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COVID-19 and Financial Market Reactions: A Cross-Country Analysis of Emerging Economies

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Abstract: This study examines the stock market response to COVID-19 in emerging countries of South Asia and China over the period from 2019 to 2021. It uses event study methodology to analyze CARs (cumulative abnormal returns) during the announcement of three events: the first case report, the first lockdown, and the second lockdown. The estimation windows consist of 110 (-10, -120) days earlier the event date, and the windows of event consist of 6 days after the event's declaration. We discover that the first reported case has less impact on China and Pakistan's market returns, while India and Bangladesh show statistically significant and negative effects. The further results reveal that the first lockdown announcement in Pakistan, China, and Bangladesh had an adverse effect on market returns; CAR values are negative and significant, but India findings are not statistically significant due to government policies. However, our findings reveal that the second lockdown in China was statistically significant due to its restriction imposed in February. However, the results in other countries during this phase are not statistically significant, as the level of panic decreases after April. Overall, the pandemic has a significant or adverse impact on returns of stock market in China and other countries, and markets are efficient. This study gives perception to investors in handling risks during worldwide health crises by understanding the associations between pandemic events and market performance.

Key Words: COVID-19, First Case Report, First Lockdown, Second Lockdown, Stock Market Return, South Asia, China

JEL Classification: G14, G18, G41, H12, I18

Introduction

The pandemic of COVID-19 caused in worldwide unprecedented destruction, in which South Asian emerging markets and China faced challenges due to economic vulnerabilities and limited institutional capabilities. The covid disease is extensively recognized to be not only a severe public health emergency but also to have shaped an incomparable shock to the worldwide monetary (stock) markets. (Shen et al., 2021). Stock markets played a role as a forward-looking mechanism, responding to news and policy declarations related to the pandemic very rapidly. Theoretically, the Efficient Market Hypothesis (EMH) supports the prices of stock market having to adjust to new information, which also includes the economic implications of the disease. Due to the structural characteristics, including lower market efficiency, higher volatility, and information asymmetry, the speed of this approach in emerging markets remains unclear.

This study highlights how emerging market stock prices incorporated pandemic-related information and identifies the factors that influence the market responses across countries. This study uses efficient market hypothesis to estimate

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whether emerging markets followed this attitude during COVID-19 crises or not. It also provides understanding of market efficiency and ability to react and process the external tremors.

However, the degree to which the extent literature supports the covid announcement and the stock market responses in China and South Asian emerging nations. Harjoto and Rossi (2023) examine that developing markets were more destructively impacted by the COVID-19 epidemic, especially small businesses and growth stocks. Similarly, Scherf et al. (2022) investigate the strong negative connection among the stock market performance and the enforcement of lockdown measures, with markets declining after announcements.

Singh et al. (2024) examine that the stock markets have recovered from the negative impact of pandemic. Pandey and Kumari (2021) examine the outbreak have an adverse effect on developed and worldwide markets. Early lockdowns helped to rebuild investor confidence, but there was a negative association between market returns and an increase in instances or deaths. According to Topcu and Gulal (2020), rising economies in Asia responded more adversely to their European counterparts during the COVID-19 pandemic. Ullah (2023) Investigates that the cases of covid and deaths are negative affect on global stock returns, while increased testing has a positive impact.

Adnan and Hasan (2021) find that capital markets experienced significant volatility and declines in response to the covid. Specifically, the results show a negative connection among adverse news regarding pandemic and stock market performance. The global stock market responded to the covid outbreak in selected nations by showing a negative relationship between them. While country-specific responses were based on economic resilience, government actions minimized the impact (Ji et al., 2024). On the other hand Khan et al. (2024) investigate that the pandemic dramatically raised volatility, especially in emerging markets, which showed a higher vulnerability to global shocks than established markets. Yu and Xiao (2024) investigate that the significant negative correlation among covid news and stock returns, with stock values falling in reaction to unfavorable pandemic developments.

The contribution of this study is that we have exhibited the volatility of the stock market in emerging economies throughout the pandemic crisis. Firstly, this study checks the effect of covid information on returns of stock market in south Asian emerging countries and China while, existing study focus on overall emerging countries or individual country less consider on emerging counties of south Asia. Secondly, the study contributes to the current body of knowledge by investigating market returns volatility during pandemic's different events, first case reported, first lock down, and second lockdown While, existing studies more focused on the outbreak of pandemic less consider on market returns volatility throughout pandemic's different events. Thirdly, this study is novel in terms of modeling of the pandemic events occurrence and stock market responses of the selected stock market in the post-pandemic period. The range for the estimation window is between -10 and -120 days previous to the date of event and an event window are (0_+1), (0_+2), (0_+3), (0_+4), (0_+5), (0_+6) and capture three different events when information spread about the events in the market and check the impact on market returns. Lastly, this study uses Stata for data analysis (event and estimation window calculation).

The document's remaining sections are arranged as follows: The second part contains a related literature. The third part provides the methodology applied in analysis of the data. The fourth part discusses and presents the observed results of the data. The fifth part concludes the study.

Literature Review

Underline theory: According to the efficient market hypothesis, a hypothesis is effective when the impact of a specific event will be reflected in variation in the prices of the stock market, which will describe the impact on stock return and response to information exposure (Fama et al., 1969). Ji et al. (2024) examine that the efficient market hypothesis that events directly impact asset prices in financial markets, influencing investors' evaluations and expectations, leading to irregular fluctuations in stock prices due to changes in demand and supply.

As discussed in prior research, Yu and Xiao (2024)) investigate how the Chinese stock market replied to the outbreak of the pandemic between 2020 and 2023. According to the authors there is a substantial inverse correlation between stock returns and covid news, with stock values falling in reaction to unfavorable pandemic developments.

Similarly, Zhou et al. (2024)) examine the stock market reactions under the pandemic shadow in China over the dates from April to May 2022. The finding based on an event study and regression analysis displays that a COVID-19 outbreak negatively impacts local firms' performance, with a nonlinear effect and unexpected spatial spillover. Singh et al. (2024) examined how the pandemic of COVID-19 affected the G-20 countries' stock market. The findings based on the panel data and event study analysis indicate that stock markets have recovered from the negative impact of pandemic.

Furthermore, Carlini et al. (2024) examine how the pandemic's sensationalized reporting affects the stock returns and market's behavior in the US after the COVID-19 outbreak. This study shows that sensationalized news increases volatility and leads to stock declines, and there is a negative association between sensationalized media coverage and the performance of the stock market. Likewise, Li et al. (2021) use the DY technique to analyze how COVID-19 affects G20 stock markets. It measures total, remaining, and pairwise instability connectedness, finding a significant increase throughout the crisis. The authors discover an adverse relationship between stock markets performance and pandemic severity. The study also reveals that developing markets are the key recipients of spillover, whereas established markets are the core transmitters.

However, Nurcahyono et al (2021)) examine the impact of the covid outbreak on stock market returns in Indonesia over the period of 136 days since the first case was announced. The finding based on the panel data regression model reveals a negative linear association among rising covid cases and market returns, which led to declining market performance and investor confidence. Likewise, Khan et al. (2024) investigate the ways in which the pandemic has affected the stock market's volatility transversely of market sectors in both emerging and developed nations between 2016 and 2021. The results disclose that the pandemic intensely raised volatility, especially in emerging markets, which exposed a higher vulnerability to global shocks than established markets.

The global stock market responded to the covid outbreak in selected nations by showing a negative relationship between them. While country-specific responses were based on economic resilience, government actions minimized the impact (Ji et al., 2024; Liu et al.2020). Kamal and Wohar (2023) examine how the stock markets exhibit heterogeneous responses to sentiments and news related to the pandemic in the UK over the period Feb-Dec 2020. The result, based on event study methodology, displays that daily covid deaths have a broad positive impact on returns of stock markets, whereas daily pandemic cases have a significant negative effect. However, Joshipura and Lamba (2023) examine the pandemic of covid effects on the stock returns of the Indian tourism and healthcare segments. The study reveals that investors' reactions to the initial pandemic case in India and the lockdown declaration were asymmetric, with tourism sector stocks showing more negative returns. Healthcare sector stocks showed slightly less negative impact.

The initial correlation among the increase in covid cases and stock market performance was negative, but the later market stabilized and reduced the effect (Insaidoo et al., 2021; Zhang et al., 2023). Harjoto and Rossi (2023) investigate that how the stock market reacts to the covid outbreak in emerging countries over the period from before and after 60 days of the pandemic. The authors find that emerging markets were more harmfully impacted by the pandemic, especially small businesses and growth stocks. However, Dharani et al. (2023) examine the influence of COVID-19 cases on the returns of the stock market in 1318 Indian firms over the period from 2020 to 2021. The finding demonstrated that the daily growth rate of covid cases and deaths was negatively correlated with market returns. These findings varied sector wide. However, Ullah (2023) investigates how the pandemic has influenced day-to-day market returns in the 30 emerging and developed markets that have been most affected over the period from January 2020 to December 2020. The study indicates that the cases of covid and deaths adversely affect the returns of global stocks, while increased testing has a positive impact.

Scherf et al. (2022) examine the stock market reaction to the covid lockdown, aiming to understand how different regions' stock markets reacted to the pandemic's onset in BRICS and OECD nations between January and May of 2020. The finding shows a strong negative association among the performance of the stock market and the enforcement of lockdown measures, with markets declining after announcements. However, Bannigidadmath et al. (2022) examine the effects of covid-related government initiatives on stock markets in 25 different nations from January 2019 to August 2020. Based on event research methodology, the results indicate that government policies such as monetary measures,

stimulus packages, and lockdowns have a mixed effect on stock returns, with generally more negative than positive effects on stock market performance.

Al-Qudah and Houcine (2021) examine the impact of the covid outbreak on day-to-day stock returns in the six major affected WHO countries over the period from March to August 2020. The findings showed that the rise in daily pandemic cases had an adverse influence on stock returns after the pandemic, and the market experienced sharp declines. Similarly, Harjoto et al. (2021) examine how equity markets in developed and emerging nations reacted to COVID-19 in 53 emerging and 23 developed nations over the period between January and August. The finding indicates that COVID-19 and stock returns are negatively correlated in both sets of nations. They indicate that during the stabilizing and rising phases of the pandemic, emerging marketplaces were more sensitive than developed countries. However, Pandey and Kumari (2021) investigate the effect of the 2019-nCoV outbreak on stock markets in both emerging and developed nations over the period from 2019 to 2020. The 2019-nCoV outbreak had a negative effect on developed and worldwide stock markets. Early lockdowns helped to rebuild investor confidence, but later there was a negative association between market returns and an increase in instances or deaths.

Adnan and Hasan (2021) investigate how capital markets in emergent economies reacted to the COVID-19 disease in Bangladesh, India, and Pakistan over the periods from 2019 to 2020. The authors find that capital markets experienced significant volatility and declines in reply to the pandemic. Specifically, the results indicate a negative correlation among adverse news regarding the pandemic and stock market performance. Likewise Heyden and Heyden (2021) examine the stock market's responses to both the arrival and containment of COVID-19 in the US and Europe over the period of 2020. They discover that while monetary interventions seem to stabilize markets, stock markets respond negatively to both the public announcement of the first COVID-19 deaths and country-specific monetary policy actions. However, Kusumahadi and Permana (2021) examine the effect of pandemic on worldwide stock market instability in 15 countries between January 2019 until June 2020. The finding based on the OLS model which reveals that negative news-related COVID outbreaks adversely affect stock market volatility, except in the UK.

Furthermore, Youssef et al. (2021) examine the energetic connectedness among stock markets throughout the COVID-19 pandemic and evaluate the impact of this uncertainty on stock market correlations in diverse nations. The sample covers the data from 2015- 2020, including the US, Europe, and emerging markets. The finding show that stock markets were significantly interconnected during the epidemic. Similarly, Endri et al. (2021) examine the volatility of stock price throughout the pandemic in Indonesia (IDX) between January 2019 until June 2020. The finding founded on the GARCH model and event study methodology reveals that COVID-19 negatively affects abnormal returns, with JCI volatility fluctuating widely.

In the nations that were most affected, COVID-19 had a negative effect on stock market performance (Bash, 2020; Liu et al., 2020a). However, Bahrini and Filfilan (2020) examine the impact of the novel coronavirus on stock returns in GCC countries from April to June 2020. The findings of the panel data regression analysis revealed that the GCC stock markets' daily returns decreased in response to COVID-19 verified deaths. Topcu and Gulal (2020) examine the impact of COVID-19 on the stock markets of emerging nations between March 10 and April 30, 2020. The finding showed that during the outbreak of covid, Asian emerging economies responded further negatively to their European complement. However, Zhang et al. (2020) examine the financial market performance, including country-specific and systematic risk, worldwide during the pandemic, focusing on data from March 27, 2020. The pandemic has heightened global financial market risks, with individual stock market reactions linked to outbreak severity. Policy reactions, non-conventional interventions, and global community disintegration pose more threats than the virus.

Based on existing literature, the COVID-19 impact on stock returns in emerging nations is more focused on the outbreak of pandemic and less on market returns volatility throughout the pandemic's different events and larger market dynamics. Additionally, existing studies focus on all emerging countries or individual country less consideration on emerging countries of South Asia and China. The findings of our study are based on the hypothesis, which is as follows.

H0: There is no relationship between first reported case, first and second lockdown of COVID-19 and market returns.
H1: First reported case, first and second lockdown of COVID-19 negatively effects on market returns.

Data and Methodology

Data Description

This study investigates stock market responses during the COVID-19 outbreak in different phases in South Asian emerging countries and China. For the purpose of investigating the response of the stock market throughout the outbreak of the pandemic, this study has incorporated the stock indices return as a stock return of 3 South Asian emerging countries and China over the period from January 1, 2019, to December 31, 2021. In this study we use the MSCI world index return as the market return. This study has collected the daily indices data from www.investing.com. This study covers four different events in all selected countries.

Operationalization

COVID-19 events were classified into three main categories. The announcement of COVID-19 after first reported case, first lockdown and second lockdown are independent variables while the stock market returns are dependent variable.

Table 1

Description of Events

Countries	Events	Date
China	1st case reported	December 7,2019
Pakistan	1st case reported	February 26, 2020
India	1st case reported	January 30, 2020
Bangladesh	1st case reported	March 8, 2020
China	first lock down	January 23, 2020
Pakistan	first lock down	March 24, 2020
India	first lock down	March 24, 2020
Bangladesh	first lock down	March 26, 2020
China	second lock down	Feburary2, 2020
Pakistan	second lock down	June 5, 2020
India	second lock down	April 15, 2020
Bangladesh	second lock down	April 5, 2020

Events description are show in table 1 of all selected countries with event date.

Event Study Methodology

This study uses an event study methodology to investigate the COVID-19-related news impact on financial markets, specifically market returns of the country, during an event period. This study makes it calmer to prediction how stocks and indexes will move after the announcement of an event (Anwar et al., 2017). The event study method is typically used to observe the association among stock market performance and business events such as mergers and acquisitions, splits, dividends of stocks, share bonuses, and consolidations. Numerous researchers examine how non-corporate events, including disease outbreaks, affect stock markets using this methodology (Chen et al., 2018; Liu et al., 2020; Pendell & Cho, 2013).

Earlier research indicates that the this method is the most effective way to calculate ARs after an event's declaration (Brown & Warner, 1985; MacKinlay, 1997). As suggested by Bowman (1983),), in which study an event study is used to investigate the ARs, which involves selecting the specific event, the estimate model, the estimation window, and the event windows.

Event Windows

The selected event window is six days post the statement of information on the disease's spread, as well as the announcement day itself, to examine the impact of COVID-19 on stock return. Over the period of the three phases,

the COVID-19 pandemic had varying effects on stock returns. Hence, to observe the impact of the outbreak on different periods, the event window is (0_+1), (0_+2), (0_+3), (0_+4), (0_+5), (0_+6).

Estimation Window

An estimating window is used to estimation the predictable returns. On par with earlier studies (Liu, Choo, & Lee, 2020; Pandey & Kumari, 2021) the estimation window covers 110 trading days earlier the event day (-10, -120), when news of the virus glided in the market.

Estimation Model

The event study's first stage is to determine the actual or daily market return. In this study, using an equation (1) to determine the daily market return.

$$R_{i\,t} = \ln\left[\frac{P_{i,t}}{P_{i,t-1}}\right] \times 100 \ldots. (1)$$

R_{it} is the individual return of stock index i; natural logarithm denotes for ln, $P_{i,t}$ is the current price$_t$ of stock index i, and $P_{i,t-1}$ is the previous price $_{t-1}$ of stock index i.

Second stage is to determine the expected mean return for stock index i during the estimation windows (-120 to -10) where the daily return R_{it} of stock index using equation (2).

$$E(\bar{R}_i) = \frac{1}{N}\sum_{-120}^{-10} R_{i,t} \text{ for } 1,2,3..N..(2)$$

Third stage is to determine AR (abnormal Return) for each day and each index through equation (3).

$AR_{i,t} = R_{it} - E(\bar{R}_i) \ldots. (3)$

Fourth stage is to determine CAR (cumulative Abnormal return) of selected event window through equation (4)

$$CAR_t(t_0, t_{1..n}) = \sum_{t_o}^{t_n} AR_{i,t}$$

Fifth stage is to determine the significance of abnormal returns are evaluated using the T-Test to see if they deviate significantly from zero through the equation (5).

$$T\text{-}test_{CAR} = \sqrt{\frac{CAR_t(t_n)}{\sigma \times \sqrt{t_n}}} \ldots\ldots (5)$$

t_n denotes the day for calculation.

Data and Variables

The study is based on 4 South Asian stock markets, these 4 markets represent emerging markets in the South Asian Countries. All countries and their major stock indices where data are collected are shown in Table 2.

Results and Discussion

Descriptive statistic

Table 2 shows the corresponding South Asian emerging countries and China's mean returns and standard deviation in descriptive state. Descriptive state is the summary of whole data. All the countries indices showed positive mean returns because descriptive state covers the long-term data from January 2019 to December 2021. Pakistan and Bangladesh average mean return are lower than China and India. SSEC and Nifty50 0.001 value shown slightly higher than both KSE100 and DSE. On the other hand, KSE100 mean return 0.00021 is slightly better than DSE mean return 0.00030. India has a higher S.D (0.014) than other countries meaning that returns in India show greater variability or uncertainty. Bangladesh has a lower S.D (0.011) than other countries. This lower value shows that returns of Bangladesh are less volatile or much stables than other countries.

Table 2

Descriptive state

Stock Market	Indices	Obs	Mean	Std. Dev	Min	Max
Bangladesh	KSE100	741	0.0002	0.012	-0.071	0.047
China	SSEC	737	0.001	0.013	-0.073	0.063
India	Nifty50	745	0.001	0.014	-0.139	0.084
Pakistan	DSE	687	0.0003	0.011	-0.067	0.098

First Event (1st Case Reported) Of COVID-19

Table 3 depicts the Cumulative Abnormal Return, t-test and p-values of four corresponding countries during first case of covid-19 reported in these countries. Table 4 shown that the China's market after the news of first case reported (0,1) to (0,6) windows reveal that returns are decrease but not statistically significant because when the first COVID-19 case was announced in December 2019 in China, it was thought to be a local health problem rather than a worldwide epidemic. This perception minimized the immediate reaction of the stock markets. Due to weak reaction the CARs value is decreased but may not be statistically significant. After 30 to 60 days of first confirmed cases China has reached to their peak of pandemic (Ashraf, 2020).

Table 3

Results of First Reported Case

	Event Windows	[0;1]	[0;2]	[0;3]	[0;4]	[0;5]	[0;6]
China	CAR	0.017	0.018	0.018	0.026	0.023	0.014
	T-value	1.047	0.874	0.76	1.003	0.795	0.464
	P-value	0.297	0.384	0.449	0.318	0.428	0.644
Pakistan	CAR	-0.012	-0.011	0.01	0.01	-0.009	0.008
	T-value	-0.455	-0.355	0.291	0.252	-0.211	0.176
	P-value	0.65	0.723	0.772	0.801	0.833	0.861
India	CAR	-0.014	-0.040*	-0.037	-0.017	-0.009	-0.007
	T-value	-0.72	-1.699	-1.372	-0.548	-0.279	-0.182
	P-value	0.473	0.092	0.173	0.585	0.781	0.856
Bangladesh	CAR	-0.086***	-0.050*	-0.03	-0.051	-0.09	-0.139**
	T-value	-3.016	-1.696	-0.81	-0.921	-1.553	-2.066
	P-value	0.003	0.093	0.42	0.359	0.123	0.041

Note: China and India CAR (cumulative Abnormal Return) results are statistically significant at t- value > 1.64 or ***p< 0.10; **p<0.05, ***p<0.01 because t-value is <1.64

The impact of first reported case news of pandemic on the Pakistan's market return show in table 3. The results are revealed that after the news of outbreak CAR value of (0,1) and (0,2) windows are negative but statistically insignificant this show that investors are react on announcement. Next windows (0,3), (0,4) and (0,6) indicates that the returns start increase because panic are reduced after two days of announcement and market are start stable. The impact of first reported case news of pandemic on the India's market, results indicates that after the first day (0,1) of announcement are linear negative effect. However, (0.2) windows show t-state CARs value are statistically significant and negative impact on stock returns. But after three days of announcement, quick reactions of investors were reduced because panic were shrink. Kumarapperuma et al. (2021) study supports the results they investigate; the event window (10, 20) showed news has an adverse effect on stock return. The study was conducted after the announcement of the widespread of covid on international media on January 20, 2020, and India's 1st case was reported on January 30.

The finding indicates that Bangladesh markets return after the announcement of covid case are strongly statistically significant in especially (0,1) and (0,6) windows show that investors are negatively react after the announcement, Bangladesh stock market are strong and efficient. Haque and Chowdhury (2020) study support the results and indicates

that since February 2020 Bangladesh has started to reflect negative impact. On the other hand, at the time of the announcement in Bangladesh, people were aware of the global severity of the pandemic. Additionally WHO declared on 11 March, 2020 Outbreak of COVID-19 is a global disease (Cucinotta & Vanelli, 2020) this news impact on people and they are react more negatively. In table 3, event windows reveal that short-term effects and show that investors reactions are negative to the news of any uncertainty and pandemic.

Second Event (First Lockdown) of COVID-19

Table 3 show the Cumulative Abnormal Return, t-test and p-values of four corresponding countries during first lockdown during covid-19 in these countries The news about the first lockdown imposed by the government impact on the China's market return shown in table 4. The Chinese government highly restricted implementation during lockdown so that it reduced the spreading of the virus. We are calculated cumulative abnormal returns 0 to 6 days after the announcement and day of announcement itself. The results of all events windows are statistically significant based on t-value, these values are greater than (-1.64) but event window (0,2) and (0,3) results indicate that are strongly negative and significant. Sun et al. (2021) study support the results and indicates that overall adverse effect of covid on market returns. Because investors in China considered the lockdown a harmful event for the economy and the financial markets. Kumarapperuma et al. (2021) study supports the results they investigate after 20 February event windows show negative effect. The returns after the announcement of first lockdown in Pakistan show in table 4. All events windows' results indicates that statistically significant and especially Event windows (0,1) and (0,2) are strongly significant this information based on t test because t-value values are (-6.177) and (-5.535) greater than (-1.64). Wang et al. (2024) this study support the results and reveal that investors are more react on negative news rather than positive news and news are greater effect on market returns.

Table 4

Results of First Lockdown

	Event Windows	[0;1]	[0;2]	[0;3]	[0;4]	[0;5]	[0;6]
China	CAR	-0.029*	-0.098***	-0.073***	-0.067**	-0.055*	-0.058*
	T-value	-1.762	-4.851	-3.155	-2.585	-1.936	-1.897
	P-value	0.081	0	0.002	0.011	0.056	0.06
Pakistan	CAR	-0.157***	-0.179***	-0.138***	-0.153***	-0.108**	-0.083*
	T-value	-6.177	-5.535	-3.867	-3.792	-2.477	-1.798
	P-value	0.000	0.000	0.000	0.000	0.015	0.075
India	CAR	0.059	0.083	0.094	0.043	0.084	0.055
	T-value	3.087	3.414	3.592	1.451	2.66	1.686
	P-value	0.0026	0.0009	0.0005	0.15	0.009	0.095
Bangladesh	CAR	0.015	-0.074**	-0.085**	-0.092**	-0.093*	-0.089*
	T-value	0.621	-2.162	-2.178	-2.113	-1.975	-1.784
	P-value	0.536	0.033	0.032	0.037	0.051	0.077

China, Pakistan and Bangladesh CARs (cumulative Abnormal Return) results are statistically significant at t- value > 1.64 and India CARs result are insignificant

The result of India during first lockdown reveals that significant but positive and not support the hypothesis. All events windows show strongly positive significant and Alam et al. (2020) study support the results and reveals that reaction of market are positive and stock market situation are improved due to lock down. The mixture of government actions, sectoral outperformance, and forward-thinking investor behavior turned a prolonged downturn into a relatively short-lived perfection, resulting in positive cumulative abnormal returns. The results after the announcement of first lockdown in Bangladesh show that all event windows instead of window (0,1) results are statistically significant and window (0,1) after one day of announcement returns are positive but gradually returns are decline and negative. Event window (0,2) to (0,6) returns are statistically significant but after 4 days of announcement this effect start reduced. The Bangladesh

government BSEC (Bangladesh securities and Exchange Commission) forced the base price and market-wide circuit breaker for every stock on March 19th in order to stop trading, The rule of this circuit, prices of listing securities are not more decline as compared to last five day's average closing price but despite restriction not fully stop trading and less impact on return (Haque & Chowdhury, 2020).

Third Event (Second Lockdown) of COVID-19

Table 5 shows the results of second lockdown.

Table 5

Results of Second Lockdown

	Event Windows	[0;1]	[0;2]	[0;3]	[0;4]	[0;5]	[0;6]
China	CAR	-0.046**	-0.039*	-0.027	-0.031	-0.033	-0.02
	T-value	-2.875	-1.993	-1.186	-1.233	-1.182	-0.678
	P-value	0.005	0.049	0.238	0.22	0.24	0.499
Pakistan	CAR	0.015	0.019	0.028	0.042	0.028	0.006
	T-value	0.362	0.38	0.499	0.669	0.404	0.077
	P-value	0.718	0.704	0.619	0.505	0.687	0.938
India	CAR	0.001	0.015	0.024	0.015	0.028	0.041
	T-value	0.022	0.347	0.474	0.27	0.447	0.614
	P-value	0.983	0.729	0.636	0.788	0.655	0.54

Note: China' results are statistically significant at t-value >1.64**p< 0.05

Table 5 shows the second lockdown results of China. China results indicates that event windows (0,1), (0,2) CARs are statistically significant. The stock market of China has react negatively on bad news and positively react on positive news (Yu & Xiao, 2024), The lockdown has negative news and stock adverse effect on stock returns but gradually market were stable. Event windows (0.3),(0,4) and (0,5) show negative but linear significant because panic of investors reduced with the passage of time. Scherf et al. (2021) support the results and indicates that most of the negative not the result of disease but due to announcement of lockdown restrictions. In which table 5 Pakistan's results indicates that second lockdown imposed in June 5, investors did not react quickly because they use to the pandemic and they perceived the second lockdown as less troublemaking than the first, but later return start decrease. Indian results after the announcement of second lockdown, the results reveal that statistically insignificant market return are decrease in last two event windows, but not negative return Indian government action reduces quick short-term effect.

In Bangladesh second lockdown imposed on April 5, 2020, and Bangladesh stock market remain closed during 26 March to May 31and 66 days market were shut within year due to covid-19 and data are not available.

Discussion

The results indicate the impact of the outbreak of three different events during Covid-19 on stock returns. The first event is the first reported case of the pandemic. The finding shows that China market returns are less affected after the announcement because the first case of COVID-19 was reported in China's city of Wuhan, and people are not expecting disruption of the pandemic. The results of Pakistan indicate that negative but not statistically significant and show that the announcement of the pandemic in the starting days has less impact on investors. India and Bangladesh's results indicate that the news of the first positive case report of covid is statistically significant and has a negative effect on stock markets after the announcement, but this effect reduces after 2 days in India.

The second event is the first lockdown announcement. The China, Pakistan, and Bangladesh results of CARs reveal that there is a strong statistically significant effect after the announcement in all event windows, but this reaction starts to be minimized after 3 days of announcement. This shows that these markets are efficient. The results of Indian markets indicate that they are positive and significant but do not support the hypothesis. The Indian stock market's positive

abnormal returns after the lockdown resulted from a combination of policy measures, liquidity, investor optimism, and corporate resilience.

The third event is the announcement of the second lockdown, which shows that only China results are statistically significant because the 2nd lockdown was imposed in February when the pandemic was at its peak, and other countries had their 2nd lockdown imposed after April when the intensity of the pandemic was reduced and people were used to the process.

Conclusion

This study examines the news outbreak of covid-19-related events and stock market responses in emerging South Asian countries and China. This study focused on three different time horizons: the 1st reported case, the 1st lockdown, and the 2nd lockdown of COVID-19. To assess the relationship among different events of COVID-19 and market returns volatility, we used secondary data like stock exchange returns of countries as security returns and the MSCI World Index return as a market return. These data were collected from the www.investing.com website over the period from 2019 to 2021. We use an event study methodology and Stata software to analyze the effect of COVID-19 events on market returns volatility.

The results indicate that the first reported case had less impact on China and Pakistan's stock market due to the lack of expectation of disruption. India and Bangladesh have negative stock market returns and statistically significant results after the announcement of the first positive case. The announcement of the first lockdown in Pakistan, China, and Bangladesh had a negative impact on returns of the stock market; CAR values are significant, but India's findings are not statistically significant due to government policies, and the Indian market is more stable. However, the announcement of the second lockdown in China, the results are statistically significant due to its restriction imposed in February during the pandemic's peak, whereas other countries imposed second lockdowns after April; at this time, people are used to the panic of the pandemic. Overall, the pandemic had a significant influence on stock markets in China and other countries.

The study's findings are providing fundamentals for policymakers, investors, and economists. This study gives perception to investors in handling risks during worldwide health crises by understanding the associations between pandemic events and market performance. This study may update policymakers about the economic fragility of emerging markets in health emergencies. During outbreaks, it could emphasize the importance of timely and see-through policy measures to stabilize investor confidence. This study could help develop backgrounds to alleviate the economic impact of future pandemics in emerging economies.

Whereas this study offers various implications and insights about information outbreaks during pandemics and market returns volatility, it also has some limitations. Our study only focused on negative news and did not consider positive events during the pandemic, like vaccination. Therefore, future research should include sector-specific impacts of COVID-19 events to determine which industries were more resilient or vulnerable in different countries during the pandemic, since our findings are based on the overall stock index of countries. Future researchers may use tools like sentiment analysis of news headlines or social media and data to correlate public sentiment with market reactions in different nations. Another limitation is that data are not available during the pandemic period on the Bangladesh stock exchange because the market remained closed during the pandemic.

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Appendix A1

Summary the empirical studies

A. Negative relationship between COVID-19 and stock returns				
Source	Country/Region	Data	Objectives	Key findings
Yu and Xiao (2024)	Listed Chines companies	2020-2023	Chinese stock market responded on outbreak of COVID-19	C-19↑ SR↓
Singh et al. (2024)	G-20 Countries	(-150, 58) event windows	impact of the COVID-19 outbreak on the stock market return	C-19↑ SR↓
Carlini et al. (2024)	US	2020-2022	Pandemic's sensationalized reporting affected the stock returns	C-19↑ SR↓
Zhou et al. (2024)	China	April to May 2022	stock market reactions under the COVID-19 shadow	C-19↑ SR↓
Ji et al. (2024)	13 leading stock indices	2019-2020	How Stock market react during the COVID-19 pandemic	C-19↑ SR↓
Zhang et al. (2023)	11 RCEP	2020-2021	impact of COVID-19 on the stock market	C-19↑ SR↓
Harjoto and Rossi (2023)	53 emerging, 23 developed countries	January to August 2020	how the stock market reacts to the COVID-19 outbreak	C-19↑ SR↓
Ullah (2023)	30 emerging and developed countries	January to December 2020	The COVID-19 pandemic has influenced daily market returns	C-19↑ SR↓
Kamal and Wohar (2023)	UK	Feb-Dec 2020	stock markets exhibit heterogeneous responses to news and	C-19↑ SR↓