

Effect of COVID-19 Outbreak and Corporate Governance on Firm Performance:
Empirical Evidence from Pakistan

Dr. Affaf Asghar Butt

Department of Business Administration University of the Punjab, Gujranwala Campus at-
affaf.butt@pugc.edu.pk

Samia Rashid

Department of Business Administration University of the Punjab, Gujranwala Campus at-
samia.mughal@gmail.com

Dr. Aamer Shahzad

Department of Commerce University of the Punjab, Gujranwala Campus at-
aamer.shahzad@pugc.edu.pk

Dr. Hafiz Ihsan Ur Rehman

Department of Business Administration University of the Punjab, Gujranwala Campus at-
h.ihsan@pugc.edu.pk

Abstract

The research examines the role of corporate governance and COVID-19 to determine the firm performance. The data were taken from 110 non-financial firms listed on the Pakistan Stock Exchange from 2010 to 2020. The OLS with year and industry dummies is used to estimate these relationships. The findings confirmed that COVID-19 significantly negatively affects the firm performance. Overall, corporate governance also plays an essential role in investigating the performance of firms. The results show that size and board independence do not affect firm performance, but board diversity has an inverse effect during the pandemic. The dual role of the CEO increased, whereas the CEO dominance lowered the performance in the covid. Ownership concentration and family ownership have positive and negative effects. This study suggests several practical implications based on the findings for investors, managers, and policymakers.

Keywords: Board structure, ownership structure, CEO power, CEO duality, COVID-19, firm performance.

Introduction

For the last three decades, the evolution of corporate governance has remained the prime focus of scholars in academic research. Corporate governance earned significant importance through several past studies about its proficiency (Kiel and Nicholson 2003); specifically, the collapse of Enron and World Com increased its importance (Du Plessis and Cole 2011). The spread of COVID-19 diverted the attention of several researchers toward corporate governance (Elmarzouky, Albitar, et al. 2021; Xuguang, Ahmad et al. 2021; El Chaarani and Raimi 2022). International organizations have been compelled to execute universal corporate governance rules in all countries by the Organization for Economic Cooperation and Development (OECD) and the World Bank. Different strategies for corporate governance have also been formulated by these organizations (Aguilera and Cuervo-Cazurra 2009). These rules and regulations provide a basis for better corporate governance in corporate practices, lawmaking, instructions, and intended obligations (Okpara 2011). After financial outrages in the last few years, emerging economies' primary focus is on corporate governance.

Baydoun, Maguire, et al. (2013) claimed that these financial crises enhanced the demand for improved corporate governance mechanisms. Many developing countries are

facing a deficiency of proper governance regardless of how much importance has been exerted towards improving corporate governance in these countries (Ekanayake, Perera et al. 2010). Both developed and developing countries exerted significant importance on corporate governance in academic research (Weir and Laing 2001, Reed 2002, Onakoya, Ofoegbu et al. 2012, Clarke 2014, Cuomo, Mallin et al. 2016, Lungatso and Otuya 2019). A firm can attain improved performance while using effective mechanisms of corporate governance (Ghabayen 2012). Different theories help elaborate the corporate governance concept (Solomon 2020). Agency theory states that corporate governance can resolve conflicts regarding shareholder and manager interests (Jensen and Meckling 1976). Different corporate governance models are followed in other parts of the world. However, commonly used corporate governance mechanisms include board structure, ownership structure, CEO duality, and CEO power. The board of directors is responsible for protecting shareholders' rights and interests while monitoring different tasks performed by managers. (Nazir 2016). The ownership structure is an essential instrument of corporate governance. Afza and Nazir (2015) argued that ownership is separate from managers, increasing corporate governance's importance. Mishra, Jain, et al. (2021) proved that the presence of institutional owners leads the organization toward better and more effective performance. Separating the CEO and chairman roles reduces the agency's cost and increases the firm's value (Jensen and Ruback 1983). Murtaza, Habib et al. (2021) conducted in Pakistan proved that firms with CEOs with dual positions negatively influenced performance. In contrast, the empirical results of the study proposed by Khan, Al-Jabri et al. (2021) proved that the dual power of the CEO leads toward development and increases firm performance.

The corporate governance code was implemented by the SECP in 2002 in Pakistan, and firms must follow these standards (Nazir 2016). The big corporate scandals, such as World Com and Enron, allowed the regulators and policymakers to manage and control the firms by implementing the CG standards. However, the significance of corporate governance remained considerable during the pandemic. So, the severe need for improved technology and different financial policies is rising to mitigate the impact of COVID-19 (Foss 2020, Qin, Huang et al. 2020, Slater 2020, Liu, Yi et al. 2021). This research aims to examine the effect of the COVID-19 pandemic on firm performance. The study also investigates the impact of board structure (size, independence, gender diversity), ownership structure (family, institutional, concentration), and CEO characteristics (CEO duality and CEO power) on a firm's performance during the pandemic of COVID-19. This study can assist researchers in developing countries with governance mechanisms in association with agency theory. Finally, the results expose the current situation of corporate governance in Pakistan, which may assist academic researchers, local and global investors, and politicians in considering corporate governance.

Literature Review and Hypothesis Development

The agency theory explains the relationship between CG and firm performance (Daily, Dalton et al. 2003). According to this theory, all individuals only fight for their interests. The principal concern is an increment in financial inflows, whereas agents want more compensation in the form of money. If an agent performs well and results are in the form of increased firm value, then the manager is successful from the owner's point of view. On the other hand, the principal

has to fulfil the agent's requirement through financial incentives. Otherwise, different issues will be there among the principals and agents (Ngatno, Apriatni et al. 2021). While keeping in view variances among characteristics of institutes, the environment of industry, and business, Agency theory proposed a governance structure inadequate in all investigative settings. (Khan, Al-Jabri et al. 2021). Zhang, Everett, et al. (2012) examined that firm performance and value had improved due to lower agency costs and adopting corporate governance instruments in organizational operations. Corporate governance rules have become the main focus of agency theory (Aduda, Chogii et al. 2013). Due to decreased agency cost and mutual principal-agent interests, agency theory helps to increase firm performance.

COVID-19 and Firm Performance

Shen, Fu et al. (2020) examine the relationship between COVID-19 and firm performance. The findings revealed that COVID-19 significantly negatively affected firm performance in China. Similarly, Hu and Zhang (2021) examined the effect of COVID-19 on firm performance through cross-country research. The findings revealed that the crisis affected firm performance more in countries with poor healthcare systems than in countries with better healthcare systems. Based on these studies, the following hypothesis has been formulated:

H1: COVID-19 has a negative effect on firm performance.

Board structure and firm performance

Board size

Aguilera and Cuervo-Cazurra (2009) investigated the effect of board-related determinants on firm performance. The results indicated that firm performance was influenced positively due to the large size of the board. Mishra, Jain, et al. (2021) constructed a corporate governance index (CGI) and found similar results. Sehrawat, Singh, et al. (2020) found that the board size does not affect the corporate performance. Despite all these studies, Uyar, Kuzey, et al. (2021) found a negative relationship between board size and firm performance. Elmarzouky, Albitar, et al. (2021) investigated the moderating effect of corporate governance factors on the relationship between COVID-19 and firm performance. The findings showed that board size did not moderate the relationship between COVID-19 and FP. Khatib and Nour (2021) explored the relationship between determinants of corporate governance and firm performance during the COVID-19 crisis. The results indicated that the size of the board positively influenced firm performance during the crisis and it mitigated the effect of COVID-19 to some extent. Hsu and Liao (2021) also examined the impact of corporate governance on firm performance in a crisis. They claimed that the board size and good governance reduced the effect of COVID-19 and improved firm performance. Murtaza, Habib, et al. (2021) also found similar results. In contrast, Xuguang, Ahmad, et al. (2021) found that the size of the board has an inverse effect during the pandemic. While keeping in view the above studies, the following hypothesis has been formulated:

H2: Board size has a positive effect on firm performance during COVID-19.

Board independence

Mishra, Jain, et al. (2021) argued that the presence of independent directors on the board enhanced company performance during the time of COVID-19. Similar findings are also confirmed by Uyar, Kuzey, et al. (2021). Jebran and Chen (2021) confirmed that board independence and other board characteristics have reduced the pandemic's effect on firm

performance. Khatib and Nour (2021) also found the positive impact of the board's independence on firm performance. Elmarzouky, Albitar, et al. (2021) found a significant moderating effect of independent boards on the relationship between COVID-19 and firm performance. Hsu and Liao (2021) found similar results. Murtaza, Habib, et al. (2021) revealed a significant negative association between the independence of directors and firm performance. After evaluating the results of the above studies, the following hypothesis has been formulated:

H2a: *Board independence has a positive effect on firm performance during COVID-19.*

Board gender diversity

Li and Chen (2018) examined the relationship between gender diversity and firm performance. They found a significant positive effect of female board members on firm performance. Saeed, Mukarram, et al. (2021) confirmed that high-tech firms with female members took more risks than non-high-tech firms and performed better. Uyar, Kuzey, et al. (2021) found that gender diversity positively influenced firm performance. Galletta, Mazzù, et al. (2022) examined the association of female directors with the firm performance of banks. The findings revealed that the presence of female board members enhanced the performance of the banking industry. Brahma, Nwafor, et al. (2021) observed the impact of board gender diversity on the financial performance of firms. The findings revealed a significant positive relation between gender diversity and firm performance. El Chaarani and Raimi (2022) examined the connection between workforce diversity and firm performance in the healthcare sector during the crisis. They found a positive association between workforce diversity and firm performance. Elmarzouky, Albitar, et al. (2021) investigated firm performance and COVID-19 using moderation of board structure. The findings confirmed a significant moderation of board gender diversity. Xuguang, Ahmad, et al. (2021) found that firms with female leaders enhanced generous behaviour and improved firm performance during COVID-19. Farwis, Siyam, et al. (2021) argued that board gender diversity has a significant negative impact on firm performance. Rehman, Orij, et al. (2020) explained that the presence of female directors reduced firm performance in Asian countries. The following hypothesis has been formulated based on the above studies:

H2b: *There is a negative effect of board gender diversity on firm performance during COVID-19.*

Ownership structure and firm performance

Ownership Concentration

Ciftci, Tatoglu, et al. (2019) examined how firm performance is influenced by corporate governance while using different elements of governance structure. The findings confirmed that concentrated owners have a positive influence on the performance of companies. Overland, Mavruk, et al. (2012) examined the relationship between ownership concentration and the performance of companies. The results revealed that concentrated owners positively influenced the performance of Swedish companies. Ngatno, Apriatni, et al. (2021) confirmed no moderation of ownership concentration between capital structure and firm performance. Alregab (2021) observed the influence of ownership structure on firm performance. Results revealed a positive association between concentrated owners and firm performance.

H3: *There is a positive effect of ownership concentration on firm performance during COVID-19.*

Family ownership

Sridharan and Joshi (2018) examined the relationship between ownership patterns and firm performance. The results implied that family ownership positively influenced the firm performance. Ciftci, Tatoglu, et al. (2019) found no association between family ownership and firm performance. Saeed, Mukarram, et al. (2021) studied the moderating effect of family ownership while examining the impact of board diversity on firm performance. The results revealed a significant negative moderation of family ownership between board gender diversity and firm performance. Muntahanah Kusuma (2021) conducted quantitative research to examine the empirical association between family ownership and company performance. The results proved that firm performance was reduced due to family ownership. According to the above studies, the following hypothesis has been formulated:

H3a: Family ownership has a positive effect on firm performance during COVID-19.

Institutional ownership

According to Mishra, Jain et al. (2021), institutional ownership significantly affects firm performance. Jabbouri and Jabbouri (2021) investigated the relationship between institutional ownership and firm performance. The findings indicated that there was a significant positive relationship between institutional ownership and the profitability of firms. Alregab (2021) investigated the relationship between corporate governance and foreign investment. Their results revealed a significant negative association between institutional ownership and foreign investment in Saudi firms. Hussain, Abid, et al. (2022) examined the role of ownership structure on firm performance, and findings indicated that institutional ownership had a significant positive impact on corporate performance. Bishara, Andrikopoulos, et al. (2020) analyzed the implications of ownership structure on the growth of firms, and the results demonstrated that institutional ownership negatively affected firms' performance. According to the above study, the following hypothesis has been formulated:

H3b: There is a negative effect of institutional ownership on firm performance during COVID-19.

CEO Power

Ueng and Ramaswamy (2019) found that CEO power has a positive influence on a firm's performance. Akram (2018) showed the positive significant influence of CEO power on firm performance in Pakistan. On the other hand, Jebran and Chen (2021) found that CEO power negatively affects the firm performance. Sukhahuta, Lonkani, et al. (2019) examined the relationship between CEO power and firm performance. The findings revealed the significant negative impact of CEO power on firm performance. The hypothesis has been formulated based on the above studies:

H4: CEO power has a negative effect on firm performance during COVID-19.

CEO Duality

Khan, Al-Jabri, et al. (2021) examine the effect of CEO duality on corporate performance. They found that the dual role of CEOs has a significant positive impact on the firm performance. Ueng and Ramaswamy (2019) investigated whether the firm is more profitable when CEOs have dual roles compared to their counterparts. The findings confirmed that a firm's performance is not dependent on the CEO duality in the short run. Sehrawat Singh et al. (2020) discovered no association between CEO duality and firm performance. Uyar, Kuzey, et al. (2021) revealed no relationship between variables. Jebran and Chen (2021) findings

indicated that CEO duality mitigated the impact of the crisis and became a cause of improvement in the performance of companies. Hsu and Liao (2021) found significant moderation of the dual position of the CEO regarding firm stock prices during the COVID-19. Murtaza, Habib, et al. (2021) investigated the role of CEOs with dual positions on firm performance in Pakistan. The findings demonstrated a significant negative effect of CEO duality on firm performance. According to the above study of COVID-19, the following hypothesis has been formulated:

H5: CEO duality has a positive effect on firm performance during COVID-19.

Methodology

A total of 577 firms are listed on the Pakistan Stock Exchange. Some filters have been applied to derive the sample. First, the financial firms should be excluded as they have different accounting standards and regulators. Second, remove the firms with missing data. Third, only firms listed throughout the study period should be included. Finally, 110 non-financial companies and 1210 firm-year observations are selected as samples from 2010 to 2020. The data has been collected from the annual report. For the estimation of firm performance before and after COVID-19, Ordinary Least Square (OLS) with year and industry fix effects has been used in this study:

$$ROA_{it} = \beta_1 PreCOV_{it} + \beta_2 FSIZE_{it} + \beta_3 FAGE_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \beta_6 DEV_{it} + \beta_7 CASH_{it} + \beta_8 CAPX_{it} + \beta_9 LEV_{it} + \beta_{10} Year_{it} + \beta_{11} IND_{it} + \varepsilon_{it}$$

$$ROA_{it} = \beta_1 PostCOV_{it} + \beta_2 FSIZE_{it} + \beta_3 FAGE_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \beta_6 DEV_{it} + \beta_7 CASH_{it} + \beta_8 CAPX_{it} + \beta_9 LEV_{it} + \beta_{10} Year_{it} + \beta_{11} IND_{it} + \varepsilon_{it}$$

For the estimation of corporate governance and firm performance during COVID-19, simple Ordinary Least Square (OLS) has been used in this study:

$$ROA_{it} = \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 BGD_{it} + \beta_4 OC_{it} + \beta_5 FMO_{it} + \beta_6 IO_{it} + \beta_7 CEOD_{it} + \beta_8 CEOP_{it} + \beta_9 FS_{it} + \beta_{10} FA_{it} + \beta_{11} LIQ_{it} + \beta_{12} LEV_{it} + \beta_{13} DIV_{it} + \beta_{14} CASH_{it} + \beta_{15} CAPX_{it} + \varepsilon_{it}$$

Where;

- ROA = Return on Assets
- PreCOV = Pre COVID-19
- PostCOV = Post COVID-19
- FS = Firm Size
- FA = Firm Age
- LIQ = Liquidity
- LEV = Leverage
- DIV = Dividend
- CAPX = Capital expenditures
- BS = Board Size
- BI = Board Independence
- BGD = Board Gender Diversity
- OC = Ownership Concentration
- FMO = Family Ownership
- IO = Institutional Ownership

CEOD = CEO Duality

CEOP = CEO Power

Table 3.1: Measurements of variables

Variables		Measurements	Source
Board size	BS	Total number of members on the board of directors.	Ciftci, Tatoglu et al. (2019)
Board independence	BI	<u>No independent directors</u>	Ciftci, Tatoglu et al. (2019)
Board Gender diversity	BGD	<u>No female directors</u>	Ciftci, Tatoglu et al. (2019)
Ownership concentration	OC	Shareholders own at least 5% of ordinary shares.	Ciftci, Tatoglu et al. (2019)
Family ownership	FMO	Dummy 1 when ownership is > 10%; otherwise, it is 0.	MUNTAHANAH, KUSUMA et al. (2021)
Institutional ownership	IO	$\frac{\text{shares held by mutual funds and foreign investors}}{\text{Total outstanding shares}} \times 100$	Mishra, Jain et al. (2021)
CEO duality	CEOD	It equals one if the CEO is also the chairman; otherwise, it is 0.	Ciftci, Tatoglu et al. (2019)
CEO power	CEOP	<u>Compensation of CEO</u> <u>Compensation of all directors</u>	Liu and Jiraporn (2010)
Firm size	FS	Natural logarithm of total assets owned by the firm.	Ciftci, Tatoglu et al. (2019)
Firm age	FA	Natural log of age of firm from date of incorporation.	Ciftci, Tatoglu et al. (2019)
Liquidity	LIQ	<u>Current assets</u> <u>Current liabilities</u>	MUNTAHANAH, KUSUMA et al. (2021)
Leverage	LEV	<u>Total debt</u> <u>Total assets</u>	Farwis, Siyam et al. (2021)
Return on assets	ROA	<u>Net income</u> <u>Total assets</u>	(Bokpin and Arko 2009, Kimunguyi, Memba et al. 2015)
Cash Holdings	CASH	Cash holding is the ratio of cash and cash equivalents divided by total assets.	Yun, Ahmad et al. (2021)
Dividend	DVT	Total dividend divided by the net profit	Yu, Wang et al. (2021)
Capital expenditure	CAPX	Capital expenditure is measured as the firm annual capital expenditure at t-1	Karim, Albitar et al. (2021)

Results and Discussion

Table 4.1 Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
CEOP	4.93	17.296	0	135.311
CEOD	0.143	0.35	0	1
BGD	0.377	0.485	0	1
BI	0.668	0.17	0.2	0.94
BH	0.368	0.229	0.006	0.951
OC	0.658	0.213	0.032	1.022
IO	0.098	0.099	0	0.429
MO	0.142	0.196	0	0.832
FMO	0.374	0.484	0	1
ROA	0.064	0.104	-0.21	0.531
FS	9.784	1.644	6.186	12.882
FA	41.728	16.234	9	86
LIQ	1.707	1.952	0.001	13.013
LEV	0.169	0.213	0	0.743
DIV	0.468	0.499	0	1
CASH	0.062	0.139	0	1.019

Table 4.1 presents the summary statistics of the variables used in the study. It includes the mean, standard deviation, minimum, and maximum values. The mean of CEO power is 4.93, with a standard deviation of 17.296. CEO duality has a mean value of 0.143, a standard deviation of 0.35, a minimum value of 0, and a maximum value of 1. The average board gender diversity is 0.377; it is a standard deviation. The mean of board independence is 0.668, with a 0.17 standard deviation. Block holders have a mean value of 0.368 and a standard deviation of 0.229. The following variable is ownership concentration. 0.658, 0.213, 0.032, and 1.022 are its mean values, standard deviation, minimum, and maximum values, respectively. Institutional ownership has a mean value of 0.098, a standard deviation. The mean value of managerial ownership is 0.142. Its standard deviation is 0.196, the minimum value is 0, and the maximum is 0.832. Family ownership has a mean of 0.374 and a standard deviation of 0.484. The mean value of ROA is 0.064, the standard deviation is 0.104, the minimum value is -0.21, and the maximum value is 0.531.

Table 4.2: t-test Analysis

Variables	Pre COVID-19	Post COVID-19	Mean difference
	Mean	Mean	
CEOP	5.148	3.95	1.198
CEOD	0.169	0.027	0.141***
BGD	0.269	0.864	-0.595***
BI	0.693	0.558	0.135***
BH	0.361	0.4	-0.039**
OC	0.652	0.687	-0.035**

IO	0.112	0.034	0.078***
MO	0.133	0.183	-0.050***
FMO	0.389	0.309	0.080**
ROA	0.071	0.033	0.037***
FS	9.76	9.889	-0.129
FA	40.746	46.145	-5.399***
LIQ	1.676	1.844	-0.168
LEV	0.206	0	0.206***
DIV	0.572	0	0.572***
CASH	0.064	0.054	0.011
CE	0.063	0.578	-0.515

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 4.2 shows the t-test results to analyze the mean differences between pre and post covid. The mean of CEO power was 5.14 before COVID-19, but it reduced to 3.95 during the pandemic, and there is no significant mean difference between these values. CEO duality was 16.9% before COVID-19, but it was reduced to 2.7%, which is a significant difference. This means that fewer firms had CEOs performing dual responsibilities during the crisis. Board gender diversity was 26.9% before the pandemic. However, female directors increased to 86.4% during the pandemic, a negative and significant difference. Board independence decreased from 69.3% to 55.8% due to COVID-19, which shows a significant mean difference between these values. Ownership concentration was 65.2% before Corona Virus and 68.7% during COVID-19. It shows a minor increase in ownership concentration, so there is a significant negative difference in mean values. The ratio of institutional ownership in Pakistani firms was 11.2%, but it decreased to 3.4% due to COVID-19, and it showed significant differences in pre and post-situations. The ratio of managerial ownership was 13.3% before the pandemic and increased to 18.3% during the pandemic, which shows a significant difference of 5%. Family ownership was 38.9% during COVID-19 but reduced to 30.9% during COVID-19, and there is a significant difference between these values. Return on assets was 7.1%, which decreased to 3.3% during the pandemic, which shows a significant difference. Furthermore, firm size, liquidity, and capital expenditure showed negative and insignificant differences as these ratios increased during COVID-19. Firm age, dividend, and leverage decreased during COVID-19 as they showed significant mean differences.

Table 0.3: Firm performance before COVID-19

Variable	Model 1		Model 2		Model 3		Model 4	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
ROA	0.087	7.140***	0.092	6.000***	0.088	7.340***	0.094	6.120***
FS	0.003	1.710*	0.002	1.620	0.003	1.530	0.002	1.400
FA	0.000	1.260	0.000	1.220	0.000	0.930	0.000	0.890
LIQ	0.016	11.190***	0.016	11.000***	0.016	10.960***	0.015	10.740***
LEV	0.074	5.830***	0.070	5.550***	0.074	-5.730***	0.071	-5.430***
DIV	0.034	6.120***	0.034	6.250***	0.032	5.810***	0.033	5.950***

CASH	0.180	9.210***	0.181	9.290***	0.164	8.220***	0.165	8.280***
CAPX	0.099	5.480***	0.101	5.590***	0.101	5.610***	0.103	5.710***
Constant	0.097	4.900***	-0.11	5.470***	0.096	-4.370***	-0.112	4.880***
Year_D	NO		YES		NO		YES	
IND_D	NO		NO		YES		YES	
r-square	0.395		0.405		0.411		0.420	
Chi-square	98.136		47.673		59.511		37.389	
Akaike crit. (AIC)	-2640.066		-2641.089		-2659.489		-2661.212	

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 4.3 reports the findings of preCovid on firm performance. The first model includes no year and industry dummy; the second model includes only a year dummy; the third model includes only an industry dummy, whereas the fourth model includes both year and industry dummy. All these models show firm performance in Pakistan before COVID-19. However, the present research considers only the fourth model for interpreting results regarding firm performance. COVID-19 is used as a dummy variable. Before the crisis, COVID-19 was considered 0. Model 4 shows a significant increase in firm performance before COVID-19. This table also indicates several firm-specific variables and their impact on firm performance.

Firm age and size have a positive but insignificant effect on firm performance. Liquidity and dividends have a positive and significant influence on firm performance. This means that a higher liquidity ratio enhanced firm performance, and firms that gave more dividends to their shareholders before COVID-19 also performed well. Leverage exerted a negative influence on firm performance. Firms' performance declines when the leverage ratio exceeds a certain limit. The firms that had more cash showed better performance. More capital expenditures also caused an increase in firm performance. The value of r-square in Model 4 shows the variance in the dependent variable occurred due to independent variables. The value of the Chi-square shows the model's fitness. Here, the value of Chi-square is 37.389. It indicates that the present model is a good fit for this study.

Table 4.4: Firm performance during COVID-19

Variable	Model 1		Model 2		Model 3		Model 4	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Post COVID-19	0.087	7.140***	0.092	6.000***	0.088	-7.340***	0.094	-6.120***
FS	0.003	1.710*	0.002	1.620	0.003	1.530	0.002	1.400
FA	0.000	1.260	0.000	1.220	0.000	0.930	0.000	0.890
LIQ	0.016	11.190***	0.016	11.000***	0.016	10.960***	0.015	10.740***
TD	0.074	5.830***	0.070	5.550***	0.074	-5.730***	0.071	-5.430***
DIV	0.034	6.120***	0.034	6.250***	0.032	5.810***	0.033	5.950***
CASH	0.180	9.210***	0.181	9.290***	0.164	8.220***	0.165	8.280***
CAPX	0.099	5.480***	0.101	5.590***	0.101	5.610***	0.103	5.710***

Constant	-0.011	-0.620	0.021	-1.180	0.007	-0.380	0.018	-0.880
Year_D	NO		YES		NO		YES	
IND_D	NO		NO		YES		YES	
r-square	0.395		0.405		0.411		0.42	
Chi-square	98.136		47.673		59.511		37.389	
Akaike crit. (AIC)	-2640.066		-2641.089		-2659.489		-2661.212	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.4 reports the firm performance during COVID-19. Post-COVID-19 is used as a dummy variable with the value 1. There are four models of linear regression. The present research considers the fourth model for analysis interpretation as it has a year and industry dummy. The first variable – post-COVID-19 – significantly negatively impacts firm performance. According to the results of Table 4.3, firm performance increased before COVID-19. So, the results clearly defined that the crisis reduced the performance of firms. These results support the H1 of the current study that there is a negative impact of COVID-19 on firm performance. The result is similar to the study of Khatib and Nour (2021).

Table 4.5: Board structure and firm performance during COVID-19

NTPA	Coef.	t-value
BIND	-1.980	-0.840
BSIZE	-0.168	-0.380
DIVERSITY	-2.338	-1.760*
CEO POWER	-2.535	-3.100***
CEOD	6.753	2.510**
FSIZE	-0.276	-0.960
FAGE	0.063	2.310**
TDTA	31191.150	0.680
LIQUID	0.084	0.380
CASH	-54.141	-15.390***
CAPX	2.228	1.150
Constant	5.163	1.010
Pseudo r-square		0.564
Chi-square		24.465
Akaike crit. (AIC)		1441.562

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.5 reported the results of board structure, CEO characteristics, and firm performance, where board structure has been measured through the independence of the board and gender diversity on the board. CEO characteristics have been measured with the help of CEO duality and CEO power. The results of board size indicated a negative and insignificant influence on firm performance. This means that board size decreased firm performance significantly. The studies of Khatib and Nour (2021) support these results. In developing countries, board vacancies are filled with personal connections instead of professional ones, decreasing firm performance. These results are not consistent with H2. Therefore, H2 is rejected. The

following variable is Board independence, which negatively influences firm performance—the greater the number of independent directors, the lesser the firm performance during COVID-19. The relation of board independence is insignificant to firm performance. It contradicts the studies of Jebran and Chen (2021). In the context of Pakistan, it has been suggested by Majeed, Aziz et al. (2015) that independent directors lack prime knowledge about corporate governance issues. Therefore, H2a is rejected. The more female directors on the board, the lesser the performance of firms during the crisis. This study showed that female directors decreased the performance of firms during COVID-19 in Pakistan. In Pakistan, there are no standards for the selection of females. SECP should set a one-third proportion for females on the board of directors. These results are consistent with H2b. So, H2b is accepted. These results are similar to the findings of Rehman, Orij et al. (2020) and Farwis, Siyam et al. (2021) but differ from the studies of Li and Chen (2018) and Uyar, Kuzey et al. (2021).

Table 4.6: Ownership structure and firm performance during COVID-19

NTPA	Coef.	t-value
TOP-5	0.119	2.990***
INST	-0.205	-1.720*
FAMILY	-0.021	-1.300
FSIZE	0.006	1.390
FAGE	0.001	1.770*
LIQUID	0.008	2.480**
TDTA	-905.409	-1.300
CASH	-0.052	-0.950
CAPX	0.074	2.450**
Constant	-0.095	-1.570
r-square	0.157	
Chi-square	3.888	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4.6 reported the ownership structure results and their impact on firm performance. Concentrated ownership means the majority of shares are held by the top five shareholders of the firm. According to the results, concentrated ownership positively and significantly influenced firm performance during a crisis. The majority of shares remained with few shareholders, and they worked for the betterment of the firm and increased firm performance. The study of Alregab (2021) supports these results. Therefore, H3 is accepted. Family ownership means that two or more family members have the majority ownership of that company. According to the results, firms having family ownership influenced firm performance negatively. These results are similar to the studies of Muntahanah, Kusuma Et Al. (2021) but is insignificant and differs from the arguments of Sridharan and Joshi (2018). There is an insignificant decrease in firm performance due to family ownership. These results opposed H3a. So, it is rejected. Institutional ownership showed a negative and significant impact on firm performance during COVID-19. This means that firms with many mutual funds, insurance companies, private foundations, and pension funds as their owners showed a significant decrease in performance during a pandemic. The results are consistent with H3b.

So, H3b is accepted. The study of Bishara, Andrikopoulos et al. (2020) supports these results, but the findings of Hussain, Abid et al. (2022) contradict these results.

After the ownership structure, the results of the CEO characteristics are also summarised in Table 6. CEO power showed a significant and negative impact on firm performance during COVID-19. This means that CEOs' having more power during uncertain situations will negatively influence firm performance. It supports H4 of the current study. Past researchers also evaluated this relationship. The current results are consistent with the arguments of Sukhahuta, Lonkani et al. (2019) but contradict the study of Ueng and Ramaswamy (2019). The following variable is CEO duality. It shows a significant positive effect on firm performance. This means that the firms have CEOs performing the duties of chairman, and they have performed well during the COVID-19 pandemic. These results are consistent with H5. Therefore, H5 is accepted. These findings are supported by the studies of Jebran and Chen (2021) but opposed by the arguments of Murtaza, Habib et al. (2021). After that, the r-square value indicated the total variation in a dependent variable concerning all independent variables. The value of the Chi-square showed the fitness of the overall research model.

Conclusion

Corporate governance has been important in academic research for the last three decades. Incidents such as the downfall of Enron, World Com (Du Plessis and Cole 2011), and the Asian Financial Crisis 1997 in South East Asia diverted previous scholars' attention towards improving corporate governance (Mitton 2002). The current COVID-19 pandemic of COVID-19 further enhanced the importance of governance mechanisms and insisted that various researchers evaluate the influence of these mechanisms in corporate bodies. Agency theory elaborates on the concept of corporate governance. Various scholars examined the impact of corporate governance on firm performance in different study settings (Ciftci, Tatoglu, et al. 2019; Sehrawat, Singh, et al. 2020; Farwis, Siyam et al. 2021; Hsu and Liao 2021; Khatib and Nour 2021, Mishra, Jain, et al. 2021, Ngatno, Apriatni et al. 2021, Uyar, Kuzey et al. 2021, Xuguang, Ahmad et al. 2021).

The present study evaluates the impact of corporate governance mechanisms on firm performance during the COVID-19 crisis in Pakistan. The data of 110 non-financial companies listed in the Pakistan Stock Exchange from 2010 to 2020 have been used for analysis. The study results indicated that the first hypothesis (H1), accepted as COVID-19, significantly negatively impacts firm performance as the crisis disrupted all organizational affairs, which decreased firm performance. The second hypothesis (H2a) is rejected as board size decreased firm performance insignificantly. The third hypothesis (H2b) was dismissed as board independence negatively impacted firm performance. The fourth hypothesis (H2c), accepted as board gender diversity, revealed a negative and significant influence on firm performance. In Pakistan, there are no standards for the selection of females. SECP should set a one-third proportion for females on the board of directors. The fifth hypothesis (H3a) accepted that concentrated ownership positively and significantly influenced firm performance during a crisis. The majority of shares remained with few shareholders, and they worked for the betterment of the firm and increased firm performance. The sixth hypothesis (H3b) was rejected as firms having family ownership had a negative and insignificant impact on firm

performance. The following hypothesis (H3c), accepted as institutional ownership, showed a negative and significant impact on firm performance during COVID-19. H4 accepted CEO power significantly and negatively impacted firm performance during COVID-19. It means that CEOs' having more power during uncertain situations will negatively influence firm performance. CEO duality shows a significant positive effect on firm performance, so H5 is accepted. This means that the firms have CEOs performing the duties of chairman, and they have performed well during the COVID-19 pandemic.

The present study is unique as it is an emerging issue. Second, there is limited literature available on this problem. Third, this study examined the pre- and post-COVID-19 situations using pre- and post-pandemic years data. Fourth, this study relied on descriptive statistics and used T-test analysis and linear regression to acquire results. The interests of managers and stakeholders should be aligned so that firm performance may increase. However, the study has certain limitations. First of all, this study is limited to only non-financial firms. Second, this study is suitable only for developing countries as it was conducted in Pakistan. Third, not all determinants of corporate governance are included in this research. This study also provides various directions for future researchers. Researchers can research financial firms while using the same study setting. Future studies can include governance mechanisms such as audit committee size, meetings, and board meetings. Researchers can also conduct this research in the future in any other developing country and developing one.

References

- Aduda, J., et al. (2013). "An empirical test of competing corporate governance theories on the performance of firms listed at the Nairobi Securities Exchange." European Scientific Journal 9(13).
- Afza, T. and M. S. Nazir (2015). "Role of institutional shareholders' activism in enhancing firm performance: The case of Pakistan." Global Business Review 16(4): 557-570.
- Aguilera, R. V. and A. Cuervo-Cazurra (2009). "Codes of good governance." Corporate governance: an international review 17(3): 376-387.
- Akram, F. (2018). "Assessing the effect of managerial power on firm performance through the perceptual lens of executive remuneration."
- Alregab, H. (2021). "The role of corporate governance in attracting foreign investment: An empirical investigation of Saudi-listed firms in light of vision 2030." International Journal of Finance & Economics.
- Baydoun, N., et al. (2013). "Corporate governance in five Arabian Gulf countries." Managerial Auditing Journal.
- Bishara, M. K., et al. (2020). "Ownership structure, information asymmetry and growth of the firm: Implications from non-financial firms listed in S&P500." Managerial and Decision Economics 41(8): 1580-1589
- Bokpin, G. A. and A. C. Arko (2009). "Ownership structure, corporate governance and capital structure decisions of firms: Empirical evidence from Ghana." Studies in Economics and Finance.
- Brahma, S., et al. (2021). "Board gender diversity and firm performance: The UK evidence." International Journal of Finance & Economics 26(4): 5704-5719.

- Ciftci, I., et al. (2019). "Corporate governance and firm performance in emerging markets: Evidence from Turkey." International Business Review 28(1): 90-103.
- Clarke, T. (2014). "The impact of financialization on international corporate governance: the role of agency theory and maximizing shareholder value." Law and Financial Markets Review 8(1): 39-51.
- Cuomo, F., et al. (2016). "Corporate governance codes: A review and research agenda." Corporate governance: an international review 24(3): 222-241.
- Daily, C. M., et al. (2003). "Corporate governance: Decades of dialogue and data." Academy of Management review 28(3): 371-382.
- Du Plessis, C. and R. J. Cole (2011). "Motivating change: shifting the paradigm." Building Research & Information 39(5): 436-449.
- Ekanayake, A., et al. (2010). Contextual relativity of the role of accounting in corporate governance: evidence from the banking industry in Sri Lanka. The Sixth Asia Pacific Interdisciplinary Research in Accounting Conference, Sydney.
- El Chaarani, H. and L. Raimi (2022). "Diversity, entrepreneurial innovation, and performance of healthcare sector in the COVID-19 pandemic period." Journal of Public Affairs: e2808.
- Elmarzouky, M., et al. (2021). "Covid-19 and performance disclosure: does governance matter?" International Journal of Accounting & Information Management.
- Farwis, M., et al. (2021). "The Nexus Between Corporate Governance and Firm Performance During COVID-19 Pandemic in Sri Lanka." Journal of Economics, Finance and Accounting Studies 3(1): 81-88.
- Foss, N. J. (2020). "The impact of the Covid-19 pandemic on firms' organizational designs." Journal of Management Studies.
- Galletta, S., et al. (2022). "Gender diversity and sustainability performance in the banking industry." Corporate Social Responsibility and Environmental Management 29(1): 161-174.
- Ghabayen, M. A. M. (2012). Board Characteristics and Firm Performance: Case of Saudi Arabia, Universiti Utara Malaysia.
- Habib, A. and I. Azim (2008). "Corporate governance and the value-relevance of accounting information: Evidence from Australia." Accounting Research Journal.
- Hsu, Y.-L. and L.-K. C. Liao (2021). "Corporate governance and stock performance: The case of COVID-19 crisis." Journal of Accounting and Public Policy: 106920.
- Hu, S. and Y. Zhang (2021). "COVID-19 pandemic and firm performance: Cross-country evidence." International review of economics & finance 74: 365-372.
- Hussain, M., et al. (2022). "The role of institutional ownership structures on corporate performance." Journal of Public Affairs 22(1): e2296
- Jabbouri, I. and R. Jabbouri (2021). "Ownership identity and firm performance: Pre-and post-crisis evidence from an African emerging market." International Journal of Finance & Economics 26(4): 5963-5976.
- Jebran, K. and S. Chen (2021). "Can we learn lessons from the past? COVID-19 crisis and corporate governance responses." International Journal of Finance & Economics.
- Jensen, M. C. and W. H. Meckling (1976). "Theory of the firm: Managerial behavior, agency costs and ownership structure." Journal of financial economics 3(4): 305-360.

- Jensen, M. C. and R. S. Ruback (1983). "The market for corporate control: The scientific evidence." Journal of financial economics 11(1-4): 5-50.
- Karim, A. E., et al. (2021). "A novel measure of corporate carbon emission disclosure, the effect of capital expenditures and corporate governance." Journal of Environmental Management 290: 112581.
- Khan, M. T., et al. (2021). "Dynamic relationship between corporate board structure and firm performance: Evidence from Malaysia." International Journal of Finance & Economics 26(1): 644-661.
- Khatib, S. F. and A.-N. I. Nour (2021). "The impact of corporate governance on firm performance during the COVID-19 pandemic: evidence from Malaysia." Journal of Asian Finance, Economics and Business 8(2): 0943-0952
- Kiel, G. C. and G. J. Nicholson (2003). "Board composition and corporate performance: How the Australian experience informs contrasting theories of corporate governance." Corporate governance: an international review 11(3): 189-205.
- Kimunguyi, S., et al. (2015). "Effect of corporate governance on financial performance of NGOs in health sector in Kenya." International Journal of Economics, Commerce & Management, III 12: 390-407.
- Kyalo, B. M. (2015). Relationship between executive compensation and financial performance of commercial state owned enterprises in the energy sector in Kenya, University of Nairobi.
- Li, H. and P. Chen (2018). "Board gender diversity and firm performance: The moderating role of firm size." Business Ethics: A European Review 27(4): 294-308.
- Liu, H., et al. (2021). "The impact of operating flexibility on firms' performance during the COVID-19 outbreak: Evidence from China." Finance research letters 38: 101808.
- Liu, Y. and P. Jiraporn (2010). "The effect of CEO power on bond ratings and yields." Journal of empirical Finance 17(4): 744-762.
- Lungatso, M. S. and D. Otuya (2019). "Corporate governance and financial performance of commercial banks in Kenya: A critical review of literature." Corporate Governance and Financial Performance of Commercial Banks in Kenya: A Critical Review of Literature (December 01, 2019). American Based Research Journal 8(12).
- Majeed, S., et al. (2015). "The effect of corporate governance elements on corporate social responsibility (CSR) disclosure: An empirical evidence from listed companies at KSE Pakistan." International Journal of Financial Studies 3(4): 530-556.
- Mishra, A. K., et al. (2021). "Does corporate governance characteristics influence firm performance in India? Empirical evidence using dynamic panel data analysis." International Journal of Disclosure and Governance 18(1): 71-82.
- Mitton, T. (2002). "A cross-firm analysis of the impact of corporate governance on the East Asian financial crisis." Journal of financial economics 64(2): 215-241.
- MUNTAHANAH, S., et al. (2021). "The Effect of Family Ownership and Corporate Governance on Firm Performance: A Case Study in Indonesia." The Journal of Asian Finance, Economics and Business 8(5): 697-706.
- Murtaza, S., et al. (2021). "Do ownership and board characteristics enhance firm performance? A corporate governance perspective." Journal of Public Affairs 21(3): e2515.

- Nazir, S. (2016). "The relationship between corporate governance and firm value: Role of discretionary earnings management." Unpublished PhD Dissertation, Department of Management Sciences, COMSATS Institute of Information Technology, Pakistan.
- Ngatno, et al. (2021). "Moderating effects of corporate governance mechanism on the relation between capital structure and firm performance." Cogent Business & Management 8(1): 1866822.
- Okiro, K. O. (2014). Corporate governance, capital structure, regulatory compliance and performance of firms listed at the East African community securities exchange, University of Nairobi.
- Okpara, J. O. (2011). "Corporate governance in a developing economy: barriers, issues, and implications for firms." Corporate Governance: The international journal of business in society.
- Onakoya, A. B., et al. (2012). "Corporate governance and bank performance: A pooled study of selected banks in Nigeria." European Scientific Journal 8(28): 155-164.
- Otman, K. A. M. (2014). Corporate governance and firm performance in listed companies in the United Arab Emirates, Victoria University.
- Overland, C., et al. (2012). Keeping it real or keeping it simple? Ownership concentration measures compared. The 4th workshop of the Nordic Corporate Governance Network, Reykjavik University June 15, 2012.
- Qin, X., et al. (2020). "COVID-19 pandemic and firm-level cash holding—moderating effect of goodwill and goodwill impairment." Emerging Markets Finance and Trade 56(10): 2243-2258.
- Reed, D. (2002). "Corporate governance reforms in developing countries." Journal of business ethics 37(3): 223-247.
- Rehman, S., et al. (2020). "The search for alignment of board gender diversity, the adoption of environmental management systems, and the association with firm performance in Asian firms." Corporate Social Responsibility and Environmental Management 27(5): 2161-2175.
- Saeed, A., et al. (2021). "Read between the lines: Board gender diversity, family ownership, and risk-taking in Indian high-tech firms." International Journal of Finance & Economics 26(1): 185-207.
- Sehrawat, N. K., et al. (2020). "Does corporate governance affect financial performance of firms? A large sample evidence from India." Business Strategy & Development 3(4): 615-625.
- Shen, H., et al. (2020). "The impact of the COVID-19 pandemic on firm performance." Emerging Markets Finance and Trade 56(10): 2213-2230.
- Slater, A. (2020). "Soaring corporate debt is a risk to global growth." Economic Outlook 44(3): 19-23.
- Solomon, J. (2020). Corporate governance and accountability, John Wiley & Sons.
- Sridharan, S. and M. Joshi (2018). "Impact of Ownership Patterns and Firm Life-Cycle Stages on Firm Performance: Evidence From India." Journal of Corporate Accounting & Finance 29(1): 117-136.
- Sukhahuta, D., et al. (2019). "The Moderating Effect of Corporate Governance on Relationship between CEO Power and Firm Performance." WMS Journal of Management 8(2): 72-84.
- Ueng, C. J. and V. Ramaswamy (2019). "Do firms with dual chief executive officers perform better than their counterparts?" Journal of Corporate Accounting & Finance 30(2): 13-22.

Uyar, A., et al. (2021). "Board structure, financial performance, corporate social responsibility performance, CSR committee, and CEO duality: Disentangling the connection in healthcare." Corporate Social Responsibility and Environmental Management 28(6): 1730-1748.

Weir, C. and D. Laing (2001). "Governance structures, director independence and corporate performance in the UK." European Business Review.

Xuguang, Z., et al. (2021). "Board attributes and corporate philanthropy behavior during COVID-19: A case from China." Journal of Corporate Accounting & Finance 32(3): 61-67.

Yu, X., et al. (2021). "Dividend payouts and catering to demands: Evidence from a dividend tax reform." International Review of Financial Analysis 77: 101841.

Yun, J., et al. (2021). "Cash holdings and firm performance relationship: Do firm-specific factors matter?" Economic Research-Ekonomska Istraživanja 34(1): 1283-1305.

Zhang, H., et al. (2012). "Authentic leadership theory development: Theorizing on Chinese philosophy." Asia Pacific Business Review 18(4): 587-605.