Financial shocks of stock markets and COVID-19 pandemic: an empirical study on Asian countries

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Abstract

The COVID-19 epidemic has affected and is still affecting the overall world and many countries are facing economic recessions due to the financial instability and new challenges with the serious variants of the new Coronavirus. With the higher level of uncertainty in the economy, economists and financial specialists are struggling to estimate and predict the future behavior of the economy even if it is a more challenging dilemma. The purpose of this study is to examine the financial shocks in the stock markets of India and Sri Lanka amid the pandemic. The paper employs time series regression analysis on secondary data collected from the Colombo Stock Exchange and the Bombay Stock Exchange of India with daily data from February 1st, 2020, to March 31st, 2021, which is designated as the COVID-19 pandemic era. COVID-19 positive cases have a significant impact on financial shocks in both countries whereas COVID-19 deaths do not affect financial shocks either in India or Sri Lanka. This study is the first study to examine the impact of the COVID-19 outbreak on financial shocks in both countries of India and Sri Lanka. It sheds a light on a new paradigm for demonstrating the most influencing factor of the COVID-19 outbreak towards financial shocks in the economy. Only two Asian countries have been considered as the population and future research studies can be conducted considering all Asian countries. Moreover, the model can be further developed by incorporating more variables with the dimensions of demand and supply side financial shocks. This study contributes to the existing theory by analyzing two models and the findings may have implications for the policymakers to make effective decisions during the pandemic without struggling with uncertainty in stock markets to reassure investors' confidence by identifying the most forcing factor for financial shocks.

Keywords:- *COVID-19 pandemic, Financial Shocks, India, Sri Lanka, Stock Return*

1 Introduction

The emergence of a novel COVID-19 infection in the world has caused unanticipated socioeconomic, financial, and public health chaos around the world. From the effects on human health to the socioeconomic and political consequences, the ongoing pandemic has reshaped global dynamics in a short period of time.

In the past, several studies have shown that the fluctuation of financial asset prices can also be explained by sentiment, especially during times of illogical, unjustifiable panic or excessive optimism. Pessimism and optimism among investors can affect investment decisions and, as a result, stock prices (Reis & Pinho, 2020). On the other hand, the socio-economic-political consequences of the COVID-19 virus's global spread are primarily

driven by demand, supply, and financial shocks. Demand-side shocks have reduced people's ability to buy goods and services, owing primarily to the governments' lockdown, shutdown, and quarantine measures enacted to contain the pandemic. Supply-side shocks have reduced nations' ability to produce goods and services, owing primarily to the closure of manufacturing units, global supply-chain disruptions, restrictions on domestic and international labour movements, and the return of migrant workers to their home countries due to the severity of the pandemic.

Financial shocks have resulted in a liquidity crisis and investment disruptions, primarily as a result of job losses, income declines, and a drop in consumption demand (Mishra & Mishra, 2021). These shocks have harmed key growth drivers such as internal and international trade, income and employment, prices, and budgets, resulting in an unprecedented global recession to which many stable advanced economies have succumbed. The rupees of Sri Lanka and India depreciated against the US dollar as a result of multiple trading halts and significant value losses on the stock exchange (Indian Express, 2021; Central Bank, 2021). To jump-start economies, governments and central banks around the world implemented expansionary fiscal and monetary policies in tandem, with fiscal measures aimed at restoring human health, protecting people's social security, creating job opportunities, and reviving trade and business, and quantitative easing aimed at restoring liquidity.

The stock market reacts to major events. Previous research has found that disasters (Kowalewski & Piewanowski, 2020), sports

(Buhagiar et al., 2018), news (Li, 2018), environmental (Alsaifi et al., 2020), and political events all have an impact on such returns (Bash & Alsaifi, 2019). Stock market returns may also be affected by pandemic diseases, such as the SARS outbreak (Chen et al., 2009) and the Ebola Virus Disease (EVD) outbreak (Ichev & Marin, 2018). The stock markets became volatile amid the spread of the uncertainties of the dynamics of the virus.

Sha and Sharma (2020) stated that very little is known, particularly about the social and economic implications of COVID-19, this special issue lays the groundwork for future research in this area. Past COVID-19 studies provide fresh and new insights on the economic consequences of COVID-19, but there are still several aspects that need to be addressed. The COVID-19 outbreak has had an impact on the investment and business environment. The investigation of the effect of the unprecedented outbreak of the COVID-19 pandemic on financial shocks of the stock market in Asian Countries is the study's main novelty. Furthermore, the existing literature review does not reveal the likely macro-level factors that may have been at work to exert effects on stock market returns. Although there are a few studies that argue that a drop in oil prices is a possible cause of stock market downturns, there is no empirical support for this claim. Similarly, there is no empirical support for the likely impact of changes in inflation, exchange rates, and interest rates on stock market returns. As a result, we attempted to bridge this gap by incorporating these variables into the present study.

The remainder of the paper is organized as follows: The second section discusses some

recent contributions to the literature on the financial shocks of the stock market. Section 3 describes the model, methodology, and data. Section 4 discusses the outcomes of the techniques used, and Section 5 concludes.

2 Literature review and hypotheses development

None of the capital markets is executing isolated and political, economic, social, technological, and environmental changes either directly or indirectly affect investor behavior by changing investor sentiment, which ultimately results in financial shocks, especially in capital markets. Emergencies throughout history have shown their impact on the capital markets and empirical studies proved its real phenomenon through a sound methodology. Providing evidence for the aforementioned fact, Barrett et al. (1986) investigated the effect of the nuclear accident of Three Mile Island power generating plant failure on bond risk premium in the public utility industry. Adding another black mark to history, September 11 attacks in 2001 resulted in significant negative stock returns with higher levels of volatility (Nikkinen, 2008). Similar to human violence, nature also adds emergencies that are totally out of the control of human beings. Providing evidence for that, Aiuppa et al. (1993) studied the reaction of insurance stock prices to the 1989 Loma Prieta earthquake in San Francisco. Thus, natural disasters may also result in vast financial shocks in economic conditions (Padli, 2010). By capturing a wide scope of the historical incidents Al-Rjoub and Azzam (2012) were able to investigate the seven historical episodes of stock market crashes from 1992 to 2009. By narrowing down the crisis to the aviation industry Kaplanski and Levy (2009) examined the effect of aviation disasters on stock prices by considering 170 incidents from 1950 to 2007. Deliberate destructive actions of mankind like war and conflicts also were able to bring huge financial shocks through drastic stock market fluctuations throughout history (Ohmori, 1992; Schneider & Troeger, 2006; Hudson & Urquhart, 2015; Wang et al., 2021).

Every emergency case does not affect change in stock market fluctuations homogeneously. The nature of the emergency and the level of influence on the community decide the weight of the impact on the variations in the stock market. Through the various emergency cases, health issues like pandemic situations are highly critical since such conditions affect directly change investor behavior from holistic perspectives. Few research studies can only be found from history that examine the impact of major health events on stock markets.

Wang and Thi (2006) investigated whether contagion effects exist in the stock markets of Thailand and the Chinese economic area due to the epidemic of "Asian flu". Proving the existence of contagion between these two markets findings revealed that two stock markets show a substantial rise in the means of correlation coefficients. Like the "Asian Flu" epidemic, the SARS pandemic was also a tragedy and the vast diffusion resulted in much more adverse effects on the economy. Emphasizing the significant effect of the SARS outbreak on the share performance of Taiwanese hotels, Chen et al. (2007) revealed negative cumulative mean abnormal returns of stocks by applying an event study approach. Similarly, the Ebola outbreak in African Countries from 2014 to 2016 was also another health pandemic that diffused over years. Ichev

and Marinc (2018) found that this Ebola outbreak seriously affected the stock markets of West African countries and the USA.

By adding another pandemic tragedy to world history, the COVID-19 outbreak started in 2019 and is still growing boundlessly. COVID-19 is disrupting almost all world businesses and the Asia Pacific region is severely affected by ongoing uncertainty. The economic impact due to this pandemic situation is more discussable since it extremely affects and decides the long-term survival of mankind in this globalized world. More research has examined the impact of COVID-19 on the economic downfall and still studies are ongoing with the updated scientific results that are associated with this disease as well as its mitigation actions like vaccination processes. In this regard, Richard and Burdekin (2020) revealed that COVID-19 outbreak is the most severely affected pandemic in the economic perspective since the Spanish Flu in 1918.

Further Al-Qudah and Houcine (2021) found an adverse effect on the stock market due to the daily increasing number of COVID-19 cases. Quick response to the pandemic can be seen in the stock market emphasizing the higher elasticity. Highlighting important aspects, they revealed strong market reactions to the COVID-19 cases in the early stage of this outbreak. The reason may be the higher level of uncertainty of future events due to the unpredictable and unknown pattern of variation in the virus. Confirming the relevance of investor sentiment, the results of this study show that investor cognition and perception regarding fear of investors act as a role of mediator and it executes as a

transmission channel for the impact of the COVID-19 pandemic on the stock markets. Similar to these results Anh and Gan (2021) found a negative impact of the daily COVID-19 positive cases on stock returns in Vietnam. Two periods were considered as prior to and during the national lockdown and opposite patterns were observed. Further, it mentioned that the financial sector was the most influential sector on the Vietnam stock market during the COVID-19 pandemic.

Adding a catastrophe to the Asian region India as a country with the highest population is still struggling with the COVID-19 outbreak. Noor and Kavita (2020) investigated the effect of the country lockdown due to the COVID-19 outbreak on the stock market of India. This aims to examine whether market reactions are different in pre and post-lockdown periods caused by COVID-19 through event study analysis. The findings of this study revealed that the Indian stock market depicts positive Average Abnormal Returns with positive market reactions. Contradictory to this pattern it was found a negative Average Abnormal Returns in the pre-lockdown period. Notwithstanding the results, findings may be difficult to generalize since it has used only 31 companies with 35 days as an event window. Adding a more precise conclusion, Bora and Basistha (2021) found that higher return on Indian stock market indices when compared with pre and during the COVID-19 outbreak by applying the generalized autoregressive conditional heteroskedasticity model. Daily closing prices of stock indices, Nifty and Sensex from September 2019 to July 2020 were employed for the analysis. According to

this study higher volatility was found during the pandemic.

Exhibiting similar contagion, Sri Lanka was also gradually aggrieved by the COVID-19 outbreak and is currently passing a crucial phase that diffuses new variations of the same virus throughout the island. It is more challenging to manage the economy with these higher fluctuations since it is a developing country in Asia. Confirming the adverse effect of the COVID-19 outbreak on the entire economy Deshapriya (2021) investigated how the COVID-19 pandemic influences GDP, employment, inflation, stock market, external sector performance, and poverty by considering the Sri Lankan context. In this study, researchers found a drastic change in the Colombo Stock Exchange due to the COVID-19 pandemic highlighting the largest one-day fall in the Stock market due to the outflow of foreign funds by 10th March 2020.

We developed the following hypotheses for our study based on our observations of the pandemic scenario in Asia and a review of relevant literature.

Based on the above empirical evidence, we assume the following hypotheses for the present study;

Hypothesis 1: Financial shocks of the market is affected by positive Covid Cases

Hypothesis 2: Financial shocks of the market is affected by Covid Deaths

3 Methodology

This study includes the Bombay Stock Exchange of India (BSE) and the Colombo Stock Exchange (CSE) with daily data from February 1, 2020, to March 31, 2021, which is designated as the COVID-19 pandemic era. India has the largest population in South Asia. Thus, we selected India as a sample of the study. Further, Sri Lanka was chosen for comparison purposes while expanding the current sample in this study. The first COVID 19 case was discovered in India on January 30, 2021. Out of all the South Asian countries, Sri Lanka had the closest first COVID 19 case (27th January 2022) to India. As a result, Sri Lanka was chosen as a point of comparison. As a result, it immediately caused demand-side and supply-side shocks, impacting capital market investment. During the pandemic, the stock market's performance is determined by the exchange rate and interest rates, and volatility index (Mishra & Mishra, 2021). Thus, these variables are considered as control variables of the study.

For this study, BSE has been considered since it includes more listed companies and higher market capitalization than National Stock Exchange (NSE) is having. Since this pandemic is a global pandemic authors tried to capture wide scope by aiming for a large number of companies.

Finally, the time series regression is used to uncover the significant factors that are thought to have transmitted the pessimisms and uncertainties of the COVID-19 pandemic around the world, affecting normal market movements and causing demand-side and supply-side shocks (Mishra & Mishra, 2021).

The inflation rate is taken into account from the supply side, while the foreign exchange rate is taken into account from the demand side. Financial shocks have been created in the capital markets in addition to these shocks. As

a result, the stock market return is used as a proxy for financial shocks, and the volatility index is used to reflect investors' reactions to the increase in COVID-19 confirmed cases and deaths. The interest rate is used as the monetary policy response variable because the monetary authorities in selected Asian countries manipulated their policy rates to control the volume of the money supply during the corona pandemic.

$$SR_{it} = \alpha + \beta_1 CVD_{it} + \beta_2 DTH_{it} + \beta_3 FRX_{it} + \beta_4 INT_{it} + \beta_5 VIX_{it} + \varepsilon \qquad (1)$$

In these specifications, SR_{it} is the Stock Return of the stock market i, CVD_{it} is the percentage change in the COVID-19 confirmed cases in the country i, DTH_{it} is the percentage change in the COVID-19 death reported cases in the country i, FRX_{it} is the logarithm of the USD based exchange rate of the domestic currency in the country i, INT_{it} is the interest rate in the country I and VIX_{it} is the return on the volatility index. Appendix-1 contains the theoretical constructs for this regression model approach, which are based on existing literature.

4 Findings and discussion

Before the analysis, four diagnostic tests were conducted for winsorizing the data set. To check the stationarity of the variables, the Unit Root Test was conducted through the Augmented Dickey-Fuller test. Except interest rate, all other variables were stationary at Levels and interest rate was then stationary at its first difference (p values: SR= 0.002<0.05, CVD = 0.047<0.05, DTH= 0.035<0.05, FRX=0.048<0.05, VIX=0.024<0.05 at Levels and INT = 0.014<0.05 at First Difference)

The data set was normally distributed and tested through Jarque- Bera (p-value of Jarque-Bera is 0.345 which is less than 0.05).

Multicollinearity was measured through Variance Inflation Factor (VIF) for all explanatory variables. Since all VIF factors are less than 10 it can be concluded that all explanatory variables are not suffered from a severe level of multicollinearity (VIF: CVD = 2.451, DTH= 3.634, FRX=4.824, VIX=4.478, INT = 6.346).

Serial Correlation was measured through the Durbin-Watson Statistic and it was 2.2 which is in an acceptable range.

Time series regression was used to test the hypotheses of this study. Table 1 depicts the results of the regression analysis relevant to India.

Table 1. Regression Analysis (India)

Variable	Coefficient	t-Statistic	Prob.
Constant	-0.02955	-0.321183	0.7483
Positive_Covid_Cases	-0.01847	-2.816653	0.0052
Covid_Deaths	-0.00002	-0.009267	0.9926
Exchange_Rate	0.00060	0.473576	0.6362
Interest_Rate	-0.01310	-1.526636	0.0128
Volatility	0.00022	0.824413	0.0410
R-squared	0.24660		
Adjusted R-squared	0.22345		
F-statistic	2.49785		
Prob(F-statistic)	0.01107		

According to table 1, the regression model can be depicted as equation 2.

$$SR_{it} = -0.02955 - 0.01847 CVD_{it} - 0.00002 DTH_{it} + 0.0006 FRX_{it} - 0.01310 INT_{it} + 0.0002 VIX_{it} + \varepsilon$$

(2)

Results show that the overall fitness of this model is 25 percent. That means the explanatory variables of this model are capable enough to explain the variation of explained variables by 25 percent. The probability value of the F-statistic confirms the statistical significance of the overall model ($p<0.05$). According to Table I, results three explanatory variables including Positive Covid Cases, Interest Rate, and Volatility have a statistically significant impact on explained variables (p values<0.05). Though the positive Covid Cases variable indicates a significant impact towards stock returns, the Covid Deaths variable does not express a statistically significant impact towards stock returns. When Positive Covid Cases increase by one percent stock market return declines by 0.018 percent.

Table 2. Regression Analysis (Sri Lanka)

Variable	Coefficient	t-Statistic	Prob.
Constant	-0.12575	-2.0926	0.0375
Positive_Covid_Cases	-0.02141	2.2747	0.0238
Covid_Deaths	-0.00076	-1.0853	0.2789
Exchange_Rate	0.00073	2.2849	0.0232
Interest_Rate	-0.00053	-0.3041	0.7613
Volatility	-0.00012	-4.7476	0.0000
R-squared	0.19402		
Adjusted R-squared	0.17514		
F-statistic	6.56922		
Prob(F-statistic)	0.00001		

According to table 2, the regression model can be depicted as equation 3.

$$SR_{it} = -0.1257 - 0.0214CVD_{it} - 0.0007DTH_{it} + 0.0007FRX_{it} - 0.0005INT_{it} - 0.0001VIX_{it} + \varepsilon$$

$$(3)$$

The overall fitness of this model is 19 percent which demonstrates explanatory variables of this model explained the dependent variable by 19 percent. Showing statistical significance of overall model probability values of F-statistics records 0.000 probability value which is less than 0.01 at 99 percent confidence level. Confirming similar results as in India, Sri Lanka also depicts a statistically significant impact of Positive Covid Cases on stock market return ($p<0.05$). When Positive Covid Cases increase by one percent stock market return declines by 0.021 percent. In the Sri Lankan context also, the Covid Deaths variable does not show a statistically significant impact on stock market return. When compared to India, Sri Lanka is having a higher impact of Covid Cases on the stock market.

According to the regression results shown in Table 1 and Table 2, hypotheses of this study can be assessed in Table 3.

Table 3. Hypotheses Testing

Hypotheses	Results
H1 : Financial shocks of the market is affected by positive Covid Cases	Supported
H2 : Financial shocks of the market is affected by Covid Deaths	Not supported

5. Conclusions

This study focused on examining the financial shocks of the stock market during the COVID-19 outbreak. With the spread of the novel Coronavirus throughout the globe, human beings were and are facing many challenges. The business environment and economy have also been vastly affected by the COVID-19 outbreak. Through changing the investor sentiments stock market behavior is also drastically changing as a reaction to the

COVID-19 outbreak. The main objective of this study was to investigate the financial shocks during the COVID-19 pandemic in Indian and Sri Lankan contexts. As the analysis revealed, COVID-19 positive cases have a significant impact towards financial shocks in both countries. Financial shocks were represented by the stock market return variable of this study. Both countries, India and Sri Lanka show an insignificant impact of COVID-19 deaths on financial shocks in the stock market.

Holistically, it can be concluded that unexpected environmental factors might impact overall economic fluctuations. Thus, stock market variations due to aforesaid fluctuations will shed light into provide ground for financial shocks in the economy.

In economic policy decisions making, financial shocks play a vital role since it directly affects the direction of the entire economy. In general, most policy decision-makers concentrate on micro and macroeconomic factors since these factors are highly sensitive to economic behavior. By adding the same importance, the current study has proved that environmental factors with random occurrence are also significantly affected on economic and financial decision making by showing a significant impact of the COVID-19 pandemic on financial shocks. This will shed light into decision and policymakers to rethink in consideration of influencing factors on financial shocks by opening a holistic insight into the relevant area.

Thus, future studies can be focused towards more specific directions with environmental factors with random occurrence to depict the behavior of financial shocks which ultimately contribute for decision and policy making in reliable and accurate substances.

In this study, only financial shocks in the context of two South Asian countries were evaluated, and future studies could focus on different market contexts and perform comparative studies.

References

Aiuppa, T. A., Carney, R. J., & Krueger, T. M. (1993). An Examination of Insurance Stock Prices Following the 1989 Loma Prieta Earthequake. *Journal of Insurance Issues,* 16(1), 1-14.

Al-Rjoub, S. A., & Azzam, H. (2012). Financial crises, stock returns and volatility in an emerging stock market: the case of Jordan. *Journal of Economic Studies,* 39(2), 178-211.

Alsaifi, K., Elnahass, M., & Aly, S. (2020). Market responses to firms' voluntary carbon disclosure: Empirical evidence from the United Kingdom. *Journal of Cleaner Production,* 262, 121-377.

Anh , D. L. T., & Gan, C. (2021). The impact of the COVID-19 lockdown on stock market performance: evidence from Vietnam. *Journal of Economic Studies,* 48(4), 836-851.

Barrett, W. B., Heuson, A. J., & Kolb, R. W. (1986). The Effect of Three Mile Island on Utility Bond Risk Premia: A Note. *The Journal of Finance,* 41(01), 255-261.

Bash, A., & Alsaifi, K. (2019). Fear from uncertainty: An event study of Khashoggi and stock market returns. *Journal of Behavioral and Experimental Finance,* 23, 54-58.

Bora, D., & Basistha, D. (2021). The outbreak of COVID-19 pandemic and its impact on

stock market volatility: Evidence from a worst-affected economy. *Journal of Public Affairs,21*(4), 1-10. https://doi.org/10.1002/pa.2623(e2623).

Buhagiar, R., Cortis, D., & Newall, P. S. (2018). Why do some soccer bettors lose more money than others?. *Journal of Behavioral and Experimental Finance,* 18(1), 85-93.

Chena, M. H., SooCheong , J., & Kim, W. G. (2007). The impact of the SARS outbreak on Taiwanese hotel stock performance: An event-study approach. *International Journal of Hospitality Management,* 26(1), 200-212.

Chen, C. D., Chen, C. C., Tang , W. W., & Huang, B. Y. (2009). The Positive and Negative Impacts of the Sars Outbreak: A Case of the Taiwan Industries. *The Journal of Developing Areas,* 43(1), 281-293.

Deshapriya, S. (2021). Economic Consequences and Impacts Due to the Outbreak of COVID-19. doi: http://dx.doi.org/10.2139/ssrn.3911436

Hudson, R., & Urquhart, A. (2015). War and stock markets: The effect of World War Two on the British stock market. *International Review of Financial Analysis,* 40(1), 166-177.

Ichev, R,. & Marinč, M. (2018). Stock prices and geographic proximity of information: Evidence from the Ebola outbreak. *International Review of Financial Analysis,* Volume 56, 153-166.

Kaplanski, G., & Levy , H. (2009). Sentiment and stock prices: The case of aviation disasters. *Journal of Financial Economics,* 95(2), 174-201.

Kowalewski, O., & Śpiewanowski , P. (2020). Stock market response to potash mine

disasters. *Journal of Commodity Markets,* 20(1), 1-22.

Central Bank of Sri Lanka. (2021, April 23). Annual Report Volume I. https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2020

Li, K. (2018). Reaction to news in the Chinese stock market: A study on Xiong'an New Area Strategy. *Journal of Behavioral and Experimental Finance,* 19, 36-38.

The Economic Impact due to Covid-19. (2021, March 12). The Indian Express. https://indianexpress.com/section/india/

Mishra , P. K., & Mishra, S. K. (2021). COVID-19 pandemic and stock market reaction: empirical insights from 15 Asian countries. *Transnational Corporations Review, 13*(2), 139-155.

Nikkinena, J., Omran, M. M., Sahlstrom, P., & Aijo, J. (2008). Stock returns and volatility following the September 11 attacks: Evidence from 53 equity markets. *International Review of Financial Analysis,* 17(1), 27-46.

Noor, A. M., & Kavita, C. (2020). Stock Market Response during COVID-19 Lockdown Period in India: An Event Study. *The Journal of Asian Finance, Economics and Business,* 7(7), 131-137.

Ohmori, T. (1992). Implications of Post-war Japanese Industrialization: Government Intervention and Market Competition. *International Journal of Social Economics,* 19(10), 192-207.

Padli, J., Habibullah , M. S., & Baharom, A. H. (2010). Economic impact of natural disasters'

fatalities. *International Journal of Social Economics,* 37(6), 429-441.

Qudah, A. A. A., & Houcine, A. (2021). Stock markets' reaction to COVID-19: evidence from the six WHO regions. *Journal of Economic Studies,* Volume https://doi.org/10.1108/JES-09-2020-0477.

Reis, P. N., & Pinho, C. (2020). COVID-19 and investor sentiment influence on the US and European countries sector returns. *Investment Management and Financial Innovations,* 17(3), 373-386.

Richard , C., & Burdekin, K. (2020). Death and the stock market: international evidence from the Spanish Flu. *Applied Economics Letters,* 28(17), 1512-1520. doi: 10.1080/13504851.2020.1828802.

Schneider, G., & Troeger, V. E. (2006). War and the World Economy: Stock Market Reactions to International Conflicts. *Journal of Conflict Resolution ,* 50(5), 623-645.

Sha , Y., & Sharma , S. S. (2020). Research on Pandemics Special Issue of the Journal Emerging Markets Finance and Trade. *Emerging Markets Finance and Trade,* 56(10), 2133-2137.

Wang, K. M., & Thi, T. B. N. (2006). Does Contagion Effect Exist Between Stock Markets of Thailand and Chinese Economic Area (CEA) during the "Asian Flu?". *Asian Journal of Management and Humanity Sciences,* 1(1), 16-36.

Wang, X., Wang , X., Zhong, Z., & Yao, J. (2021). The impact of US–China trade war on Chinese firms: Evidence from stock market reactions. *Applied Economics Letters ,* 28(7), 579-583

APPENDIX 1

The theoretical construct of the empirical model

Variables	Measurement	Data Source
Stock Return (SR)	Stock Return of the stock market	ASPI for Sri Lanka and BSE Sensex for India
COVID-19 Confirmed Cases (CVD)	COVID-19 Confirmed Cases is a measure of a country's COVID-19 confirmed cases changing by a certain percentage. COVID-19 infection spreads quickly, so it acts as a proxy for market uncertainty and pessimism.	COVID-19 Data Library from World Health Organization (WHO)
COVID-19 Death Cases (CDC)	It is a country's COVID-19 death rate change in percentage terms.	COVID-19 Data Library from World Health Organization (WHO)
Volatility Index (VIX)	ASPI and BSE Sensex index options are used to calculate the market's expectation of volatility over the next 30 days. Risk, fear, and stress levels are reflected in this indicator, which reflects investors' attitudes toward market movements.	Web database of Yahoo Finance

Exchange Rate (FRX)		It represents the ratio of the USD-based domestic currency to the logarithm of the US dollar	Web database of investing.com
Interest Rate (INT)		It is the interest rate in a country. Since the governments tried to control the volume of money supply amid corona pandemic by manipulating their policy rates, interest rate is expected to exert an effect on the stock market through cash and credit channels.	Data from Central bank we site of each country