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The Impact of different Waves of the COVID-19 Pandemic on the Stock Markets in South Asian Countries

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Abstract *The crisis of COVID-19 comes with a calamitous economic stance. The South Asian countries experience their nastiest economic performance in the last four decenniums, and a moiety of the countries are falling into recession. This paper checks the impact of the first, second and third waves of COVID-19 outbreak on the stock market indices of all the South Asian countries, including India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, Maldives, Nepal, and Bhutan. The study has utilized the Event Study Methodology and results exhibit that COVID-19 decreases the mean returns of all the stock market indices and increases their volatility, which designates that Corona does influence all the stock markets of South Asia in decrementing their returns and incrementing volatility. Overall, the negative effect of the first wave of COVID-19 is not paramount across all the indices except the National Stock Exchange of India (NSE), albeit its second wave did not affect any of the stock market indices significantly. In contrast, the third wave affects the stock markets indices of Pakistan (PSX) and Afghanistan (AFX).*

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Introduction

According to WHO (World Health Organization), the first case of COVID-19 was identified on 31 December 2019 in Wuhan, the city of China. At that, time people of China were moving towards their hometowns to celebrate the Chinese Incipient Year, which became the leading cause of the spread of this disease and turned that outbreak into a national crisis. This pandemic hit the whole economy ecumenical without anyone kenning and resulted in the factories shut down and unemployment all around the world, leaving policymakers, businesspersons, Regimes, managers, scientists, denizens, and medicos kindred in dismay. As this virus represents a Pandora's Box, the consummate 45-days lock-down in industrial countries took everybody off-sentinel.

Due to the quarantine in most of the industrialized countries from March to the cessation of the year 2020 and its second wave, many Philomaths and economists presage a deep recession for 2020-21. The developing countries of South Asia will have their worst financial performance of the last four decenniums. The chances of people being infected with this virus are more protuberant in these developing countries because gregarious distancing is arduous to maintain, and they have inhibited access to health care and even soap in the rural areas. Moreover, there are chances that people will get unemployed and face the nastiest inflation in the prices of rudimental commodities.

As per Efficient Market Hypothesis, any particular event should result in the vicissitude of the stock prices because investors' inefficient markets are planarity vigilant and well apprised, and it shows the effect of this information disclosure. Then, the Arbitrage pricing theory (APT) is the asset-pricing model. Its main

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concept is that returns of assets can be presaged by utilizing the linear relationship between the expected returns of the assets and the macroeconomic variables like a chronic disease which captures the systematic risk and plenary undiversifiable. Under these circumstances, rational investors make decisions, which are the antithesis to what is prognosticated by the standard models of finance. COVID-19 is bringing major challenges for the developing countries of South Asia because people are losing their jobs because of the lock-down situation in the country. People are panicking because of the incremented death rates and the wildest spread of this disease across the globe.

All these unexpected and external issues can bring the stock market down, and they hold the capacity to transmute the sentiments of rational investors. Investment decisions are affected by the solicitousness and deplorable mood of the investors, and such investors get more pessimistic about the future and take less risk consequently (Kaplanski & Levy, 2010). Consequently, these negative feelings and sentiments affect investment decisions and returns of any stock market. The pandemic situation engendered by the first and second waves of COVID-19 captures the opportunity to check the impact of this disease on the stock market of affected nations of South Asian countries.

This paper checks the impact of the first and second waves of COVID-19 on the developing stock markets of South Asia, which includes India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, Maldives, Nepal, and Bhutan. Because of the short period of this outbreak, an event study is utilized to check the presence of aberrant returns after the occurrence of this outbreak in the countries of South Asia. The study reports the occurrences of the first and second waves of COVID-19 in the South Asian countries and checks its effect on the stock markets by visually examining the presence of eccentric returns. This paper denudes affluence of insight into the outbreak of COVID-19 in South Asia.

The world's infection peak has visually examined on 3 March 2020 as presaged by the infectious model. The decision tree previses that Corona Virus is irrigating the stock market around the globe that has commenced from Western Europe. Literature is available for the developed countries, but due to the circumscribed availability of data, no insight is available for the developing countries of South Asia altogether. The goal of this study is to optically discern the replication of investors and stock markets after the advent of the first and second waves of Corona. The novelty is in shepherding the empirical research by retrieving the scientific data and conducting the experiments from the standpoints of business and science. Its main contribution in the literature of finance is by providing the facts on how the stock markets respond to the first and second wave of Corona and how it gets stable after that outbreak.

This study aims to visually perceive the impact of the first, second, and third waves of COVID-19 on the stock market performance of South Asian countries by calculating the anomalous returns. The study will withal optically discern the consequentiality of market replication by calculating the accumulated eccentric returns.

Literature Review

The impact of COVID-19 on the stock markets is one of the sultry topics in finance nowadays. Akhtaruzzaman et al. (2021) have checked how financial contagion appears between the financial and non-financial firms of G7 countries and China after this outbreak. Ashraf (2020) studies that stock market returns are declined as the number of corroborated cases has incremented. Cheema et al. (2020) have revealed that investors have lost their confidence in gold during this period of this outbreak. Chevallier (2020) has examined the impact of COVID-19 on financial markets by utilizing GARCH, VAR Models, and Susceptible infective abstracted and found consequential results as well. Ahmed has (2020) studied the Pakistani stock market and its replication of it. He finds that recuperations of COVID-19 are affecting the stock market performance significantly. COVID-19 not only affects the developed or developing nation's stock markets but additionally does affect the minute and medium enterprises of the countries and their future development in a consequential way (Berchin et al., 2020; Murphy et al., 2020).

Kumar et al. (2020) have investigated the impact of this virus on the engendered and operations management of the companies and find that this disease put all the managers in a panic situation and caused them to make erroneous decisions under these circumstances.

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Burdekin and Harrison have (2021) checked the impact of the onset of COVID-19 on the stock market performance for the 80 well-kenned stock markets and found that Corona Virus does worsen the stock market performance but the impact of ascending deaths is not consistent along with all the countries. Cox et al. (2020) have found that the stock market performance of all the countries is dependent more on the sentiments of the investors in lieu of the fundamentals. Just and Echaust (2020) have examined the incremented volatility of stock markets in tardy February 2020 find kindred results.

Both Ashraf (2020) and Alber (2020) have highlighted that stock market performance is affected more by the incrementing cases of Coronavirus than the death rates. Awadhi et al. (2020) have revealed the consequential impact of both the variables on the stock markets of China from 10 January to 16 March 2020. Adeel-Farooq et al. (2017) have identified that trade liberalization has had a positive impact on the economy of Pakistan. Sahasranamam (2021) has investigated the response of the state of India towards the pandemic of COVID-19. Earlier to it, Khan et al. (2020) have observed the paramount impact of COVID-19 cases on the stock market performance of sixteen countries by utilizing the Panel data analysis.

The first wave of COVID-19 has played a key role in affecting the stock markets of all the countries, but surprisingly, its second and third waves did not affect the stock markets significantly. Phan and Naryan (2020) have concluded that initial over-reaction of investors was thereafter the first wave of Corona, and it is conspicuous from the data until April 2020, but they further find that initial negative reaction to the incipient cases and death rate of Corona patients is followed by a positive replication. Virtually a moiety of the stock markets commenced exhibiting positive returns when the cases of Corona reached 100,000, and its death rate reaches 100. This paper is an endeavor to find the impact of the first, second, and third waves of Corona on the stock market's performance of South Asian countries. The prior work on Corona was inhibited to the first quarter of 2020; this study endeavors to consummate this gap by extracting the data from 2020 to May 2021. This would show how the investors and stock markets respond to a different wave of COVID-19.

Event Study Methodology

This paper utilizes the Event study method for checking the impact of the first and second waves of COVID-19 on the stock market performance of South Asian countries. Ball & Brown (1968) are considered among pioneers to use Event Study Methodology in Accounting and Finance disciplines. As per the event study method, when the efficient market hypothesis is valid, then any particular event should result in the transmutation of the stock prices because investors inefficient markets are plenarily cognizant and well apprised, and it shows the effect of this information disclosure. The event study methodology is widely utilized in empirical studies of finance and economics.

Agrawal & Kamakura (1995) find the impact of celebrity endorsement in explicating aberrant stock returns. Liu et al. (2020) check the impact of COVID-19 on the stock markets of 21 leading stock markets of the world. Predicated on the subsisting literature of finance, an Event study is utilized for checking the average eccentric returns (AAR's) and cumulative average aberrant returns (CAAR's) of the stock indices of South Asian countries after the outbreak of the first, second, and third waves of COVID-19.

Data and its Sources

The study uses the daily closing prices of all the stock markets of South Asian countries. The data has been collected from 1 January 2020 to the date. The daily data have been collected from the official websites of Yahoo Finance (www.yahoo.fiannce.com) and Investing (www.investing.com). Additionally, the following stock markets and their related stock markets have been used for collecting the data. The indices of all the stock markets are shown in table 1 given below.

Table 1. Indices of the South Asian Countries

Definition	Abbreviation	Country
Pakistan Stock Exchange	PSX	Pakistan
National Stock Exchange	NSE	India

Definition	Abbreviation	Country
Dhaka Stock Exchange	DSE	Bangladesh
Sri Lanka Stock Exchange	CSE-All Shares	Sri Lanka
Nepal Stock Exchange	NEPSE	Nepal
Royal Securities Exchange of Bhutan	BSI	Bhutan
Maldives Stock Index	MATRIX	Maldives
Afghanistan Stock Exchange	AFX	Afghanistan

Set-up of Event Study

This study checks the impact of the first and second wave of COVID-19 on the stock market performance of South Asian countries, which includes India, Pakistan, Afghanistan, Sri Lanka, Bangladesh, Maldives, Nepal, and Bhutan. This virus was first identified to the WHO on 31 December 2020 in the Wuhan city of China. The Expert of the National Health and Fitness Commission of China, Zhong Nanshan, declared in an interview that this virus is contagious and is transmitting to other people expeditiously. After that, this news prehended the attention of International Media.

First Wave of COVID-19

Zafar Mirza, the Prime Minister of Health attested to the two cases of Corona in Pakistan on 26 January 2020. The first patient was a student of Sindh, while the second one emanated from the federal Zone. Both have returned from Iran. On 30 January 2020, the officials of India attested this virus, and that reached its peak when some students and a group of tourists came back from Italy. The first case of COVID-19 has attested in a 35-year-old man from the province of Herat, Afghanistan, on 24 February. The country's Institute of Epistemology in Bangladesh corroborated the first three cases of Corona on March 2020, while it has substantiated by Bhutan on 6 March when a 76-year-old American Denizen peregrinated via India to the country. It reached the Maldives and Sri Lanka on 7 March, 27 January, respectively. Nepal was the first country in South Asia, which attested its first case on 23 January when a Student of Katmandu came back from Wuhan city of China.

Second Wave of COVID-19

There is no macrocosmic definition of the second or third wave of Corona. A surge in the number of infected patients and deaths after the initial decline in the number of patients is called an incipient wave of Corona. Pakistan has officially promulgated the Second Wave of COVID-19 after the sudden ascend in daily patients and death rate. The officials of India substantiated it on 21 November 2020 while it hit Afghanistan and Bhutan on 19 & 7 November, respectively, after an escalation in daily cases. The COVID-19 optically discerned its second wave in the Maldives, Sri Lanka, Bangladesh, and Nepal on 24 August, 11 November, 23 September, and 31 October correspondingly.

Third Wave of COVID-19

Pakistan substantiated the third wave of Corona on 18 March 2021, while the Health Minister of Delhi corroborated that the third wave of Corona is at its peak in Delhi on 8 November 2020. This wave is corroborated on 20 January in Afghanistan and on 2 February in the Maldives. Bangladesh visually perceives a surge in Covid-19 cases on 10 March, while Sri Lanka and Nepal have attested their third wave on 31st and 23 March, respectively. This virus did not affect Bhutan due to its vigorous economy and marvelous health infrastructure, but its patients showed a surge in number on 4 April 2021, but its officials did not attest to the third wave yet.

The day when the officials of the country confirmed the first, second, and third wave of COVID-19 in the country is considered as the event day. For checking the impact of this news on the stock market performance, a 35-day window has been selected after the event day. Due to the instant fluctuation and volatility of the stock market, along window has not been selected for checking the presence of abnormal returns. Furthermore, the t-test is used for checking the significance of abnormal returns. The first nature log is used for removing the fluctuations in the stock prices of the South Asian countries. Then for calculating the expected returns, an average is taken for all the returns until the event day. Afterward, the average abnormal returns (AAR's) of the stock market indices on the day is calculated by using the following equation:

$$AAR_{i,t} = R_{i,t} - E(R_{i,t}) \quad (1)$$

Where $\boldsymbol{R_{i,t}}$ are the returns of the stock market i at the time t, t= (0,1,2,3,4. . . 32,33,34,35) and E ($\boldsymbol{R_{i,t}}$) is the expected returns of that market; Average Abnormal Returns can be accumulated over time. So, Cumulative Average abnormal returns (CAAR's) are calculated by the following equation.

$$\boldsymbol{CAAR_{t_o,t_1} = \sum_{t=t_o}^{t_1} AAR_{i,t}} \quad (2)$$

Results & Discussion

The mean returns and standard deviation of all the stock indices of South Asia are shown in table 2. It also shows the total number of trading days for each index. Results show that mean returns are positive for all the stock indices except the stock market of Bhutan and Maldives, which are showing negative returns from 2020 to 2021. The standard deviation is positive and increased for all the stock market indices. This shows that COVID-19 decreases the mean returns of all the stock market indices and increases their volatility, which means that Corona influences all the stock markets of South Asia by decreasing their returns and increasing volatility. The result of Mean Returns & Standard Deviation of the Sample Indices is shown in table 2 given below.

Table 2. Mean Returns & Standard Deviation of the Sample Indices

Index	Total no. of Trading days	Mean Returns of Event groups	St. Deviation of Event Groups
PSX	402	0.000811	0.030709
NSE	267	0.00059292	0.019548721
DSE	230	0.001101254	0.014110499
CSE-All Shares	227	0.001628575	0.013880652
NEPSE	199	0.003697803	0.018908061
BSI	271	-0.00011515	0.037462528
MATRIX	395	-1.15311E-05	0.013395788
AFX	283	0.000238045	0.006792816

Table 3 shows the AAR's results on the event day when the officials of the respective countries confirm the COVID-19 and one day after the Event. The results show that all the stock market indices' AARs get negative right after the first wave of Corona. Only the Afghanistan Stock market index shows positive returns, which means the first wave of Corona did not affect Afghanistan, and investors did not get panic and make rational decisions.

Table 3. Average Abnormal returns on the Event day and day after the Announcement of the First Wave of Corona

Index	Event Day	One day after the Event
PSX	-0.008701346	-0.016547057
NSE	-0.007096525	-0.005314213
DSE	-0.022056685	-0.066516339
CSE-All Shares	-0.00811782	-0.006335118
NEPSE	-0.019947708	-0.023271375
BSI	-0.003538096	-0.077245605
MATRIX	-0.000545915	-0.000545915
AFX	0.010316713	0.003277494

Table 4 shows the AAR's results on the event day when the officials of the respective countries confirm the second wave of COVID-19 and one day after the Event. The results show that all the stock market indices' AARs remain positive except the stock market indices of DSE, MASIX & AFX. This shows that the second wave of Corona only hit the three countries of Bangladesh, Maldives, and Afghanistan while the other South Asian countries remain unaffected.

Table 4. Average Abnormal returns on the Event day and day after the Announcement of the second Wave of Corona

Index	Event Day	One day after the Event
PSX	-0.019664181	0.003534569
NSE	0.003229382	0.00056015
DSE	-0.003886661	-0.003022491
CSE-All Shares	-0.004684246	0.000294572
NEPSE	0.012274975	0.000149207
BSI	-0.005270992	0.00118261
MATRIX	-0.001178614	-0.001178614
AFX	0.001371885	-0.00191523

Table 5 shows the AAR's results on the event day when the officials of the respective countries confirm the third wave of COVID-19 and one day after the Event. The results show that all the stock market indices' AARs remain positive except the stock market indices of BSI & AFX. This shows that the second wave of Corona only affects these two countries of Bhutan and Afghanistan while the other South Asian countries remain unaffected.

Table 5. Average Abnormal returns on the Event day and day after the Announcement of the third Wave of Corona

Index	Event Day	1 day after the Event
PSX	-0.006109	0.007572
NSE	0.0152875	0.009965
DSE	-0.005862	6.47E-05
CSE-All Shares	0.0002898	0.009483
NEPSE	0.0025028	0.012891
BSI	-0.004375	-0.01912
MATRIX	1.141E-05	1.14E-05
AFX	-0.000802	-0.01527

Table 6 shows the results of Change in AAR's (Average abnormal Returns) after the first wave of Corona in South Asian countries in the event window of 35 days. Results show that as the pandemic broke out in the countries, most of the AAR's became negative following the event day. The stock market of DSE shows a sharp decline right after the event day, as shown in fig 1, but it's getting stable after 15 days of the event while the rest of the market indices shows mixed results.

Table 6. AAR's Change from day 0 to 35 after the First Wave of Corona

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
0	-0.0087013	-0.007097	-0.02205668	-0.00812	-0.01995	-0.00354	-0.00055	0.010317
1	-0.0165471	-0.005314	-0.06651634	-0.00634	-0.02327	-0.07725	-0.00055	0.003277
2	-0.0242923	-0.021343	0.038354175	0.010924	0.013466	-0.03931	-6.1E-05	-0.0193
3	-0.0210222	0.0244743	0.018821479	-0.00037	-0.00109	0.050034	0.004908	0.012139
4	0.09255833	0.0092994	-0.02402898	-4.8E-06	-0.00492	-0.00321	-0.00064	-0.00188
5	0.00039584	0.0045775	-0.03916357	0.000909	0.009724	-0.00324	-0.00064	0.00739
6	-0.0213747	-0.002755	-0.04962653	0.002453	0.010013	-0.05114	-0.00064	0.016265
7	0.03243535	-0.004545	-0.04332307	0.001361	-0.00281	0.021485	-0.00064	-0.00851
8	-0.039468	0.0077575	0.100911762	-0.00105	-0.01299	0.034416	-0.00064	0.010809
9	-0.0512371	0.0086896	-0.0033952	-0.00159	0.000185	-0.01493	-0.0061	0.004537
10	0.02236354	-0.001517	0.006772702	-0.0062	-0.00943	-0.00307	-0.08543	0.013261
11	-0.0233881	-0.004277	-0.00117505	-0.00332	-0.01151	-0.07288	0.000599	-0.01327
12	-0.0510136	-0.00512	0.010056007	-0.00284	0.004422	0.046142	0.000599	-0.00241
13	0.02188782	-0.003895	0.00220802	-0.00327	0.012477	0.017694	0.000599	-0.00729
14	-0.0961477	0.0115619	0.01499611	-0.00061	0.002376	0.005763	0.000599	-0.00599

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
15	-0.020575	-0.003486	-0.01318039	0.004339	-0.00267	-0.06308	0.000599	0.004056
16	-0.110009	-0.020309	-0.00487629	0.003536	0.01194	0.070257	0.000599	-0.01459
17	0.05612601	-0.001393	0.001304213	-0.00189	0.020398	-0.05646	0.000599	-0.00458
18	-6.834E-05	-0.009034	0.000195202	-0.00453	-0.00356	0.049619	0.000702	-0.02359
19	-0.0910354	-0.001884	0.004921682	-0.0099	-0.00088	0.01759	0.000702	0.001678
20	-0.1075046	-0.036011	0.001315975	-0.0129	0.01576	0.004301	0.000844	0.00488
21	0.05004565	-0.002722	0.004236931	0.007969	0.042071	-0.02069	0.000844	0.010636
22	0.05402089	0.0178547	0.003781261	-0.00986	-0.00868	0.003731	0.000844	0.014921
23	-0.0542625	-0.001579	0.002916289	0.008145	0.021073	0.003597	0.071464	0.013152
24	0.08509711	0.0053802	0.001875115	0.004687	0.022783	0.014052	-0.00024	0.011962
25	-0.0229962	-0.02121	0.001095641	-0.01139	0.010791	-0.0466	-0.00024	-0.01144
26	0.07698259	-0.045135	0.003137904	0.004294	-0.03879	0.026776	-0.00022	-0.00085
27	0.04840044	0.0080746	0.002546779	-0.03132	-0.07473	0.01576	-0.00022	-0.01325
28	-0.067356	-0.078961	0.001872704	-0.03607	0.001473	-0.03335	-0.00023	-0.00927
29	0.00228422	0.050032	0.0032461	0.025056	-0.0543	0.026926	-0.00025	-0.00369
30	0.00846135	-0.068581	0.002432603	-0.02807	-0.00838	-0.00025	-0.00025	-0.00138
31	0.08042472	-0.01087	0.003408279	-0.01837	-0.06642	0.006218	-0.00025	0.011184
32	0.03654962	-0.041633	0.004236668	-0.05141	0.05395	-0.0071	-0.00025	-0.00324
33	-0.061045	-0.006236	0.005132418	-0.02302	-0.03397	-0.01557	-0.00025	0.009978
34	0.02913413	0.0768757	0.00510328	-0.01445	-0.0466	-0.01336	-0.00025	0.000896
35	0.01059883	-0.122033	0.005778312	0.047989	0.007081	0.028514	-0.00025	0.003201

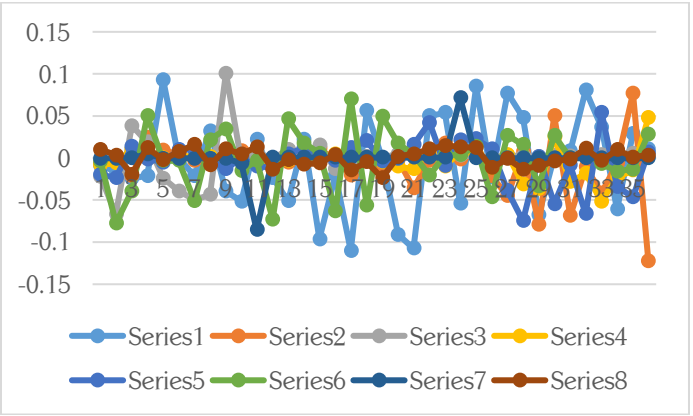

Figure 1: AAR after the First Wave of Covid-19

Table 7 shows the results of Change in CAAR's (Cumulative Average abnormal Returns) after the first wave of Corona in South Asian countries in the event window of 35 days. Results show that after the confirmation of this virus, almost all the CAAR's become significantly negative following the event day. The stock market of DSE shows a sharp decline right after the event day, as shown in fig 2, but it gets stable after 17 days of the event while the rest of the market indices show mixed results.

Table 7. CAAR's Change in South Asian stock from day 0 to 35 after first wave of Corona

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
0	-0.0087	-0.00775	-0.02206	-0.00812	-0.01995	-0.00354	-0.00055	0.01032
1	-0.02525	-0.01241	-0.08857	-0.01445	-0.04322	-0.08078	-0.00109	0.01359
2	-0.04084	-0.02666	-0.02816	0.004589	-0.00981	-0.11656	-0.00061	-0.016
3	-0.04531	0.003131	0.057176	0.01055	0.012372	0.01072	0.004847	-0.0072
4	0.071536	0.033774	-0.00521	-0.00038	-0.00602	0.046825	0.004271	0.01026

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
5	0.092954	0.013877	-0.06319	0.000904	0.0048	-0.00645	-0.00127	0.00551
6	-0.02098	0.001822	-0.08879	0.003362	0.019736	-0.05438	-0.00127	0.02365
7	0.011061	-0.0073	-0.09295	0.003815	0.007199	-0.02965	-0.00127	0.00775
8	-0.00703	0.003213	0.057589	0.000308	-0.0158	0.055901	-0.00127	0.0023
9	-0.09071	0.016447	0.097517	-0.00265	-0.0128	0.019483	-0.00674	0.01535
10	-0.02887	0.007173	0.003378	-0.00779	-0.00925	-0.01801	-0.09152	0.0178
11	-0.00102	-0.00579	0.005598	-0.00951	-0.02094	-0.07595	-0.08483	-6E-06
12	-0.0744	-0.0094	0.008881	-0.00616	-0.00709	-0.02674	0.001199	-0.0157
13	-0.02913	-0.00902	0.012264	-0.00611	0.016899	0.063836	0.001199	-0.0097
14	-0.07426	0.007667	0.017204	-0.00388	0.014853	0.023457	0.001199	-0.0133
15	-0.11672	0.008076	0.001816	0.003731	-0.00029	-0.05732	0.001199	-0.0019
16	-0.13058	-0.0238	-0.01806	0.007875	0.009274	0.007178	0.001199	-0.0105
17	-0.05388	-0.0217	-0.00357	0.001643	0.032338	0.0138	0.001199	-0.0192
18	0.056058	-0.01043	0.001499	-0.00642	0.016839	-0.00684	0.001301	-0.0282
19	-0.0911	-0.01092	0.005117	-0.01443	-0.00444	0.067209	0.001404	-0.0219
20	-0.19854	-0.0379	0.006238	-0.0228	0.014877	0.021891	0.001546	0.00656
21	-0.05746	-0.03873	0.005553	-0.00493	0.057832	-0.01639	0.001688	0.01552
22	0.104067	0.015132	0.008018	-0.00189	0.033394	-0.01696	0.001688	0.02556
23	-0.00024	0.016276	0.006698	-0.00172	0.012395	0.007328	0.072308	0.02807
24	0.030835	0.003801	0.004791	0.012831	0.043855	0.017649	0.071222	0.02511
25	0.062101	-0.01583	0.002971	-0.00671	0.033574	-0.03254	-0.00048	0.00052
26	0.053986	-0.06635	0.004234	-0.0071	-0.028	-0.01982	-0.00046	-0.0123
27	0.125383	-0.03706	0.005685	-0.02703	-0.11352	0.042536	-0.00044	-0.0141
28	-0.01896	-0.07089	0.004419	-0.06739	-0.07325	-0.01759	-0.00045	-0.0225
29	-0.06507	-0.02893	0.005119	-0.01101	-0.05283	-0.00643	-0.00048	-0.013
30	0.010746	-0.01855	0.005679	-0.00301	-0.06268	0.026679	-0.0005	-0.0051
31	0.088886	-0.07945	0.005841	-0.04643	-0.0748	0.005972	-0.0005	0.00981
32	0.116974	-0.0525	0.007645	-0.06977	-0.01247	-0.00088	-0.0005	0.00795
33	-0.0245	-0.04787	0.009369	-0.07443	0.019983	-0.02266	-0.0005	0.00674
34	-0.03191	0.070639	0.010236	-0.03747	-0.08056	-0.02893	-0.0005	0.01087
35	0.039733	-0.04516	0.010882	0.033543	-0.03952	0.015151	-0.0005	0.0041

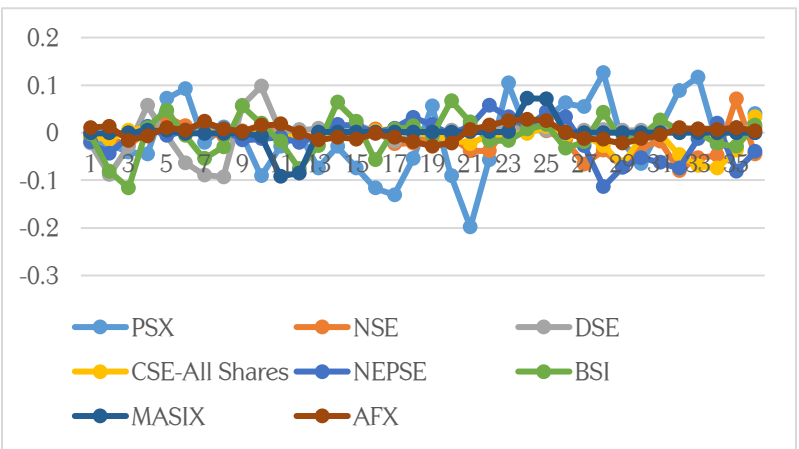

Figure 2: CAAR after the Frist Wave of Covid-19

Table 8 shows the results of Change in AAR's (Average abnormal Returns) after the second wave of Corona in South Asian countries in the event window of 35 days. Results show that after the announcement of the Second wave by the country's official, only PSX (Pakistan Stock

Exchange) showed consistent negative returns while the rest of the stock market indices remained unaffected, and it did not result in negative abnormal returns for the investors as shown in fig 3.

Table 8. Average Abnormal returns (AAR's) Change in South Asian stock from day 0 to 35 after the second wave of Corona

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
0	-0.0196642	0.0032294	-0.00388666	-0.00468	0.012275	-0.00527	-0.00118	0.001372
1	0.00353457	0.0005602	-0.00302249	0.000295	0.000149	0.001183	-0.00118	-0.00192
2	-0.0485733	0.0055056	-0.0059241	-0.00531	0.007464	-0.00639	-0.01341	-0.00255
3	-0.040797	-0.020821	0.002068704	-0.01398	0.01429	-0.01061	0.038674	0.004804
4	0.03826763	0.0048511	-0.00866133	-8.3E-05	-0.0045	-0.00399	-0.0016	0.000859
5	-0.0192878	-0.007143	-0.00819763	-0.00663	-0.00829	-0.02328	-0.0016	-0.00012
6	0.02102495	0.0051864	0.002175342	-0.00018	0.011358	0.029196	-0.0016	0.003805
7	-0.0271388	-0.005118	-0.0036038	0.006687	0.028776	-0.00185	-0.0016	-0.00294
8	-0.004174	-0.003539	-0.01438733	-0.00059	0.0009	0.007422	-0.0016	0.01189
9	-0.0099237	0.0052188	-0.0073902	0.004516	0.02919	0.027782	-0.0016	0.003019
10	-0.0102554	0.0031985	-0.00249283	0.009354	0.002481	-0.01243	-0.10028	0.000132
11	-0.0310517	-0.000868	-0.0069797	0.010023	-0.01143	-0.01825	0.000111	-0.00186
12	-0.0038991	0.007032	-0.01504927	0.001956	0.0213	-0.01097	0.000111	-0.00336
13	-0.0083852	-0.006887	-0.01272481	-0.0007	-0.02276	0.013499	-0.037	0.000242
14	-0.0228759	-0.000535	0.003849923	0.002702	-0.07642	-0.00226	0.000682	-0.00353
15	-0.0044961	8.632E-05	-0.00241106	0.008168	0.027358	-0.00092	0.000682	0.004233
16	-0.0060268	-0.002644	0.005483508	0.0097	-0.0152	0.000769	0.000682	-0.00299
17	-0.0092904	0.0056673	-0.0004694	0.0011	-0.03	-0.00226	0.000682	0.003223
18	-0.0009237	0.0012855	0.003893401	-0.00549	-0.0035	0.019108	0.000682	0.001239
19	-0.0189223	-0.002405	0.002175433	-0.00512	0.016736	0.027265	0.000682	0.003618
20	0.03195274	-0.035475	-0.00033826	0.000229	0.019811	0.01344	0.000682	0.003785
21	0.06052371	0.0086815	-0.00116444	-0.01011	-0.01274	0.01683	-0.00609	-0.00202
22	0.00556423	0.0083284	-0.00536643	-0.0019	-0.01168	0.016379	0.000786	-0.00348
23	0.00405142	0.0078782	-0.00538927	-0.01041	-0.01723	0.060347	0.000786	-0.00658
24	0.00040437	0.0059728	-0.00639862	-0.00603	-0.05357	-0.03594	0.000786	0.000747
25	0.00458747	0.000725	0.001368589	-0.00328	0.016657	0.000695	0.000786	-0.00187
26	-0.0062426	0.0003291	0.010004553	-0.00153	0.048461	0.020067	0.000786	0.000976
27	0.01329322	-0.003388	0.003904643	-0.00407	0.001406	-0.01114	0.000786	0.015681
28	-0.0078582	-0.003292	0.001550918	0.005546	-0.01444	-0.00738	0.000786	0.001219
29	-0.0063035	0.0079573	-0.0019513	-0.00027	-0.01926	-0.01258	0.000786	-0.013
30	0.00077871	0.0017246	0.004387635	0.003905	0.002061	0.062328	0.000786	-0.00902
31	-0.007809	-0.006835	-0.0040986	0.001902	0.002684	0.052472	0.000786	-0.00728
32	-0.0099471	-0.002977	0.000755023	0.015863	0.023551	0.00066	0.000786	0.024531
33	0.01935507	0.0122255	-0.0057868	0.00907	0.008628	-0.05292	0.000786	-0.01335
34	0.00851879	0.0063884	-0.00304468	0.004433	0.037293	-0.0364	0.046498	0.00121
35	0.01097162	0.0019392	0.004693591	0.004676	-0.00818	0.018304	-0.04433	-0.00652

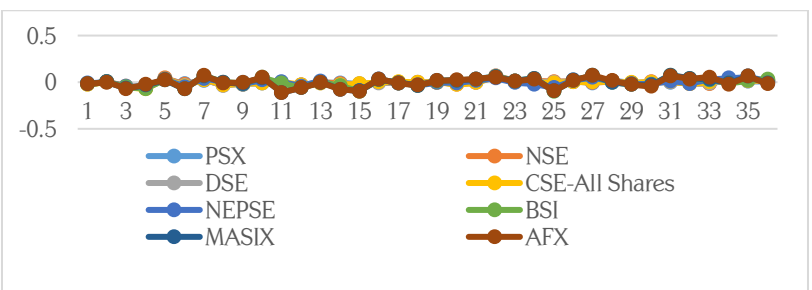

Figure 3: AAR after 2nd Wave of Covid-19

Table 9 shows the results of Change in CAAR's (Cumulative Average abnormal Returns) after the second wave of Corona in South Asian countries in the event window of 35 days. Results show that as after the announcement of the Second wave by the country 'official, only PSX (Pakistan Stock Exchange) shows the consistent negative cumulative abnormal returns while the rest of the stock market indices remain unaffected, and it did not result in negative cumulative abnormal returns for the investors as shown in fig 4.

Table 9. Cumulative Average Abnormal returns (CAAR's) Change in South Asian stock from day 0 to 35 after the second wave of Corona

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
0	-0.01931	-0.01415	-0.01677	-0.00993	0.024069	-0.01709	-0.01346	0.00059
1	-0.01613	0.00379	-0.00691	-0.00439	0.012424	-0.00409	-0.00236	-0.0005
2	-0.04504	0.006066	-0.00895	-0.00502	0.007613	-0.00521	-0.01458	-0.0045
3	-0.08937	-0.01531	-0.00386	-0.01929	0.021754	-0.017	0.025269	0.00226
4	-0.00253	-0.01597	-0.00659	-0.01406	0.009786	-0.0146	0.037074	0.00566
5	0.01898	-0.00229	-0.01686	-0.00671	-0.01279	-0.02727	-0.0032	0.00074
6	0.001737	-0.00196	-0.00602	-0.00681	0.00307	0.005919	-0.0032	0.00368
7	-0.00611	6.8E-05	-0.00143	0.006508	0.040134	0.027343	-0.0032	0.00086
8	-0.03131	-0.00866	-0.01799	0.006098	0.029676	0.005568	-0.0032	0.00895
9	-0.0141	0.00168	-0.02178	0.003927	0.030091	0.035204	-0.0032	0.01491
10	-0.02018	0.008417	-0.00988	0.01387	0.031671	0.015357	-0.10188	0.00315
11	-0.04131	0.002331	-0.00947	0.019377	-0.00895	-0.03068	-0.10017	-0.0017
12	-0.03495	0.006164	-0.02203	0.011979	0.009865	-0.02923	0.000222	-0.0052
13	-0.01228	0.000145	-0.02777	0.001255	-0.00146	0.002524	-0.03689	-0.0031
14	-0.03126	-0.00742	-0.00887	0.002002	-0.09918	0.011237	-0.03632	-0.0033
15	-0.02737	-0.00045	0.001439	0.01087	-0.04906	-0.00318	0.001364	0.00071
16	-0.01052	-0.00256	0.003072	0.017867	0.012157	-0.00015	0.001364	0.00124
17	-0.01532	0.003024	0.005014	0.0108	-0.0452	-0.00149	0.001364	0.00023
18	-0.01021	0.006953	0.003424	-0.00439	-0.03351	0.016847	0.001364	0.00446
19	-0.01985	-0.00112	0.006069	-0.01061	0.013233	0.046373	0.001364	0.00486
20	0.01303	-0.03788	0.001837	-0.00489	0.036547	0.040705	0.001364	0.0074
21	0.092476	-0.02679	-0.0015	-0.00988	0.00707	0.030271	-0.00541	0.00177
22	0.066088	0.01701	-0.00653	-0.01201	-0.02442	0.033209	-0.0053	-0.0055
23	0.009616	0.016207	-0.01076	-0.01232	-0.02891	0.076726	0.001572	-0.0101
24	0.004456	0.013851	-0.01179	-0.01645	-0.0708	0.024409	0.001572	-0.0058
25	0.004992	0.006698	-0.00503	-0.00931	-0.03691	-0.03524	0.001572	-0.0011
26	-0.00166	0.001054	0.011373	-0.00481	0.065118	0.020762	0.001572	-0.0009
27	0.007051	-0.00306	0.013909	-0.0056	0.049867	0.008927	0.001572	0.01666
28	0.005435	-0.00668	0.005456	0.001474	-0.01304	-0.01852	0.001572	0.0169
29	-0.01416	0.004665	-0.0004	0.005275	-0.0337	-0.01996	0.001572	-0.0118
30	-0.00552	0.009682	0.002436	0.003634	-0.0172	0.049747	0.001572	-0.022
31	-0.00703	-0.00511	0.000289	0.005807	0.004746	0.1148	0.001572	-0.0163
32	-0.01776	-0.00981	-0.00334	0.017765	0.026235	0.053132	0.001572	0.01725
33	0.009408	0.009248	-0.00503	0.024934	0.032178	-0.05226	0.001572	0.01118
34	0.027874	0.018614	-0.00883	0.013503	0.04592	-0.08932	0.047284	-0.0121
35	0.01949	0.008328	0.001649	0.009109	0.029108	-0.01809	0.002163	-0.0053

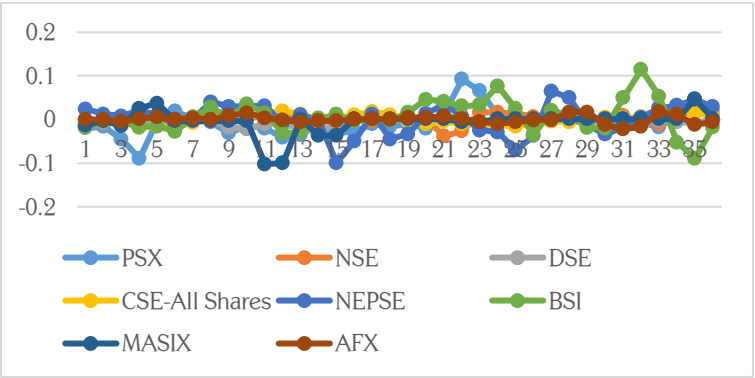

Figure 4: CAAR after the 2nd Wave of Covid-19

Table 10 shows the results of Change in AAR's (Average abnormal Returns) after the third wave of Corona in South Asian countries in the event window of 35 days. Results show that after the announcement of the third wave by the country 'official, only PSX (Pakistan Stock Exchange) and AFX (Afghanistan Stock Exchange) showed consistent negative returns while the rest of the stock market indices remained unaffected, and it did not result in negative abnormal returns for the investors as shown in fig 5.

Table 10. Average Abnormal returns (AAR's) Change in South Asian stock from day 0 to 35 after the second wave of Corona

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
0	-0.006109	0.0152875	-0.00586244	0.0002898	0.002503	-0.00438	1.141E-05	-0.0008
1	0.00757221	0.0099645	6.46922E-05	0.0094826	0.012891	-0.01912	1.141E-05	-0.01527
2	0.01392139	0.0208933	-0.00988844	0.0027663	-0.01163	0.026675	1.141E-05	-6E-05
3	-0.0148026	-0.011685	0.001551051	0.0079326	-0.00536	-0.00354	1.141E-05	0.014707
4	0.00517356	-0.010287	-0.00400491	0.0033169	0.00941	0.002889	1.141E-05	-0.00048
5	-0.0049163	0.0005148	-0.01596578	0.0131303	0.013464	0.018481	1.141E-05	-0.00022
6	-0.0460048	0.0087741	-0.01676201	0.0053512	0.001609	-0.02007	1.141E-05	-0.01494
7	0.02182907	0.0043464	0.010662947	0.0124794	0.006563	-0.00706	1.141E-05	-0.00074
8	-0.007102	-0.010234	-0.00078199	0.0104185	-0.00273	-0.03469	1.141E-05	0.015034
9	-0.0402912	-0.007454	-0.01671605	-0.006704	0.002715	-0.04606	1.141E-05	-0.00049
10	-0.0057161	-0.001932	-0.00160561	-0.007164	-0.0042	0.036053	1.141E-05	-0.0005
11	-0.028276	-0.013418	0.002156098	-0.027539	-0.00202	-0.01897	-1.36E-05	-0.01442
12	0.01240043	-0.011808	0.004667324	0.009788	0.003469	-0.0569	-0.004769	-4.9E-05
13	-0.0002917	0.0120859	-0.01858209	-0.015117	0.005543	0.024601	-1.66E-06	-0.00055
14	-0.000264	-0.001197	-0.00215303	-0.013845	0.004505	-0.04708	-1.66E-06	-0.00043
15	0.03187135	0.0046435	-0.03572571	-0.023958	-0.01636	0.000372	-0.001321	9.81E-05
16	-0.024067	-0.018732	0.016770767	0.0235287	-0.01715	0.015771	1.662E-06	0.000196
17	-0.0096047	-0.016183	0.019341616	-0.003964	-0.00213	0.021901	1.662E-06	-3.5E-05
18	0.00666271	0.012056	0.009906023	-0.001921	-0.0153	-0.014	1.848E-05	-0.00029
19	-0.018993	0.0223985	-0.01624913	0.0002893	0.00299	0.081962	1.848E-05	0.000995
20	-0.0032323	-0.011181	-0.01791513	-0.015279	-0.03206	-0.01508	4.173E-05	-0.00083
21	-0.0016054	0.0112419	0.003988423	0.0041645	-0.02867	0.006815	4.173E-05	0.002725
22	0.06111331	-0.016387	0.012871231	0.0051847	0.033567	0.00677	0.0028811	-0.00213
23	0.02041201	0.0024238	0.009175044	0.0067538	-0.00812	-0.00711	3.458E-05	0.000371
24	0.00620073	0.0085164	0.003324684	-0.015525	0.00712	0.013828	-0.003973	0.014796
25	0.03365903	0.0029972	0.002767417	0.0003435	0.01763	-0.01367	4.467E-05	-0.00014
26	0.01900934	-0.003337	0.012624787	0.0018357	-0.00761	-0.013	4.794E-05	-0.0121
27	-0.0010328	-0.036689	-0.00056338	0.0084783	-0.00225	0.01576	0.0040558	-0.00013
28	0.00487684	0.0128867	0.001342454	0.0159134	-0.00489	-0.03335	3.621E-05	0.011944
29	-0.0046013	0.0046721	0.010792294	-0.000205	-0.00763	0.026926	0.0024603	-0.00048

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
30	0.01636054	0.001869	-0.00305112	-0.002796	-0.00994	-0.00025	2.683E-05	-0.00048
31	-0.018817	-0.018485	-0.01235998	-0.007	0.007519	0.006218	2.683E-05	-0.01395
32	0.03152206	-0.005008	0.006627063	-0.011229	0.007497	-0.0071	2.683E-05	-0.00024
33	0.01611246	0.0070394	0.002807436	0.0009509	-0.00256	-0.01557	0.0162091	0.014337
34	0.02014355	-0.005104	0.006233832	0.0052763	0.001016	-0.01336	-1.39E-05	-0.00017
35	0.040502	0.0093731	-0.00160506	0.007276	0.017256	0.028514	-1.39E-05	-0.0005

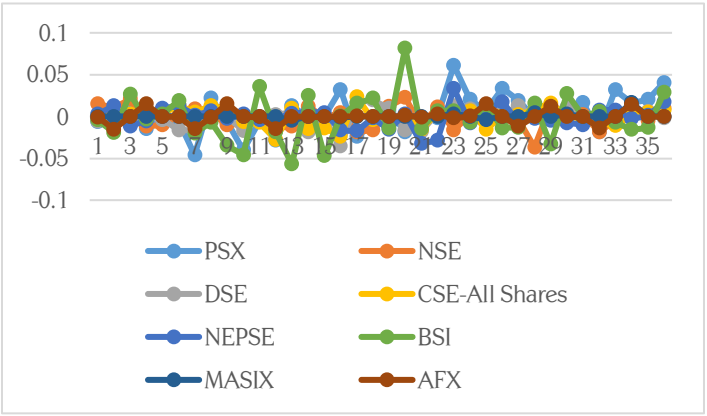

Figure 5: AAR's after 3rd Wave of Corona

Table 11 shows the results of Change in CAAR's (Cumulative Average abnormal Returns) after the third wave of Corona in South Asian countries in the event window of 35 days. AS per findings, PSX (Pakistan Stock Exchange), NSE (National Stock Exchange), CSE All Shares (Sri Lanka Stock Exchange), and AFX (Afghanistan Stock Exchange) shows consistent negative cumulative abnormal returns while the rest of the stock market indices remain unaffected, and it did not result in negative cumulative abnormal returns for the investors as shown in fig 6.

Table 11. Cumulative Average Abnormal returns (CAAR's) Change in South Asian stock from day 0 to 35 after the second wave of Corona

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
0	0.026824	-0.02844	-0.00898	0.000411	-0.00545	0.03064	0.000812	-0.00097
1	0.001463	0.025252	-0.0058	0.009772	0.015394	-0.0235	2.28E-05	-0.01607
2	0.021494	0.030858	-0.00982	0.012249	0.001259	0.00755	2.28E-05	-0.01533
3	-0.00088	0.009208	-0.00834	0.010699	-0.01699	0.02313	2.28E-05	0.014648
4	-0.00963	-0.02197	-0.00245	0.01125	0.004053	-0.0007	2.28E-05	0.01423
5	0.000257	-0.00977	-0.01997	0.016447	0.022875	0.02137	2.28E-05	-0.0007
6	-0.05092	0.009289	-0.03273	0.018482	0.015074	-0.0016	2.28E-05	-0.01516
7	-0.02418	0.01312	-0.0061	0.017831	0.008172	-0.0271	2.28E-05	-0.01567
8	0.014727	-0.00589	0.009881	0.022898	0.003835	-0.0418	2.28E-05	0.014298
9	-0.04739	-0.01769	-0.0175	0.003715	-1.2E-05	-0.0808	2.28E-05	0.014541
10	-0.04601	-0.00939	-0.01832	-0.01387	-0.00149	-0.01	2.28E-05	-0.00099
11	-0.03399	-0.01535	0.00055	-0.0347	-0.00622	0.01708	-2.2E-06	-0.01492
12	-0.01588	-0.02523	0.006823	-0.01775	0.00145	-0.0759	-0.00478	-0.01447
13	0.012109	0.000278	-0.01391	-0.00533	0.009013	-0.0323	-0.00477	-0.0006
14	-0.00056	0.010888	-0.02074	-0.02896	0.010048	-0.0225	-3.3E-06	-0.00098
15	0.031607	0.003446	-0.03788	-0.0378	-0.01186	-0.0467	-0.00132	-0.00033
16	0.007804	-0.01409	-0.01895	-0.00043	-0.03351	0.01614	-0.00132	0.000294
17	-0.03367	-0.03491	0.036112	0.019564	-0.01928	0.03767	3.32E-06	0.000161
18	-0.00294	-0.00413	0.029248	-0.00589	-0.01744	0.0079	2.01E-05	-0.00033

Event Window	PSX	NSE	DSE	CSE-All Shares	NEPSE	BSI	MATRIX	AFX
19	-0.01233	0.034454	-0.00634	-0.00163	-0.01231	0.06796	3.7E-05	0.0007
20	-0.02223	0.011217	-0.03416	-0.01499	-0.02907	0.06688	6.02E-05	0.000165
21	-0.00484	6.08E-05	-0.01393	-0.01111	-0.06073	-0.0083	8.35E-05	0.001895
22	0.059508	-0.00515	0.01686	0.009349	0.004896	0.01358	0.002923	0.000595
23	0.081525	-0.01396	0.022046	0.011939	0.025445	-0.0003	0.002916	-0.00176
24	0.026613	0.01094	0.0125	-0.00877	-0.001	0.00672	-0.00394	0.015168
25	0.03986	0.011514	0.006092	-0.01518	0.02475	0.00016	-0.00393	0.014654
26	0.052668	-0.00034	0.015392	0.002179	0.010023	-0.0267	9.26E-05	-0.01225
27	0.017977	-0.04003	0.012061	0.010314	-0.00986	0.00744	0.004104	-0.01223
28	0.003844	-0.0238	0.000779	0.024392	-0.00714	-0.0011	0.004092	0.011818
29	0.000276	0.017559	0.012135	0.015709	-0.01252	-2E-05	0.002496	0.011467
30	0.011759	0.006541	0.007741	-0.003	-0.01757	-0.002	0.002487	-0.00095
31	-0.00246	-0.01662	-0.01541	-0.0098	-0.00242	-0.0022	5.37E-05	-0.01443
32	0.012705	-0.02349	-0.00573	-0.01823	0.015017	-0.0035	5.37E-05	-0.01419
33	0.047635	0.002031	0.009434	-0.01028	0.004937	-0.004	0.016236	0.014099
34	0.036256	0.001935	0.009041	0.006227	-0.00154	-0.0008	0.016195	0.014163
35	0.060646	0.004269	0.004629	0.012552	0.018273	-0.0019	-2.8E-05	-0.00067

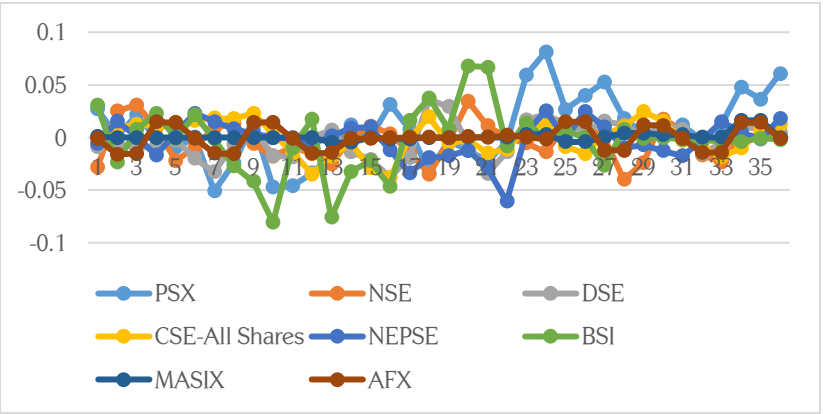

Figure 6: CAAR's after 3rd Wave of Corona

Cumulative Effect of COVID-19 on the South Asian stock indices

Table 12 shows the results of the impact of COVID-19 on the stock market indices of South Asian countries, along with its standard error and t-test values. Results show that all the countries' stock indices get affected by the first wave of COVID-19 because all the stock indices show the negative CAAR's except the AFX. Stock indices of PSX & NSE show the negative CAAR's for 13 and 19 days, respectively, while the rest of the stock indices show negative CAAR's for eight days. This negative effect of COVID-19 is not significant across all the indices. Its Indian stock market (NSE) only, which shows significant results. Therefore, among all the South Asian countries, Corona hit the Indian stock market badly.

Table 12. Cumulative Average Abnormal Returns (CAAR's) after the first wave of Corona

Indexes	CAR	St. Error	t-Test	Overall Significance	Significant Days
PSX	-0.0103098	0.032656	-0.31571	Insignificant	13 days
NSE	-0.00721966	0.007671	-0.94118	Significant	19 days
DSE	-0.00108752	0.01434	-0.07584	Insignificant	Eight days
CSE-All Shares	-0.01051271	0.007909	-1.32921	Insignificant	8 days
NEPSE	-0.00936154	0.013829	-0.67695	Insignificant	8 days
BSI	-0.00535581	0.026598	-0.20136	Insignificant	8 days

Indexes	CAR	St. Error	t-Test	Overall Significance	Significant Days
MATRIX	-0.00078698	0.004422	-0.17798	Insignificant	8 days
AFX	0.001023999	0.007206	0.1421	Insignificant	8 days

Table 13 shows the results of the impact of the second wave of COVID-19 on the stock market indices of South Asian countries, along with its standard error and t-test values. Results show that only PSX, NSE, DSE & MASIX get affected by the second wave of COVID-19 because these stock indices show negative CAAR's while the rest of the stock market indices' CAAR remain positive. Stock indices of PSX, NEPSE & MASIX show the negative CAAR's for 2, 10, and 7 days respectively, while the rest of the stock indices did not show negative returns. This negative effect of COVID-19 is not significant across all the indices, which means this second wave of Corona did not affect the South Asian countries like its first wave because investors learned to cope with this dilemma over time.

Table 13. Cumulative Average Abnormal Returns (CAAR's) after the Second wave of Corona

Indexes	CAR	St. Error	t-Test	Overall Significance	Significant Days
PSX	-0.00590704	0.034086	-0.1733	Insignificant	2 days
NSE	-0.00042294	0.021013	-0.02013	Insignificant	No day
DSE	-0.00506749	0.016789	-0.30183	Insignificant	No day
CSE-All Shares	0.000821468	0.014213	0.057796	Insignificant	No day
NEPSE	0.001866567	0.018507	0.100858	Insignificant	10 days
BSI	0.006547053	0.025899	0.252789	Insignificant	5 days
MATRIX	-0.00541355	0.011346	-0.47714	Insignificant	7 days
AFX	0.000393246	0.006678	0.058882	Insignificant	6 days

Table 14 shows the results of the impact of the third wave of COVID-19 on the stock market indices of South Asian countries, along with its standard error and t-test values. Results show that only MASIX is affected by the third wave of COVID-19 because its stock market index shows negative CAAR's while the rest of the stock market indices' CAAR remains positive. The stock index of Afghanistan shows consistent negative CAAR's for 20 days. This negative effect of COVID-19 is not significant across all the indices, which means this third wave of Corona did not affect the South Asian countries like its first wave because investors learn to cope with this dilemma with time.

Table 14. Cumulative Average Abnormal Returns (CAAR's) after the Second wave of Corona

Indexes	CAR	St. Error	t-Test	Overall Significance	Significant Days
PSX	-0.0126238	0.03098	-0.4075	Insignificant	No day
NSE	-0.0029827	0.0193	-0.1545	Insignificant	1 day
DSE	-0.0023819	0.01388	-0.1716	Insignificant	4 days
CSE-All Shares	-4.845E-05	0.01542	-0.0031	Insignificant	2 Days
NEPSE	-0.0019973	0.01857	-0.1076	Insignificant	1 Day
BSI	-0.0030089	0.0259	-0.1162	Insignificant	4 Days
MATRIX	0.00091104	0.01333	0.06835	Insignificant	NO Day
AFX	-0.0002806	0.00444	-0.0632	Insignificant	20 Days

Conclusion

The purport of this study was the check the impact of the first, second, and third waves of COVID-19 on the stock market indices of South Asian countries. This research integrates to the finance literature because it checks the instant impact of a disease on the stock market indices. The study is an endeavor to show the investment peril, which is caused by this disease for the financial markets and investors. The results show that COVID-19 decreases the mean returns of all the stock market indices and increases their volatility, which denotes that Corona does influence all the stock markets of South Asia in decrementing their returns and incrementing

volatility. Then intriguingly, it is only the Pakistan Stock index, which shows both the consistent negative average and cumulative anomalous returns while the rest of the stock market indices remain unaffected.

The findings of this study are consistent with Sareen's. S, 2020, who find that Pakistan is one of the countries which is worst affected by COVID-19. Overall, the negative effect of the first wave of COVID-19 is not paramount across all the indices except the Indian stock market (NSE), while its second wave did not affect any of the stock market indices significantly. As far as the third wave is concerned then it affects the stock markets indices of Pakistan (PSX) and Afghanistan (AFX). These findings are consistent with Phan & Naryan (2020) find that initial over-reaction of investors was thereafter the first wave of Corona, and it is conspicuous from the data until April 2020, but they further find that initial negative reaction to the incipient cases and death rate of Corona patients is followed by a positive replication.

This shows that the Efficient Market hypothesis holds for the South Asian countries 'stock markets because the first wave of Covid-19 affects the returns of the stock market, while the second wave did not affect any of the stock markets. The reason is that people respond only to that information, which is incipient and not publicly available, the first wave of Corona was incipient for the investors, so it affects the returns of the stock market, while the second wave was not incipient, and that is why it could not put any consequential impact on the returns. As far as the third wave is concerned, then it shows the paramount results again because people were not expecting a third wave after the second when it comes, it does affect the sentiments of investors and results in the decremented returns of the stock markets of Pakistan and Afghanistan. Afghanistan is the only stock market, which is astringently affected after the third wave of COVID-19. On the contrary, the stock markets of Bhutan remain impervious to the third wave as well. This is due to the health infrastructure and vigorous economy of Bhutan, which enable its stock markets to cope with this virus.

This virus became a plague for the developing countries of South Asia and our officials should not only focus their attention on resolving the health issues only but on financial issues as well because stock markets present the future earnings. The investors get panic under these dubious circumstances and that leaves them with the only option of selling the stock. In developing countries of South Asia, the factories are shutting down and cutting down their staff to abbreviate their activities, these results in the abbreviated profitability and liquidity quandaries for them. Consequently, our officials should cerebrate to abolish this panic situation of financial markets.

Policy Implications

An accumulation is required for all the investment bankers, central banks, and Regime officials to sit and endeavor to combat this challenge. Central banks should sanction banks to remain lenient in the instauration of impaired loans and roll over the current loans and should design special loans for the manufacturing, tourism, hoteling, and peregrinating sectors because these are affected rigorously by COVID-19.

Limitations of the Study

Firstly, the study has worked on a 35-days window only for checking the instant impact of COVID-19 on the stock market indices of South Asian countries only. Secondly, the study did not include demographic factors like gender, age, edification type of investors, securities, and other financial markets, etc. due to lack of data.

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