Impact of COVID-19 on Stock market in Bangladesh.

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Abstract:
This study investigates the stock markets' reaction to the COVID-19 pandemic. We use daily COVID-19 confirmed cases and stock market index data of Bangladesh stock market over the period of March 8, 2020 to July 8,2020. The study finds that stock market return respond negatively to the growth of confirmed cases of COVID-19. The reaction is more strong in early days of confirmed cases. The findings suggest that stock market immediately react to the pandemic and it varies over time.
Key Word:COVID-19; Pandemic; Stock market.

I.   Introduction

The World Health Organization (WHO) identified the first Novel Coronavirus (COVID-19) case in Wuhan China On 31st December 2019(https://www.who.int/emergencies/diseases/novel-coronavirus-2019). Then, on 11 March, 2020, it has been declared the coronavirus (COVID-19) outbreak as a global pandemic by WHO. As the Novel Coronavirus (COVID-19) spread from a territorial crisis in China's Hubei Province to a worldwide pandemic, it has significant economic effects. The quick spread of coronavirus (COVID-19) hugely affects financial markets everywhere in the world. No other infectious disease has influenced the securities exchange as powerfully as the COVID-19 pandemic (Baker et al., 2020).

Ding, Levine, Lin &Xie (2020) analyze the relation between corporate characteristics and stock price response to COVID-19 by using the data of 6000 firms over 56 economies during the first quarter of 2020. The study finds that stronger pre-2020 finances, less entrenched executives, more CSR activities firms faced a mild pandemic induced drop in the stock price. Alfaro, Chari, Greenland & Schott (2020) investigate firm level stock and aggregate returns in response to COVID-19 with real time analysis. They find that COVID-19 related market values losses rise with capital intensity and leverage.

Bangladesh is one of the worlds' most densely populated and high-risk countries of the Novel Coronavirus pandemic. The first case confirmed in Bangladesh on March 8,2020 by The Institute of Epidemiology, Disease Control and Research (IEDCR) [IEDCR (2020)]. The capital market in Bangladesh also suffered adverse impacts from the COVID-19 pandemic. The benchmark index DSEX of Dhaka Stock Exchange (DSE) began the year at 4453 points. However due to Novel Coronavirus panic, it dropped to 3603 on March 18 which is lowest from past seven years.A historic "floor price" was set for all the stocks to stop the natural fall of stock prices in the stock market on March 19, 2020.The country's two bourses have been kept shut from March 25,2020 to May 30,2020 during nationwide lockdown against the coronavirus pandemic. All kinds of trading, settlement and official activities were suspended by the premier bourse of the country.

The objective of this study is to identify the impact of COVID-19 pandemic on stock market returns in Bangladesh.Using the available daily confirmed cases of COVID-19 and stock market returns data over the period of March 8,2020 to July 8,2020, we analyze the effect of growth in confirmed COVID-19 case on stock market returns. The results of the study show that the growth of confirmed cases has negative impact on stock markets and stock market respond strongly after the initial confirmed cases.

This study contributes to the literature that reviews the response of stock market to major events. Such as Kowalewski and Śpiewanowski (2020) investigate the stock market reaction to the mine disasters, (Chen et al., 2007, 2009) study the stock market response to Severe Acute Respiratory Syndrome (SARS) outbreak. We also contribute to the recently emerging issues that examines how COVID-19 affect the financial markets.

The remaining parts of this study continue as follows. Section 2 explains the empirical design and methodology. Section 3 presents empirical results and discussions. Finally, Section 4 summarizes the study and draws a conclusion on the findings.

II. Empirical Design and Methodology

We do not follow the classical event study methods to examine the impact of COVID-19 confirmed cases on the performances of stock market. The reason is that the COVID-19 spread is not a one-point time event rather it explodes over some days in a country. We estimate the baseline model by following (Ashraf,2020);Awadhiet.el (2020)

$$Y_t = \alpha_0 + \alpha_1 COVID\text{-}19_{t-1} + \beta MC_{t-1} + \varepsilon_t, \qquad (1)$$

Where, Yt is the dependent variable and represents total stock market return. It is measured as the daily change in the major stock market index DSEX in Bangladesh. COVID-19 $_{t-1}$ is the lagged value of daily growth in COVID-19 confirmed cases. MC_{t-1} is the lagged value of daily market capitalization and ε_t is an error term.

2.1 Data Description

We use the data of DSE broad index(DSEX) from March 8 to July 8,2020. We choose March 8 because the first COVID-19 case was confirmed in Bangladesh in this date.Data for indices and market capitalization were obtained from website of Dhaka stock exchange. We collect the number of daily active confirmed cases in Bangladesh for the same time frame fromwww.worldometers.info.However, considering growing concerns of coronavirus pandemic in Bangladesh, the government considered suspension of trading in stock exchanges from March 26 to April 4. Later it extended the closing till May 30 as the government extended its shutdown to reduce the spread of COVID-19. So, the data for March 26 to May 30 is unavailable here.

Fig.1 shows the daily confirmed cases of COVID-19 in Bangladesh. According to WHO COVID-19 Morbidity and Mortality weekly update(MMWU) from 8 March to 6 July, there were 78,245 (47.2%) COVID-19 cases with known outcome (closed cases). The recovery rate is 97%.
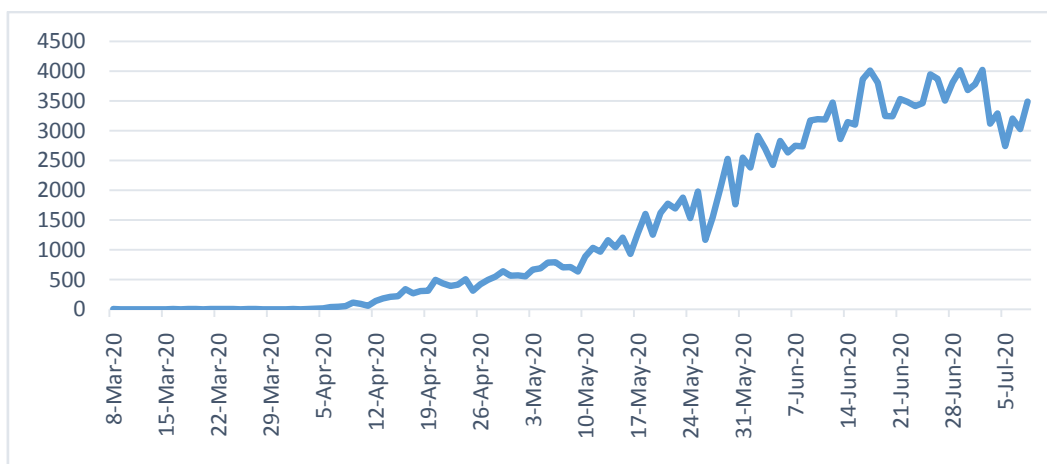

Fig 1: Daily confirmed COVID-19 patients

Fig.2 shows the daily change in the major stock market index of Bangladesh. From the graph, we can notice that, how the index change drop in lowest after the first confirmed COVID-19 case.
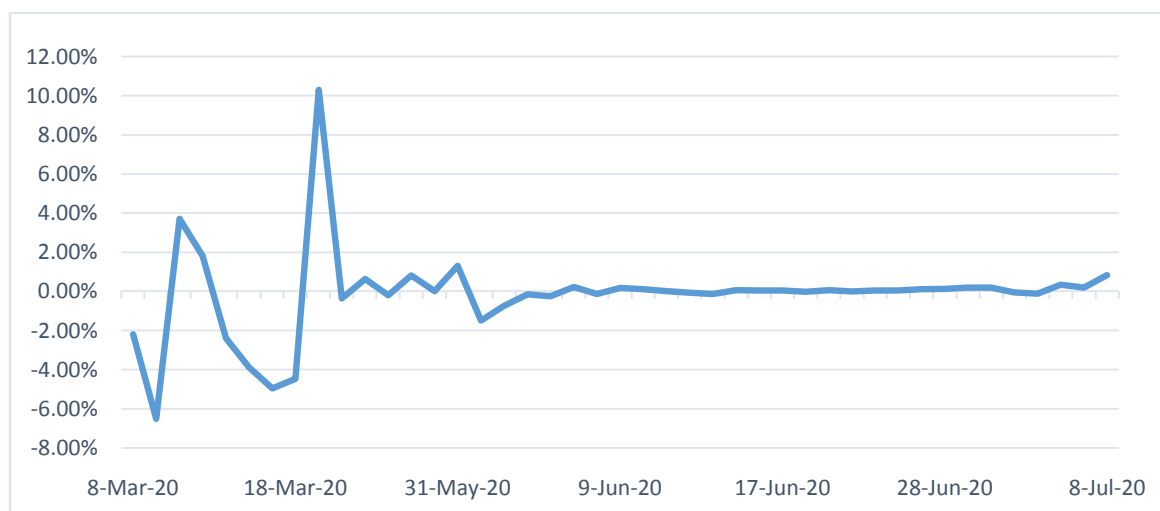

Fig 2: Change in stock market index (DSEX)

Dhaka Stock Exchange (DSE) record a loss of Tk. 4,60,492.5 million in market capitalization within 20 days of first confirmed COVID-19 case. DSEX touched its lowest point since May 9,2013. The stock market of Bangladesh experienced an immediate shock in the first week (March 15 to March 19) of COVID-19 case found for the first time.However, it shows comparatively stability in the market returnin later period.

III. Empirical Results and discussion

Table 1 reports the descriptive statistics of main variables. Stock market returns is measured as the daily change in major stock index of a country. Growth in confirmed cases(gconfirmedCOVID-19) is measured as the daily growth in COVID-19 confirmed cases in Bangladesh and lmarketcap is the natural logarithm of daily firm market capitalization.It can be seen that the maximum daily stock market return is 10% and the minimum is -1.65%. The highest growth in daily confirmed COVID-19 cases is 56.7%.

Table no 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Srock market return	43	.06977	.058839	-0.0165	0.0010
lmarketcap	43	2.8033	.8664	3.423	3.7376
gconfirmedCOVID-19	43	.03418	.19207	-.3333	0.567

Table 2 shows the pairwise correlation tests among of experimented variables.Based on the result in Table 2, there is a negativeand significant relationship of about -0.2382 between daily stock market returns and are the daily growth in total confirmed cases of COVID-19 patients. This is also case for market capitalization and the daily growth in confirmed cases, and their value is -0.0032.

Table no 2: Models' Pairwise Correlation

	Stock market return	gconfirmedCOVID-19	lmarketcap
Stock market return	1		
gconfirmedCOVID-19	-0.2382***	1	
lmarketcap	0.2780**	-0.0032**	1

*$p<0.1$; **$p<0.05$; ***$p<0.01$

Table 3 reports the effect of COVID-19 on stock market returns. This tables show the results of ordinary least squares regression results regarding the impact of COVID-19 on Stock market returns. The dependent variable is Stock market return, which is the daily change in DSEX. gconfirmedCOVID-19 is the daily growth in total confirmed COVID-19 cases, lmarketcap is lagged value of the natural logarithm of daily market capitalization, and MTB is the daily market-to-book ratio. The robust standard errors are in parentheses; *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

Table no 3: Impact of COVID-19 on stock market returns

Variables	Stock market return	
	(1)	(2)
Constant	0.0034***	0.0074***
	(.00018)	(0.0005)
gconfirmedCOVID-19	-0.0028***	-0.0027***
	(0.0004)	(0.0004)
lmarketcap		-0.0006***
		(-0.0001)
R-squared	0.010	0.341

Robust standard errors are in parentheses
* $p<0.1$; ** $p<0.05$; *** $p<0.01$

It is shown from the above table, the stock markets react negatively to the growth in COVID-19 confirmed patients in Model 1 in Bangladesh. We found similar results in Model 2 when we add other variable of daily market capitalization in our regression. The findings suggest that Bangladeshi stock markets' performance is effected by COVID-19 pandemic.

IV. Conclusion

The Novel Coronavirus has already claimed thousands of lives and carried noteworthy difficulties to nations from everywhere throughout the world. It has presented genuine dangers to the economic commonality just as capital market strength.The financial markets have seen dramatic movement on an uncommon scale. The purpose of this study is to determine the impact of COVID-19 on the stock market returns of Bangladesh. This study finds that stock market returns react negatively to the COVID-19 by analyzing DSEX and growth of daily confirmed case of COVID-19. At the early period after the first confirmed case of COVID-19, the market responds more than the later period. We suggest that stock markets immediately react to the pandemic. However, it varies over time. Future studies can be done by including other factors, for example, interest rate, economic growth and inflation rate as with the COVID-19 related variables.

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