	Included	Included	Included

Table 5 (cont.). Two-step GMM results for robustness

Variables	ROA	ROE	EPS
Year (dummy)	Included	Included	Included
<i>p</i> -value of AR (1) test	.000***	.001***	.041**
<i>p</i> -value of AR (2) test	.232	-1.23	.125
IV overidentification	.268	.132	.278
No. of Observations.	3240	2231	3010

Note: This table reports the moderated multiple regression results using the fixed effects model; firm performance ($t-1$); 1-year lagged value of FP (ROA, ROE, EPS). The estimated coefficients and *t*-statistics are calculated using a two-way system GMM. The Arellano–Bond test is applied to test the null hypothesis of no serial autocorrelation in the first-differenced residuals, and the Hansen test of overidentification is conducted to assess the validity of the full instruments set. *t*-values are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

The robustness check findings utilizing the two-step GMM technique are shown in Table 5. The models take into consideration the moderating relationship (COVID-19 \times ESG) and the direct association (performance of firms and COVID-19). After resolving endogeneity using the dynamic GMM estimator obtained similar results, which are consistent with the earlier findings, as shown in Table 5. This demonstrates the validity of the study's findings, which confirm the substantial inverse link between COVID-19 and company success and the beneficial moderating effect of ESG performance.

4. DISCUSSION

The present study intended to examine the COVID-19 impact on a firm's FP with the moderating role of the company's ESG score disclosure. The result depicted that the pandemic had a significant negative impact on the FP of firms as proxied by ROA, ROE, and EPS. This finding is in tandem with previous studies (Shen et al., 2020; Li, 2022). The epidemic's numerous after-effects, including business closures and disruptions that severely impacted operations and caused a decrease are responsible for this detrimental effect on FP. Due to their larger capital and stronger govern-

ment intervention, all of this was required to maintain resilience against shocks like the COVID-19 pandemic. Moreover, given the low production, consumption, and financial constraints on the part of various stakeholders, especially customers, the unfavorable effect of a pandemic on a company's FP continued to be witnessed.

Further findings on the moderating impact of ESG disclosure in association with COVID-19 and FP delineated a significant positive effect. The moderating influence of ESG performance on corporate performance has been highlighted by other researchers, and these results are consistent with their findings (Alketbi et al., 2022; Khan et al., 2021). Theoretically, these findings imply that companies use different tactics to continue operations and performance in times of crisis. They do this by demonstrating their ethical obligations to different stakeholders and by maintaining high ESG performance as a sign of goodwill. This increases stakeholders' trust in businesses. These results are consistent with the theoretical framework proposed by the theory of crises and stakeholders, which holds that distinct patterns of behavior and decision-making are prompted by crises, requiring important decisions to be made to fulfill non-financial purposes. As such, in times of crisis, corporate decision-makers place a high priority on upholding ESG performance to improve the company's reputation, draw in stakeholders, and fortify links with local communities.

Therefore, in times of crisis, companies conform to social norms by attending to the needs and demands of stakeholders, exhibiting compassion, and cultivating lasting relationships. Stakeholder-focused entities benefit financially from such approaches, which also help recover from the pandemic's effects and build strong ties with stakeholders in times of crisis. In the end, funding ESG initiatives during the epidemic is seen as a calculated long-term investment to foster favorable perceptions of the business and preserve its standing in the aftermath.

CONCLUSIONS

The study aimed to examine the COVID-19 impact on Indian Nifty 500 index companies' FP, considering the role of ESG performance disclosure as a moderator. The findings show a detrimental effect of the pandemic on a company's important performance metrics like ROA, ROE, and EPS, indicating possible difficulties for businesses in preserving their competitiveness. Contrarily, the results indicate that

strong ESG performance could provide a method for businesses to overcome the challenges posed by the pandemic by lessening its negative impacts.

The objectives of shareholders to maximize their value justify a strategic focus on improving ESG performance to allay fears and maximize advantages in the face of growing crises. Additionally, businesses that exhibit strong ESG performance attract investors, which puts them in a favorable position to raise money amid the pandemic.

In theoretical accordance with crisis theory, the study emphasizes the detrimental influence of crises such as COVID-19 on financial and economic outcomes, recommending pre-emptive actions like enhancing ESG performance to lessen these consequences. Businesses that use ESG principles can increase resilience against financial downturns during crises by cultivating trust with stakeholders. It is recommended that lawmakers and regulators create specific laws to reward ESG performance in times of emergency.

AUTHOR CONTRIBUTIONS

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Data curation: K. Sudhir Prabhu.

Formal analysis: Daniel Frank.

Investigation: Daniel Frank.

Methodology: G. Vidya Bai, Daniel Frank.

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REFERENCES

1. Aguilera, D. C. (1998). *Crisis intervention: Theory and methodology* (8th ed.). Mosby.
2. Al Amosh, H., & Khatib, S. F. (2021). Corporate governance and voluntary disclosure of sustainability performance: The case of Jordan. *SN Business & Economics*, 1(12), 1-22. Retrieved from <https://link.springer.com/article/10.1007/s43546-021-00167-1>
3. Al Amosh, H., & Khatib, S. F. A. (2022). Ownership structure and environmental, social and governance performance disclosure: The moderating role of the board independence. *Journal of Business and Socio-economic Development*, 2(1), 49-66. <https://doi.org/10.1108/JBSED-07-2021-0094>
4. Al Amosh, H., & Khatib, S. F. (2023). ESG performance in the time of COVID-19 pandemic: Cross-country evidence. *Environmental Science and Pollution Research*, 1-16. <https://doi.org/10.1007/s11356-022-25050-w>
5. Al Amosh, H., Khatib, S. F. A., Alkurdi, A., & Bazhair, A. H. (2022). Capital structure decisions and environmental, social and governance performance: Insights from Jordan. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-12-2021-0453>
6. Al Amosh, H., & Mansor, N. (2021). Disclosure of integrated reporting elements by industrial companies: Evidence from Jordan. *Journal of Management and Governance*, 25(1), 121-145. Retrieved from https://ideas.repec.org/a/kap/jmgtgv/v25y2021i1d10.1007_s10997-020-09541-x.html
7. Al-Dabbagh, Z. S. (2020). The role of decision-maker in crisis management: A qualitative study using grounded theory (COVID-19 pandemic crisis as a model). *Journal of Public Affairs*, 20(4), e2186. <https://doi.org/10.1002/pa.2186>
8. Alketbi, O. S., Ellili, N. O. D., & Nobanee, H. (2022). Firm strategy and financial performance: What is the role of sustainability? Evidence from the banking system of an emerging market. *Business Strategy & Development*, 5(3), 259-273. <https://doi.org/10.1002/bsd2.197>

9. Almeida, H. (2021). Liquidity management during the COVID-19 pandemic. *Asia-Pacific Journal of Financial Studies*, 50(1), 7-24. <https://doi.org/10.1111/ajfs.12322>
10. Alsahlawi, A. M., Chebbi, K., & Ammer, M. A. (2021). The impact of environmental sustainability disclosure on stock return of Saudi listed firms: The moderating role of financial constraints. *International Journal of Financial Studies*, 9(1), 4. <https://doi.org/10.3390/ijfs9010004>
11. Ananzeh, H., Al Amosh, H., & Albitar, K. (2022). The effect of corporate governance quality and its mechanisms on firm philanthropic donations: Evidence from the UK. *International Journal of Accounting & Information Management*, 30, 477-501. <https://doi.org/10.1108/IJAIM-12-2021-0248>
12. Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277-297. <https://doi.org/10.2307/2297968>
13. Bahadori, N., Kaymak, T., & Seraj, M. (2021). Environmental, social, and governance factors in emerging markets: The impact on firm performance. *Business Strategy & Development*, 4(4), 411-422. <https://doi.org/10.1002/bsd2.167>
14. El Houry, R., Nasrallah, N., & Alareeni, B. (2023). ESG and financial performance of banks in the MENAT region: Concavity-convexity patterns. *Journal of Sustainable Finance & Investment*, 13(1), 406-430. <http://dx.doi.org/10.1080/20430795.2021.1929807>
15. Engelhardt, N., Ekkenga, J., & Posch, P. (2021). ESG ratings and stock performance during the COVID-19 crisis. *Sustainability*, 13(13), 7133. <https://doi.org/10.3390/su13137133>
16. Fasan, M., Zaro, E. S., Zaro, C. S., Porco, B., & Tiscini, R. (2021). An empirical analysis: Did green supply chain management alleviate the effects of COVID-19? *Business Strategy and the Environment*, 30(5), 2702-2712. <https://doi.org/10.1002/bse.2772>
17. Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139192675>
18. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2699610
19. Gallego-A´lvarez, I., & Pucheta-Martínez, M. C. (2020). Corporate social responsibility reporting and corporate governance mechanisms: An international outlook from emerging countries. *Business Strategy & Development*, 3(1), 77-97. <https://doi.org/10.1002/bsd2.80>
20. Gregory, R. P. (2022). ESG scores and the response of the S&P 1500 to monetary and fiscal policy during the Covid-19 pandemic. *International Review of Economics & Finance*, 78, 446-456. <https://doi.org/10.1016/j.iref.2021.12.013>
21. Gujarati, D. N. (2004). *Basic econometrics* (4th ed.). Tata McGraw-Hill Companies.
22. Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society*, 46, 1251-1271. <https://doi.org/10.2307/1913827>
23. Ivanov, D. (2021). Supply chain viability and the COVID-19 pandemic: A conceptual and formal generalization of four major adaptation strategies. *International Journal of Production Research*, 59(12), 3535-3552. <https://doi.org/10.1080/00207543.2021.1890852>
24. Janssen, M., & Van der Voort, H. (2020). Agile and adaptive governance in crisis response: Lessons from the COVID-19 pandemic. *International Journal of Information Management*, 55, 102180. <https://doi.org/10.1016/j.ijinfomgt.2020.102180>
25. Johnstone, I. (2021). The G20, climate change and COVID-19: Critical juncture or critical wound? *Fulbright Review of Economics and Policy*, 1(2), 227-245. <https://doi.org/10.1108/FREP-05-2021-0031>
26. Khan, M., Rahman, H. U., Baloch, Q. B., Ahmad, A., & Zahid, M. (2021). Is there any difference between the theory and practice for the association between environmental sustainability and firm performance in Pakistan? *Business Strategy & Development*, 4(3), 371-382. <https://doi.org/10.1002/bsd2.164>
27. Khatib, S. F. A., Abdullah, D. F., Elamer, A. A., & Abueid, R. (2021). Nudging toward diversity in the boardroom: A systematic literature review of board diversity of financial institutions. *Business Strategy and the Environment*, 30(2), 985-1002. <https://doi.org/10.1002/bse.2665>
28. Khatib, S., Abdullah, D. F., Elamer, A., & Hazaea, S. A. (2022). The development of corporate governance literature in Malaysia: A systematic literature review and research agenda. *Corporate Governance International Journal of Business in Society*, 22, 1026-1053. <https://doi.org/10.1108/CG-12-2020-0565>
29. Li, Z. (2021). Exploring the role of organizational slack in the COVID-19 pandemic: an empirical study of the manufacturing industry. *Corporate Governance: The International Journal of Business in Society*, 21(6), 996-1010. <http://dx.doi.org/10.1108/CG-09-2020-0401>
30. Loof, H., Sahamkhadam, M., & Stephan, A. (2022). Is corporate social responsibility investing a free lunch? The relationship between ESG, tail risk, and upside potential of stocks before and during COVID-19 crisis. *Finance Research Letters*, 46, 102499. <https://doi.org/10.1016/j.frl.2021.102499>
31. Magableh, G. M. (2021). Supply chains and the COVID-19 pandemic: A comprehensive framework. *European Management Review*, 18(3), 363-382. <https://doi.org/10.1111/emre.12449>
32. Pavlova, I., & de Boyrie, M. E. (2022). ESG ETFs and the

- COVID-19 stock market crash of 2020: Did clean funds fare better? *Finance Research Letters*, 44, 102051. <https://doi.org/10.1016/j.frl.2021.102051>
33. Rababah, A., Al-Haddad, L., Sial, M. S., Chunmei, Z., & Cherian, J. (2020). Analyzing the effects of COVID-19 pandemic on the financial performance of Chinese listed companies. *Journal of Public Affairs*, 20(4), e2440. <https://doi.org/10.1002/pa.2440>
 34. Ramzan, M., Amin, M., & Abbas, M. (2021). How does corporate social responsibility affect financial performance, financial stability, and financial inclusion in the banking sector? Evidence from Pakistan. *Research in International Business and Finance*, 55, 101314. <http://dx.doi.org/10.1016/j.ribaf.2020.101314>
 35. Roberts, A. R. (2000). An overview of crisis theory and crisis intervention. In Roberts, A. (Ed.), *Crisis intervention handbook* (2nd ed.) (pp. 3-30). Oxford University Press.
 36. Shakil, M. H. (2021). Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and board gender diversity. *Resources Policy*, 72, 102144. <https://doi.org/10.1016/j.resourpol.2021.102144>
 37. Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2021). The impact of the COVID-19 pandemic on firm performance. In *Research on Pandemics* (pp. 81-98). Routledge.
 38. Shrivastava, P. (1993). Crisis theory/practice: Towards a sustainable future. *Industrial & Environmental Crisis Quarterly*, 7(1), 23-42. <https://doi.org/10.1177/108602669300700103>
 39. Tanjung, M. (2021). Can we expect contribution from environmental, social, governance performance to sustainable development? *Business Strategy & Development*, 4(4), 386-398. <https://doi.org/10.1002/bsd.165>
 40. Velte, P. (2022). Meta-analyses on corporate social responsibility (CSR): A literature review. *Management Review Quarterly*, 72(3), 627-675. <http://dx.doi.org/10.1007/s11301-021-00211-2>
 41. Zamil, I. A., Ramakrishnan, S., Jamal, N. M., Hatif, M. A., & Khatib, S. F. A. (2021). Drivers of corporate voluntary disclosure: A systematic review. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-04-2021-0110>
 42. Zhang, D., Wang, C., & Dong, Y. (2023). How does firm ESG performance impact financial constraints? An experimental exploration of the COVID-19 pandemic. *The European Journal of Development Research*, 35(1), 219-239. <http://dx.doi.org/10.1057/s41287-021-00499-6>
 43. Zubeltzu-Jaka, E., Andicoechea-Arondo, L., & Alvarez Etxeberria, I. (2018). Corporate social responsibility and corporate governance and corporate financial performance: Bridging concepts for a more ethical business model. *Business Strategy & Development*, 1(3), 214-222. <https://doi.org/10.1002/bsd2.29>