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# The Impact of COVID – 19 Pandemic over Colombo Stock Exchange

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## A B S T R A C T

The paper aims to evaluate the short-term impact of the COVID-19 outbreak and the influence of the other external factors relating to COVID-19 on the Colombo Stock Exchange (CSE). This study adopts panel regression technique to examine the share price behaviour during the COVID-19 outbreak and the influence of the other external factors relating to COVID-19 first and second wave. The share price and other related information which is available in the public domain are collected for this analysis. COVID-19 outbreak was a disastrous but a novel situation in Sri Lanka. The impacts of the pre- and post-lockdowns were different. Initial lockdown due to the first wave of COVID-19 had a detrimental impact on the stock market which led to substantial panic selling eventually leading to market closure, however, the second lockdown had not led to a detrimental impact on the stock market. The findings of this research would act as a guide for investors to understand the market sentiments and reactions during a pandemic and disastrous event. This research contributes to the literature on COVID-19 and various other studies evaluating the impact of stock market reaction due to COVID-19.

**Keywords:** COVID-19, Colombo Stock Exchange (CSE), first wave, second wave, Sri Lanka

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## 1. Introduction

There are broadly main two types of financial markets: capital and money market. Capital markets mainly allow the buyers and sellers to trade financial instruments that are long-term securities. The money market allows the buyers and sellers to trade financial instruments that are short-term securities. The capital markets are known as share stock markets or stock exchanges, the major three stock exchanges are New York Stock Exchange (NYSE), NASDAQ, and Tokyo Stock Exchanges based on the market capitalization (Anon, n.d.). Sri Lanka's stock exchange is known as Colombo Stock Exchange (CSE). Investors mainly invest in the stock exchange due to the high return in terms of capital gains and dividends; these are considered

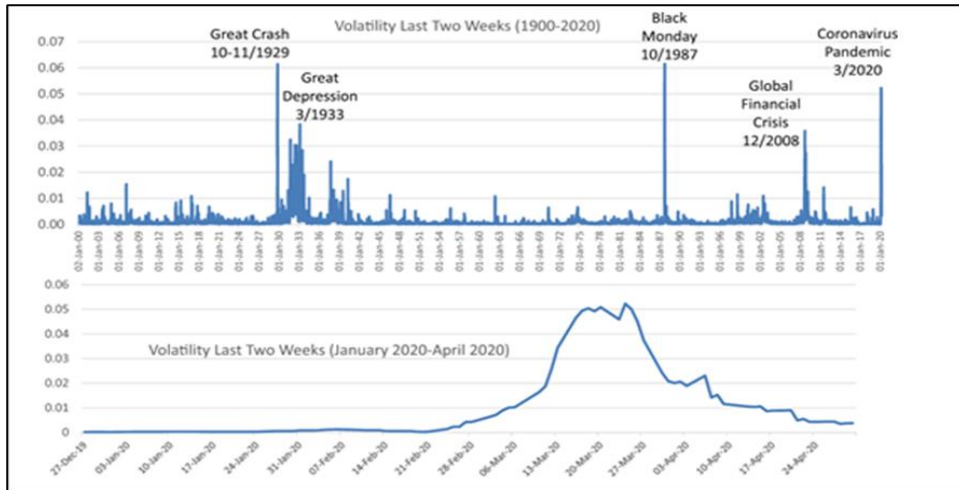
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stock market returns, and these returns are affected by various local and global micro and macro events.

Previous studies have identified several major events that have affected such returns, for example, political events (Bash & Alsaifi, 2019; Shanaev & Ghimire, 2019), disasters (Kowalewski & Śpiewanowski, 2020), environmental factors (Alsaifi et al., 2020; Guo et al., 2020), sports (Buhagiari et al., 2018) and news (Li, 2018). Stock market returns may also respond to pandemic diseases, for example, Severe Acute Respiratory Syndrome (SARS) outbreak (Chen et al., 2007, 2009), and Ebola Virus Disease (EVD) outbreak (Ichev & Marinč, 2018).



**Figure 1: Realized U.S. Stock Market Volatility, January 1900 to April 2020**

Source: Baker et al. (2020)

The first case of COVID-19 was identified by the World Health Organization (WHO) on December 31, 2019 in Wuhan. COVID-19 was declared a global emergency due to the rapid spread of COVID-19 on January 30, 2020. This is the sixth occasion that such type of declaration is made. Due to the risk of spread and severity of COVID-19 outside China WHO declared this virus as a pandemic on March 11, 2020 (Covid-19, n.d.). Goodell (2020) stated that this sort of pandemic may have wider impact on financial sector including stock markets, banking and insurance, and is a potential area for future research. In the United States, volatility levels in the middle of March 2020 rival or surpass those last seen in October 1987 and December 2008 and, before that, in late 1929 and the early 1930s (Figure 1).

Volatility began to retreat in the latter part of March 2020 and, by late April, fell sharply but remained well above pre-pandemic levels (Baker et al., 2020). The unusual situation developed by COVID-19 offers us an opportunity to assess the impact of pandemic on the stock markets of affected nations due to an unforeseen and feared disease. The research question of the study is ‘What is the impact of COVID – 19 pandemics over CSE?’. This study contributes to the literature in at least two important ways: first, it explores the CSE behaviour during a pandemic (COVID-19 first wave and second wave). Secondly, it examines various investing strategies which can maximize profits in the short run with during a pandemic and sustain investments in the long run.

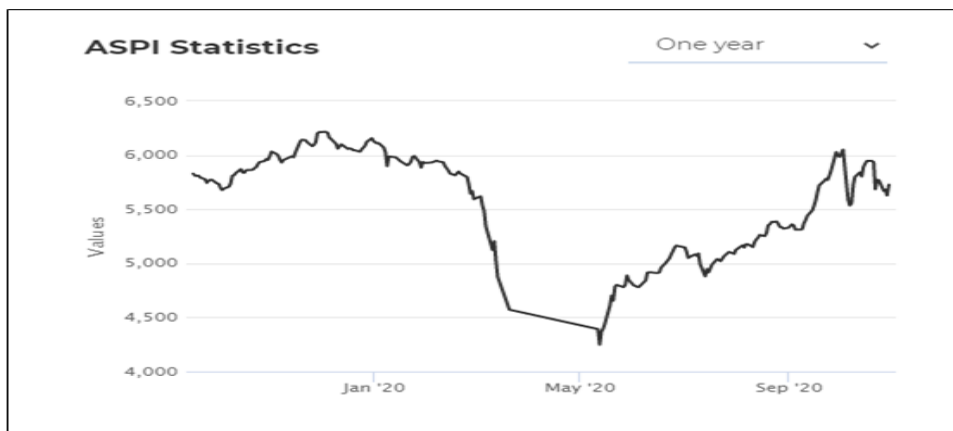
## 2. Review of literature

Although stock trading dates back as far as the mid-1500s in Antwerp, modern stock trading is generally recognized to start with the trading of shares in the East India company in London. Company shares were issued on paper, enabling investors to trade shares back and forth with other investors, but regulated exchanges did not exist until the formation of the London Stock Exchange (LSE) in 1773. Although a significant amount of financial turmoil followed the immediate establishment of the LSE, exchange trading overall managed to survive and grow throughout the 1800s (Corporate Finance Institute, 2019).

### 2.1. Colombo Stock Exchange (CSE)

Share/stock trading in Sri Lanka was originated in 1896 under Share Brokers Association (SBA). In 1904, SBA was retitled as Colombo Brokers' Association. It commenced trading shares in an open land. The establishment of a formal stock exchange took place in 1985 with the incorporation of the Colombo Stock Exchange (CSE), which took over the Stock Market from the Colombo Share Brokers Association. In 1990, the business was renamed as Colombo Stock Exchange. CSE introduced Central Depository System and clearing was automated. In 1995 CSE headquarters was opened at World Trade Center (WTC), Colombo (Jamaldeen, 2020).

The All Share Price Index (ASPI) is one of the main stock indices of the CSE in Sri Lanka. ASPI measures the movement of share prices of all listed companies. It is grounded on market capitalization. The weighting of shares is conducted in proportion to the issued ordinary capital of the listed companies, valued at the current market price. The base year is 1985, and the base value of the index is 100 (Jamaldeen, 2020). The S&P SL20, or the Standard & Poor's Sri Lanka 20, is a CSE index, based on market capitalization, which trails the performance of 20 leading publicly traded companies listed in the CSE. The 20 corporations that make up the index is determined by Standard and Poor's global index methodology, according to which the index's listing is reviewed each year (Jamaldeen, 2020; Colombo Stock Exchange, n.d.). As depicted per Figure 2, it can be witnessed that the ASPI fell below 4,500 points during the first COVID-19 lockdown, and however during the second partial lockdown ASPI was more than 6,000 points (Colombo Stock Exchange, n.d.).



**Figure 2: ASPI Index for 2020**

Source: Colombo Stock Exchange (n.d.)

## **2.2. COVID – 19 effects on Sri Lanka**

Due to the COVID – 19 pandemic in Sri Lanka, there was a drastic affect on most of the industrial sectors. Tourism is the main industry which was severely affected by this pandemic. To prevent the community spread, the Sri Lankan Government imposed travel restrictions. Due to this travel restrictions, tourism industry was affected. (Ranasinghe et al., 2020) Other than the tourism industry, education sector, agricultural product related markets have been severely affected. Also, Sri Lankan export income has been reduced by this pandemic, due to that currency has sharply depreciated. (Deyschappriya, 2020) As Roshana et al. (2020) said there is an enormous effect to Sri Lankan economy from the COVID – 19 to the agriculture sector, tourism industry, apparel and textile, retail and consumer sector and banking and finance. At the same time Erdem (2020) mentioned, in freer countries in the world, effect of the coronavirus on the stock market is less. Stock markets in the less-free countries have been affected more by the increasing number of coronavirus cases. So, they mentioned freedom of the country and the effect to the stock market during this pandemic has a strong negative relationship.

## **3. Methodology**

### **3.1. Research approach**

This study adopts panel regression technique to examine the share price behaviour during the COVID-19 outbreak and the influence of the other external factors relating to the COVID-19 first and second waves. The share price and other related information of all the listed entities in the CSE which is available in the public domain, are collected for this analysis.

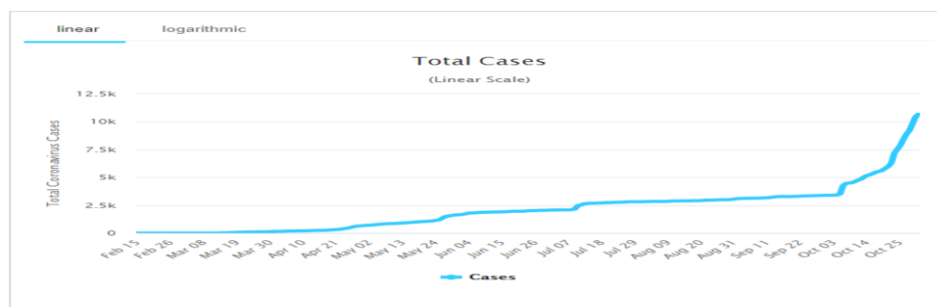
Baltagi (2008) and Hsiao (2014) suggested that panel data regression lessens the estimation bias and multicollinearity, controls for individual heterogeneity, and identifies the time-varying relationship between dependent and independent variables. We therefore apply panel testing to examine the relative performances of stocks in relation to COVID-19.

### **3.2. Sample and study period**

All the listed entities in the CSE were selected as the sample for this study. The study period is divided into two spectrums, where the initial (first wave) spread of COVID-19 was identified, curfew implemented and CSE was closed for trading from April 1, 2020 and recommenced operations from April 22, 2020. However, partial curfews were imposed from March 12, 2020 and the CSE crashed due to panic selling of investors (Colombo Stock Exchange, n.d.).

Due to the rise in COVID-19 cases in Sri Lanka (second wave) depicted in Figure 3, in the Western province, Gampaha District. The Government of Sri Lanka issued quarantine curfew on October 21, 2020 and extended it to other several areas in Western Province, curtailing public transportation and business operations.

However, unlike the first wave, during the second wave, continuous operations of the CSE were encouraged, where infrastructure was created for the staff to work from home. It was not only for the CSE, but other public and private entities were requested to continue business operations from home.



**Figure 3: COVID-19 Cases in Sri Lanka**

Source: Worldometer. (n.d.).

### 3.3. Analytical strategy

This study adopts Anh and Gan (2020) model and modified to reflect the Sri Lankan conditions, therefore the stock return is estimated as follows.

$$RE_{j,t} = \alpha_{01} + \beta_{02}CASE_{t-1} + \beta_{03}MRK_{j,t-1} + \beta_{04}MTB_{j,t-1} + \beta_{05}RE_{1j,t-1} + \beta_{06}ROE_j + \varepsilon_{j,t}$$

$RE_{j,t}$  is the return of stock  $j$  on day  $t$ , based on the formula:  $RE_{j,t} = \ln(P_{j,t}/P_{j,t-1})$ ; where  $P_{j,t}$  is the price of stock  $j$  at day  $t$ .  $RE_{1j,t-1}$  is the return of stock  $j$  on day  $t-1$

$CASE_{t-1}$  is the increased number of COVID-19 confirmed cases in Sri Lanka on day  $t-1$

$MRK_{j,t-1}$  is the natural logarithm of daily market capitalization of firm  $j$  on day  $t-1$

$MTB_{j,t-1}$  is the market-to-book ratio of firm  $j$  on day  $t-1$

$ROE_j$  is the return on equity firm  $j$  in 2020

The above statistical model is used to examine the market reactions due to the breakout of COVID-19 first and second wave. Descriptive statistics have been used to describe the sample characteristics. The analysis and results obtained by applying above analysis strategies are discussed in the next section.

### 4. Analysis of the statistics

As per the descriptive statistics in Table 1, the average returns of all stocks in the market were negative during pre-lockdown period of the study.

**Table 1: Descriptive Statistics**

Variable	First Wave Pre-Lockdown		First Wave – Post Lockdown		Second Wave	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
RE	-0.007	0.029	1.255	2.546	0.958	2.547
CASE	6.452	3.499	40.324	32.465	467.566	265.456
MRK	11.577	8.766	15.589	8.457	13.456	9.456
MTB	0.839	1.057	1.655	1.236	1.149	2.134
ROE	-8.546	5.564	25.685	12.894	13.465	8.647

Source: Authors constructed.

However, after post lockdown and during the second wave of COVID-19, stocks were showing a slightly positive return. As this is an interesting perspective, compared to other international markets where after lockdown and at the time of recognizing the second wave other international markets were providing negative returns. Another pertinent abnormality pattern that can be observed is that the market performed well while the average number of COVID-19 cases and death related to COVID-19. As per the correlation statistics in Table 2, during the first wave of COVID-19, COVID-19 cases and number of deaths were negatively correlated to the stock return, at 5% and 1% significant.

**Table 2: Correlation Statistics**

Variable	First Wave - Pre- Lockdown	First Wave - Post Lockdown	Second Wave
	RE	RE	RE
RE	1.000	1.000	1.000
CASE	-0.787	-0.658	-0.395
MRK	-0.356	0.845	0.654
MTB	-0.425	0.745	0.512
ROE	0.245	0.685	0.678

*Source:* Authors constructed.

However, market capitalization and market-to-book ratio were negatively correlated with the stock return at a 10% significant level. This is due to such an incident had occurred for the first time in Sri Lanka and investors started panicking, so both local and international investors disposed of their holdings. Both OLS and panel regression results correspond with the above statement as both COVID-19 cases and deaths were negatively significant at 5% to stock return. This finding approves Al-Awadhi et al. (2020) inference that the COVID-19 pandemic significantly impaired stock market performance.

However, during the first wave post lockdown and second wave, COVID-19 cases and deaths are not significant to the model. It can be assumed that investors had gained confidence and knew that market recovered from the first wave panic selling and did not react as they did earlier during post lockdown and second wave period. Investors started to rely on the fundamentals of the stocks as market capitalization and market-to-book ratio were significant for both OLS (Table 3) and Panel regression (Table 4).

**Table 3: One Least Square (OLS) Regression Statistics**

Variable	First Wave – Pre-Lockdown		First Wave – Post Lockdown		Second Wave	
	Coef.	VIF	Coef.	VIF	Coef.	VIF
Intercept	-0.458	-	0.756		0.466	
RE	0.020	1.689	0.012	2.601	0.068	1.161
CASE	-0.008	1.654	0.067	3.748	0.032	3.763
MRK	0.074	2.808	0.091	1.954	0.007	2.530
MTB	0.013	3.964	0.0857	2.788	0.035	1.010
ROE	0.009	1.013	0.075	1.127	0.077	3.454

*Source:* Author constructed.

**Table 4: Panel Regression Statistics**

Variable	First Wave - Pre-Lockdown Coef.	First Wave - Post Lockdown Coef.	Second Wave Coef.
RE	0.089	0.064	0.071
CASE	-0.032	0.082	0.063
DEAT	-0.055	0.069	0.057
MRK	0.086	0.053	0.048
MTB	0.074	0.074	0.037
ROE	0.031	0.037	0.051

*Source:* Author constructed.

Further, it is pertinent to note that all the variables have a Variation Inflation Factor (VIF) with a value less than 5, which supports the notion that multicollinearity is not present in the regression model. During post lockdown, even though both COVID-19 cases and death were on the rise, investors were confident in the market and immediate actions were taken by the government of Sri Lanka, in order to curtail the spread of COVID-19. Further, once CSE recommenced operations after the lockdown period, all the shares were approximately less than 50% of the market price prior to lockdown, this was an opportunity where investors realized that eventually the market would pick up, therefore most of the investors started to invest in the market.

## 5. Discussion

Black Swan events, including terrorist attacks and epidemics, will cause shock, fear and panic among international investors and result in a sharp panic-selling response (Burch, et., 2016). Li et al. (2008) examined the daily stock return for nine Asian markets for the period of 1996 to 2003 and found that there was a high correlation among sample Asian countries during the period of crises.

Together these results suggest stock markets respond negatively and overwhelmingly to the growth in the number of confirmed cases while response to the number of deaths is not strong. This is not beyond expectation. Since death is an outcome of a confirmed case and usually occurs several days after one contracts COVID-19 infection, sophisticated stock market investors price in the expected negative impact of COVID-19 early on from the growth in confirmed cases.

Different corporate sectors were affected idiosyncratically during COVID-19 pre- and post-lockdown in Vietnam. The hardest-hit sector on Vietnam's stock markets during the COVID-19 pandemic was the financial sector. Finance sector in Vietnam was regarded as a weak sector during economic recessions with the probability of an increase in bad loans and unusual withdrawals of deposits (Goodell, 2020). A similar incident can be witnessed in the CSE, where the financial sector was drastically affected. Yang et al. (2020) found that the outbreak of the pandemic caused a sharp rise in risks in the financial sector, which transmitted to other industries.

The empirical evidence depicts that the COVID-19 pandemic had a catastrophic impact on China's old-fashioned industries, such as environment, electricity, heating, mining,

and transportation. In contrast, it generated new chances for the development of information technology fields. The education, information technology, manufacturing and health industries reacted positively to the pandemic (Ali et al., 2020; He et al., 2020; Yang et al., 2020). A similar pattern also can be witnessed in Sri Lanka where Financial, Hotel and Oil sectors were negatively affected whilst manufacturing and Food Beverages sectors reacted positively.

### **5.1. Day traders and short-term investors vs long-term investors**

Day trading encompasses creation of trades that last for seconds or minutes, captivating benefit of short-term fluctuations in an asset's price. With day trading, all positions are opened and closed within the same day. Panic selling occurs within a certain period or at a specific day. Day traders usually open and close a trade within the day (Richards, 2014; Tyson, 2018). Such traders are unlikely to lose the capital invested in the market during pandemic induced recession. Short investor can be categorized as those who invest in securities less than one year and long-term investors can range from one year to lifelong investment in the stock exchange. Both short- and long-term investors can be negatively affected by drastic panic selling and pandemic induced recessions (Jamaldeen, 2020; Richards, 2014; Tyson, 2018).

‘Those who do not learn history are doomed to repeat it’. This quote has some deep understanding to the financial world of business. As per history, there were major crashes which occurred around the globe such as the Wall Street Crash of 1929, Black Monday 1987, dot-com bubble 2000-2002, and financial crisis of 2007–2008. In these crises, market indices fell drastically, however, in the long run the market indices have risen. Investors who act on emotional fear and panic during crises would have indefinitely lost their capital and life-long savings (Clairmont, 2020). It is always prudent to be patient and invest in fundamentally strong and recession proof companies during pandemic induced recessions. As these companies will likely to provide a very high yield to the investors (Jamaldeen, 2020).

During a crisis, investors will lose confidence in the market and even fundamentally strong companies will be undervalued. Baron Rothschild, an 18th-century British nobleman stated, "Buy when there's blood in the streets, even if the blood is your own". His views have become an investor philosophy known as contrarian investing, this is an investing approach where investors decisively go against prevailing market tendencies by selling when others are buying, and buying when most investors are selling (Buy When There's Blood In The Streets, 2013).

This can be witnessed in the Sri Lankan market, panic induced selling in the stock exchange during the first lock-down was later recovered during the second wave lock-down. This study suggests that in order to be successful in any market, investors should be more emotionally intelligent than financially intelligent. Patience is an utmost important virtue in stock market investing.

## **6. Conclusion**

The research evaluated the short-term impact of the COVID-19 outbreak and the influence of the other external factors relating to COVID-19 on the CSE. The first and second waves had different impacts on the CSE. The lockdown that was initiated due to the first and second outbreak of COVID-19 had different impact on the market sentiments and reactions.



The first outbreak and the first lockdown had caused a national panic and loss of market confidence among local and international investors which led to market crash. However, the market crash was eventually recovered in a short period of time, whilst the confidence of the national investors started to arise but there was still a lack of confidence among international investors. Further, it was pertinent to note that the second wave of COVID-19 had not created a similar impact on the CSE. International markets were severely impacted due to the first and second waves of COVID-19. CSE, however, was resilient to the second wave of COVID-19, in other words, the investors realized eventually the market will be back to normal. Therefore, the market did not fall as it had been anticipated to fall during the second lockdown. The first outbreak and lockdown in Sri Lanka was a novel experience for the investors and learning curve, as the ideology suggests, experience is the best teacher. Investors did not act in fear or panic selling during the second outbreak of COVID-19.

### **6.1. Implications**

The important finding to be realized in this study is irrespective of the disaster and its magnitude the market will recover. The long-term investors and investors who do not act on emotions on investing, will definitely benefit from investing in CSE. Additionally, it should be remembered that imperfect markets will give several profitable opportunities, investors who are vigilant of the price movements should be able to make lucrative profits in CSE. So, this research provides an investing strategy to the investors; even there is a panic selling situation, they should be patient as prescribed in the research because market will recover in the long term.

### **6.2. Limitations and future research**

Finally, it should be taken into consideration that this research study is subjected to certain constraints and the results of the analyses should be interpreted upon considering those constraints. This study has considered only certain factors relating to COVID-19. The model can be expanded by incorporating other micro and macro factors and examining the market reactions and sentiments. The findings of this research are expected to act as a guide to future and current investors of CSE. Current and future investors can newly devise or amend their existing risk management strategies. Academics can develop financial educational materials on emotional intelligence to raise the awareness and impact of emotional intelligence on stock market investing.

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