



# Investigating the Impact of COVID 19 Outbreak on Stock Market Returns: Evidence from Pakistan

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Since the world has entered the second wave of COVID 19, empirical studies discussing the Covid-19 outbreak and its impact on stock market returns and liquidity are very limited. This study expects to fill the gap and aims to find the impact of the COVID 19 pandemic on stock market returns and the relationship between market liquidity and Pakistan's stock market returns. In general, it finds that the spread of COVID-19 had a statistically negative impact on daily market returns and liquidity.

**Keywords:** *Liquidity, COVID – 19, Black Swan Theory, Stock Market Return*

## 1. Introduction

Since the last century, researchers have extensively investigated the impact of financial development on economic growth. However, only a few studies have reported developing and emerging countries (Kar *et al.*, 2011; Samargandi *et al.*, 2015). Stock markets and financial development have been generally recognized as primary drivers of economic growth. The current study has defined stock market development as the primary variable in securing private capital investment and stimulating economic growth. The 2019 outbreak of the coronavirus disease (COVID-19) shocked the globe and prompted an unforeseen wave of economic turmoil in financial markets worldwide.

According to World Health Organisation (WHO), the outbreak of coronavirus (COVID-19) originated from central China in late December 2019 has spread to 216 nations, resulting in



over 8.3 million confirmed cases and over 450,000 deaths worldwide as of June 19, 2020. The WHO officially classified it as a pandemic on March 11, 2020, given the widespread and continuing transmission of the novel coronavirus worldwide. A variety of mechanisms, including, for example, labor markets, global supply chains, consumption behaviors, could indeed be triggered by the pandemic, all of which can influence the global economy. The financial markets are undoubtedly essential aspects of these mechanisms (see, for example, Ahmar and delval, 2020; Al-Awadhi *et al.*, 2020). Emerging markets have relatively little resources to cope with the pandemic's effects, despite the slowest pace of economic growth and the lack of capital inflows. World scientists stressed the need for research to cope with this outbreak and prepare for future epidemics of similar kinds (WHO, R&D Blueprint, 2020). COVID-19 has influenced all sectors of society and halted consumption, production, travel, tourism, the financial industry, and recreation. Like other health disasters (Ebola virus of West Africa and Middle East Respiratory Syndrome (MERS) in the Republic of Korea), COVID-19 has had far-reaching socio-economic impacts on population health, social dynamics, and public health with long-term consequences (Evans, 2020).

The Coronavirus (COVID-19) is a "Black Swan" event, and this unpredictable incident was not within the spectrum of usual expectations. However, it has resulted in a significant global economic recession in 2020. The extent of the human disaster and the financial and economic losses coming into view are still uncertain and beyond the realm of our experience. Apropos, the influence of this pandemic on financial markets seems evident in the recent turmoil of markets. Ali *et al.* (2013) argued that the stock market, as an economic instrument, is influenced by its climate. The observed micro-economic impacts include company results, changes in company strategies, finance report announcements, and how companies receive answers from capital market players and dividends.

Machmuddah (2020) reported that, according to Dow Jones and Standard & Poor's, from mid-March 2020, companies' share prices in the U.S. fell by 20 percent. Similar to the Nikkei (Tokyo Stock Exchange), business share prices have declined dramatically. After mid-March 2020, Sri Lanka (Colombo Stock Exchange) has experienced a 9 percent decrease in its index share prices over the previous week and has forced to close trading three times this week. The Indonesian stock market's composite stock price index has declined in line with investor concern about the impact of the COVID-19 pandemic on the global economy. The composite stock price index opened on April 8, 2020, with a decline of 64.06 points or 1.34 percent to 4714.58. Black Swan incidents, including terrorist attacks and epidemics, would trigger outrage, fear, and panic among foreign investors and result in a sharp panic-selling response (Burch, Emery, and Fuerst 2016).

In Pakistan, the first COVID 19 case was reported in February 2020. 438 thousand cases have now been reported. However, relative to developing countries such as Italy, France, and the United States, the recovery rate is better in Pakistan. This pandemic on Pakistan's economy



depends on taking preventive steps and the severity of the disease's spread. This pandemic situation could cost the Pakistan economy approximately \$16.38 million to \$4.95 billion, according to the Asian Development Bank (ADB), almost 1.57 percent of the total GDP. The study also reported that this pandemic caused more than 946,000 work losses. In this way, in the last two years, a country at the recovery stage has experienced its harmful impact (Waheed *et al.* 2020).

Against this backdrop, the current paper aims to broaden the literature to analyze the COVID-19 outbreak on Pakistan's capital markets. Since the world has entered the second wave of COVID 19 and empirical studies discussing the Covid-19 episode and stock market returns and liquidity are minimal, this study is expected to fill the gap. The current study also offers significant policy implications for market participants in understanding stock market behaviors during the pandemic period. Furthermore, it will be beneficial for policymakers to design effective financial policy responses to COVID-19. The specific testable hypotheses are:

*H<sub>1</sub>: The COVID-19 outbreak has a negative impact on stock returns*

*H<sub>2</sub>: During the outbreak of COVID-19, market liquidity was positively related to stock market returns.*

Following the introduction, section two presents a literature review based on its hypothesis's development. Section three provides a brief description of data, sources of data, variables, and methodology. Results are discussed in section four, and the final section elucidates empirical results and conclusions.

## **2. Literature Review**

Various outbreaks across the globe affected the stock market's performance and stock market returns and liquidity. Over time, studies explored the impact of pandemics and outbreaks on this issue. Giudice and Paltrinieri (2017) analyzed the effect of the Arab spring and the Ebola virus on African equity markets. They found that fund flows, control of fund efficiency, expenses, and market returns were significantly affected by Ebola and the Arab Spring. Ichev and Marinc (2018) also discussed the Ebola virus's impact on the stock market and economic development.

Similarly, Haacker (2004) investigated the effect of HIV/AIDS on government finance and public services, while Santaaul (2008) explored the impact of AIDS on economic growth. Along with other disasters, terrorist activities worldwide have also affected economic development and stock markets (Hon *et al.*, 2004; Karolyi, 2006). The relationship between the outbreak of the influenza virus and China's stock output was assessed by Jiang *et al.* (2019). They find that stock prices in the overall market index and the related sectors, including



traditional Chinese medicine, biological development, and the biomedical sectors in China, have been substantially and negatively impacted by the daily number of cases.

The incidence of COVID 19 has had a considerable impact on the capital market, and the literature on this is very scarce. Tahat and Ahmad (2020) tried to explore the impact of the current outbreak on liquidity and stock market returns of the U.K. The study reported a negative association between the outbreak, stock market return, and more adverse impacts on sectoral market returns. Machmuddah et al. (2020) observed customer goods' stock prices before and after the COVID-19 pandemic using the event study and the comparison test. A unique data set over 90 days before COVID 19- and 90-days after its occurrence is utilized by the research and found a substantial difference between the regular closing market price and stock trading volume before and after the COVID-19 pandemic. Shafi Liu and Ren (2020) focused on small, medium, and micro enterprises (MSME), which lack financial and managerial resources for survival. The study found that MSMEs are affected by the COVID 19 outbreak and provided policy recommendations to reduce the losses and ensure survival through the crisis for Pakistan's small and micro-enterprises.

A UNCTAD report asserts that Pakistan will be hardest hit by the global pandemic of COVID-19 in the latest report of the United Nations Conference on Trade and Development (UNCTAD, 2020). Kotishwar (2020) investigated the impact of the COVID 19 outbreak on the stock market of six countries positively affected by the pandemic, including the USA, China, Italy, Spain, France, and India, and found evidence of a long-running negative association between the outbreak and the stock market. He et al. (2020) discussed the direct and indirect effects of COVID-19 on the financial markets through a mixed sample of Asian and European economies. The empirical findings show that COVID-19 has a negative but short-term impact on the affected countries' stock markets. The stock market impact of COVID-19 has bidirectional spill-over effects between Asian countries and European and American countries. However, there is no evidence that COVID-19 affects these countries' stock markets more negatively than the global average does. Waheed et al. (2020) conducted a study for Pakistan considering the Karachi stock exchange. They found a result contrary to other studies with a positive impact on the KSE-100 index stock return during COVID 19. Erdem (2020) aimed to explore a connection between how stock market indices' returns differ concerning Covid-19 news from different regimes, such as free and not-free countries, and found a significant negative impact of the pandemic on stock market returns i.e., declining return and high volatility.

Similarly, Anh and Gan (2020) examined the impact of COVID 19 on Vietnam's stock market daily performance. The economy performed oppositely during the lockdown, and an adverse impact is observed. Ashraf (2020) has examined the effect of the pandemic on stock market performance in 64 nations and finds reverse relationships between the rising number of cases confirmed and the returns on the stock.

The adverse effects of COVID-19 on U.S. stock return are shown by Alfaro et al. (2020). Liu et al. (2020) studied the short-term impacts of COVID 19 on leading economies of positively affected countries and found that stock markets are fell due to this pandemic. The study concluded that this positively influences countries in the Asian region compared to the rest of others. Ashraf (2020) discussed the reaction of the financial markets to the COVID-19 pandemic. Using daily-confirmed cases and deaths of COVID-19 and stock market returns data from 64 countries for the period January 22, 2020, to April 17, 2020, the study shows that stock markets have reacted negatively to the rise in confirmed cases of COVID-19. As the number of reported cases rose, stock market returns declined. Macciocchi *et al.* (2020) analyzed the short-term economic impact of the Zika virus outbreak on Brazil, Argentina, and Mexico. Significant findings showed that except for Brazil, the stock indices of these three Latin American and Caribbean Countries (LCR) did not display significant negative returns the day after each shock. Bash (2020), using event study analysis, checked the impact of the first recorded COVID-19 case on stock market returns. To calculate cumulative abnormal returns for 30 countries, mean-adjusted returns and market model approaches are used. The findings indicate that after the COVID-19 outbreak, stock market returns witnessed a downward trend and substantial negative returns (Prabheesh et al., 2020). This research focuses on the relationship between returns on stock prices and returns on oil prices covering the COVID-19 era. The study finds evidence of a positive co-movement during the outbreak of COVID-19. The results suggested that falling oil prices serve as a negative signal to the stock market. Based on a review of the literature presented above, the current study takes an opportunity to fill the literature gap and conduct an empirical analysis to find the impact of COVID-19 on stock market returns.

### 3. Methods and Material

The data sources include the WHO website and the handbook of statistics on Pakistan's economy. The data sources also include International financial statistics (IFS). The data set is collected from December 2019 to October 2020. To analyze data, we applied panel regression models using Stata.

The impact of the COVID-19 outbreak on daily stock market returns is tested by following the econometric model of Ahmad and Tahat (2020):

$$MRD_{i,t} = \beta_0 + \beta_1 DCOVID_{i,t} + \beta_2 gdcovid_{i,t} + \beta_3 DMTBV_{i,t} + \varepsilon \dots \dots \dots (1)$$

$$MRD_{i,t} = \beta_0 + \beta_1 DDeath_{i,t} + \beta_2 gddeath_{i,t} + \beta_3 MTBV_{i,t} + \varepsilon \dots \dots \dots (2)$$

$$MRD_{i,t} = \beta_0 + \beta_1 DCOVID_{i,t} + \beta_2 gdcovid_{i,t} + \beta_3 DDeath_{i,t} + \beta_4 gddeath_{i,t} + \beta_5 MTBV_{i,t} + \varepsilon \dots \dots \dots (3)$$

Where **MRD** = daily market returns, **DCOVID** = daily confirmed new cases of COVID 19, **gdcovid** = growth rate of daily confirmed new COVID 19 cases, **death** = daily COVID-19 related death cases, & **MTBV**=market to book value ratio.

The second set of equations is devised to examine the effect of market liquidity on market returns:

$$MRD_{i,t} = \beta_0 + \beta_1 TTOR_{i,t} + \beta_2 gMV_{i,t} + \beta_3 MTBV_{i,t} + \beta_4 t_{i,t} + \varepsilon \dots \dots \dots (4)$$

$$MRD_{i,t} = \beta_0 + \beta_1 BAS_{i,t} + \beta_2 gMV_{i,t} + \beta_3 MTBV_{i,t} + \beta_4 t_{i,t} + \varepsilon \dots \dots \dots (5)$$

$$MRD_{i,t} = \beta_0 + \beta_1 HLP_{i,t} + \beta_2 gMV_{i,t} + \beta_3 MTBV_{i,t} + \beta_4 t_{i,t} + \varepsilon \dots \dots \dots (6)$$

Where *MRD* = daily market return, *TTOR* = trading turnover ratio, *MTBV* = market to book value ratio, *t* = time trend, *BAS*= Bid ask spread, *HLP* = highest lowest price daily

#### 4. Analysis of Results and Conclusion

Table 1 below shows the effects of the COVID-19 outbreak on daily market returns. The study regressed daily market returns on DCOVID, gDCOVID, DEATH, gDDEATH, and MTBV. The impact of COVID-19 on daily market returns is quite clear, as the coefficient of daily confirmed new COVID-19 cases is significant with a value of -1.6. The growth rate of daily confirmed new COVID-19 cases is negative and robust at a 1% level of significance. The market to book value ratio has a positive and significant impact on daily market returns.

In Model 2, daily COVID-19 related death cases negatively and significantly associated with daily market returns; its growth rate has a negative and significant impact, while market to book value ratio has a positive and significant relationship with daily market returns. In Model 3, the market to book value ratio positively and significantly impacts daily market returns. In contrast, the rest of all other variables have a negative and significant impact on daily market returns.

The findings are supported by the market data, as we see data on daily market returns throughout the study. We observe that only healthcare and a few essential profitable industries show positive daily market returns. In contrast, for the rest of all other sectors, the COVID-19 outbreak has a negative impact on MRD.

Table 1: The Effects of COVID 19 on Daily Stock Returns (Fixed Effect)

Variable	Model 1	Model 2	Model 3
C	-0.079	-5.521	-10.030
DAVID	-1.600**		-1.154
G(DCOVID)	-0.016***		-0.026
DEATH		-0.87**	-0.084
G(DEATH)		-0.07*	-0.058
MTBV	0.0423*	0.098**	0.024**
F-statistics	7.96*	11.96***	14.2***

Note: here *DCOVID* = daily confirmed new cases of COVID 19, *gdcovid* = growth rate of daily confirmed new COVID 19 cases, *DDeath* = daily COVID-19 related death cases, &

*MTBV*=market to book value ratio. \*,\*\*,\*\*\* show significance at 10%, 5% and 1% respectively.

Table 2 shows the impact of market liquidity on stock market returns during the COVID 19 outbreak. Model 4 shows that the trading turnover ratio and market to book value ratio are negative, while MV has a positive impact on market liquidity. In Model 5, the Bid-ask spread has a positive and significant impact on daily market returns, while the market to book value ratio has a positive effect. Both variables have a statistically significant result. Finally, model 6 shows that the highest lowest daily price and MV have a positive and statistically significant impact, while the market to book value ratio negatively impacts market liquidity. The trends show that liquidity measures have moved up and down during the COVID-19 outbreak, indicating bad news.

Table 2: Market Liquidity and Stock Market Returns over COVID 19 Outbreak (Fixed Effect)

Variable	Model 4	Model5	Model6
Intercept	-20.400**	0.030***	-71.561
OR	-3.914***		
BAS		20.31*	
HLP			2.141*
MTBV	-0.015**	-0.058**	-0.014***
MV	0.514		0.175*
Adj- R squared	0.41	0.31	0.24
F-statistics	41.45***	26.8***	11.56**

Where *TOR* = trading turnover ratio, *MTBV* = market to book value ratio, *t* = time trend, *BAS*= Bid ask spread, *HLP* = highest lowest price daily. \*, \*\*, \*\*\* show significance level at 10%, 5% and 1%.

## 5. Conclusion

A fundamental but new statistical analysis on the relationship between daily market returns, the COVID-19 outbreak, and the market liquidity for companies listed in Pakistan is given in the current paper. The global spread of the pandemic has had an immense effect on the global economy, causing economic devastation and human losses. In particular, the financial markets have suffered a dramatically adverse reaction. In general, the current study finds that the spread of COVID-19 had a statistically negative effect on daily market returns and liquidity. Furthermore, the results show that most industries have faced a great degree of volatility. Moreover, the results indicate that the market's liquidity has decreased, eventually having a detrimental impact on market returns. The findings of the current study are in line with the insight provided by Waheed et al. (2020) and Ahmed (2020).



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