

Article

Investigating the Nexus between Corporate Governance and Firm Performance in India: Evidence from COVID-19

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Abstract: The COVID-19 pandemic has had a dreadful influence on both economic activities and human life, in view of which management has to play a strategic role to focus on effective board leadership in order to optimize firm performance. The present study analyses the role of corporate governance practices in determining firm performance during the pandemic. A total of 151 non-financial companies from 11 diversified industries representing the NIFTY200 index for two years, 2019–2020 (pre-COVID-19) and 2020–2021 (during COVID-19), were selected. Paired sample *t*-tests, panel data regression, and one-way ANOVA were used for the analysis. The findings confirm that there is a significant difference between some corporate governance practices (board size, board independence, board's female proportion, board attendance, and audit committee size) as well as financial performance (Tobin's Q) before and during the COVID-19 period. The regression results of the full sample show that only board busyness has a positive and significant impact on ROA and Tobin's Q. However, after splitting the sample year-wise, board size and audit committee meetings positively affected ROA during COVID-19. On the other hand, board independence had a negative influence. Female directors and audit committee meetings positively affected ROA in the pre-COVID-19 period, while board busyness had a negative influence. The results of one-way ANOVA show a substantial difference in the financial performance among industries.

Keywords: corporate governance; board of directors; COVID-19; financial performance; pandemic



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1. Introduction

India crossed a mark of 33 million cases and 0.44 million deaths by mid-September 2021 due to the spread of COVID-19¹. The novel coronavirus originating from the city of Wuhan, China, spread worldwide and disrupted economic activities across the globe. India's economy, which was the fifth largest in the world in 2018–2019, lost \$2.8 trillion, equal to a 3.5 percent impact on the global GDP of \$80 trillion ([Key Highlights of Economic Survey 2019–20 2020](#)). The devastating effect of the COVID-19 pandemic on the economy is a big challenge for the boards of directors of firms operating across all industries ([Pibri 2021](#)). The financial and market performances of companies were largely impacted by the frozen economy and global lockdowns, the only options available to slow the spread of this deadly virus. Thus, the survival and growth of a company, especially during a crisis, is one of the big challenges for the board of directors, and how they tackle it shows the board's effectiveness. The COVID-19 pandemic has undoubtedly caused havoc in many aspects of modern society. Firms and societies have had to adapt to the dramatic changes in their environment caused by this worldwide health pandemic. Corporate institutions have gone on the defensive and enhanced procedures to protect stakeholders' rights and are now being challenged.

The COVID-19 pandemic has been intriguing to see, with an unanticipated shock creating large changes in business performance compared to management's expectations

and forecasts just months before the outbreak (Larcker et al. 2020). Nearly every single company has been influenced in some way by COVID-19 (Kraus et al. 2020). Smaller firms are among those that have been more affected by the COVID-19 outbreak (Baldwin and Di Mauro 2020). However, Levy (2020) reported in his research that large technological and pharmaceutical companies have gained revenue due to restrictions related to COVID-19, while many small companies that depend on the traditional economy were affected or went bankrupt during COVID-19. In a survey, a total of 43 percent of sampled American firms were reported to be inoperative or closed due to COVID-19 (Bartik et al. 2020). However, despite the negative impact of the economic downturn on many enterprises, certain companies successfully operated and flourished after the COVID-19 outbreak (Obrenovic et al. 2020). As Mather (2020) suggested, organisations that remain agile and change and adapt output and sales according to the situation have much better chances of surviving and succeeding in the post-pandemic era.

Both developed and emerging countries have witnessed the negative effects of the COVID-19 pandemic on their economic activities. According to a World Bank (2020) report, a 2.5 percent fall has been recorded in the level of economic activities in developing countries, and this fall is up to 7 percent in developed nations. The Organisation for Economic Co-Operation and Development (2020) reported that there has been a sharp decline in sales volume; firms are facing liquidity problems and finding it hard to pay their investors, lenders, suppliers and employees during the pandemic. A recent study by Aifuwa et al. (2020) in Nigeria showed a detrimental impact of the pandemic on the non-financial and financial performance of the surveyed business units. Similarly, another study by Fu and Shen (2020) examined the effect of the pandemic on the corporate performance of firms operating in the energy sector and found that the corporate performance of these business units was negatively affected. Fu and Shen (2020) further reported that corporate performance was more adversely affected by the COVID-19 outbreak for companies that had impaired goodwill in their financial statements.

Corporate governance (hereafter CG) may be defined as a system for managing and controlling an organisation in a transparent and equitable manner so that all stakeholders' rights are protected and the organisation can grow at the same time. A Cadbury Committee report (2000) defines corporate governance as concerned with creating a balance between community and individual aspirations, as well as social and economic goals. A significant positive effect of good CG on the performance of Indonesian banks was noted during the time of the pandemic (Pibri 2021). It is critical for businesses to have a strong self-governance structure during times of crisis (Mather 2020). During a pandemic such as COVID-19, when the world is facing a financial crisis and company administration is unable to deal with operational difficulties, an efficient corporate governance system helps a firm survive and transforms a calamity into an opportunity.

In brief, this paper complements Khatib and Nour (2021) and Farwis et al. (2021) and offers the following contributions. Firstly, we fill the gap by providing evidence on the nexus between corporate governance and firm performance in India, taking into account the COVID-19 crisis, using a panel dataset of the National Stock Exchange based on 151 companies. The NSE companies have huge market capitalisation and are responsive to governance issues. Moreover, big companies have public visibility and, as such, face greater scrutiny over governance matters. Second, industry-wise financial performance during COVID-19 was analysed using one-way ANOVA. Lastly, the financial years 2019–2020 and 2020–2021 were taken as pre- and during-COVID-19 periods (Khatib and Nour 2021). This is because the spread of COVID-19 took place worldwide in March 2020 and the world witnessed lockdowns in the same month. We thus consider 2019–2020 and 2020–2021 as pre- and during-COVID-19 periods, expecting to produce more reliable results. Moreover, this paper highlights the risk management function of boards of directors, which is meaningful to mitigate the negative effects of COVID-19 on market performance. Thus, in light of the above discussion, the study endeavours to address the following research questions:

RQ₁: What is the nexus between corporate governance and firm performance during the COVID-19 pandemic?

RQ₂: What is the difference between corporate governance practices and financial performance before and during the COVID-19 pandemic?

RQ₃: Are there any differences between the financial performances of industries during COVID-19?

Motivation of the Study

The corporate governance system has always been a focus of discussion among researchers because it enables a firm to outperform in the market and discharge its financial obligations, especially in times of crisis. Although the world has witnessed several pandemics spread by viruses such as Ebola, Zika, swine flu, Middle East Respiratory Syndrome (MERS), and Severe Acute Respiratory Syndrome (SARS), the current COVID-19 pandemic is more fatal in comparison to prior outbreaks (Baker et al. 2020a, 2020b; World Economic Forum (WEF) 2020; World Bank 2020). The virus has not only impacted the health system of the world, but due to lockdowns and restrictions on cross-border movement, the global economy has witnessed the deepest recession. The COVID-19 outbreak has affected most companies in this ecosystem in some way (Kraus et al. 2020). The World Bank (2020) Report forecasted that the world economy would shrink by 5.2 percent in the year 2020 due to the COVID-19 outbreak. Tackling the huge impact of COVID-19 and maintaining firm performance during the pandemic have become challenging tasks for boards of directors. The spread of COVID-19 has had a significant impact on all economic activities. This pandemic raises the possibility of risk, and in response, executives are prone to restructure their capital, strategy, and business design in both the long and short term to withstand possible crises in the near future (Foss 2020).

It is pertinent to evaluate COVID-19's impacts in the fields of management, governance, economics, and finance. Many social science researchers and academicians have already started working in this area and evaluated the role of the pandemic in sustainability performance (Bose et al. 2021), corporate solvency (Mirza et al. 2020), supply chains (Sharma et al. 2020), cash holdings (Qin et al. 2020), demand–supply mismatch (Eroğlu 2020), technological readiness (Sharma et al. 2020), leverage (Slater 2020), abnormal stock returns (Liu et al. 2020), corporate governance structure (Khatib and Nour 2021), corporate social responsibility (Bae et al. 2021), and firm performance (Mirza et al. 2020; Qin et al. 2020; Golubeva 2021; Bose et al. 2021). In this paper, we aimed to establish new connections between several aspects of board structure, as the COVID-19 pandemic has shaken many economies around the globe in many ways. It is frequently stated that corporate governance acts as a gauge to mitigate several agency conflicts. The corporate governance concept has gained much traction in academic literature, with many descriptions of its high impact on financial performance, whereas the concept of financial performance amid crises, such as the COVID-19 pandemic remains understudied. Thus, this work attempts to assist in raising awareness of corporate governance practices during different time periods by including pre- and during-COVID-19 data. We expected a substantial impact of the COVID-19 pandemic on the corporate governance structure and financial performance of Indian companies. The positive role of the corporate governance system in saving and improving the financial performance of Indian companies during the COVID-19 crisis was expected.

2. Literature Review and Hypothesis Development

2.1. Corporate Governance and Firm Performance before COVID-19

With regard to the impact of CG on firm performance, a conflicting view was revealed in research conducted prior to the spread of COVID-19 (Kyereboah-Coleman 2008; Bansal and Sharma 2016; Mohan and Chandramohan 2018). In a meta-analysis, Dalton et al. (1999) reported a positive and substantial association between board size and firm success. However, some researchers such as Yermack (1996) and Eisenberg et al. (1998) claim that a large board size is detrimental to a business's performance. Other empirical research

has documented that board considerations such as size, gender diversity, non-executive directorship, leadership style, meetings, and audit committee size and their frequency of meetings may be related to a firm's accounting and market performance (Abdul Rahman and Mohamed Ali 2006; Shan and McIver 2011; Field et al. 2013; Ahmed Haji 2014; Datta 2018). Akbar (2015), in his study, also favoured a small board size, while Datta (2018) reported that board meetings and board size are positively related, whereas the number of independent directors is negatively correlated with ROE.

According to the research of Denis et al. (1997), independent board members can have a positive effect on a company's stock price. A company with few independent directors will miss opportunities to lower costs and boost its stock price (Baysinger and Butler 1985). However, research by Shan and McIver (2011) and Leung et al. (2014) shows that having more independent directors actually decreases a company's worth. With a sample of the registered companies on NSE India, Bansal and Sharma (2016) found a negative correlation between board independence and business performance, as evaluated by Tobin's Q, return on assets, and market capitalisation. Strong boards often include a majority of women because of the unique and valuable expertise, experience, and views that women directors bring to the table (Smith et al. 2006). In addition to other corporate governance measures, Vo and Phan (2013) found that having women on boards of directors improved firm performance. Vishwakarma and Kumar (2015) claimed that a more gender-diverse board will lead to more objective decisionmaking and less resistance to change. However, the data showed that having women on the board of directors had no noticeable effect on the financial performance of IT companies.

The number of meetings the board holds during an accounting year can be used to measure its efficacy. According to Vafeas (1999), many board meetings take place when a company experiences bad financial performance and is devalued by the market. Ahmed Haji (2014) reported a negative association between the frequency of board meetings and various measures of the performance of a company. This association was further confirmed by Rodriguez-Fernandez et al. (2014) and Malik and Makhdoom (2016).

A director holding directorships in more than one company at the same time is another important facet of corporate governance, and researchers have divergent opinions on this topic. The main researchers in support of board busyness state that more experience, extra knowledge, and divergent expertise are some of the benefits of holding multiple directorships (Field et al. 2013). Having many directorships is regarded favourably since it offers a variety of networking opportunities. For instance, having multiple directorships in financial institutions may make it easier for a business to obtain safe and simple loans (Daily et al. 2003). In contrast, the other view holds that directors who serve on many boards are busier and less able to distribute their time among all companies properly, which can result in subpar governance (Sarkar et al. 2012).

A corporate manager is sometimes unable to preserve the interests of shareholders, so the onus is transferred to the audit committee. The large size of the audit committee is favoured in some studies (Biao et al. 2003; Abdulazeez et al. 2016), as involving more members will strengthen the monitoring of management activity, improve fairness, and enhance performance. Other researchers such as Kajola (2008) observed that the size of the audit committee and firm performance do not positively correlate. On the other hand, Menon and Williams (1994) considered independence and the frequency of meetings as the two key characteristics of the audit committee and found that both of these traits improve the monitoring of the firm and consequently enhance performance. The frequent audit committee meetings have a significantly positive effect on the market measures of performance (Kyereboah-Coleman 2008). Contrary to a favourable relationship between audit committee meetings and performance, some scholars have revealed a negative relationship. Mohd-Saleh et al. (2007) and Abdul Rahman and Mohamed Ali (2006) provided evidence that less frequent meetings of audit committees help enhance the financial performance of the firm by minimising the added financial costs incurred with each meeting. Danoshana and Ravivathani (2019) found that the number of board meetings

has a negative impact on firm performance. However, the size of the overall board and audit committee exerts a positive influence on firm performance.

2.2. Corporate Governance and Firm Performance during COVID-19

[Khatib and Nour \(2021\)](#) have contributed to the literature primarily by evaluating the effect of the coronavirus pandemic on the CG and the economic outcomes of Malaysian-listed firms. The authors found that firm characteristics such as financial performance, governance structure, liquidity measure, leverage level, and dividend distribution were all affected by the COVID-19 outbreak, yet the difference before and after COVID-19 is insignificant. It was also stated that board meetings and audit committee meetings are negatively related to a firm's performance during the crisis; moreover, board size does not matter, and board diversity is a critical factor in determining the firm performance during the current crisis. In a similar model, [Farwis et al. \(2021\)](#) extended their study to Sri Lankan companies and found that COVID-19 impacted all the corporate governance characteristics except the audit committee scale. A significant difference in the mean value of board size, non-executive directors, gender diversity, board meetings, financial qualification, and audit committee meetings has been reported. They further reported that firm success is positively correlated with board size and directors' qualifications and negatively correlated with the number of non-executive directors (NEDs), the number of women on the board, the size of the audit committee, and the frequency of audit committee meetings. Another study using a sample of 13 different countries conducted by [Golubeva \(2021\)](#) emphasised the importance of country-specific attributes, such as economic growth and the corporate governance system, to a company's success during the COVID-19 pandemic. [Pibri \(2021\)](#) also reported a significant effect of good CG on firm value and bank performance during the COVID-19 outbreak in Indonesia. During the time of the Asian financial crisis, a similar finding was reported by [Johnson et al. \(2000\)](#), who stated that the "managers of weak corporate governance firms were involved in more expropriation."

[Atayah et al. \(2021\)](#) examined the factors which impact financial performance as measured by ROA, ROE, and Tobin's Q for G-20 countries from 2010 to 2020. The findings revealed that throughout the COVID-19 period, the listed firms in 16 countries performed very well. [Azizah and Wulaningrum \(2022\)](#) found in their study that although the COVID-19 pandemic has affected both corporate governance and financial performance, the board of directors and audit committee as corporate governance measures had no significant impact on financial performance during the pandemic. In another attempt, [Boshnak et al. \(2023\)](#) tried to analyse the impact of the COVID-19 pandemic on the corporate governance structure of Saudi Arabia-based companies and found that audit committee meetings and audit committee independence were significantly affected by the spread of COVID-19. The mean values of financial performance (ROA, ROE, and TQ) and corporate governance variables such as board size, board meetings, board independence, board experience, board education, gender diversity, and audit committee experience and education all have an insignificant mean difference between the pre- and post-COVID-19 periods.

After an extant review, we observed that numerous studies were carried out in the field of GC before the outbreak of COVID-19. However, only certain studies address the influence of COVID-19 on the corporate governance system, and the available studies were conducted with a sample of listed non-Indian corporations. Thus, we could not find any study investigating significant differences in CG practices and firm performance before and during the COVID-19 phase. Also whether significant differences in industry-wise performance during the COVID-19 phase exist or not, or the impact of CG on the financial outcomes of Indian corporations during the COVID-19 pandemic. To overcome these research gaps, we propose the following three hypotheses:

H₁. *There is a significant difference between the pre- and during-COVID-19 phases in corporate governance practices and firm performance.*

H₂. There is a significant positive impact of corporate governance on firm performance during COVID-19.

H₃. There is a significant difference between the firm performances of industries during COVID-19.

3. Research Methodology

3.1. Sample Size and Period of Study

The present study identified the Nifty 200 index as the population for the study because the index reflects the behaviour and performance of large and mid-market capitalised companies². The rationale behind selecting the Nifty 200 index is that this index covers both Nifty 100 companies and Nifty 100 full mid-cap companies and represents approximately 86.7 percent of the free-float market capitalisation of NSE-listed equity stock as of 31 March 2019. During the scrutiny process, 47 financial companies were removed because these companies have different business practices and are bound by the additional regulation of the RBI Act of 1949 (Limbasiya and Shukla 2019). Moreover, two companies were removed due to the unavailability of required data. Thus, the final sample consists of 151 companies representing 11 diversified industries (Figure 1). The data collection period is two years, divided into the pre-COVID-19 phase (2019–2020) and the COVID-19 phase (2020–2021).

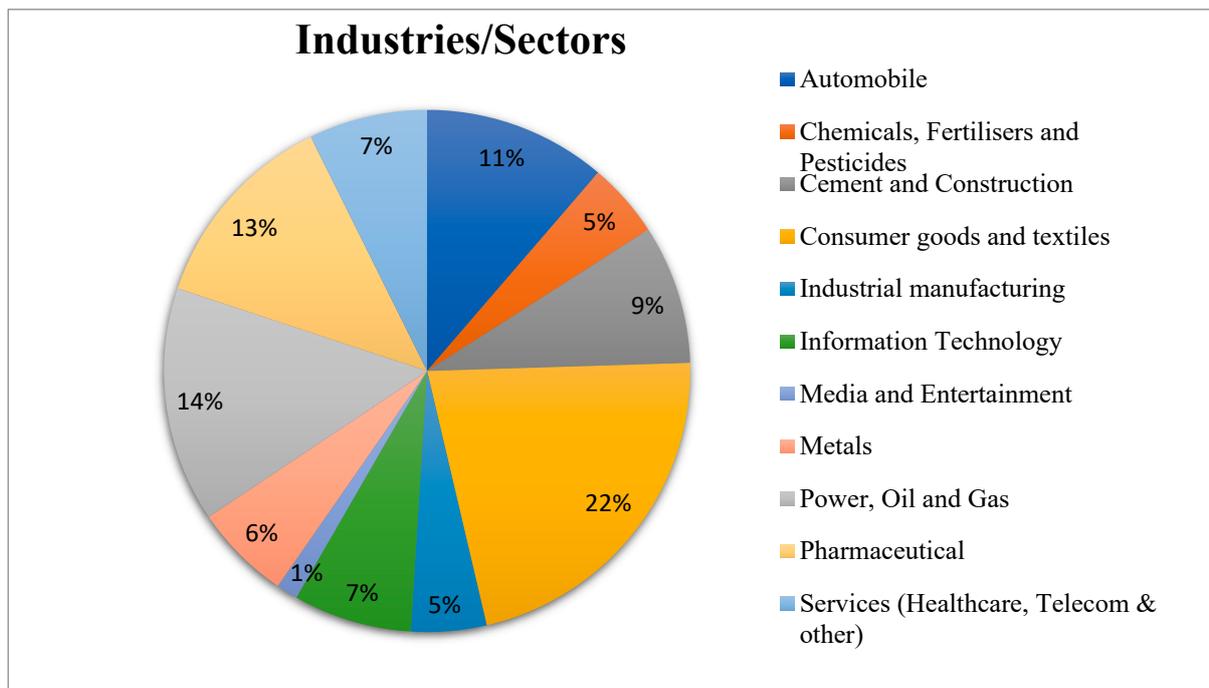


Figure 1. Industry-wise classification of the sample.

3.2. Data Collection and Variable Measurement

Corporate governance, financial performance, and some firm-specific variables have been identified as explanatory, explained, and control variables, respectively. The corporate governance data were collected manually by a careful analysis of annual reports available on company websites. The financial performance data and firm-specific data were gathered from the Prowess database, which is managed and controlled by the Centre for Monitoring Indian Economy (CMIE). During the synchronisation of financial and firm-specific data fetched from the Prowess database, some values were found to be missing, which were ultimately obtained from the financial statements available on company websites. We used a dummy variable to represent COVID-19 (0 for pre-COVID-19 and 1 for the COVID-19 period) to check its impact on firm performance. Table 1 presents the list of all the

dependent, explanatory, and control variables selected for the study, with their proxies and measurements.

Table 1. Variable definitions, measurements, and notations.

S. No.	Variable Name	Definition and Measurement	Symbol
<i>Panel A: Independent Variables</i>			
1	Board Size	Number of directors on the board	BS
2	Board Independence	Percentage of independent directors	BI
3	Women Directorship	Percentage of female directors	WD
4	Board Meetings	Number of meetings held by the board during the year	BM
5	Board Attendance	Average attendance of all the directors in the board meetings	BA
6	Audit Committee Size	Number of directors on audit committee	ACS
7	Audit Committee Meetings	Number of meetings held by audit committee during the year	ACM
8	Board Busyness	Percentage of directors holding directorship in other companies	BB
<i>Panel B: Dependent Variables</i>			
1	Return on Assets	Percentage of profit after tax over total assets	ROA
2	Q Ratio	(Market value of equity + Book value of preference share + book value of non-tradable debt)/Book value total assets	Tobin's Q
<i>Panel C: Control Variables</i>			
1	Firm Size	Natural log value of total assets	FS
2	Firm Age	Number of years since the firm was incorporated	FA
3	Firm Leverage	Debt to equity ratio	LEV
4	Growth	Natural log of revenue from operation	G
5	R&D expenditure	Natural log of average expenditure by the company on research and development activities +1	R&D

3.3. Research Tools and Techniques

Following the previous studies (Goel 2018; Khatib and Nour 2021), we utilised a paired sample *t*-test to check the first hypothesis. The paired sample *t*-test is used to compare the mean of the same variable during twotime events (i.e., before COVID-19 and during COVID-19). To test the second hypothesis, we applied the panel OLS method and checked the governance–performance relationship. In agreement with previous studies (Gulzar et al. 2020; Khatib and Nour 2021; Singh and Bansal 2021), we used the Hausman test and the Breusch–Pagan LM test to choose the appropriate model between pooled OLS, fixed effects, and random effects. Moreover, one-way ANOVA was used to test the third hypothesis to find a significant difference in industrial performance. The research software SPSS and STATA 16 were used for the analysis.

3.4. Model Specification

Based on multiple regressions ($y = \alpha + \beta + \epsilon$), the following regression equation was formed to analyse the impact of corporate governance on financial performance:

$$FP_{it} = \alpha_i + \beta_1 CG_{it} + \beta_2 Dummy_{it} + \beta_3 Control_{it} + \epsilon_{it} \tag{1}$$

where α , β , and ϵ are the intercept, slope, and error terms, respectively. FP is the dependent variable that captures financial performance (ROA and Tobin's Q). CG is the independent variable that represents the proxies of corporate governance variables. Firm-specific variables are treated as control variables. The pre-COVID-19 phase and the during-COVID-19 phase are represented by a dummy variable, where 0 indicates the pre-COVID-19 phase and 1 is the during-COVID-19 phase. *i* represents cross-section id and *t* represents time

units. Based on the variables under study, the above equation takes the following panel econometric form:

$$\begin{aligned}
 ROA_{it} = & \alpha_i + \beta_1 BS_{it} \\
 & + \beta_2 BI_{it} + \beta_3 WD_{it} + \beta_4 BM_{it} + \beta_5 BA_{it} + \beta_6 ACS_{it} + \beta_7 ACM_{it} \\
 & + \beta_8 BB_{it} + \beta_9 Dummy_{it} + \beta_{10} ln.size_{it} + \beta_{11} FA_{it} + \beta_{12} G_{it} \\
 & + \beta_{13} LEV_{it} + \beta_{14} RD_{it} + \varepsilon_{it}
 \end{aligned} \tag{2}$$

$$\begin{aligned}
 Tobin's Q_{it} = & \alpha_i + \beta_1 BS_{it} \\
 & + \beta_2 BI_{it} + \beta_3 BF_{it} + \beta_4 BM_{it} + \beta_5 BA_{it} + \beta_6 ACS_{it} + \beta_7 ACM_{it} \\
 & + \beta_8 BB_{it} + \beta_9 Dummy_{it} + \beta_{10} ln.size_{it} + \beta_{11} FA_{it} + \beta_{12} G_{it} \\
 & + \beta_{13} LEV_{it} + \beta_{14} RD_{it} + \varepsilon_{it}
 \end{aligned} \tag{3}$$

4. Results and Findings

4.1. Descriptive Statistics

Table 2 presents the descriptive statistics of 302 observations of corporate governance, financial performance, and control variables. The average board size of the sample is approximately 10 directors with a standard deviation of 2.49, and the range of board size varies from 4 to 20 members. On average, 48.84 percent of boards comprise independent non-executive directors, with a standard deviation of 12.10 percent, while there are certain companies with zero independent directors and few firms with up to 85.71 percent independent directors. Regarding female directorship, the average percentage is 16.66, which shows that most of the companies comply with the legal requirement of appointing at least one woman to the board. On average, 6–7 board meetings are conducted, with a minimum of 4 and a maximum of 19 meetings. The average presence of board members during meetings is 92.46 percent, which is quite satisfactory. Regarding audit committees, the average size was 4 members, ranging from 0 to 9, and the average number of meetings conducted was approximately 6, ranging from 0 to 19. The average value of board busyness is 78.70, which shows that most of the directors in each company served on another board simultaneously, and few are even valued at 32.81 times the book value of assets.

Table 2. Descriptive statistics.

Variable	Observation	Mean	Std. Dev.	Minimum	Maximum
Board Size	302	10.26	2.49	4	20
Board Independence	302	48.84	12.10	18.18	85.71
Women Directorship	302	16.66	8.63	0	50
Board Meetings	302	6.66	2.49	4	19
Board Attendance	302	92.46	6.74	64	100
Audit Committee Size	302	4.18	1.09	3	9
Audit Committee Meetings	302	5.82	2.20	1	19
Board Busyness	302	78.70	21.79	10	100
ROA	302	9.61	11.80	−31.95	144.26
Tobin’s Q	302	3.78	4.37	0.039	32.81
Firm Size	302	11.92	1.28	8.99	16.08
Firm Age	302	44.79	25.97	5	158
Leverage	302	0.55	2.28	−0.1	35.34
Growth	302	11.39	1.39	7.30	15.55
R&D	302	4.87	3.50	0	11.71

Note: Analysis was performed using STATA version 16.

The average values of ROA and Tobin’s Q are 9.61 percent and 3.78 times, respectively. While some firms attain a negative ROA, some earn up to 144.26 percent in ROA. Similarly, the minimum value of Tobin’s Q shows that some companies are valued less in the market.

The average value of firm size is 11.92, with standard deviation, minimum, and maximum values of 1.28, 8.99, and 16.08, respectively. There are recently incorporated

companies in the sample that are 5 years of age, and the oldest firm has been in operation for 158 years. The log value of revenue representing the growth reflects an average value of 11.39. The average value of leverage used by the firm is 0.55, and there are firms with negative leverage of -0.10 and firms operating at high leverage of 35.34 times. The log value of the average expenditure of the firm on research and development expenses is 4.87, ranging from 0 to 11.71.

4.2. Correlation and VIF

Table 3 shows the values of bivariate correlation between the explanatory variables (corporate governance and firm-specific) and their corresponding VIFs. The presence of multicollinearity in the data makes analysis problematic. Therefore, before the panel data are run, it must be assured that the data are free from multicollinearity. A very high degree of correlation among the explanatory variables is an indication of multicollinearity. The results show that all the correlation coefficients range from low to moderate degrees of correlation. We further used the variable inflation factor (VIF) and tolerance value (TV) to assure that the data do not have multicollinearity. The acceptable value of VIF is less than 10, and for TV, it is more than 0.10 (Gulzar et al. 2020). The VIF values in data range from 1.06 to 2.60, and TV values range from 0.38 to 0.94, which are under the acceptable limits; hence, the sample does not have the multicollinearity issue.

Table 3. Bivariate correlation and multicollinearity statistics.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
BS	1.000												
BI	-0.004	1.000											
WD	0.121	-0.105	1.000										
BM	0.016	0.335	0.124	1.000									
BA	0.147	0.029	-0.041	0.155	1.000								
ACS	-0.266	-0.181	0.088	0.014	-0.032	1.000							
ACM	-0.043	-0.111	0.045	-0.472	-0.073	-0.054	1.000						
BB	-0.018	-0.142	-0.036	0.072	0.04	0.093	-0.031	1.000					
FS	-0.074	0.061	-0.034	-0.039	0.007	0.079	-0.176	-0.038	1.000				
FA	-0.087	-0.060	0.016	0.004	0.063	0.001	-0.048	0.089	-0.013	1.000			
G	-0.084	0.008	0.003	-0.163	-0.156	0.037	0.082	-0.033	-0.653	-0.035	1.000		
LEV	0.015	-0.095	0.006	-0.168	-0.002	0.039	0.012	0.040	-0.107	0.052	0.044	1.000	
R&D	-0.102	-0.167	0.049	0.018	-0.093	0.088	0.031	0.068	-0.006	-0.163	-0.253	0.108	1.000
VIF	1.22	1.33	1.11	1.92	1.10	1.51	1.18	1.06	2.47	1.10	2.60	1.09	1.31
TV	0.82	0.75	0.90	0.52	0.91	0.66	0.85	0.94	0.41	0.91	0.38	0.92	0.76

Note: Analysis was performed using STATA version 16.

4.3. T-Test Analysis

Table 4 shows the mean performance of sampled companies before and during COVID-19 in terms of CG variables and financial performance indicators. It is observed that the mean values of most CG variables are significantly different before and during COVID-19. The mean difference (μ_d) in board size (-0.529), board independence (-4.44), and size of the audit committee (-0.222) shows significant t statistics of -3.920 , -4.052 , and -2.990 , respectively, verifying a substantial decrease in these variables during the COVID-19 phase. On the other side, a positive mean difference and significant t statistic show an increase in female directorship ($\mu_d = 0.100$ and $t = 0.271$) and board attendance ($\mu_d = 1.268$ and $t = 1.999$) during the COVID-19 phase. The number of infections and the death toll recorded in India during the COVID-19 pandemic are among the most probable reasons for the decrease in the number of board members. However, board attendance still shows a significant increase, which is due to the shift in major activities to an online context, because attending online conferences and meetings is more feasible for each member in times of a pandemic. The important point to note is that the diversity of women on the board substantially increased while the board size substantially decreased during COVID-19. These results

indicate that the sensitivity of the pandemic influenced male directors more than female directors. Hence, the separation of male directors from the board is the major reason behind the decreased board size. The mean difference and t statistics of other variables such as board busyness and the number of meetings conducted by the board and audit committee show an insignificant difference.

Table 4. Results of paired sample *t*-tests for corporate governance and firm performance.

Variables	Pre-COVID-19 Phase			COVID-19 Phase			Mean Difference (μ_d)	T
	Obs.	Mean (μ_1)	Std. Dev.	Obs.	Mean (μ_2)	Std. Dev.		
BS	151	10.75	2.99	151	10.22	2.58	−0.529	−3.920 *
BI	151	55.40	1.62	151	50.90	1.57	−4.44	−4.052 *
WD	151	16.90	0.86	151	17.00	0.87	0.100	0.271 **
BM	151	6.56	2.94	151	6.60	2.42	0.033	0.164
BA	151	88.62	8.09	151	89.88	6.72	1.268	1.999 **
ACS	151	4.45	1.19	151	4.23	1.03	−0.222	−2.990 **
ACM	151	5.64	2.15	151	5.81	2.28	0.170	1.352
BB	151	79.61	23.05	151	80.73	22.77	1.112	0.913
ROA	151	10.34	8.33	151	10.22	14.20	−0.110	−0.116
Tobin's Q	151	3.55	3.45	151	2.96	3.61	−0.590	−3.543 *
FS	151	5.109	0.57	151	5.144	0.56	0.035	3.803 *
FA	151	43.08	25.90	151	44.07	25.91	0.986	107.126 *
G	151	4.97	0.61	151	4.93	1.55	−0.010	−0.861
LEV	151	0.37	0.58	151	0.50	1.23	0.126	1.659 ***
R&D	151	2.234	1.52	151	2.315	1.55	0.081	1.225

Note: *, **, and *** are the significance levels of 1%, 5%, and 10%, respectively. Analyses were performed using IBM-SPSS statistics version 20.

There is no doubt that the effect of the COVID-19 pandemic at the global level has left a negative impact on firm performance. The impact of the pandemic is severe and varies from firm to firm. The ROA and Tobin's Q of the sampled firms show mean differences (μ_d) of −0.110 and −0.590, respectively, which means that the pandemic has adversely affected both accounting and market performance. The t statistic of −3.543 shows that only market performance (Tobin's Q) deteriorated substantially. The mean difference between five of the eight independent variables and one of two dependent variables was found to be significant; hence, the first hypothesis (H01) is accepted.

4.4. Regression Results of the Full Sample

Table 5 shows the regression outcomes of the full sample. Two models of panel regression were run for each dependent variable, i.e., ROA and Tobin's Q. To control for the problems of heteroscedasticity and autocorrelation, we used a robust estimator (vce robust) in the regression models. While the first model shows the impact of CG variables and control variables on dependent variables, the year dummy variable is included in the second model to arrive at more robust results. Among all the CG variables, board busyness is the only variable that has a positive and significant effect on a firm's performance. The regression statistics of ROA ($\alpha = 0.088$, S.E. = 0.0047, and $p < 0.10$) show that board busyness has a significant and positive effect on accounting performance. Similarly, regression statistics of Tobin's Q ($\alpha = 0.027$, S.E. = 0.011, and $p < 0.05$) verify a positive and significant impact of board busyness on the market performance of the firm. Moreover, these effects remain unchanged even after including the year dummy variable in the second model of each dependent variable. The results agree with the findings of Field et al. (2013), who reported that board members having multiple directorships was very influential for companies during the pandemic. The expertise in diversified industries, good market relations, more external linkages, easy access to external resources, and familiarity with market actions to survive in the pandemic are among the core reasons behind the positive influence of a busy director on both accounting and market performance. However, the

nexus between female board members and Tobin’s Q is found to be negatively significant ($\alpha = -0.518$, S.E. = 0.289, and $p < 0.10$). The relationship between female board members and Tobin’s Q conforms to the previous study by [Vo and Bui \(2017\)](#), and it can be argued that having more women on the board may increase monitoring functions, and when the legal system is enough to protect the rights of shareholders, this extra monitoring will increase financial burdens, which may affect market performance adversely during a crisis. The results regarding control variables show that a big firm is unable to manage its required expenses during a crisis, and thus, firm size negatively affects performance, while firm growth (revenue) is the only way to increase accounting and market performance during a crisis. The result of panel regression verifies that only one variable representing corporate governance, i.e., board busyness, had a positive and substantial effect on both ROA and Tobin’s Q as parameters of firm performance. Hence, Hypothesis 2 is not fully supported.

Table 5. Regression results of the full sample (dependent variable ROA and Tobin’s Q).

Independent Variables	ROA		Tobin’s Q	
	−1	−2	−1	−2
BS	−0.090(0.805)	−0.079 (0.807)	0.153 (0.188)	0.154 (0.189)
BI	0.790 (0.996)	0.788 (0.999)	−0.036 (0.233)	−0.036 (0.234)
WD	−1.507 (1.233)	−1.513 (1.236)	−0.518 (0.289) ***	−0.518 (0.290) ***
BM	0.018 (0.270)	0.014 (0.271)	−0.681 (0.063)	−0.068 (0.063)
BA	0.069 (0.082)	0.071 (0.083)	−0.001 (0.019)	−0.001 (0.019)
ACS	0.593 (0.786)	0.593 (0.788)	−0.002 (0.184)	−0.002 (0.184)
ACM	0.416 (0.436)	0.438 (0.438)	0.002 (0.102)	0.002 (0.102)
BB	0.088 (0.047) ***	0.088 (0.048) **	0.027 (0.011) **	0.027 (0.011) **
FS	−75.55 (5.53) *	−75.68 (5.55) *	−8.715 (1.298) *	−8.721 (1.303) *
FA	3.254 (0.731) *	−0.053 (5.575)	−0.183 (0.171)	−0.361 (1.303)
G	8.328 (4.141) **	8.270 (4.151) **	1.982 (0.970) **	1.979 (0.974) **
LEV	−2.628 (0.703) *	−2.641 (0.705) *	−0.096 (0.164)	−0.096 (0.165)
R&D	−0.113 (0.780)	−0.110 (0.782)	−0.119 (0.182)	−0.119 (0.183)
Constant	196.167 (42.327) *	339.614 (243.33)	44.148 (9.919) *	51.843 (57.096)
Year dummy	No	Yes	No	Yes
2021	---	3.308 (5.526)	---	0.177 (1.296)
F statistics	16.21	15.01	5.14	5.11
R ²	0.262	0.159	0.47	0.36
Observation	302	302	302	302
<i>Hausman test for model selection</i>				
χ^2	17.60	21.45	85.86	61.25
p-value	0.0041	0.0012	0.0000	0.0000
Model selection	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect

Note: (1) Values in parentheses are the standard error (S.E.). (2) *, **, and *** are the significance levels of 1%, 5%, and 10%, respectively. (3) Analysis was performed using STATA version 16.

4.5. Alternative Analysis: Regression Results of Year-Wise Subsample

Table 6 shows the year-wise regression results of the sample for the dependent variables, i.e., ROA and Tobin’s Q. The pooled OLS method was used to run the regression for 2020 and 2021 separately. The results are quite interesting and show that board size is insignificant for the firms’ performance before COVID-19, and with strong monitoring by more board members, a firm can have positive and significant return on assets ($\alpha = 1.514$, S.E. = 0.608 and $p < 0.05$); these findings are supported by [Dalton et al. \(1999\)](#). However, consistent with the studies of [Vo and Phan \(2013\)](#) and [Vishwakarma and Kumar \(2015\)](#), female board members were found to have a significant positive impact ($\alpha = 1.144$, S.E. = 0.625 and $p < 0.10$) on return on assets before COVID-19 only. When a board is unable to protect the rights of shareholders, the onus comes to the audit committee, and it was observed that the audit committee was performing its role properly and was able to influence ROA positively both before COVID-19 ($\alpha = 0.845$, S.E. = 0.333 and $p < 0.05$)

and during COVID-19 ($\alpha = 1.400$, S.E. = 0.596 and $p < 0.05$) but could not affect Tobin’s Q during COVID-19 ($\alpha = 0.157$, S.E. = 0.162 and $p > 0.10$). The findings related to board busyness are different in the year-wise regression, which shows that board busyness affected a firm’s ROA negatively in 2019 ($\alpha = -0.048$, S.E. = 0.023, and $p < 0.05$), but it was insignificant in the year 2020 for both ROA and Tobin’s Q. Moreover, the findings on control variables are similar to the regression results of the combined sample and show a substantial negative relationship between firm size and performance and a significant positive relationship between firm growth (revenue) and performance.

Table 6. Regression results of year-wise sub-sample (dependent variables: ROA and Tobin’s Q).

Independent Variables	ROA		Tobin’s Q	
	2020	2021	2020	2021
BS	0.200 (0.309)	1.514 (0.608) **	0.084 (0.141)	−0.019 (0.165)
BI	−0.344 (0.562)	−1.514 (1.002) ***	0.056 (0.256)	0.229 (0.272)
WD	1.144 (0.625) ***	−0.718 (1.164)	0.070 (0.285)	−0.092 (0.316)
BM	0.181 (0.233)	−0.511 (0.581)	−0.127 (0.106)	−0.078 (0.158)
BA	0.043 (0.066)	0.018 (0.152)	0.016 (0.030)	0.005 (0.041)
ACS	0.392 (0.469)	0.073 (1.048)	−0.074 (0.214)	0.058 (0.285)
ACM	0.845 (0.333) **	1.400 (0.596) **	0.370 (0.152) **	0.157 (0.162)
BB	−0.048 (0.023) **	0.044 (0.045)	−0.003 (0.010)	−0.0002 (0.122)
FS	−9.606 (1.582) *	−19.97 (2.857) *	−4.595 (0.721) *	−4.812 (0.777) *
FA	0.002 (0.021)	−0.230 (0.039)	0.018 (0.009) ***	0.015 (0.010)
G	4.018 (1.429) *	11.153 (2.553) *	1.390 (0.651) **	2.806 (0.695) *
LEV	−5.088 (0.926)	−2.608 (0.839) *	−0.503 (0.422)	−0.152 (0.228)
R&D	0.488 (0.395)	0.391 (0.692)	0.106 (0.181)	−0.232 (0.188)
Constant	30.246 (8.802)	47.028 (17.258)	15.871 (4.015)	11.822 (4.697) **
F statistics	8.82	6.44	5.87	4.47
Adjusted R ²	0.402	0.319	0.295	0.230
Observation	151	151	151	151

Note: (1) Values in parentheses are the standard error (S.E.). (2) *, **, and *** are the significance levels of 1%, 5%, and 10%, respectively. (3) Analysis was performed using STATA version 16.

4.6. One-Way ANOVA Results

Table 7 represents the one-way ANOVA results, which state a significant difference between the ROA and Tobin’s Q of industries during COVID-19. Thus, the third hypothesis, predicting a significant difference between the financial performances of industries during COVID-19, is supported.

Table 7. One-way ANOVA.

Variables	Source	SS	Df	MS	F	p-Value
ROA	Between groups	2839.00	12	236.58	3.89	0.0000
	Within groups	8383.73	138	60.75		
	Total	11,222.73	150	74.82		
Tobin’s Q	Between groups	738.95	12	61.58	2.98	0.0010
	Within groups	2847.02	138	20.63		
	Total	3585.97	150	23.91		

Note: Analysis done using STATA version 16.

Table 8 shows that during COVID-19, the Media and Entertainment industry was found to be the best performer on the basis of ROA, followed by Information Technology, Pharmaceutical, and Metals. On the other hand, for Tobin’s Q, the Consumer Goods and Textiles industry has the highest rank, followed by Information Technology, Oil and Gas, and Chemicals, Fertilisers, and Pesticides. The Telecom industry has the worst performance for both ROA and Tobin’s Q during the COVID-19 phase, occupying the lowest rank of the groups.

Table 8. Summary of industry-wise performance during COVID-19.

Industry	ROA			Tobin's Q		
	Mean	Std. Dev	Rank	Mean	Std. Dev	Rank
Automobile	7.306	6.366	08	2.733	1.402	08
Chemicals, Fertilisers, and Pesticides	8.153	4.285	07	4.924	3.693	04
Cement and Construction	3.645	4.552	10	2.261	1.192	09
Consumer Goods and Textiles	10.343	11.057	06	7.963	6.081	01
Industrial Manufacturing	5.209	6.374	09	2.078	1.571	11
Information Technology	17.207	6.968	02	6.662	2.927	02
Media and Entertainment	17.955	11.334	01	2.056	0.462	12
Metals	11.377	9.842	04	2.290	3.368	10
Oil and Gas	10.549	6.068	05	5.044	8.935	03
Pharmaceutical	11.594	5.394	03	3.992	2.072	05
Power	2.663	1.892	11	2.994	4.540	07
Services (Healthcare and Other)	2.144	8.962	12	3.438	3.415	06
Telecom	−3.199	10.999	13	0.874	0.681	13

Note: Analysis was performed using STATA version 16.

5. Discussion

The effect of COVID-19 was not only limited to physical health; it also affected the mental, financial, and social aspects of every individual and organisation. Whether it is people, processes, performance, or purpose, everything was somehow affected due to the spread of the coronavirus. As is evident from the findings of the present study, the corporate governance structure of Indian companies was affected during the period of COVID-19. Every parameter of corporate governance that was selected for the analysis was found to be significantly different during the COVID-19 period, except for the frequency of meetings (board meetings and audit committee meetings) and board busyness. Our results confirm the findings of [Farwis et al. \(2021\)](#) but are contrary to those of [Khatib and Nour \(2021\)](#) and [Boshnak et al. \(2023\)](#). Board size, audit committee size, and proportion of independent directors on the board were found to be lower during the COVID-19 period. The increase in the number of COVID-19 infections and deaths in India is among the most probable reasons for the decrease in these variables. The important point to be noted is that the proportion of women directors on the board substantially increased while the board size substantially decreased during COVID-19. These results indicate that the pandemic influenced male directors more than female directors. Hence, it can be said that more male directors (executive and non-executive) were separated from the board, which is the major reason behind the decrease in board size, board independence, and audit committee size. The shifting of the economy from offline to online modes and the rise in work-from-home culture can be marked as consequences of the COVID-19 outbreak ([Jamal et al. 2021](#)). Due to this, the number of board meetings and audit committee meetings was almost unchanged during the COVID-19 period. Board members started conducting meetings online during the COVID-19 period, and telecommuting helps boards of directors engage in multiple companies and keep themselves as busy as they were before the spread of COVID-19. Attending conferences and meetings virtually is more feasible for each member in times of a pandemic, and as a consequence, board attendance significantly improved during COVID-19.

During COVID-19, the return on assets (ROA) and Tobin's Q (TQ) indicated that the financial performance of Indian companies declined. However, the fall is only significant with respect to market performance. While the economy was frozen, companies were struggling to achieve their targets, and as a result, an insignificant fall was seen in the accounting performance (ROA) of Indian companies. The COVID-19 pandemic had a significant impact on the market performance of Indian companies, and as a result, a substantial fall was seen in Tobin's Q during the pandemic. [Guru and Das \(2021\)](#) found

that the total volatility spillovers in ten major sectoral indices listed on the Bombay Stock Exchange (BSE) in India reached 69% during COVID-19.

After COVID-19 spread, regression analysis showed that board busyness is the only corporate governance measure that has a positive effect on both financial performance measures (ROA and TQ). When directors are busier, the whole board can learn from their experience in different corporate board positions. These experiences help with making business plans, solving business problems in an effective and efficient way, and achieving good results during a crisis. The results of this study show that a busy board makes directors more efficient and helps the company perform better. The present findings are consistent with the studies of [López Iturriaga and Morrós Rodríguez \(2014\)](#) and [Manna et al. \(2020\)](#). Corroborating [Anas et al. \(2022\)](#) and [Vo and Bui \(2017\)](#), the findings of this study reveal that women directors are unable to improve financial performance (ROA and TQ) during a crisis such as COVID-19. In fact, during the pandemic, a high degree of women's participation on boards significantly deteriorated market performance, as measured by Tobin's Q. Women's participation is important in decisionmaking and may have a positive effect on a firm's performance in the long run; however, during a pandemic such as COVID-19, quick and efficient decisions must be made. The presence of more women directors can slow the process of decisionmaking because of differences in opinions on critical firm-related matters.

Our findings with respect to the impact of CG measures on financial performance in India during COVID-19 are quite different from the previous studies of [Khatib and Nour \(2021\)](#) and [Farwis et al. \(2021\)](#), and only board busyness proved to be a positive indicator during the crisis. Hence, our results imply that the CG system in India is less vibrant compared to Malaysia and Sri Lanka, where CG indicators are found to be more efficient in maintaining the performance of a firm during COVID-19 ([Khatib and Nour 2021](#); [Farwis et al. 2021](#)).

After splitting the sample year-wise, board size and audit committee meetings positively defined ROA during COVID-19, whereas board independence had a negative influence. Female members and audit committee meetings were found to be positive indicators in determining ROA. This is due to more varied boards having diverse insights, aspirations, experiences, and contexts ([Farwis et al. 2021](#)). However, board busyness was negatively significant in the pre-COVID-19 period. The year-wise regression analysis also shows that none of the CG parameters defined Tobin's Q positively or negatively during the COVID-19 period. Moreover, a significant difference in industrial performance was verified, where Media and Entertainment and Consumer Goods and Textiles are the best performers in terms of ROA and Tobin's Q, respectively; on the other hand, the Telecom sector is the worst performer under both measures.

6. Implications of the Study

The findings of the present study have significant policy implications for Indian firms, managers, investors, policymakers, and regulators. Moreover, the implementation of the most recent corporate governance regulations in India is almost certain to have a significant impact on firm performance, especially during crises such as COVID-19. Further corporate governance regulations should consider the importance of small board size, less board independence, the role of audit committees, and gender diversity to enhance corporate performance during situations such as the COVID-19 crisis. Governments and regulatory agencies should work together to mitigate the financial and economic consequences of the COVID-19 pandemic. Addressing the harmful effects of both current and future crises will require comprehensive governance policies.

7. Conclusions

Unlike previous pandemics and crises, the COVID-19 outbreak has had a hideous effect on economic activities and human life in India. Due to the shrink in domestic demand and the country's exports, almost every unit of the Indian market has been adversely affected,

with a few exceptions where high growth was achieved. At the first instance, this study sheds light on the situation of big corporations, before and during COVID-19, in terms of their governance practices and financial performance. Secondly, the efficiency of corporate governance in enhancing firm performance and lastly, looks at the substantial difference between the financial performances of various industries. We used paired sample *t*-tests, panel data regression, based on the fixed-effects model, and one-way ANOVA to attain the research objectives. The findings reveal that some CG variables (board size, board independence, female board members, audit committee size, and board attendance) and market performance (Tobin's Q) were significantly different both before and during the COVID-19 period. This indicates that COVID-19 has had a substantial impact on the financial performance of firms during the pandemic period, thereby supporting our first hypothesis. The regression results show that only board busyness is positively significant in determining ROA and Tobin's Q. Hence, our second hypothesis is partially supported. Moreover, with significant differences in industries' financial performance, Media and Entertainment and Consumer Goods and Textiles are the two best-performing industries in terms of ROA and Tobin's Q, respectively, while the Telecom sector has the worst financial performance. Therefore, the third hypothesis of the study is fully supported.

This study adds value to the existing literature as it is the first of its kind to empirically verify the impact of CG on the financial performance of Indian firms during COVID-19. It will also help managers and administrative bodies to modify CG norms considering the influence of the COVID-19 pandemic so that corporations can prepare themselves for possible subsequent waves of the pandemic. The findings can help inform how board members and audit committees can be structured to ensure effectiveness and contribute to overall performance, particularly in times of crisis. More specifically, the COVID-19 crisis gives market participants such as boards of directors, audit committees, and auditors a chance to learn new skills and use technology to make firms more resilient to the kinds of shocks experienced during COVID-19. Another thing that could help policymakers is to consult the key CG measures taken by governments around the world to respond to the COVID-19 crisis. We propose that they should deliberate on a regulatory mechanism to tackle emergencies.

The study is subject to certain limitations. First, the sample consisted of 151 non-financial companies, and only two years of data were used for the analysis. Second, the paper focuses on Indian companies, and this approach tends to prevent the results from being affected by other country-level factors. Finally, we recognize that other than internal factors and external factors may have influenced corporate decisions during the COVID-19 crisis, such as government policies. Future research can also be conducted by considering other CG indicators or financial performance variables with time lag effects.

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Notes

¹ <https://www.worldometers.info/coronavirus/country/india/> (accessed on 9 March 2022).

² https://www1.nseindia.com/products/content/equities/indices/nifty_200.htm (accessed on 9 March 2022).

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